



MARC DANTONIO

DISCUSSES THE PROSPECTS FOR
EXTRATERRESTRIAL LIFE, HIS WORK WITH
DOUGLAS TRUMBULL ON AERIAL ANOMALY
DETECTION AND SKYTOUR RADIO AND
LIVESTREAMS



UFONN
SUNDAY

1
00:02:16,040 --> 00:01:45,330

[Music]

2
00:02:19,430 --> 00:02:16,050
and good evening from Philadelphia Frank

3
00:02:21,370 --> 00:02:19,440
here with another episode of UFO news

4
00:02:25,910 --> 00:02:21,380
network Sunday tonight on a Monday night

5
00:02:27,650 --> 00:02:25,920
back-to-back shows and let's finish out

6
00:02:32,330 --> 00:02:27,660
the the back to back of the doubleheader

7
00:02:34,580 --> 00:02:32,340
by bringing in my co-host chant Hannah

8
00:02:37,930 --> 00:02:34,590
to introduce our special guest for

9
00:02:40,309 --> 00:02:37,940
tonight yes we do have a special guest

10
00:02:43,130 --> 00:02:40,319
Mark Dantonio has a degree in astronomy

11
00:02:46,070 --> 00:02:43,140
and his chief photo video analyst for

12
00:02:48,259 --> 00:02:46,080
the largest aerial anomaly orchid

13
00:02:51,470 --> 00:02:48,269

organization on earth he's the host of

14

00:02:53,509 --> 00:02:51,480

Sky Tour radio on kgr a radio and is the

15

00:02:56,420 --> 00:02:53,519

host and creator of Sky tour livestream

16

00:02:59,210 --> 00:02:56,430

on YouTube where people can go to watch

17

00:03:01,220 --> 00:02:59,220

live as beautiful deep night sky objects

18

00:03:03,770 --> 00:03:01,230

materialized before their eyes in mere

19

00:03:05,990 --> 00:03:03,780

seconds courtesy of very sensitive

20

00:03:08,809 --> 00:03:06,000

cameras and the sky tour Observatory

21

00:03:11,540 --> 00:03:08,819

research telescopes mark is the CEO of

22

00:03:13,610 --> 00:03:11,550

FX models a model making and visual

23

00:03:15,979 --> 00:03:13,620

special effects company specializing in

24

00:03:18,350 --> 00:03:15,989

digital physical models and organic

25

00:03:20,810 --> 00:03:18,360

special effects in the film industry he

26

00:03:22,819 --> 00:03:20,820

has an extensive work history in the

27

00:03:24,860 --> 00:03:22,829

film and television arena appearing

28

00:03:27,289 --> 00:03:24,870

regularly on a number of networks and

29

00:03:29,030 --> 00:03:27,299

television shows including NASA's

30

00:03:31,400 --> 00:03:29,040

unexplained files on the Discovery

31

00:03:31,789 --> 00:03:31,410

Channel and what on earth on the Science

32

00:03:33,979 --> 00:03:31,799

Channel

33

00:03:36,800 --> 00:03:33,989

he is characterized as a voice of

34

00:03:38,960 --> 00:03:36,810

science reason bashing basing his

35

00:03:40,640 --> 00:03:38,970

discussions on the science we know with

36

00:03:42,979 --> 00:03:40,650

a little bit of speculation on his part

37

00:03:45,349 --> 00:03:42,989

his efforts creating the aerial anomaly

38

00:03:47,990 --> 00:03:45,359

detection system a remote system to

39

00:03:50,630 --> 00:03:48,000

detect any advanced propulsion at play

40

00:03:52,910 --> 00:03:50,640

in our local universe with Academy Award

41

00:03:54,380 --> 00:03:52,920

winner Douglas Trumbull will attempt to

42

00:03:56,599 --> 00:03:54,390

answer the questions of whether we are

43

00:03:58,430 --> 00:03:56,609

alone if extraterrestrial intelligence

44

00:04:00,800 --> 00:03:58,440

has managed to ply the vast gulf between

45

00:04:02,060 --> 00:04:00,810

the stars and reach us then science

46

00:04:04,759 --> 00:04:02,070

should be able to tell us

47

00:04:06,800 --> 00:04:04,769

so such results will back up the stories

48

00:04:08,720 --> 00:04:06,810

we so often hear from those we have

49

00:04:09,229 --> 00:04:08,730

encountered something strange in our

50

00:04:11,810 --> 00:04:09,239

skies

51
00:04:13,490 --> 00:04:11,820
welcome mark how are you doing I'm doing

52
00:04:13,849 --> 00:04:13,500
great chancing thank you for having me

53
00:04:18,740 --> 00:04:13,859
on

54
00:04:21,320 --> 00:04:18,750
you know actually yeah we have a really

55
00:04:23,300 --> 00:04:21,330
really long bio of you actually it's

56
00:04:23,780 --> 00:04:23,310
like a lot longer than that because you

57
00:04:25,160 --> 00:04:23,790
are

58
00:04:29,180 --> 00:04:25,170
just sew credentials you have so much

59
00:04:30,620 --> 00:04:29,190
experience in astronomy and more and you

60
00:04:32,750 --> 00:04:30,630
know we're just so thankful for you to

61
00:04:35,930 --> 00:04:32,760
be on our show and I also wanted to ask

62
00:04:38,960 --> 00:04:35,940
you can you just share a little bit

63
00:04:42,440 --> 00:04:38,970

about the u.s. so the unidentified

64

00:04:44,390 --> 00:04:42,450

submerged object sighting aboard the US

65

00:04:46,220 --> 00:04:44,400

Navy VAT a vessel while you were doing

66

00:04:48,560 --> 00:04:46,230

engineer work for the Navy can you just

67

00:04:52,400 --> 00:04:48,570

share a little bit about that yeah it

68

00:04:55,790 --> 00:04:52,410

was actually a several actually decades

69

00:04:56,900 --> 00:04:55,800

ago actually but you see that's actually

70

00:05:00,440 --> 00:04:56,910

an important piece of information

71

00:05:02,990 --> 00:05:00,450

because back then there were actually

72

00:05:06,230 --> 00:05:03,000

programs in place to apparently as I

73

00:05:09,320 --> 00:05:06,240

discovered track these unknowns that

74

00:05:12,050 --> 00:05:09,330

don't just occur in our skies but occur

75

00:05:14,300 --> 00:05:12,060

underwater as well we've heard of these

76

00:05:16,810 --> 00:05:14,310

before they as you as you said they're

77

00:05:20,930 --> 00:05:16,820

unknown submerged objects the u.s. owes

78

00:05:24,170 --> 00:05:20,940

and I'm a big UFO type hunting guy and I

79

00:05:27,830 --> 00:05:24,180

also as an astronomer my specialty that

80

00:05:30,500 --> 00:05:27,840

I've made in my specialty is exoplanets

81

00:05:34,070 --> 00:05:30,510

planets around other stars the reason I

82

00:05:37,610 --> 00:05:34,080

do that is because of my conviction that

83

00:05:41,380 --> 00:05:37,620

there's more life out there than anyone

84

00:05:47,180 --> 00:05:41,390

they you know really tries to figure out

85

00:05:49,520 --> 00:05:47,190

actually tries to admit to and they may

86

00:05:50,930 --> 00:05:49,530

have made it here and when people say

87

00:05:52,550 --> 00:05:50,940

well how would they ever notice us for

88

00:05:56,480 --> 00:05:52,560

all these many stars and all these many

89

00:05:58,880 --> 00:05:56,490

planets well they would be here because

90

00:06:00,140 --> 00:05:58,890

of the oxygen in our atmosphere and

91

00:06:02,810 --> 00:06:00,150

we'll talk about that later maybe if you

92

00:06:05,960 --> 00:06:02,820

want to get into that but suffice it to

93

00:06:08,210 --> 00:06:05,970

say that I think they are here and when

94

00:06:12,260 --> 00:06:08,220

I was it was actually a submarine that I

95

00:06:15,350 --> 00:06:12,270

was at sea on for a bit of time thank

96

00:06:18,650 --> 00:06:15,360

you to the Navy they they said you know

97

00:06:21,110 --> 00:06:18,660

job well done on certain projects and

98

00:06:25,040 --> 00:06:21,120

then I was able to negotiate a little

99

00:06:28,430 --> 00:06:25,050

ride and little did I know this ride was

100

00:06:31,760 --> 00:06:28,440

going to be unbelievably productive when

101
00:06:34,070 --> 00:06:31,770
it comes to unknown objects and there

102
00:06:36,260 --> 00:06:34,080
was only one it was very very okay was

103
00:06:37,490 --> 00:06:36,270
there and it was gone but the the fact

104
00:06:39,650 --> 00:06:37,500
was that

105
00:06:42,080 --> 00:06:39,660
I got seasick and so it was sort of the

106
00:06:44,750 --> 00:06:42,090
most fun I had ever getting seasick no

107
00:06:46,100 --> 00:06:44,760
being a border sub no inna and the

108
00:06:47,300 --> 00:06:46,110
reason I got sick was because the sub

109
00:06:50,060 --> 00:06:47,310
was on the surface for a good deal of

110
00:06:52,370 --> 00:06:50,070
time and then when it finally submerged

111
00:06:54,290 --> 00:06:52,380
then it feels like everyone listening to

112
00:06:56,320 --> 00:06:54,300
the show and you feel right now it you

113
00:06:58,340 --> 00:06:56,330

can't really detect any motion at all

114

00:07:00,040 --> 00:06:58,350

except when it turns when it turns

115

00:07:02,420 --> 00:07:00,050

there's a really weird feeling you get

116

00:07:04,490 --> 00:07:02,430

they Bank in the turns it's really kind

117

00:07:05,660 --> 00:07:04,500

of interesting and that's the only

118

00:07:09,980 --> 00:07:05,670

reason you know they're on something

119

00:07:11,360 --> 00:07:09,990

it's actually moving but the the point

120

00:07:13,520 --> 00:07:11,370

is when I was seasick

121

00:07:17,210 --> 00:07:13,530

I went over into the SONA area called

122

00:07:19,310 --> 00:07:17,220

the sonar Shack on the boat and I sat

123

00:07:20,900 --> 00:07:19,320

down in one of the empty sonar chairs at

124

00:07:23,420 --> 00:07:20,910

with the permission of course of the

125

00:07:25,160 --> 00:07:23,430

sonar and call my stolen art kid it was

126
00:07:28,790 --> 00:07:25,170
a technician that was sitting in a sonar

127
00:07:30,890 --> 00:07:28,800
tech sitting at the console it was next

128
00:07:33,909 --> 00:07:30,900
to him and I just watched as he was

129
00:07:36,170 --> 00:07:33,919
looking at the sonar and doing his thing

130
00:07:38,060 --> 00:07:36,180
passive sonar not sending out ping

131
00:07:41,480 --> 00:07:38,070
noises but just listening to what's

132
00:07:43,190 --> 00:07:41,490
going on and I was zoning out and as I

133
00:07:45,470 --> 00:07:43,200
was owning out because I was seasick I

134
00:07:49,100 --> 00:07:45,480
was trying to just deep breathe you know

135
00:07:50,360 --> 00:07:49,110
get my stomach back to some level of you

136
00:07:52,940 --> 00:07:50,370
know being able to enjoy that there's

137
00:07:55,520 --> 00:07:52,950
this little cruise and all of a sudden

138
00:07:58,159 --> 00:07:55,530

I'm awakened by him calling the con the

139

00:08:00,650 --> 00:07:58,169

the command area and saying there's

140

00:08:02,240 --> 00:08:00,660

something on the sonar you know and he

141

00:08:05,600 --> 00:08:02,250

called it a fast mover that's how he

142

00:08:08,270 --> 00:08:05,610

characterized it and I was jolted kind

143

00:08:10,850 --> 00:08:08,280

of out of a semi translate a little bit

144

00:08:12,380 --> 00:08:10,860

I was relaxing thinking oh great I'm

145

00:08:14,240 --> 00:08:12,390

gonna be filled out here what is this a

146

00:08:16,820 --> 00:08:14,250

torpedo well it's somebody's shot at us

147

00:08:19,700 --> 00:08:16,830

what's going on I'm thinking I went for

148

00:08:23,659 --> 00:08:19,710

a ride I'm gonna die you know I was like

149

00:08:27,290 --> 00:08:23,669

man well it turned out that when I was

150

00:08:29,870 --> 00:08:27,300

uh when I was sitting in that chair the

151
00:08:32,120 --> 00:08:29,880
executive officer comes around and looks

152
00:08:34,520 --> 00:08:32,130
down at the kid so what he got and the

153
00:08:36,529 --> 00:08:34,530
kid showed him and submarines are loud

154
00:08:39,110 --> 00:08:36,539
inside and I say this off and to make

155
00:08:40,820 --> 00:08:39,120
sure that people understand they're not

156
00:08:42,200 --> 00:08:40,830
they're quiet yes they're the quietest

157
00:08:43,790 --> 00:08:42,210
things in the ocean the American

158
00:08:46,730 --> 00:08:43,800
submarines are the quietest boats in the

159
00:08:48,079 --> 00:08:46,740
entire ocean and but they're quiet in

160
00:08:48,680 --> 00:08:48,089
the outside on the inside it's a

161
00:08:51,590 --> 00:08:48,690
different story

162
00:08:53,090 --> 00:08:51,600
you're all kinds of noises and

163
00:08:54,500 --> 00:08:53,100

and high-pressure air you hear people

164

00:08:58,130 --> 00:08:54,510

talking you hear motion you hear people

165

00:08:59,900 --> 00:08:58,140

walking and you and this is something

166

00:09:01,190 --> 00:08:59,910

that the submarines are known for that

167

00:09:03,500 --> 00:09:01,200

the sound just doesn't get out and

168

00:09:04,670 --> 00:09:03,510

that's the pride of the Navy so I'm

169

00:09:05,810 --> 00:09:04,680

sitting there and I'm kind of leaning on

170

00:09:08,210 --> 00:09:05,820

the edge of my seat I've actually got my

171

00:09:10,040 --> 00:09:08,220

butt on the very corner on the seat next

172

00:09:11,330 --> 00:09:10,050

to the sonar guy kind of stretching it

173

00:09:16,280 --> 00:09:11,340

make it look like something you do every

174

00:09:17,870 --> 00:09:16,290

day until we hear organization I really

175

00:09:20,060 --> 00:09:17,880

probably looked really odd

176

00:09:22,460 --> 00:09:20,070

and I did not hear the bearing I did not

177

00:09:24,440 --> 00:09:22,470

hear the range the bearing of the angle

178

00:09:26,390 --> 00:09:24,450

off the boat from that the object was

179

00:09:28,850 --> 00:09:26,400

traveling I didn't hear the range that

180

00:09:31,340 --> 00:09:28,860

the kid said he did give him a range but

181

00:09:35,420 --> 00:09:31,350

I did hear the speed he said the speed

182

00:09:38,690 --> 00:09:35,430

was several hundred knots now I'm

183

00:09:41,390 --> 00:09:38,700

sitting there thinking there's nothing

184

00:09:43,730 --> 00:09:41,400

that we have on earth that goes several

185

00:09:45,850 --> 00:09:43,740

hundred knots that can you convert that

186

00:09:49,130 --> 00:09:45,860

into miles an hour for the folks at home

187

00:09:55,850 --> 00:09:49,140

yeah well I'm not okay you know if you

188

00:09:59,600 --> 00:09:55,860

look at a knot let's see it's uh I get

189

00:10:03,250 --> 00:09:59,610

confused sometimes myself it's a unit

190

00:10:08,240 --> 00:10:03,260

speed it's equal to let's see

191

00:10:13,190 --> 00:10:08,250

not one nautical mile per hour

192

00:10:16,280 --> 00:10:13,200

I think it's 1.15 miles per hour

193

00:10:18,350 --> 00:10:16,290

okay so let's listen so you got a kind

194

00:10:20,030 --> 00:10:18,360

of a wide range let's just uh above are

195

00:10:21,920 --> 00:10:20,040

several hundred miles an hour's really

196

00:10:23,660 --> 00:10:21,930

what the guys say that's correct

197

00:10:26,050 --> 00:10:23,670

several hundred knots is equivalent to

198

00:10:28,970 --> 00:10:26,060

several hundred plus miles an hour it's

199

00:10:31,360 --> 00:10:28,980

1.15 miles per hour so and this is

200

00:10:33,740 --> 00:10:31,370

underwater not skimming along I like a

201
00:10:35,090 --> 00:10:33,750
hydroplane or a speedboats give me one

202
00:10:37,280 --> 00:10:35,100
on tidal water that's correct

203
00:10:39,980 --> 00:10:37,290
whichever what kind of fast speed boat

204
00:10:43,250 --> 00:10:39,990
do on top maybe 180 200 maybe I'm

205
00:10:44,690 --> 00:10:43,260
guessing maybe those deep V's might go

206
00:10:46,730 --> 00:10:44,700
over that fast and I don't even know if

207
00:10:48,530 --> 00:10:46,740
they go that fast okay I think it

208
00:10:51,470 --> 00:10:48,540
actually slower than that but I could be

209
00:10:54,320 --> 00:10:51,480
wrong but those are really special

210
00:10:55,730 --> 00:10:54,330
circuits and and this is in the middle

211
00:11:00,020 --> 00:10:55,740
out in the Atlantic Ocean

212
00:11:01,460 --> 00:11:00,030
okay so there's really nothing that we

213
00:11:04,670 --> 00:11:01,470

have that goes that fast and this was

214

00:11:05,000 --> 00:11:04,680

not a surface ship those are clear and

215

00:11:07,880 --> 00:11:05,010

just

216

00:11:09,620 --> 00:11:07,890

from underwater targets and certainly

217

00:11:12,980 --> 00:11:09,630

not an aerial target you can hear a real

218

00:11:15,830 --> 00:11:12,990

target sometimes but you can't you know

219

00:11:18,350 --> 00:11:15,840

you can't mix those up you won't mix up

220

00:11:22,790 --> 00:11:18,360

a submerged target with a surface or an

221

00:11:28,130 --> 00:11:22,800

aerial target so you know out of your

222

00:11:29,810 --> 00:11:28,140

good sonar man and so this object was

223

00:11:33,260 --> 00:11:29,820

moving several hundred knots faster than

224

00:11:35,600 --> 00:11:33,270

anything we have on earth and the kid

225

00:11:36,710 --> 00:11:35,610

was just sort of like he's never seen

226

00:11:40,370 --> 00:11:36,720

anything like this he could tell by the

227

00:11:41,630 --> 00:11:40,380

I could see the exxon from the side it

228

00:11:43,160 --> 00:11:41,640

was profile because he was looking at

229

00:11:45,050 --> 00:11:43,170

the XO the executive officer who was

230

00:11:46,790 --> 00:11:45,060

leaning over and looking at him I was

231

00:11:48,200 --> 00:11:46,800

kind of leaning a little bit back to the

232

00:11:52,400 --> 00:11:48,210

left to make it look like I wasn't

233

00:11:54,050 --> 00:11:52,410

listening okay but I was and the kid

234

00:11:55,550 --> 00:11:54,060

kind of motion like what do I do with

235

00:11:57,230 --> 00:11:55,560

this I mean in hear him say that but

236

00:12:00,380 --> 00:11:57,240

that's kind of what he implied with his

237

00:12:02,690 --> 00:12:00,390

body language and the executive officer

238

00:12:04,670 --> 00:12:02,700

nodded and said log it and Doggett and I

239

00:12:07,490 --> 00:12:04,680

heard the kids say sir yes sir and that

240

00:12:09,610 --> 00:12:07,500

was the end of that and I got up out of

241

00:12:12,830 --> 00:12:09,620

my chair seasickness was a forgotten

242

00:12:15,890 --> 00:12:12,840

problem now I was totally energized with

243

00:12:20,900 --> 00:12:15,900

adrenaline and I said I'm making up puke

244

00:12:22,790 --> 00:12:20,910

on this guy's shoes I am so he's already

245

00:12:27,680 --> 00:12:22,800

had enough going on for his day doesn't

246

00:12:30,020 --> 00:12:27,690

need you oh yeah SiC on him no and I'm

247

00:12:32,360 --> 00:12:30,030

this big shot you see I was asked to go

248

00:12:33,800 --> 00:12:32,370

on sub and you know they they said oh

249

00:12:38,180 --> 00:12:33,810

yeah you can go on for a ride wow that

250

00:12:40,160 --> 00:12:38,190

must be a big shot right I should work

251

00:12:41,900 --> 00:12:40,170

for the Navy I'm a big shot now so I

252

00:12:45,290 --> 00:12:41,910

walk up to the XO mr. big shot here that

253

00:12:46,850 --> 00:12:45,300

I am and they say I'm familiar with

254

00:12:49,010 --> 00:12:46,860

these fast movers is there anything I

255

00:12:50,480 --> 00:12:49,020

can help you with and he says Mr

256

00:12:52,070 --> 00:12:50,490

D'Antoni are you having a good trip yes

257

00:12:55,970 --> 00:12:52,080

sir I am he goes let's keep it that way

258

00:13:03,190 --> 00:12:55,980

I can just imagine me going from like

259

00:13:06,020 --> 00:13:03,200

five foot ten inches tall down to you so

260

00:13:09,380 --> 00:13:06,030

that's that's that's when I learned that

261

00:13:11,150 --> 00:13:09,390

it doesn't matter what you are capable

262

00:13:13,840 --> 00:13:11,160

of doing work wise for the Navy or what

263

00:13:16,490 --> 00:13:13,850

your level of say clearances or whatever

264

00:13:18,050 --> 00:13:16,500

if they don't want you to know they

265

00:13:19,760 --> 00:13:18,060

don't have to tell you and

266

00:13:23,780 --> 00:13:19,770

I ran smack-dab into that that was the

267

00:13:27,050 --> 00:13:23,790

first time I ever ran into that and I

268

00:13:29,300 --> 00:13:27,060

was very energized by this so a few

269

00:13:31,970 --> 00:13:29,310

years later and never forgot this I mean

270

00:13:34,250 --> 00:13:31,980

I came back from that trip like wow I

271

00:13:36,050 --> 00:13:34,260

cannot believe this now you were already

272

00:13:38,660 --> 00:13:36,060

into the UFOs already but at this point

273

00:13:40,510 --> 00:13:38,670

though I was I was and that's the thing

274

00:13:42,500 --> 00:13:40,520

I was a member of the mutual UFO network

275

00:13:44,540 --> 00:13:42,510

for which chant that you said I'm the

276

00:13:46,940 --> 00:13:44,550

chief photon video analyst I was a

277

00:13:52,520 --> 00:13:46,950

member of that in oh boy this is gonna

278

00:13:59,090 --> 00:13:52,530

really date me 1971 I joined in 1971 I

279

00:14:01,820 --> 00:13:59,100

was 11 when I get my first yeah I'm you

280

00:14:03,260 --> 00:14:01,830

fun you know UFO report yeah I think was

281

00:14:05,330 --> 00:14:03,270

for the Midwest UFO network at that

282

00:14:08,990 --> 00:14:05,340

point that's what it was titled and it

283

00:14:12,200 --> 00:14:09,000

was a diddle paged purple inked you know

284

00:14:15,320 --> 00:14:12,210

printed and copied or printed off form

285

00:14:18,050 --> 00:14:15,330

or whatever was diddle paper stapled

286

00:14:18,890 --> 00:14:18,060

pages and you know the first thing you

287

00:14:24,440 --> 00:14:18,900

do with him you pull out of the envelope

288

00:14:25,940 --> 00:14:24,450

is just smell it oh cool and chain you

289

00:14:29,120 --> 00:14:25,950

don't remember that but sure Frank does

290

00:14:34,850 --> 00:14:29,130

oh yeah I remember I was I was 11 and 71

291

00:14:37,160 --> 00:14:34,860

as well so the bottom line was um you

292

00:14:40,490 --> 00:14:37,170

know I've been in it since 71 and I was

293

00:14:45,290 --> 00:14:40,500

a field investigator starting off for

294

00:14:49,220 --> 00:14:45,300

many many well decades and then in 2008

295

00:14:52,130 --> 00:14:49,230

the MUFON director appointed me as the

296

00:14:54,050 --> 00:14:52,140

chief Odom video analyst which I I did a

297

00:14:54,470 --> 00:14:54,060

job because I wanted to the job it was

298

00:14:58,280 --> 00:14:54,480

great

299

00:15:01,970 --> 00:14:58,290

still is and so I knew something about

300

00:15:04,010 --> 00:15:01,980

UFOs yes and if you don't mind if I can

301
00:15:06,530 --> 00:15:04,020
jump in here real quick mark you're back

302
00:15:08,090 --> 00:15:06,540
in 71 what got you interested in the

303
00:15:11,120 --> 00:15:08,100
UFOs because I first got interested in

304
00:15:13,220 --> 00:15:11,130
73 when there was the big flap and the

305
00:15:14,840 --> 00:15:13,230
Pascagoula case we just had that Calvin

306
00:15:16,880 --> 00:15:14,850
Parker on recently so that was a real

307
00:15:19,400 --> 00:15:16,890
thrill for me but that came a couple

308
00:15:22,310 --> 00:15:19,410
years afterwards I don't remember too

309
00:15:26,180 --> 00:15:22,320
much about the UFOs before that so we do

310
00:15:29,330 --> 00:15:26,190
it all I met Calvin was it done Ozark

311
00:15:30,580 --> 00:15:29,340
was that April I met come earlier this

312
00:15:34,840 --> 00:15:30,590
year yeah yeah

313
00:15:37,630 --> 00:15:34,850

it was a great guy and funny guy - I

314

00:15:41,110 --> 00:15:37,640

mean he earth just says it like it is

315

00:15:42,670 --> 00:15:41,120

you know yeah we could all take a lesson

316

00:15:46,900 --> 00:15:42,680

from that humility that he shows you

317

00:15:49,270 --> 00:15:46,910

know and I really respect them that was

318

00:15:53,470 --> 00:15:49,280

a big deal with its day it was it was

319

00:15:55,870 --> 00:15:53,480

you know but what got me it was that I

320

00:15:57,310 --> 00:15:55,880

was nine all right and I just got

321

00:15:59,290 --> 00:15:57,320

another hospital after having major

322

00:16:01,420 --> 00:15:59,300

surgery I couldn't do anything I had to

323

00:16:03,160 --> 00:16:01,430

like just relax and sit I had to go to

324

00:16:09,340 --> 00:16:03,170

different school or I didn't have to

325

00:16:10,450 --> 00:16:09,350

climb stairs and so as a gift the chief

326

00:16:12,880 --> 00:16:10,460

of the fire department in my hometown

327

00:16:15,070 --> 00:16:12,890

gave my parents the money to buy me a

328

00:16:18,610 --> 00:16:15,080

telescope because they said what he

329

00:16:20,950 --> 00:16:18,620

wanted a telescope now as a nine year

330

00:16:25,180 --> 00:16:20,960

without saying hey look in windows right

331

00:16:27,160 --> 00:16:25,190

yeah it was actually an eye-opener

332

00:16:28,690 --> 00:16:27,170

because I when I pointed up at the sky

333

00:16:30,250 --> 00:16:28,700

started looking at the Stars and many

334

00:16:31,210 --> 00:16:30,260

clusters and how many more stars are

335

00:16:34,360 --> 00:16:31,220

visible when you looked at it through a

336

00:16:38,080 --> 00:16:34,370

telescope wow this is incredible

337

00:16:39,970 --> 00:16:38,090

and I realized right at age nine I knew

338

00:16:42,970 --> 00:16:39,980

then and there I'm gonna be an

339

00:16:44,620 --> 00:16:42,980

astronomer when I grow up and I follow

340

00:16:47,230 --> 00:16:44,630

through everything I did from that point

341

00:16:50,380 --> 00:16:47,240

forward no lie was like an obsessive I'm

342

00:16:52,030 --> 00:16:50,390

not OCD in any way that was an OCD thing

343

00:16:55,350 --> 00:16:52,040

and I became an astronomer I got my

344

00:16:58,420 --> 00:16:55,360

degree in it you know and I feel that

345

00:17:00,460 --> 00:16:58,430

astronomy is probably the one science

346

00:17:01,720 --> 00:17:00,470

where you have to learn a lot about the

347

00:17:03,820 --> 00:17:01,730

Earth's or earth science you have to

348

00:17:05,730 --> 00:17:03,830

learn about space you have to learn

349

00:17:08,980 --> 00:17:05,740

about physics of how it all works

350

00:17:11,740 --> 00:17:08,990

there's only so many other sciences that

351
00:17:15,490 --> 00:17:11,750
make up astronomy so I decided to just

352
00:17:20,320 --> 00:17:15,500
go for that whole nut and boy it made me

353
00:17:21,520 --> 00:17:20,330
a nut but that's at age 9 I looked up

354
00:17:24,520 --> 00:17:21,530
there and I looked in the sky and said

355
00:17:26,580 --> 00:17:24,530
wow here's what it was all these stars

356
00:17:29,230 --> 00:17:26,590
I'm learning about that I see up there I

357
00:17:32,680 --> 00:17:29,240
can't believe that the earth is the only

358
00:17:34,840 --> 00:17:32,690
place with his life why I mean I knew at

359
00:17:38,020 --> 00:17:34,850
age 9 because I I was a voracious reader

360
00:17:41,800 --> 00:17:38,030
I get on my bike almost every day drive

361
00:17:43,960 --> 00:17:41,810
my bike down to the library bring back

362
00:17:45,880 --> 00:17:43,970
the books I had and take out more

363
00:17:50,020 --> 00:17:45,890

on astronomy every book they had there I

364

00:17:52,270 --> 00:17:50,030

knew probably by I could actually tell

365

00:17:54,370 --> 00:17:52,280

you where in the book approximately

366

00:17:56,799 --> 00:17:54,380

certain topics were and I would take

367

00:17:59,529 --> 00:17:56,809

about this books over and over sometimes

368

00:18:00,370 --> 00:17:59,539

to read more sections I hated that had

369

00:18:04,870 --> 00:18:00,380

to bring him back in like three weeks

370

00:18:06,100 --> 00:18:04,880

like what three weeks you know so so at

371

00:18:07,360 --> 00:18:06,110

age nine I looked up in this guy and

372

00:18:08,740 --> 00:18:07,370

said there's got to be more than this

373

00:18:12,010 --> 00:18:08,750

there half that has to be life elsewhere

374

00:18:14,399 --> 00:18:12,020

and so of course we heard about UFOs we

375

00:18:17,950 --> 00:18:14,409

saw really bad science fiction shows

376

00:18:19,630 --> 00:18:17,960

really bad was all we had uh and I

377

00:18:21,100 --> 00:18:19,640

decided I was going to go and be an

378

00:18:24,789 --> 00:18:21,110

astronomer and I was gonna learn about

379

00:18:26,260 --> 00:18:24,799

life on other worlds and I tell you a

380

00:18:28,930 --> 00:18:26,270

funny story when I was getting my degree

381

00:18:32,799 --> 00:18:28,940

um I went into the chairman of my

382

00:18:34,450 --> 00:18:32,809

department and I said to him art I think

383

00:18:36,130 --> 00:18:34,460

that there's name is art I said I think

384

00:18:36,490 --> 00:18:36,140

that there's life in the universe beyond

385

00:18:38,799 --> 00:18:36,500

the earth

386

00:18:42,430 --> 00:18:38,809

big time I think there's many other

387

00:18:45,100 --> 00:18:42,440

civilizations out there and he says well

388

00:18:48,070 --> 00:18:45,110

mr. Dantonio what do you base this on

389

00:18:48,789 --> 00:18:48,080

and I said well look around I base it on

390

00:18:52,270 --> 00:18:48,799

our planet

391

00:18:55,840 --> 00:18:52,280

you know we're carbon-based life carbon

392

00:18:57,789 --> 00:18:55,850

is like the one of the more abundant

393

00:18:59,470 --> 00:18:57,799

elements in the universe it can bond

394

00:19:01,720 --> 00:18:59,480

with the most things on planet earth and

395

00:19:05,260 --> 00:19:01,730

you know that we know of that's the most

396

00:19:07,539 --> 00:19:05,270

versatile atom and it's the progenitor

397

00:19:10,450 --> 00:19:07,549

of all the life on Earth I said why

398

00:19:12,909 --> 00:19:10,460

would this not be done elsewhere why

399

00:19:15,640 --> 00:19:12,919

should we be special no at that point I

400

00:19:17,620 --> 00:19:15,650

didn't I didn't say other things I was

401
00:19:19,870 --> 00:19:17,630
thinking which was that everything on

402
00:19:21,940 --> 00:19:19,880
earth is bilaterally symmetric that is

403
00:19:23,320 --> 00:19:21,950
you know symmetric from left in the

404
00:19:26,230 --> 00:19:23,330
right you know we have two eyes we have

405
00:19:27,880 --> 00:19:26,240
two nostrils we have well you know we

406
00:19:29,260 --> 00:19:27,890
have other things that are symmetric on

407
00:19:31,590 --> 00:19:29,270
the outside the way we interact with our

408
00:19:34,360 --> 00:19:31,600
environment is all through a symmetric

409
00:19:36,399 --> 00:19:34,370
interaction the symmetric body okay

410
00:19:38,169 --> 00:19:36,409
starfish or symmetric you know they're

411
00:19:41,140 --> 00:19:38,179
they they show up in terna ism this is a

412
00:19:42,760 --> 00:19:41,150
five-sided you know pentameter ism but

413
00:19:44,649 --> 00:19:42,770

as larvae when they're young they're

414

00:19:47,350 --> 00:19:44,659

actually bilaterally symmetric and they

415

00:19:49,180 --> 00:19:47,360

become pentamerous the animals later so

416

00:19:51,310 --> 00:19:49,190

which is kind of interesting if they go

417

00:19:53,500 --> 00:19:51,320

from this symmetry to the left and right

418

00:19:56,560 --> 00:19:53,510

through this five sided symmetry that we

419

00:19:57,370 --> 00:19:56,570

see really really wonderful stuff and

420

00:20:00,430 --> 00:19:57,380

and

421

00:20:02,980 --> 00:20:00,440

you know flowers radial symmetry of all

422

00:20:04,840 --> 00:20:02,990

kinds I mean really impressive stuff and

423

00:20:08,590 --> 00:20:04,850

every life form on the planet has that

424

00:20:10,960 --> 00:20:08,600

and I said to him you know without going

425

00:20:13,240 --> 00:20:10,970

down the symmetry path I said because

426

00:20:15,340 --> 00:20:13,250

the carbon is so prevalent why is it

427

00:20:16,930 --> 00:20:15,350

that that it's so hard to believe that

428

00:20:20,500 --> 00:20:16,940

there's other life-forms out there based

429

00:20:22,840 --> 00:20:20,510

on carbon and he looked at me and he

430

00:20:24,250 --> 00:20:22,850

kind of said nothing for a minute and he

431

00:20:28,780 --> 00:20:24,260

had this little look on his face like he

432

00:20:31,210 --> 00:20:28,790

was bored and he goes uh mr. Dantonio

433

00:20:33,280 --> 00:20:31,220

get back Observatory and get back on

434

00:20:39,460 --> 00:20:33,290

your research project leave Captain Kirk

435

00:20:42,070 --> 00:20:39,470

to us you know what great man I will

436

00:20:45,460 --> 00:20:42,080

never say anything bad about him but at

437

00:20:47,890 --> 00:20:45,470

the time okay there were no exoplanets

438

00:20:51,820 --> 00:20:47,900

that were truly confirmed at that point

439

00:20:54,640 --> 00:20:51,830

so that happened relatively in that

440

00:20:58,570 --> 00:20:54,650

relative recent past I mean 1989 was a

441

00:21:00,370 --> 00:20:58,580

first confirmed or so and I went to see

442

00:21:01,780 --> 00:21:00,380

him when we knew that and he puts his

443

00:21:07,990 --> 00:21:01,790

hand over the phone he looks at me knows

444

00:21:10,900 --> 00:21:08,000

it was only one planet and I smiley I

445

00:21:14,500 --> 00:21:10,910

smiled and nodded he's hilarious enough

446

00:21:20,080 --> 00:21:14,510

had a question to you what is more

447

00:21:23,649 --> 00:21:20,090

important answers or questions regarding

448

00:21:30,310 --> 00:21:26,850

that is actually a very good question

449

00:21:32,710 --> 00:21:30,320

because one actually begets the other I

450

00:21:34,269 --> 00:21:32,720

mean yeah that's a lot of times that's

451

00:21:35,860 --> 00:21:34,279

what you discover you discover more

452

00:21:37,509 --> 00:21:35,870

questions you know discover the answer

453

00:21:39,669 --> 00:21:37,519

you discover more questions and that's

454

00:21:42,279 --> 00:21:39,679

fair you know that's that's a fair

455

00:21:45,669 --> 00:21:42,289

question I will say this I will say that

456

00:21:49,330 --> 00:21:45,679

I believe that when you look at when you

457

00:21:52,960 --> 00:21:49,340

look at the world of astronomy one of

458

00:21:57,039 --> 00:21:52,970

the things you discover is that most of

459

00:22:02,529 --> 00:21:57,049

the most of the questions you posed are

460

00:22:04,840 --> 00:22:02,539

based on a curiosity that is unique to

461

00:22:08,289 --> 00:22:04,850

the animals on this planet not just

462

00:22:10,149 --> 00:22:08,299

humans dogs show curiosity other animals

463

00:22:11,619 --> 00:22:10,159

show curiosity the octopus is probably

464

00:22:14,200 --> 00:22:11,629

the most intelligent animal the ocean

465

00:22:15,610 --> 00:22:14,210

and it shows curiosity it's always

466

00:22:18,970 --> 00:22:15,620

feeling and touching things to survey

467

00:22:20,649 --> 00:22:18,980

situations we do the same thing you Sun

468

00:22:23,139 --> 00:22:20,659

land in our own way and that's that's

469

00:22:26,619 --> 00:22:23,149

that's what this planet is full is

470

00:22:28,690 --> 00:22:26,629

curious beings so our curiosity begets

471

00:22:30,190 --> 00:22:28,700

these questions and the questions demand

472

00:22:31,539 --> 00:22:30,200

answers and what we don't have the way

473

00:22:33,990 --> 00:22:31,549

to answer them we figure out a way to

474

00:22:36,220 --> 00:22:34,000

answer them by creating technology

475

00:22:39,580 --> 00:22:36,230

nothing in astronomy we can touch we

476

00:22:42,669 --> 00:22:39,590

can't touch the Stars we can't go sample

477

00:22:44,830 --> 00:22:42,679

the the interstellar medium that is the

478

00:22:48,490 --> 00:22:44,840

the in between the stars we can only see

479

00:22:51,460 --> 00:22:48,500

the light coming from these places and

480

00:22:54,669 --> 00:22:51,470

the effects on light caused by these

481

00:22:56,470 --> 00:22:54,679

places and that's all we got we don't

482

00:22:57,940 --> 00:22:56,480

have anything else to look at you know

483

00:23:00,430 --> 00:22:57,950

we don't have anything else that tell us

484

00:23:02,169 --> 00:23:00,440

what is what you know but that's all

485

00:23:07,869 --> 00:23:02,179

yeah it's it's a it really is a

486

00:23:10,240 --> 00:23:07,879

fascinating fascinating topic and it's

487

00:23:11,919 --> 00:23:10,250

intrigued me for many years and a show

488

00:23:16,149 --> 00:23:11,929

on KJ RA they have sky through a radio

489

00:23:17,769 --> 00:23:16,159

my host is Amanda Curran and she knew

490

00:23:20,320 --> 00:23:17,779

nothing about astronomy when we started

491

00:23:22,570 --> 00:23:20,330

and now she will sometimes finish my

492

00:23:25,029 --> 00:23:22,580

sentences with the astronomical

493

00:23:26,830 --> 00:23:25,039

information I am so that's what you get

494

00:23:31,149 --> 00:23:26,840

that's what you get for having a female

495

00:23:33,009 --> 00:23:31,159

co-host there mark I just wanted to

496

00:23:34,869 --> 00:23:33,019

bring back the question thing the reason

497

00:23:36,880 --> 00:23:34,879

one reason why I brought it up to you is

498

00:23:40,660 --> 00:23:36,890

because the great philosophers such

499

00:23:45,100 --> 00:23:40,670

Socrates or Plato and many others have

500

00:23:49,270 --> 00:23:45,110

relied upon that one tactic if you will

501
00:23:52,870 --> 00:23:49,280
or strategy or just the the wherewithal

502
00:23:55,560 --> 00:23:52,880
to just ask a question because if we

503
00:24:00,220 --> 00:23:55,570
don't have the ability to ask a question

504
00:24:02,410 --> 00:24:00,230
we don't have the ability to think or

505
00:24:04,900 --> 00:24:02,420
intellectualize or blunder about stuff

506
00:24:07,540 --> 00:24:04,910
and so out of that philosophy was born

507
00:24:09,820 --> 00:24:07,550
and many other sciences were helped

508
00:24:12,070 --> 00:24:09,830
along with the ability to question so I

509
00:24:14,560 --> 00:24:12,080
know it's got you know there's a lot of

510
00:24:16,090 --> 00:24:14,570
I guess there's gravitas to it it's

511
00:24:17,920 --> 00:24:16,100
really really important to be able to do

512
00:24:21,730 --> 00:24:17,930
that and I'm sure that's what you do all

513
00:24:25,000 --> 00:24:21,740

the time yeah I mean yes I understand

514

00:24:29,130 --> 00:24:25,010

that you do questioning and curiosity is

515

00:24:32,410 --> 00:24:29,140

the fundamental fundamental tenet of

516

00:24:34,720 --> 00:24:32,420

existence as a human being you don't go

517

00:24:36,580 --> 00:24:34,730

through a day without wondering what

518

00:24:38,350 --> 00:24:36,590

something is you don't go through a day

519

00:24:41,740 --> 00:24:38,360

without thinking about a solution to a

520

00:24:43,030 --> 00:24:41,750

problem that you had posed to you you

521

00:24:45,010 --> 00:24:43,040

don't go through a day without someone

522

00:24:48,430 --> 00:24:45,020

asking you a question that is out of

523

00:24:52,720 --> 00:24:48,440

curiosity I mean it's so built-in that

524

00:24:55,870 --> 00:24:52,730

we don't even realize just how much our

525

00:24:59,890 --> 00:24:55,880

world is overtaken by the curiosity that

526

00:25:01,300 --> 00:24:59,900

we have about you're right and I also

527

00:25:02,580 --> 00:25:01,310

wanted to bring up something that you

528

00:25:05,710 --> 00:25:02,590

had already brought up which is very

529

00:25:09,430 --> 00:25:05,720

important that is you show sky to a

530

00:25:11,560 --> 00:25:09,440

radio Aaron is airs live every Sunday

531

00:25:12,970 --> 00:25:11,570

p.m. Eastern Standard Time and it

532

00:25:15,580 --> 00:25:12,980

explores universe in a down-to-earth

533

00:25:17,770 --> 00:25:15,590

manner explaining the science that we

534

00:25:19,810 --> 00:25:17,780

know as you say in fun and bite-size

535

00:25:21,460 --> 00:25:19,820

terms and science is for everyone and

536

00:25:23,500 --> 00:25:21,470

people should require an advanced degree

537

00:25:25,450 --> 00:25:23,510

to understand as long as it is delivered

538

00:25:27,610 --> 00:25:25,460

in an easy-to-follow away I'm reading a

539

00:25:29,920 --> 00:25:27,620

little bit about your your shoulder from

540

00:25:31,750 --> 00:25:29,930

black holes to extraterrestrial life we

541

00:25:34,000 --> 00:25:31,760

will explore the universe like never

542

00:25:36,580 --> 00:25:34,010

before join us to check out such things

543

00:25:38,890 --> 00:25:36,590

as how stars form how they live how our

544

00:25:40,900 --> 00:25:38,900

fate is intertwined with theirs on the

545

00:25:42,850 --> 00:25:40,910

extra-terrestrial life front we will be

546

00:25:44,800 --> 00:25:42,860

speaking to the UFO and science arenas

547

00:25:47,650 --> 00:25:44,810

top researchers and bring ufology into

548

00:25:50,680 --> 00:25:47,660

the 21st century what does all that mean

549

00:25:52,120 --> 00:25:50,690

I read that that's from your show what

550

00:25:53,650 --> 00:25:52,130

what is it you're conveying to your

551
00:25:55,630 --> 00:25:53,660
listeners there for the whole world to

552
00:25:58,720 --> 00:25:55,640
understand about your wonderful sky tour

553
00:26:00,520 --> 00:25:58,730
radio show well Skype to a radio is

554
00:26:03,340 --> 00:26:00,530
coupled with sky through livestream now

555
00:26:08,320 --> 00:26:03,350
about schedule radio is a radio show

556
00:26:09,850 --> 00:26:08,330
that kgr a the owners of KCRA came to me

557
00:26:12,340 --> 00:26:09,860
and asked me if I would be willing to

558
00:26:14,020 --> 00:26:12,350
wanted to do a radio show actually I

559
00:26:15,730 --> 00:26:14,030
didn't come to them they actually say

560
00:26:18,160 --> 00:26:15,740
you know you're an astronomer you do a

561
00:26:20,320 --> 00:26:18,170
lot of talks around the country would

562
00:26:22,570 --> 00:26:20,330
you like to do a radio show or we think

563
00:26:24,820 --> 00:26:22,580

you'd be great and I said well kje is a

564

00:26:27,100 --> 00:26:24,830

paranormal radio station I'm a science

565

00:26:27,820 --> 00:26:27,110

guy and they said yeah yeah we think

566

00:26:30,580 --> 00:26:27,830

it's gonna work

567

00:26:32,620 --> 00:26:30,590

well it has I mean we've consistently

568

00:26:35,410 --> 00:26:32,630

been number four in our time slot and

569

00:26:38,020 --> 00:26:35,420

that's you know that's ratings that are

570

00:26:40,060 --> 00:26:38,030

across the board it's like wow and we

571

00:26:44,050 --> 00:26:40,070

reach approximately 3 million people

572

00:26:46,270 --> 00:26:44,060

every month and we're like so humbled by

573

00:26:48,820 --> 00:26:46,280

the fact that we're doing an hour show

574

00:26:51,040 --> 00:26:48,830

to begin with and then they asked us to

575

00:26:52,840 --> 00:26:51,050

go to to a horse say but you know they

576

00:26:54,910 --> 00:26:52,850

really want more can you do another hour

577

00:26:57,970 --> 00:26:54,920

so I was like wow really

578

00:27:01,240 --> 00:26:57,980

ok so we do a two hour show every Sunday

579

00:27:03,070 --> 00:27:01,250

from 8 to 10 yeah and what do I mean by

580

00:27:05,550 --> 00:27:03,080

the the things that were said in that

581

00:27:10,000 --> 00:27:05,560

that that blabbity blah oh you just read

582

00:27:11,860 --> 00:27:10,010

really what that is is we have we have

583

00:27:13,110 --> 00:27:11,870

on this planet we have all these

584

00:27:14,680 --> 00:27:13,120

theories all these ideas about

585

00:27:18,210 --> 00:27:14,690

extraterrestrials and where they come

586

00:27:21,580 --> 00:27:18,220

from sky to radio gives you the meat

587

00:27:24,340 --> 00:27:21,590

that you can put on the bones of the

588

00:27:26,080 --> 00:27:24,350

extra-terrestrial puzzle alright we want

589

00:27:29,140 --> 00:27:26,090

to show you where the life could exist

590

00:27:32,580 --> 00:27:29,150

where it may come from based on the fact

591

00:27:35,110 --> 00:27:32,590

that there is a science surrounding

592

00:27:38,290 --> 00:27:35,120

extraterrestrial life now there never

593

00:27:41,470 --> 00:27:38,300

has been yet every mission NASA is

594

00:27:43,120 --> 00:27:41,480

promoted and and undertaken going to

595

00:27:45,640 --> 00:27:43,130

different planets other than the lunar

596

00:27:48,180 --> 00:27:45,650

missions for you know the Apollo

597

00:27:50,950 --> 00:27:48,190

landings has been about finding life

598

00:27:54,070 --> 00:27:50,960

every one of the missions all the Mars

599

00:27:56,910 --> 00:27:54,080

rovers looking for life signs of life

600

00:27:58,750 --> 00:27:56,920

ancient life current life past life

601
00:28:02,160 --> 00:27:58,760
that's what these missions have been

602
00:28:04,780 --> 00:28:02,170
tailored to do find signs of life so

603
00:28:08,410 --> 00:28:04,790
we're now in an

604
00:28:10,240 --> 00:28:08,420
era where we're looking for life in our

605
00:28:13,090 --> 00:28:10,250
solar system and we haven't found it yet

606
00:28:15,250 --> 00:28:13,100
on Mars but we they we may I mean

607
00:28:17,230 --> 00:28:15,260
there's subterranean lakes under the

608
00:28:19,360 --> 00:28:17,240
South Pole of Mars there are many

609
00:28:20,440 --> 00:28:19,370
kilometers in size and they could Harbor

610
00:28:23,110 --> 00:28:20,450
microorganisms

611
00:28:26,250 --> 00:28:23,120
there were Hardy and was the the

612
00:28:29,490 --> 00:28:26,260
tumultuous delft ultraviolet radiation

613
00:28:34,980 --> 00:28:29,500

sterilization at the surface however

614

00:28:37,810 --> 00:28:34,990

it's also possible that there is another

615

00:28:40,030 --> 00:28:37,820

star system somewhere that has

616

00:28:43,060 --> 00:28:40,040

life-forms that are much like the

617

00:28:44,560 --> 00:28:43,070

life-forms we have on this planet and so

618

00:28:48,010 --> 00:28:44,570

Skype your radio tells people about

619

00:28:49,600 --> 00:28:48,020

these particular possibilities and we

620

00:28:51,640 --> 00:28:49,610

explore them we explore the different

621

00:28:54,370 --> 00:28:51,650

types of stars that are out there and

622

00:28:56,860 --> 00:28:54,380

then we talk about the actually we and

623

00:28:58,510 --> 00:28:56,870

the radio show we have a the the first

624

00:29:01,810 --> 00:28:58,520

segment in every radio show is called

625

00:29:03,220 --> 00:29:01,820

exoplanet roundup and it talks about the

626
00:29:05,950 --> 00:29:03,230
latest and greatest and coolest

627
00:29:09,610 --> 00:29:05,960
exoplanets that have been found you know

628
00:29:12,750 --> 00:29:09,620
and these exoplanets are many times

629
00:29:14,890 --> 00:29:12,760
places that may have habitable worlds

630
00:29:18,940 --> 00:29:14,900
may or may be habitable I should say

631
00:29:21,130 --> 00:29:18,950
around these stars so we don't

632
00:29:22,390 --> 00:29:21,140
understand how a planet could exist

633
00:29:25,030 --> 00:29:22,400
around a star you need to understand the

634
00:29:25,990 --> 00:29:25,040
star then to understand how the planet

635
00:29:28,600 --> 00:29:26,000
could be habitable you need to

636
00:29:33,060 --> 00:29:28,610
understand the planet and that means we

637
00:29:37,270 --> 00:29:33,070
have to understand our planet so we do a

638
00:29:39,970 --> 00:29:37,280

segment that's sort of melted into the

639

00:29:42,010 --> 00:29:39,980

whole show which is kind it's called the

640

00:29:43,660 --> 00:29:42,020

history of it all and basically it

641

00:29:45,250 --> 00:29:43,670

compares the development of life on

642

00:29:48,580 --> 00:29:45,260

earth to development of the potential

643

00:29:49,810 --> 00:29:48,590

development of life in another place and

644

00:29:51,700 --> 00:29:49,820

I think that this is something that

645

00:29:53,350 --> 00:29:51,710

gives people the meat for the bones of

646

00:29:56,710 --> 00:29:53,360

the extraterrestrial life question and

647

00:29:59,890 --> 00:29:56,720

that's that's a sky two radios about you

648

00:30:02,800 --> 00:29:59,900

know is about providing that kind of

649

00:30:04,240 --> 00:30:02,810

background so when people say I believe

650

00:30:08,080 --> 00:30:04,250

in extraterrestrial life and someone

651
00:30:09,970 --> 00:30:08,090
else says why they have an answer well

652
00:30:11,260 --> 00:30:09,980
other than well I just believe it's out

653
00:30:12,700 --> 00:30:11,270
there we can't beat it because you know

654
00:30:14,680 --> 00:30:12,710
what you always get well we can't be the

655
00:30:16,480 --> 00:30:14,690
only life forms out there and that's

656
00:30:17,620 --> 00:30:16,490
usually where the question ends or where

657
00:30:19,900 --> 00:30:17,630
the statement is

658
00:30:21,220 --> 00:30:19,910
or really it's you can say well we can't

659
00:30:24,610 --> 00:30:21,230
be the only life forms out there and

660
00:30:26,440 --> 00:30:24,620
here's why because we have potentially

661
00:30:28,330 --> 00:30:26,450
up to and this is a very very high-end

662
00:30:31,240 --> 00:30:28,340
estimate forty billion other earth-like

663
00:30:33,310 --> 00:30:31,250

planets just in our galaxy and oh by the

664

00:30:36,909 --> 00:30:33,320

way there may be at the two trillion

665

00:30:38,770 --> 00:30:36,919

other galaxies see and that's knowing

666

00:30:40,289 --> 00:30:38,780

these factoids and being out that tell

667

00:30:42,760 --> 00:30:40,299

people these things that have been

668

00:30:45,580 --> 00:30:42,770

mulled over in the science world not in

669

00:30:48,430 --> 00:30:45,590

the fantasy world people realize wow we

670

00:30:51,549 --> 00:30:48,440

don't have to make stuff up we don't

671

00:30:52,960 --> 00:30:51,559

have to be optimistic and make claims

672

00:30:56,230 --> 00:30:52,970

that aren't backed up by facts

673

00:31:00,250 --> 00:30:56,240

so so I wanted to make something up with

674

00:31:03,070 --> 00:31:00,260

you I wanted to make up the possibility

675

00:31:06,100 --> 00:31:03,080

and ponder over it with you is it

676

00:31:09,340 --> 00:31:06,110

possible that there is an earth just

677

00:31:11,070 --> 00:31:09,350

like ours full of people that are

678

00:31:16,390 --> 00:31:11,080

dealing with the same kind of technology

679

00:31:19,180 --> 00:31:16,400

same science the same just basically

680

00:31:21,789 --> 00:31:19,190

everyday life going to their jobs and

681

00:31:23,799 --> 00:31:21,799

dealing with the same kind of challenges

682

00:31:25,990 --> 00:31:23,809

we are you know the joys and

683

00:31:27,789 --> 00:31:26,000

disappointments of life do you think

684

00:31:30,340 --> 00:31:27,799

that there's another earth just like

685

00:31:32,020 --> 00:31:30,350

ours out there that's a good question

686

00:31:35,169 --> 00:31:32,030

and it's one that I've often posed

687

00:31:36,970 --> 00:31:35,179

myself to people asking them what the

688

00:31:39,909 --> 00:31:36,980

thoughts are now if you think about it

689

00:31:42,549 --> 00:31:39,919

we almost can say on one hand that we

690

00:31:44,649 --> 00:31:42,559

have statistics on their side if there's

691

00:31:46,169 --> 00:31:44,659

the high-end numbers correct there's 40

692

00:31:48,640 --> 00:31:46,179

billion other earths just in our galaxy

693

00:31:50,049 --> 00:31:48,650

plus you multiply that times the two

694

00:31:51,580 --> 00:31:50,059

trillion other galaxies where the same

695

00:31:52,990 --> 00:31:51,590

potential may exist some galaxies are

696

00:31:55,060 --> 00:31:53,000

much much bigger than ours some are

697

00:31:57,880 --> 00:31:55,070

smaller on the average you might say

698

00:32:01,720 --> 00:31:57,890

that there's gonna be you know more than

699

00:32:03,399 --> 00:32:01,730

40 billion in other galaxies you would

700

00:32:05,500 --> 00:32:03,409

say statistically speaking there's

701
00:32:07,270 --> 00:32:05,510
another chant Hannah talking to some guy

702
00:32:10,779 --> 00:32:07,280
named Mark on a radio show you'd like to

703
00:32:13,510 --> 00:32:10,789
say that the only difference is the life

704
00:32:16,360 --> 00:32:13,520
that life that we now know as us on this

705
00:32:18,130 --> 00:32:16,370
planet is the result of five major

706
00:32:21,940 --> 00:32:18,140
extinction events that occurred on our

707
00:32:25,419 --> 00:32:21,950
planet we had you know 252 million years

708
00:32:28,630 --> 00:32:25,429
ago the pre mammals no precursors to us

709
00:32:31,390 --> 00:32:28,640
the dominance but then there was a great

710
00:32:31,720 --> 00:32:31,400
Permian dying it's called and over 96%

711
00:32:34,390 --> 00:32:31,730
of all

712
00:32:35,770 --> 00:32:34,400
life died out on this planet for what

713
00:32:37,950 --> 00:32:35,780

reason we don't actually know could have

714

00:32:41,650 --> 00:32:37,960

been eruptions in the Siberian traps

715

00:32:43,930 --> 00:32:41,660

location and that caused global dimming

716

00:32:45,790 --> 00:32:43,940

of the sunlight it could have been

717

00:32:48,220 --> 00:32:45,800

another impact that we have got to find

718

00:32:50,860 --> 00:32:48,230

I did the show on what on earth where we

719

00:32:52,720 --> 00:32:50,870

looked at our radar data under

720

00:32:54,760 --> 00:32:52,730

Antarctica and there seems to be a large

721

00:32:57,010 --> 00:32:54,770

ring structure that indicates an impact

722

00:32:59,770 --> 00:32:57,020

down there that's really old and it

723

00:33:03,000 --> 00:32:59,780

dates kind of to the Permian impact or

724

00:33:07,180 --> 00:33:03,010

Permian era was that responsible maybe

725

00:33:11,130 --> 00:33:07,190

you know and and and that extinction

726
00:33:13,540 --> 00:33:11,140
event was very hard on the pre mammals

727
00:33:15,280 --> 00:33:13,550
that were there and it was the mammals

728
00:33:17,920 --> 00:33:15,290
then that actually suffered the most

729
00:33:20,470 --> 00:33:17,930
so they actually retreated and went into

730
00:33:22,300 --> 00:33:20,480
hiding and some died out and this paved

731
00:33:24,520 --> 00:33:22,310
the way these niches were open and this

732
00:33:26,290 --> 00:33:24,530
is where the reptiles came in and from

733
00:33:28,090 --> 00:33:26,300
there to the Jurassic age we had the age

734
00:33:31,060 --> 00:33:28,100
of the dinosaurs the age of the reptiles

735
00:33:33,580 --> 00:33:31,070
and then we had another impact event

736
00:33:36,220 --> 00:33:33,590
there are four others and that happened

737
00:33:39,340 --> 00:33:36,230
kind of in and throughout there are

738
00:33:40,750 --> 00:33:39,350

three or more three others and then 65

739

00:33:42,610 --> 00:33:40,760

billion years ago we had another impact

740

00:33:44,950 --> 00:33:42,620

off of the Yucatan Peninsula called the

741

00:33:47,860 --> 00:33:44,960

Chicxulub impact it's also known as the

742

00:33:49,630 --> 00:33:47,870

Cretaceous Paleogene impact you've heard

743

00:33:52,780 --> 00:33:49,640

of the KT boundary event if you've ever

744

00:33:54,910 --> 00:33:52,790

heard and that was the one that killed

745

00:33:57,580 --> 00:33:54,920

off the dinosaurs and they died over a

746

00:33:59,410 --> 00:33:57,590

period of time for the same reasons that

747

00:34:01,450 --> 00:33:59,420

the mammals died back in the Permian

748

00:34:02,920 --> 00:34:01,460

they either some light was extinguished

749

00:34:05,800 --> 00:34:02,930

for some reason and a photosynthetic

750

00:34:07,390 --> 00:34:05,810

creatures that turn light into energy

751
00:34:11,140 --> 00:34:07,400
and food and sugars that other animals

752
00:34:13,090 --> 00:34:11,150
like to eat was diminished and all those

753
00:34:14,950 --> 00:34:13,100
empty niches were filled by the mammals

754
00:34:20,050 --> 00:34:14,960
and thus we came out of the shadows once

755
00:34:23,650 --> 00:34:20,060
again so I think based on the templates

756
00:34:25,840 --> 00:34:23,660
that we see on this planet I think that

757
00:34:28,900 --> 00:34:25,850
bilateral symmetry as I mentioned the

758
00:34:30,730 --> 00:34:28,910
left and right sameness is a template

759
00:34:34,560 --> 00:34:30,740
the universe provides based on the DNA

760
00:34:37,600 --> 00:34:34,570
and how it replicates and recombines and

761
00:34:41,680 --> 00:34:37,610
not only that with the replication of

762
00:34:45,130 --> 00:34:41,690
DNA we also have the fact that animals

763
00:34:45,580 --> 00:34:45,140

that are our mammals seem to have been

764

00:34:47,650 --> 00:34:45,590

dominant

765

00:34:49,090 --> 00:34:47,660

the Permian period they were knocked out

766

00:34:50,920 --> 00:34:49,100

for a little while and then came back

767

00:34:54,910 --> 00:34:50,930

with dominance which makes me think

768

00:34:57,160 --> 00:34:54,920

maybe the mammalian form is a form that

769

00:35:00,730 --> 00:34:57,170

is a template for the universe provides

770

00:35:04,240 --> 00:35:00,740

as well and maybe the mammalian form is

771

00:35:05,080 --> 00:35:04,250

what might be on average a dominant form

772

00:35:07,420 --> 00:35:05,090

on a planet

773

00:35:10,120 --> 00:35:07,430

now I'm basing that only on our planet

774

00:35:12,520 --> 00:35:10,130

so you really you know you can't make

775

00:35:15,040 --> 00:35:12,530

that you can't say that's a hundred

776

00:35:18,040 --> 00:35:15,050

percent true but there's a there's a

777

00:35:20,980 --> 00:35:18,050

there's a record of in the fossil record

778

00:35:23,470 --> 00:35:20,990

of mammals coming back into the fold and

779

00:35:26,920 --> 00:35:23,480

coming back into dominance and that's

780

00:35:29,470 --> 00:35:26,930

the only reason they say it so the

781

00:35:32,650 --> 00:35:29,480

creatures that would be elsewhere might

782

00:35:34,480 --> 00:35:32,660

be somewhat like mammals perhaps but

783

00:35:35,890 --> 00:35:34,490

there's not necessarily gonna have skin

784

00:35:38,410 --> 00:35:35,900

like ours they're not necessarily gonna

785

00:35:40,720 --> 00:35:38,420

walk around going to jobs like we are

786

00:35:42,220 --> 00:35:40,730

they're gonna have a different world

787

00:35:44,290 --> 00:35:42,230

entirely most likely and it's gonna

788

00:35:46,840 --> 00:35:44,300

depend on several things it's gonna

789

00:35:48,970 --> 00:35:46,850

depend on the size of their planet not

790

00:35:50,200 --> 00:35:48,980

every planets the size of ours it's

791

00:35:52,360 --> 00:35:50,210

gonna depend on the atmosphere of the

792

00:35:54,940 --> 00:35:52,370

planet it's gonna and it's gonna depend

793

00:35:57,010 --> 00:35:54,950

on how far away that planet is from the

794

00:35:59,080 --> 00:35:57,020

Sun you know if it's in the habitable

795

00:36:00,760 --> 00:35:59,090

zone if it's a little bit too close a

796

00:36:02,950 --> 00:36:00,770

little bit closer I should say there'll

797

00:36:05,590 --> 00:36:02,960

be a warmer planet so they would develop

798

00:36:06,940 --> 00:36:05,600

differently than we did if it's a little

799

00:36:09,220 --> 00:36:06,950

further away but not out of the

800

00:36:11,380 --> 00:36:09,230

habitable zone again cooler they would

801
00:36:13,330 --> 00:36:11,390
develop differently their skin might be

802
00:36:15,010 --> 00:36:13,340
different there they might have hair

803
00:36:18,480 --> 00:36:15,020
they might be protected by that from the

804
00:36:20,800 --> 00:36:18,490
cold different than we are

805
00:36:23,410 --> 00:36:20,810
tidal locking with some of these planets

806
00:36:25,870 --> 00:36:23,420
- that they don't actually rotate so you

807
00:36:27,280 --> 00:36:25,880
got a hot side and a cool side on a lot

808
00:36:29,290 --> 00:36:27,290
of these planets we've discovered as

809
00:36:31,960 --> 00:36:29,300
well that's correct in fact most of the

810
00:36:34,060 --> 00:36:31,970
planets that we know about are around

811
00:36:35,980 --> 00:36:34,070
these stars that have these planets that

812
00:36:37,570 --> 00:36:35,990
are that have the same side always

813
00:36:39,340 --> 00:36:37,580

facing their star like the moon always

814

00:36:41,500 --> 00:36:39,350

faces the same direction as it goes

815

00:36:43,720 --> 00:36:41,510

around our planet and that tidal locking

816

00:36:46,000 --> 00:36:43,730

is the result of the gravitational

817

00:36:48,910 --> 00:36:46,010

interaction between the planet and the

818

00:36:51,250 --> 00:36:48,920

star and the reason it happens is

819

00:36:53,850 --> 00:36:51,260

because these planets are around the

820

00:36:57,280 --> 00:36:53,860

star that's literally hundreds of times

821

00:36:59,590 --> 00:36:57,290

less bright than our Sun in some cases

822

00:36:59,990 --> 00:36:59,600

and smaller than our Sun by a huge

823

00:37:02,450 --> 00:37:00,000

amount

824

00:37:06,170 --> 00:37:02,460

so that means just a little bit larger

825

00:37:07,940 --> 00:37:06,180

than the planet Jupiter even and it

826

00:37:09,800 --> 00:37:07,950

means that the planets are going to be

827

00:37:12,290 --> 00:37:09,810

much much closer and the star like you

828

00:37:14,030 --> 00:37:12,300

were showing it in the in the stream

829

00:37:15,730 --> 00:37:14,040

you're actually showing an image of the

830

00:37:18,320 --> 00:37:15,740

Trappist one system which is a system

831

00:37:20,000 --> 00:37:18,330

that has seven planets they're all

832

00:37:22,849 --> 00:37:20,010

closer to the star than the planet

833

00:37:25,970 --> 00:37:22,859

Mercury is to the Sun but the star is

834

00:37:29,000 --> 00:37:25,980

just a fraction of the luminous output

835

00:37:32,530 --> 00:37:29,010

of our Sun so this those star that star

836

00:37:34,849 --> 00:37:32,540

Trappist one is a star that has planets

837

00:37:37,510 --> 00:37:34,859

very close to it and three of those

838

00:37:40,370 --> 00:37:37,520

planets are in the star's habitable zone

839

00:37:42,710 --> 00:37:40,380

that's how small a star is and it's it

840

00:37:46,040 --> 00:37:42,720

makes more sense to talk about Jupiter

841

00:37:47,570 --> 00:37:46,050

and its moons then talking about the Sun

842

00:37:51,230 --> 00:37:47,580

and it's planets when you talk about

843

00:37:52,760 --> 00:37:51,240

Trappist 1c so we see this variety in

844

00:37:54,800 --> 00:37:52,770

the universe it's all new stuff you know

845

00:37:56,540 --> 00:37:54,810

and those stars are that are small and

846

00:37:58,190 --> 00:37:56,550

red like that are called M stars and

847

00:38:00,620 --> 00:37:58,200

don't confuse that with the m-class

848

00:38:03,290 --> 00:38:00,630

planets of Star Trek captain okay it's

849

00:38:06,020 --> 00:38:03,300

actually the M star is is red and cool

850

00:38:07,579 --> 00:38:06,030

and the temperature is only a few

851
00:38:09,620 --> 00:38:07,589
thousand degrees in the surface the Sun

852
00:38:11,480 --> 00:38:09,630
has about a 10,000 degree temperature on

853
00:38:15,730 --> 00:38:11,490
the surface that's all Fahrenheit and

854
00:38:18,710 --> 00:38:15,740
when you look at these little tiny stars

855
00:38:20,210 --> 00:38:18,720
because the planets are so close the

856
00:38:22,609 --> 00:38:20,220
bulk of the planets are going to be

857
00:38:25,040 --> 00:38:22,619
tidally locked and see I look at that as

858
00:38:27,349 --> 00:38:25,050
an opportunity let's say that trap is

859
00:38:29,930 --> 00:38:27,359
one has one of these planets that's

860
00:38:34,849 --> 00:38:29,940
actually habitable let's say it's trap

861
00:38:37,160 --> 00:38:34,859
is F okay which is you know it's like

862
00:38:39,680 --> 00:38:37,170
the fifth one out from from the center

863
00:38:42,050 --> 00:38:39,690

and from where the star is this

864

00:38:43,400 --> 00:38:42,060

particular star would have this little

865

00:38:45,410 --> 00:38:43,410

planet going around it let's say it's

866

00:38:48,079 --> 00:38:45,420

sort of like the earth but it is tightly

867

00:38:50,570 --> 00:38:48,089

locked now that means if you want to go

868

00:38:53,120 --> 00:38:50,580

the beach forever you just go to the Sun

869

00:38:56,930 --> 00:38:53,130

side you get out of the Sun will always

870

00:38:58,220 --> 00:38:56,940

be high noon all the time okay and if

871

00:38:59,510 --> 00:38:58,230

you didn't want to be that hot you would

872

00:39:02,570 --> 00:38:59,520

kind of go a little bit more toward the

873

00:39:04,190 --> 00:39:02,580

the west of the East and get toward the

874

00:39:08,089 --> 00:39:04,200

Terminator and then you could have a

875

00:39:10,520 --> 00:39:08,099

late afternoon Sun 24/7 if your day was

876

00:39:13,160 --> 00:39:10,530

24 hours long okay if it wasn't it could

877

00:39:13,850 --> 00:39:13,170

be like you know three seven you know

878

00:39:15,380 --> 00:39:13,860

three hours of

879

00:39:18,140 --> 00:39:15,390

you know whatever you know or three

880

00:39:19,850 --> 00:39:18,150

hours and and then basically your night

881

00:39:22,160 --> 00:39:19,860

time would of course be fully sunlit as

882

00:39:23,870 --> 00:39:22,170

well so you'd never lose the Sun so it's

883

00:39:25,460 --> 00:39:23,880

a never-ending day on that side and

884

00:39:26,870 --> 00:39:25,470

let's say you want to always photograph

885

00:39:28,970 --> 00:39:26,880

sunsets you could always go with the

886

00:39:31,070 --> 00:39:28,980

Terminator and have a trip to the

887

00:39:33,590 --> 00:39:31,080

Terminator you know look at it look real

888

00:39:35,330 --> 00:39:33,600

estate guys are gonna have a feel when

889

00:39:36,830 --> 00:39:35,340

we get there cuz you're gonna go there

890

00:39:39,680 --> 00:39:36,840

and say hey you want to have a sunset

891

00:39:41,060 --> 00:39:39,690

trip seven days of sunsets you know

892

00:39:42,790 --> 00:39:41,070

we'll take you for seven days or sunsets

893

00:39:45,200 --> 00:39:42,800

you can enjoy seven days of sunsets

894

00:39:48,080 --> 00:39:45,210

alright and if you want to see the stars

895

00:39:50,870 --> 00:39:48,090

oh just go to the dark side you know and

896

00:39:52,070 --> 00:39:50,880

spend seven days now some of the planets

897

00:39:55,240 --> 00:39:52,080

because they're so close to the star

898

00:39:57,380 --> 00:39:55,250

their year might only be seven days long

899

00:39:59,390 --> 00:39:57,390

so looking up in the sky you could

900

00:40:02,360 --> 00:39:59,400

visibly watch the stars moving as the

901
00:40:05,450 --> 00:40:02,370
planets going around the star I mean

902
00:40:06,650 --> 00:40:05,460
that's really cool I mean there's so

903
00:40:08,720 --> 00:40:06,660
many opportunities I'm telling you I

904
00:40:09,350 --> 00:40:08,730
think to go well let me ask you this

905
00:40:11,570 --> 00:40:09,360
real quick

906
00:40:12,890 --> 00:40:11,580
have you ever I think most of our

907
00:40:15,200 --> 00:40:12,900
listeners are familiar with the Drake

908
00:40:17,230 --> 00:40:15,210
Equation have you ever played with that

909
00:40:20,260 --> 00:40:17,240
yourself and come up with a number of

910
00:40:23,030 --> 00:40:20,270
yourself as far as what that number is

911
00:40:24,890 --> 00:40:23,040
the end result of the Drake Equation

912
00:40:26,930 --> 00:40:24,900
yeah when Frank Drake created that

913
00:40:28,700 --> 00:40:26,940

equation when the problems was we didn't

914

00:40:30,620 --> 00:40:28,710

have answers for many of the parameters

915

00:40:31,850 --> 00:40:30,630

in that equation now we don't have

916

00:40:34,460 --> 00:40:31,860

answers for all the parameters in the

917

00:40:35,570 --> 00:40:34,470

Drake Equation now but we do know that

918

00:40:38,480 --> 00:40:35,580

the Drake Equation

919

00:40:40,070 --> 00:40:38,490

has been reworked by there's an Italian

920

00:40:44,360 --> 00:40:40,080

team in particular that worked on this

921

00:40:48,650 --> 00:40:44,370

equation and they came up with a new

922

00:40:50,600 --> 00:40:48,660

number one of their numbers was like 25

923

00:40:53,900 --> 00:40:50,610

million earth-like planets and that was

924

00:40:55,430 --> 00:40:53,910

a very conservative number you know and

925

00:40:59,060 --> 00:40:55,440

you know one of the things you care

926
00:41:02,300 --> 00:40:59,070
about for instance is you know is there

927
00:41:05,030 --> 00:41:02,310
a civilization out there that will

928
00:41:07,490 --> 00:41:05,040
survive through say a nuclear period

929
00:41:09,740 --> 00:41:07,500
will they survive you know and you know

930
00:41:13,070 --> 00:41:09,750
you kind of kind of put that as you know

931
00:41:17,720 --> 00:41:13,080
the the number of civilizations that

932
00:41:19,600 --> 00:41:17,730
might survive you know to fruition okay

933
00:41:24,230 --> 00:41:19,610
and that that's probably in the factor

934
00:41:27,440 --> 00:41:24,240
that talks about the fraction of planets

935
00:41:29,240 --> 00:41:27,450
where life will emerge okay and then

936
00:41:31,460 --> 00:41:29,250
within that you know how long will they

937
00:41:32,690 --> 00:41:31,470
survive you know the years of

938
00:41:34,549 --> 00:41:32,700

civilization would like remain

939

00:41:37,039 --> 00:41:34,559

detectable is another parameter okay

940

00:41:39,710 --> 00:41:37,049

that we don't know any of these numbers

941

00:41:41,599 --> 00:41:39,720

you know we do know the fraction of

942

00:41:43,039 --> 00:41:41,609

stars that will form planets we knew

943

00:41:46,000 --> 00:41:43,049

that that's one of the drake parameters

944

00:41:49,250 --> 00:41:46,010

we don't we didn't have one value for

945

00:41:52,069 --> 00:41:49,260

naught it is now yeah the average number

946

00:41:53,510 --> 00:41:52,079

of habitable planets per star that is

947

00:41:55,910 --> 00:41:53,520

something that we kind of have a better

948

00:41:58,130 --> 00:41:55,920

idea of - we didn't know this before so

949

00:42:00,079 --> 00:41:58,140

we had to put in numbers and before you

950

00:42:02,809 --> 00:42:00,089

could only put in you know the fraction

951
00:42:05,089 --> 00:42:02,819
that we know which was for the earth so

952
00:42:06,349 --> 00:42:05,099
really it's just us that we were talking

953
00:42:09,559 --> 00:42:06,359
about so the Drake Equation that was

954
00:42:11,930 --> 00:42:09,569
always pessimistic in the early days and

955
00:42:13,339 --> 00:42:11,940
this Italian team that redid this came

956
00:42:17,210 --> 00:42:13,349
out with these other numbers which are

957
00:42:20,089 --> 00:42:17,220
like I said one one set of equation

958
00:42:21,890 --> 00:42:20,099
values gives the numbers off to forty

959
00:42:25,520 --> 00:42:21,900
billion and that's based on the number

960
00:42:28,280 --> 00:42:25,530
of stars in our galaxy okay and that

961
00:42:30,079 --> 00:42:28,290
that's something that is still debated

962
00:42:31,390 --> 00:42:30,089
because we're inside the forest we can't

963
00:42:33,920 --> 00:42:31,400

count the trees from inside the forest

964

00:42:35,480 --> 00:42:33,930

well we can always count the trees in

965

00:42:36,740 --> 00:42:35,490

the forest the other galaxies we can see

966

00:42:38,750 --> 00:42:36,750

the stars and the other galaxies and

967

00:42:40,819 --> 00:42:38,760

through star counts and so we can say

968

00:42:43,609 --> 00:42:40,829

well based on what we see here maybe

969

00:42:45,530 --> 00:42:43,619

we're like that galaxy over there and so

970

00:42:47,750 --> 00:42:45,540

if that galaxy has this many stars maybe

971

00:42:49,220 --> 00:42:47,760

we do too so the number is really

972

00:42:51,980 --> 00:42:49,230

between a hundred billion and four

973

00:42:54,500 --> 00:42:51,990

hundred billion stars that we have it's

974

00:42:56,210 --> 00:42:54,510

quite a difference how realistic is a

975

00:42:57,890 --> 00:42:56,220

Drake Equation I'm seeing that there's

976
00:42:59,480 --> 00:42:57,900
uncertainties that revolve around the

977
00:43:01,250 --> 00:42:59,490
understanding of the evolution of life

978
00:43:03,890 --> 00:43:01,260
intelligence and civilization not

979
00:43:06,680 --> 00:43:03,900
physics and then bringing in the Drake

980
00:43:08,990 --> 00:43:06,690
Equation that it's possible that it's

981
00:43:12,319 --> 00:43:09,000
largely based on conjecture is that true

982
00:43:15,559 --> 00:43:12,329
oh sure sure I mean but but we do have

983
00:43:17,780 --> 00:43:15,569
factual data can't factual data that

984
00:43:19,819 --> 00:43:17,790
well I so say statistically factual data

985
00:43:22,430 --> 00:43:19,829
of the fraction of stars that form

986
00:43:24,890 --> 00:43:22,440
planets the average number of suitable

987
00:43:26,750 --> 00:43:24,900
stars that form on the universe remember

988
00:43:29,420 --> 00:43:26,760

is this is all a sliding window of

989

00:43:32,260 --> 00:43:29,430

formation okay what I mean by that is

990

00:43:34,849 --> 00:43:32,270

the universe is 13.8 billion years old

991

00:43:36,530 --> 00:43:34,859

actually might be twelve point seven or

992

00:43:39,079 --> 00:43:36,540

eight let's be clear there's been some

993

00:43:41,180 --> 00:43:39,089

work on that recently too but let's just

994

00:43:44,930 --> 00:43:41,190

take 13.8 as the working stage

995

00:43:48,440 --> 00:43:44,940

classic number and we came along 4.6

996

00:43:49,700 --> 00:43:48,450

billion years ago and the universe was

997

00:43:53,029 --> 00:43:49,710

around for over nine billion years

998

00:43:54,589 --> 00:43:53,039

before we even came along so there's

999

00:43:56,240 --> 00:43:54,599

been a sliding window that is to say

1000

00:43:58,579 --> 00:43:56,250

that star formation has always been

1001
00:44:00,049 --> 00:43:58,589
going on we see it happening though we

1002
00:44:02,210 --> 00:44:00,059
see stars dying we see stars being born

1003
00:44:04,130 --> 00:44:02,220
we see stars right in their mid life

1004
00:44:05,750 --> 00:44:04,140
where they're doing great and this

1005
00:44:07,160 --> 00:44:05,760
happens with planets we see planets in

1006
00:44:10,549 --> 00:44:07,170
formation we see planets that have

1007
00:44:12,500 --> 00:44:10,559
survived the death of their star all

1008
00:44:16,390 --> 00:44:12,510
right and then we see planets that are

1009
00:44:19,010 --> 00:44:16,400
in maturity in their in the system so

1010
00:44:21,890 --> 00:44:19,020
it's been going on so that means that

1011
00:44:24,500 --> 00:44:21,900
nine billion years passed before we were

1012
00:44:27,549 --> 00:44:24,510
even blinking the cosmic eye really and

1013
00:44:29,510 --> 00:44:27,559

that's when we started after that and

1014

00:44:32,180 --> 00:44:29,520

during that time civilizations could

1015

00:44:34,099 --> 00:44:32,190

have risen and fallen across the

1016

00:44:36,650 --> 00:44:34,109

universe and we would never have known

1017

00:44:40,490 --> 00:44:36,660

and we'll never know because they're so

1018

00:44:41,059 --> 00:44:40,500

far away but we are broadcasting our

1019

00:44:43,370 --> 00:44:41,069

presence

1020

00:44:47,180 --> 00:44:43,380

now Stephen Hawking and Frank you may

1021

00:44:49,370 --> 00:44:47,190

know this too Stephen Hawking said we

1022

00:44:52,640 --> 00:44:49,380

shouldn't announce our presence well

1023

00:44:57,079 --> 00:44:52,650

unfortunately we have been it's a little

1024

00:44:58,549 --> 00:44:57,089

late now I'm talking about something

1025

00:45:00,859 --> 00:44:58,559

else we started broadcasting our

1026
00:45:03,980 --> 00:45:00,869
presence just about two billion years

1027
00:45:07,010 --> 00:45:03,990
ago over two billion years ago and that

1028
00:45:09,410 --> 00:45:07,020
was when the first cyanobacteria those

1029
00:45:12,140 --> 00:45:09,420
little blue green algae started gobbling

1030
00:45:14,480 --> 00:45:12,150
carbon dioxide out of the atmosphere and

1031
00:45:19,279 --> 00:45:14,490
basically releasing oxygen as a waste

1032
00:45:23,720 --> 00:45:19,289
product right they were releasing was

1033
00:45:26,210 --> 00:45:23,730
something that made it really hard to

1034
00:45:28,370 --> 00:45:26,220
miss because oxygen does not like to

1035
00:45:30,019 --> 00:45:28,380
stay in an atmosphere it's gonna go

1036
00:45:32,480 --> 00:45:30,029
right down into the calm and make

1037
00:45:34,880 --> 00:45:32,490
compounds in the soils you know it

1038
00:45:37,099 --> 00:45:34,890

happened on Mars I know the water went

1039

00:45:39,319 --> 00:45:37,109

up no h₂o to oxygen two hydrogen's and

1040

00:45:42,620 --> 00:45:39,329

an oxygen went up into the atmosphere of

1041

00:45:46,160 --> 00:45:42,630

Mars and the ultraviolet light hitting

1042

00:45:47,660 --> 00:45:46,170

Mars atmosphere separated the hydrogen

1043

00:45:49,640 --> 00:45:47,670

from the oxygen the oxygen went down

1044

00:45:51,740 --> 00:45:49,650

into the soils bonded with iron

1045

00:45:53,570 --> 00:45:51,750

compounds making what's known as the

1046

00:45:56,810 --> 00:45:53,580

iron oxide or

1047

00:45:59,420 --> 00:45:56,820

rust okay and so Mars is red because of

1048

00:46:03,500 --> 00:45:59,430

that a lot of the water compounds rusted

1049

00:46:05,600 --> 00:46:03,510

Mars frankly and so the planet will

1050

00:46:08,900 --> 00:46:05,610

reach an equilibrium where of oxygen

1051

00:46:11,330 --> 00:46:08,910

production and and usage we have an

1052

00:46:14,300 --> 00:46:11,340

overabundance we have too much we're in

1053

00:46:16,190 --> 00:46:14,310

what's called disequilibrium and in my

1054

00:46:18,230 --> 00:46:16,200

book the populated universe what I

1055

00:46:21,140 --> 00:46:18,240

discuss I talk about how we have been a

1056

00:46:26,180 --> 00:46:21,150

beacon to the universe for billions of

1057

00:46:27,980 --> 00:46:26,190

years and so if we think we're hiding we

1058

00:46:31,010 --> 00:46:27,990

have another thing coming because we as

1059

00:46:32,930 --> 00:46:31,020

a oxygen breathing species we've only

1060

00:46:34,970 --> 00:46:32,940

been 5,000 years into our written

1061

00:46:37,880 --> 00:46:34,980

history if you go back to Samaria and

1062

00:46:39,800 --> 00:46:37,890

the Cunha form tablet language and in

1063

00:46:42,050 --> 00:46:39,810

that time we know to look for planets

1064

00:46:44,450 --> 00:46:42,060

with oxygen in them and we're actually

1065

00:46:46,310 --> 00:46:44,460

developing the capability to do that now

1066

00:46:49,100 --> 00:46:46,320

is the web gonna be able to do that a

1067

00:46:50,390 --> 00:46:49,110

little bit better than Kepler wiser yeah

1068

00:46:52,400 --> 00:46:50,400

I was about to mention framed it the

1069

00:46:55,670 --> 00:46:52,410

Webb telescope which is going up next

1070

00:46:57,020 --> 00:46:55,680

year we hope the Webb telescope may or

1071

00:46:59,300 --> 00:46:57,030

may not be well you can't do that

1072

00:47:00,470 --> 00:46:59,310

because oxygen that what the Webb

1073

00:47:02,600 --> 00:47:00,480

telescope was looking at is infrared

1074

00:47:05,210 --> 00:47:02,610

signatures okay it's an infrared system

1075

00:47:06,800 --> 00:47:05,220

primarily right so it could look for

1076
00:47:08,500 --> 00:47:06,810
methane and they can look for carbon

1077
00:47:10,900 --> 00:47:08,510
dioxide which show up in the infrared

1078
00:47:13,490 --> 00:47:10,910
but oxygen is in the visible spectrum

1079
00:47:17,420 --> 00:47:13,500
and you know so it's not gonna see it

1080
00:47:20,950 --> 00:47:17,430
but if it sees methane and if it sees

1081
00:47:23,500 --> 00:47:20,960
carbon dioxide the inference to up to

1082
00:47:25,850 --> 00:47:23,510
the inference to oxygen will be there

1083
00:47:27,740 --> 00:47:25,860
and we'll know that it's there based on

1084
00:47:29,810 --> 00:47:27,750
the amounts of methane versus carbon

1085
00:47:32,720 --> 00:47:29,820
dioxide that we see and we'll be able to

1086
00:47:34,010 --> 00:47:32,730
infer that the other thing is we have

1087
00:47:37,220 --> 00:47:34,020
another thing called the reflectance

1088
00:47:40,460 --> 00:47:37,230

index what's that well back in the 90s

1089

00:47:44,360 --> 00:47:40,470

Carl Sagan my favorite astronomer okay

1090

00:47:46,610 --> 00:47:44,370

Carl Sagan was running the air was was

1091

00:47:50,360 --> 00:47:46,620

on the Galileo probe mission to Jupiter

1092

00:47:52,040 --> 00:47:50,370

and the way out away from Earth Carl

1093

00:47:54,350 --> 00:47:52,050

Sagan asked if the Galileo probe could

1094

00:47:55,880 --> 00:47:54,360

be turned around to look at the earth so

1095

00:47:58,940 --> 00:47:55,890

that he could see what a planet that has

1096

00:48:02,210 --> 00:47:58,950

plants on it deserts oceans looks like

1097

00:48:03,770 --> 00:48:02,220

to the Galileo sensors and they began

1098

00:48:06,950 --> 00:48:03,780

building a database by doing that

1099

00:48:07,579 --> 00:48:06,960

alright and that database allowed us to

1100

00:48:10,819 --> 00:48:07,589

see

1101

00:48:12,859 --> 00:48:10,829

the reflectance looks like from a desert

1102

00:48:14,779 --> 00:48:12,869

what the reflectance looks like from an

1103

00:48:17,809 --> 00:48:14,789

Amazon rainforest what it looks like

1104

00:48:20,479 --> 00:48:17,819

from planes what it looks like from a

1105

00:48:23,150 --> 00:48:20,489

desert our ocean matter and so what this

1106

00:48:25,130 --> 00:48:23,160

did was give us the beginnings of a

1107

00:48:27,650 --> 00:48:25,140

database rudimentary at best but still a

1108

00:48:30,109 --> 00:48:27,660

database that we can apply when we look

1109

00:48:32,689 --> 00:48:30,119

at these distant exoplanets and the Webb

1110

00:48:34,009 --> 00:48:32,699

telescope will help us with this and so

1111

00:48:37,160 --> 00:48:34,019

we'll be able to look at a planet and

1112

00:48:40,039 --> 00:48:37,170

probably be able to determine if there's

1113

00:48:43,279 --> 00:48:40,049

photosynthetic life there based on this

1114

00:48:46,370 --> 00:48:43,289

reflectance it's a new era guys you know

1115

00:48:51,079 --> 00:48:46,380

and Carl Sagan would just love to see

1116

00:48:53,059 --> 00:48:51,089

what's happened to his pale blue dot now

1117

00:48:55,999 --> 00:48:53,069

once that once you find one that reaches

1118

00:48:58,699 --> 00:48:56,009

those parameters then is it not because

1119

00:49:01,219 --> 00:48:58,709

they download reams and reams of data

1120

00:49:03,469 --> 00:49:01,229

from these Space Telescope what once you

1121

00:49:05,329 --> 00:49:03,479

find one that doesn't make it a lot

1122

00:49:07,640 --> 00:49:05,339

easier to find others once you find that

1123

00:49:10,339 --> 00:49:07,650

first one because you've got the

1124

00:49:14,209 --> 00:49:10,349

parameters more or less set it makes it

1125

00:49:16,160 --> 00:49:14,219

easier to hunt for them in again I keep

1126
00:49:17,749 --> 00:49:16,170
seeing stories where they just found

1127
00:49:20,479 --> 00:49:17,759
this new batch I think it was a dozen

1128
00:49:22,400 --> 00:49:20,489
and a half it was in the data they

1129
00:49:23,839 --> 00:49:22,410
hadn't found it somebody looked at it in

1130
00:49:26,630 --> 00:49:23,849
a different way they found a whole bunch

1131
00:49:28,969 --> 00:49:26,640
of new exoplanets a dozen and a half or

1132
00:49:31,729 --> 00:49:28,979
so if I recall correctly so won't that

1133
00:49:34,969 --> 00:49:31,739
work just refining to further there yeah

1134
00:49:36,859 --> 00:49:34,979
I mean planet hunters org you can go

1135
00:49:38,719 --> 00:49:36,869
there yourself and start participating

1136
00:49:40,160 --> 00:49:38,729
and looking at data and helping to

1137
00:49:44,419 --> 00:49:40,170
reduce the data and look for possible

1138
00:49:45,919 --> 00:49:44,429

exoplanet signatures but the fact is so

1139

00:49:47,449 --> 00:49:45,929

your questions once they find one could

1140

00:49:50,599 --> 00:49:47,459

they use the same process to find others

1141

00:49:52,789 --> 00:49:50,609

of course of course but yeah I also

1142

00:49:55,099 --> 00:49:52,799

remember that every planets gonna be a

1143

00:49:56,299 --> 00:49:55,109

little bit different and you know

1144

00:49:58,339 --> 00:49:56,309

depending on the atmosphere the

1145

00:50:00,679 --> 00:49:58,349

reflection the reflectance is gonna look

1146

00:50:03,769 --> 00:50:00,689

a little different so there's got to be

1147

00:50:07,609 --> 00:50:03,779

some tuning of this process but the

1148

00:50:09,289 --> 00:50:07,619

bottom line is we since we've been a

1149

00:50:12,499 --> 00:50:09,299

beacon for over 2 billion years to the

1150

00:50:14,059 --> 00:50:12,509

universe it means that the oxygen signal

1151
00:50:16,309 --> 00:50:14,069
that's in our atmosphere has been seen

1152
00:50:17,870 --> 00:50:16,319
by other civilizations I mean know it

1153
00:50:19,520 --> 00:50:17,880
took us like I said five thousand years

1154
00:50:22,160 --> 00:50:19,530
to figure that out

1155
00:50:24,800 --> 00:50:22,170
okay and 5000 years adult development

1156
00:50:26,780 --> 00:50:24,810
technology certainly other civilizations

1157
00:50:30,170 --> 00:50:26,790
that have existed for a hundred thousand

1158
00:50:31,640 --> 00:50:30,180
years well that's old news that's their

1159
00:50:34,160 --> 00:50:31,650
ancient history figuring out whether

1160
00:50:35,480 --> 00:50:34,170
there's oxygen and looking at other

1161
00:50:38,510 --> 00:50:35,490
planets and figuring out where there's

1162
00:50:39,950 --> 00:50:38,520
possible habitation so they're able to

1163
00:50:41,840 --> 00:50:39,960

do that based on what the atmosphere

1164

00:50:43,550 --> 00:50:41,850

looks like for sure they can see

1165

00:50:45,560 --> 00:50:43,560

industrial balloons if they've been

1166

00:50:48,440 --> 00:50:45,570

through that phase if they created a

1167

00:50:51,470 --> 00:50:48,450

database which is something that all

1168

00:50:53,420 --> 00:50:51,480

creatures that some level do you know as

1169

00:50:55,280 --> 00:50:53,430

other certain peers have this

1170

00:50:57,470 --> 00:50:55,290

instinctive database to know what a

1171

00:51:00,410 --> 00:50:57,480

threat isn't what isn't a threat and

1172

00:51:01,940 --> 00:51:00,420

that's something for instance that this

1173

00:51:04,150 --> 00:51:01,950

built-in database is something that

1174

00:51:06,200 --> 00:51:04,160

would become a built-in database of

1175

00:51:08,180 --> 00:51:06,210

planetary reference material probably

1176
00:51:09,920 --> 00:51:08,190
for a future civilization somewhere else

1177
00:51:12,740 --> 00:51:09,930
where there might be existent now I'm

1178
00:51:15,140 --> 00:51:12,750
glad you brought that up because you

1179
00:51:17,440 --> 00:51:15,150
know that wealth of data which is I'm

1180
00:51:21,200 --> 00:51:17,450
sure mountains of it

1181
00:51:24,700 --> 00:51:21,210
how do people strategize in order to

1182
00:51:28,160 --> 00:51:24,710
figure out how to mine that kind of data

1183
00:51:29,900 --> 00:51:28,170
well what do what strategy do they use

1184
00:51:31,820 --> 00:51:29,910
because there's no way one person can do

1185
00:51:34,040 --> 00:51:31,830
it there's got to be things that they do

1186
00:51:36,170 --> 00:51:34,050
in order to try and categorize that data

1187
00:51:38,390 --> 00:51:36,180
where does one start with that

1188
00:51:39,740 --> 00:51:38,400

incredible amount of data actually I can

1189

00:51:42,680 --> 00:51:39,750

answer that because I interviewed

1190

00:51:45,800 --> 00:51:42,690

Professor Kevin Knuth about it they he

1191

00:51:48,320 --> 00:51:45,810

has developed a software that's that

1192

00:51:49,760 --> 00:51:48,330

they run all this data through it's not

1193

00:51:51,890 --> 00:51:49,770

like they've got all this data they're

1194

00:51:53,510 --> 00:51:51,900

not looking at you know hard copy and

1195

00:51:55,760 --> 00:51:53,520

gone over it with a magnifying glass

1196

00:51:57,350 --> 00:51:55,770

they just they run it through the

1197

00:51:58,820 --> 00:51:57,360

software and they've got certain

1198

00:52:02,060 --> 00:51:58,830

parameters that they're looking for it

1199

00:52:04,100 --> 00:52:02,070

makes it a heck of a lot easier it does

1200

00:52:05,960 --> 00:52:04,110

and it's exactly right and I was gonna

1201

00:52:08,180 --> 00:52:05,970

say that that that's that's how it's

1202

00:52:10,060 --> 00:52:08,190

done you know now we use computer

1203

00:52:13,030 --> 00:52:10,070

systems in fact computers flag

1204

00:52:15,320 --> 00:52:13,040

candidates before an astronomer does and

1205

00:52:16,910 --> 00:52:15,330

then they have to go and look at what

1206

00:52:19,160 --> 00:52:16,920

the computer flagged and then they have

1207

00:52:21,230 --> 00:52:19,170

to go and say well let's confirm it see

1208

00:52:23,840 --> 00:52:21,240

there's the deal there you don't just

1209

00:52:25,400 --> 00:52:23,850

get one response from say the Kepler

1210

00:52:27,620 --> 00:52:25,410

space telescope and say look we found

1211

00:52:29,300 --> 00:52:27,630

the planet that doesn't happen that's

1212

00:52:31,130 --> 00:52:29,310

why it takes a couple of years sometimes

1213

00:52:33,019 --> 00:52:31,140

several years to be able to confirm that

1214

00:52:34,099 --> 00:52:33,029

the planet actually exists

1215

00:52:36,949 --> 00:52:34,109

and the reason is because they have to

1216

00:52:39,769 --> 00:52:36,959

do confirmations science is not as fast

1217

00:52:41,359 --> 00:52:39,779

as we'd like it to be and we know

1218

00:52:43,189 --> 00:52:41,369

science has its own arrogance built in

1219

00:52:45,319 --> 00:52:43,199

and we try to temper that you know that

1220

00:52:47,359 --> 00:52:45,329

I've learned that of course as well and

1221

00:52:51,199 --> 00:52:47,369

so that's why I'm open-minded about

1222

00:52:54,979 --> 00:52:51,209

things but when you look at how planets

1223

00:52:57,079 --> 00:52:54,989

when they're found are examined you look

1224

00:52:59,109 --> 00:52:57,089

at the fact that maybe they got a they

1225

00:53:01,279 --> 00:52:59,119

saw the light diminish around the star a

1226

00:53:02,539 --> 00:53:01,289

little bit with the Kepler space

1227

00:53:04,249 --> 00:53:02,549

telescope it was looking for something

1228

00:53:06,319 --> 00:53:04,259

called the transit where the planet

1229

00:53:08,959 --> 00:53:06,329

passes between us and the star the light

1230

00:53:11,239 --> 00:53:08,969

dims imperceptibly by a little tiny

1231

00:53:13,519 --> 00:53:11,249

amount that you've never seen the

1232

00:53:15,140 --> 00:53:13,529

telescope yourself but that the Kepler

1233

00:53:17,779 --> 00:53:15,150

telescope up in space could see at the

1234

00:53:19,999 --> 00:53:17,789

time and that would be flagged as a

1235

00:53:22,219 --> 00:53:20,009

possibility well guess what

1236

00:53:25,549 --> 00:53:22,229

stars have a magnetic storms on their

1237

00:53:28,339 --> 00:53:25,559

surface - we do our Sun has things

1238

00:53:30,380 --> 00:53:28,349

called sunspots they dim the light of a

1239

00:53:32,959 --> 00:53:30,390

star imperceptibly is a little bit and

1240

00:53:34,969 --> 00:53:32,969

that would actually be misconstrued as a

1241

00:53:36,349 --> 00:53:34,979

planet passing another star if another

1242

00:53:40,699 --> 00:53:36,359

civilization was looking at this big

1243

00:53:42,799 --> 00:53:40,709

sunspot so we have to wait we have to

1244

00:53:45,739 --> 00:53:42,809

wait let time pass for instance or

1245

00:53:48,169 --> 00:53:45,749

analyzing one particular possibility so

1246

00:53:51,140 --> 00:53:48,179

if a Kepler Kennedy star has this

1247

00:53:52,640 --> 00:53:51,150

dimming we have to wait for the amount

1248

00:53:54,859 --> 00:53:52,650

of time it takes for the star to rotate

1249

00:53:55,909 --> 00:53:54,869

around once okay what's that mean it

1250

00:53:59,120 --> 00:53:55,919

means that we have to figure out how

1251
00:54:00,769 --> 00:53:59,130
fast the Stars rotating and then wait

1252
00:54:03,349 --> 00:54:00,779
for it to come around again and if that

1253
00:54:05,299 --> 00:54:03,359
thing is not there then we know there

1254
00:54:07,819 --> 00:54:05,309
was a Sun SPOT of star spot on the star

1255
00:54:11,779 --> 00:54:07,829
a transient phenomenon on the star

1256
00:54:14,539 --> 00:54:11,789
causing it but if it is still there all

1257
00:54:17,029 --> 00:54:14,549
right or if it takes a longer time no

1258
00:54:18,829 --> 00:54:17,039
for this this object to reappear over

1259
00:54:21,679 --> 00:54:18,839
time I mean it takes us one year to go

1260
00:54:22,459 --> 00:54:21,689
around the Sun and we're 93 million

1261
00:54:24,890 --> 00:54:22,469
miles away

1262
00:54:27,169 --> 00:54:24,900
now what if we're looking for another

1263
00:54:29,719 --> 00:54:27,179

planet okay I mean we have plans to take

1264

00:54:32,239 --> 00:54:29,729

tens of years to go around the Sun we

1265

00:54:35,269 --> 00:54:32,249

couldn't confirm another planet going

1266

00:54:39,289 --> 00:54:35,279

around a star you know for kind of tens

1267

00:54:41,719 --> 00:54:39,299

of years 300 years even so the

1268

00:54:43,909 --> 00:54:41,729

confirmation process is slow but you

1269

00:54:45,949 --> 00:54:43,919

know if we see this light dimming then

1270

00:54:46,700 --> 00:54:45,959

we have we do have other ways to figure

1271

00:54:48,050 --> 00:54:46,710

out

1272

00:54:49,910 --> 00:54:48,060

what's going on if we have to wait for

1273

00:54:52,940 --> 00:54:49,920

another transit it could be all that

1274

00:54:54,560 --> 00:54:52,950

long however we also have what's called

1275

00:54:56,210 --> 00:54:54,570

radial velocity studies we can actually

1276

00:54:58,070 --> 00:54:56,220

study the motion of the star itself

1277

00:54:59,750 --> 00:54:58,080

because as the planets going around the

1278

00:55:07,310 --> 00:54:59,760

starts tugging on the star a little bit

1279

00:55:09,950 --> 00:55:07,320

pulls it one way or the other it's it's

1280

00:55:11,300 --> 00:55:09,960

a wobble of the star but it's not the

1281

00:55:14,180 --> 00:55:11,310

physical wobble that we're looking at

1282

00:55:16,250 --> 00:55:14,190

it's the light change because when light

1283

00:55:18,470 --> 00:55:16,260

comes when an object that has a that's

1284

00:55:20,329 --> 00:55:18,480

emitting light comes toward you the

1285

00:55:22,970 --> 00:55:20,339

light is shifted toward the bluer end of

1286

00:55:24,440 --> 00:55:22,980

the spectrum higher energy when it goes

1287

00:55:26,570 --> 00:55:24,450

away from you it's shifted toward the

1288

00:55:26,980 --> 00:55:26,580

red end that's called blue shift and red

1289

00:55:30,829 --> 00:55:26,990

shift

1290

00:55:32,960 --> 00:55:30,839

jenos okay and the thing is that red

1291

00:55:36,440 --> 00:55:32,970

shift and that blue shift is very

1292

00:55:38,329 --> 00:55:36,450

important because we can calculate how

1293

00:55:41,960 --> 00:55:38,339

much it's moving and that can tell us

1294

00:55:45,170 --> 00:55:41,970

the potential mass of the object that's

1295

00:55:47,359 --> 00:55:45,180

causing that shift and if that

1296

00:55:48,950 --> 00:55:47,369

correlates exactly with the transit that

1297

00:55:51,470 --> 00:55:48,960

occurred where the light dims a little

1298

00:55:55,339 --> 00:55:51,480

bit that's a confirmation that we have a

1299

00:55:56,750 --> 00:55:55,349

planet okay and so there's several ways

1300

00:55:57,980 --> 00:55:56,760

you know there's ways in which we do

1301

00:56:00,140 --> 00:55:57,990

this either that's so the radial

1302

00:56:02,390 --> 00:56:00,150

velocity measurements are often done you

1303

00:56:03,980 --> 00:56:02,400

know while the transit has been when the

1304

00:56:06,620 --> 00:56:03,990

transits found that will do a radial

1305

00:56:09,440 --> 00:56:06,630

velocity study on the star to see which

1306

00:56:11,930 --> 00:56:09,450

way it's moving and see if the if

1307

00:56:13,550 --> 00:56:11,940

planets are causing that and there's

1308

00:56:16,310 --> 00:56:13,560

there's a number of other methods for

1309

00:56:17,510 --> 00:56:16,320

doing confirmations as well there's

1310

00:56:18,980 --> 00:56:17,520

other direct observations there's

1311

00:56:21,079 --> 00:56:18,990

infrared excess where they look for the

1312

00:56:23,000 --> 00:56:21,089

heat from the planet especially the ones

1313

00:56:24,920 --> 00:56:23,010

that are farther out like Jupiter Saturn

1314

00:56:27,320 --> 00:56:24,930

you know you're understand epi' tune in

1315

00:56:32,500 --> 00:56:27,330

our solar system and Pluto Pluto's a

1316

00:56:34,790 --> 00:56:32,510

planet don't even think it's not right I

1317

00:56:37,910 --> 00:56:34,800

have a question since you're talking a

1318

00:56:40,099 --> 00:56:37,920

little bit about energy the

1319

00:56:42,170 --> 00:56:40,109

technological level of a civilization

1320

00:56:46,160 --> 00:56:42,180

that can harness all the energy that

1321

00:56:49,820 --> 00:56:46,170

falls upon the planet from its parent

1322

00:56:54,460 --> 00:56:49,830

star yes I wanted to ask you is it

1323

00:56:59,259 --> 00:56:54,470

possible for our civilization our

1324

00:57:02,079 --> 00:56:59,269

worldwide civilization to harness energy

1325

00:57:04,299 --> 00:57:02,089

from the universe to use here locally on

1326

00:57:07,359 --> 00:57:04,309

planet earth and not just use the Sun

1327

00:57:09,009 --> 00:57:07,369

you know as its sole source but use any

1328

00:57:11,559 --> 00:57:09,019

other energy that we're not currently

1329

00:57:13,149 --> 00:57:11,569

using is that a wild idea or is that

1330

00:57:15,279 --> 00:57:13,159

rational is that possible

1331

00:57:16,799 --> 00:57:15,289

well I mean I I think that the Sun is

1332

00:57:20,439 --> 00:57:16,809

probably the best provider of the energy

1333

00:57:22,479 --> 00:57:20,449

you know in our local area but look I

1334

00:57:23,799 --> 00:57:22,489

mean I I designed Gulf Stream windmills

1335

00:57:25,539 --> 00:57:23,809

you could put a windmill on the Gulf

1336

00:57:27,549 --> 00:57:25,549

Stream yeah it would sit there and

1337

00:57:30,459 --> 00:57:27,559

slowly turn and slowly turn and develop

1338

00:57:32,049 --> 00:57:30,469

a huge amount of torque so to speak it's

1339

00:57:36,489 --> 00:57:32,059

not a motor that could actually provide

1340

00:57:38,169 --> 00:57:36,499

a lot of electricity and you know whales

1341

00:57:39,939 --> 00:57:38,179

wouldn't be bothered by it or an easy

1342

00:57:42,249 --> 00:57:39,949

life because they'd moved so slowly a

1343

00:57:44,229 --> 00:57:42,259

submarine could go right through it

1344

00:57:48,130 --> 00:57:44,239

and it'd be like fabric veins that

1345

00:57:49,899 --> 00:57:48,140

wouldn't even in you know deform and get

1346

00:57:51,249 --> 00:57:49,909

ruined by a sub passing through they

1347

00:57:52,779 --> 00:57:51,259

were just to form around the sub and

1348

00:57:54,939 --> 00:57:52,789

then come back to normal after the sub

1349

00:57:57,569 --> 00:57:54,949

passed through if it didn't get tangled

1350

00:58:00,519 --> 00:57:57,579

you know but the fact of the matter is

1351

00:58:02,769 --> 00:58:00,529

you know we we have wave energy we have

1352

00:58:04,779 --> 00:58:02,779

a wind energy we have solar energy and

1353

00:58:07,269 --> 00:58:04,789

we also have the Sun itself to take

1354

00:58:10,329 --> 00:58:07,279

radiative energy from the Sun unlike

1355

00:58:12,219 --> 00:58:10,339

solar panels and convert say the the

1356

00:58:14,919 --> 00:58:12,229

energy from the Sun into say microwaves

1357

00:58:17,859 --> 00:58:14,929

to beam it back to the earth into from

1358

00:58:20,589 --> 00:58:17,869

orbiting satellites that are around the

1359

00:58:21,879 --> 00:58:20,599

Sun and those satellites could then be

1360

00:58:23,499 --> 00:58:21,889

in this microwave energy to the earth

1361

00:58:25,620 --> 00:58:23,509

which could be captured and stored and

1362

00:58:29,620 --> 00:58:25,630

then we'd be using more of the energy

1363

00:58:31,299 --> 00:58:29,630

from the Sun now you know you've Freeman

1364

00:58:34,659 --> 00:58:31,309

Dyson and you're probably familiar with

1365

00:58:37,149 --> 00:58:34,669

what's called the Dyson Sphere he

1366

00:58:38,799 --> 00:58:37,159

suggested that a civilization of Merit

1367

00:58:41,409 --> 00:58:38,809

might actually be able to build an

1368

00:58:44,319 --> 00:58:41,419

entire spherical construct around their

1369

00:58:47,049 --> 00:58:44,329

star trapping the stars energy entirely

1370

00:58:48,249 --> 00:58:47,059

within the sphere capturing the energy

1371

00:58:50,829 --> 00:58:48,259

on the inside of the surface of the

1372

00:58:52,029 --> 00:58:50,839

sphere and thus they have 100% of the

1373

00:58:53,859 --> 00:58:52,039

energy from their star that they can

1374

00:58:56,979 --> 00:58:53,869

capture that was that was actually

1375

00:58:59,499 --> 00:58:56,989

suggested very on a regarding tabbies

1376

00:59:03,189 --> 00:58:59,509

star not too long ago yeah at that

1377

00:59:04,449 --> 00:59:03,199

sector where I'm going no it's okay no

1378

00:59:08,829 --> 00:59:04,459

it's good that's synergy here that's

1379

00:59:11,150 --> 00:59:08,839

good no that's okay you I was gonna just

1380

00:59:14,270 --> 00:59:11,160

say that

1381

00:59:16,640 --> 00:59:14,280

this concept of putting a gigantic

1382

00:59:18,320 --> 00:59:16,650

sphere around the star is really

1383

00:59:20,150 --> 00:59:18,330

impractical even probably for an

1384

00:59:22,040 --> 00:59:20,160

advanced civilization because material

1385

00:59:24,830 --> 00:59:22,050

strength based on what we know about the

1386

00:59:27,020 --> 00:59:24,840

periodic table material strength is not

1387

00:59:30,560 --> 00:59:27,030

going to be able to withstand the forces

1388

00:59:33,020 --> 00:59:30,570

on it to be able to create such a

1389

00:59:35,120 --> 00:59:33,030

gigantic construct so what's it mean and

1390

00:59:37,250 --> 00:59:35,130

first of all we don't know that there's

1391

00:59:38,540 --> 00:59:37,260

that much material available in a solar

1392

00:59:41,570 --> 00:59:38,550

system to do that it would certainly

1393

00:59:43,310 --> 00:59:41,580

have to borrow it from other places they

1394

00:59:45,650 --> 00:59:43,320

certainly can't build a sphere around

1395

00:59:47,690 --> 00:59:45,660

their star based on having materials

1396

00:59:49,010 --> 00:59:47,700

just from their planet you know they'd

1397

00:59:50,330 --> 00:59:49,020

have to probably use every planet they

1398

00:59:52,430 --> 00:59:50,340

have in their solar system and then

1399

00:59:55,790 --> 00:59:52,440

something many more planets elsewhere to

1400

00:59:58,640 --> 00:59:55,800

generate the materials but that said the

1401
00:59:59,150 --> 00:59:58,650
better way is to create not a Dyson

1402
01:00:03,380 --> 00:59:59,160
Sphere

1403
01:00:05,870 --> 01:00:03,390
but a Dyson swarm and a Dyson swarm is

1404
01:00:08,810 --> 01:00:05,880
like thousands millions of satellites

1405
01:00:10,760 --> 01:00:08,820
going around the star in you know these

1406
01:00:13,490 --> 01:00:10,770
heliocentric orbits around the star and

1407
01:00:15,380 --> 01:00:13,500
they would capture the the energy from

1408
01:00:17,390 --> 01:00:15,390
the star and then beam it to the planet

1409
01:00:19,840 --> 01:00:17,400
so you could have millions of satellites

1410
01:00:23,420 --> 01:00:19,850
beaming energy probably in microwave

1411
01:00:26,330 --> 01:00:23,430
back to the planet and being captured by

1412
01:00:27,800 --> 01:00:26,340
microwave collectors in orbit storing

1413
01:00:31,040 --> 01:00:27,810

and transporting it to the ground and

1414

01:00:33,470 --> 01:00:31,050

now the civilization there would be in a

1415

01:00:36,950 --> 01:00:33,480

much better shape much better condition

1416

01:00:39,770 --> 01:00:36,960

and energy would be basically free for

1417

01:00:41,240 --> 01:00:39,780

that civilization and a lot has to

1418

01:00:43,520 --> 01:00:41,250

happen for something like that to happen

1419

01:00:45,260 --> 01:00:43,530

you know it that is eight that is a

1420

01:00:47,270 --> 01:00:45,270

choice that's made by an entire

1421

01:00:51,200 --> 01:00:47,280

civilization it's nothing that a country

1422

01:00:53,270 --> 01:00:51,210

can undertake okay now with tabi star

1423

01:00:55,700 --> 01:00:53,280

Tabitha Boyajian found that that you

1424

01:00:57,290 --> 01:00:55,710

know this planet that are the star

1425

01:00:59,300 --> 01:00:57,300

rather the star like around this planet

1426

01:01:02,870 --> 01:00:59,310

and I run this the starlight was dimming

1427

01:01:04,550 --> 01:01:02,880

and they saw this in the Kepler data but

1428

01:01:06,290 --> 01:01:04,560

then they discovered that the star has

1429

01:01:09,680 --> 01:01:06,300

been erratically dimming for over a

1430

01:01:11,870 --> 01:01:09,690

hundred years and they were thinking wow

1431

01:01:14,090 --> 01:01:11,880

what is it a swarm of comets is an

1432

01:01:17,000 --> 01:01:14,100

interstellar dust cloud and then of

1433

01:01:18,890 --> 01:01:17,010

course someone said is it a Dyson swarm

1434

01:01:20,240 --> 01:01:18,900

being constructed around the star and

1435

01:01:22,850 --> 01:01:20,250

little by little the light is being

1436

01:01:23,630 --> 01:01:22,860

diminished well I'd like to say that

1437

01:01:25,039 --> 01:01:23,640

that's true

1438

01:01:28,819 --> 01:01:25,049

the only problem is

1439

01:01:30,229 --> 01:01:28,829

it's not a steady diminishment a steady

1440

01:01:33,739 --> 01:01:30,239

diminishing of the light it's actually

1441

01:01:35,569 --> 01:01:33,749

kind of erratic much more like a cloud

1442

01:01:39,529 --> 01:01:35,579

getting in the way

1443

01:01:41,380 --> 01:01:39,539

so although tabatha Boyajian is a

1444

01:01:46,729 --> 01:01:41,390

wonderful astronomer and I really

1445

01:01:49,279 --> 01:01:46,739

respect her I do think that as a woman

1446

01:01:52,399 --> 01:01:49,289

in science you know she was very brave

1447

01:01:54,799 --> 01:01:52,409

to come out and suggest that this could

1448

01:01:58,059 --> 01:01:54,809

also be a civilization creating this I

1449

01:02:00,529 --> 01:01:58,069

mean that's a career killer to say that

1450

01:02:04,569 --> 01:02:00,539

so I wanted to mention to you we have a

1451

01:02:07,279 --> 01:02:04,579

wonderful person with us tonight and

1452

01:02:11,449 --> 01:02:07,289

it's a good friend of yours Alejandro

1453

01:02:14,509 --> 01:02:11,459

Rojas Alejandro yes yeah yes he is a

1454

01:02:16,969 --> 01:02:14,519

friend of yours and he just thinks the

1455

01:02:19,429 --> 01:02:16,979

world of you and he and Karen do and he

1456

01:02:22,999 --> 01:02:19,439

asked a question he wanted to know how

1457

01:02:25,699 --> 01:02:23,009

close are we to cold fusion we always

1458

01:02:27,079 --> 01:02:25,709

say 10 years right Wow regular fusion

1459

01:02:32,599 --> 01:02:27,089

they always say 10 years I heard that

1460

01:02:35,779 --> 01:02:32,609

for 30 years now so cold fusion may or

1461

01:02:37,669 --> 01:02:35,789

may not exist I mean I know you know we

1462

01:02:41,109 --> 01:02:37,679

need to figure out fusion I mean fusion

1463

01:02:45,319 --> 01:02:41,119

and our Sun occurs at 13 million degrees

1464

01:02:48,409 --> 01:02:45,329

and so actually 13 million Kelvin which

1465

01:02:51,139 --> 01:02:48,419

is a very very much higher temperature

1466

01:02:55,370 --> 01:02:51,149

in Fahrenheit so I want to say to you

1467

01:02:57,769 --> 01:02:55,380

that when we look at we look at fusion

1468

01:03:00,259 --> 01:02:57,779

we're talking about taking you know the

1469

01:03:06,259 --> 01:03:00,269

the raw material hydrogen gas and a star

1470

01:03:09,559 --> 01:03:06,269

and converting it into helium basically

1471

01:03:10,879 --> 01:03:09,569

and the process is pretty long you know

1472

01:03:13,209 --> 01:03:10,889

there's a bunch of steps that it takes

1473

01:03:15,499 --> 01:03:13,219

to do that it's called the proton proton

1474

01:03:18,559 --> 01:03:15,509

reaction or chain it's not really a

1475

01:03:21,019 --> 01:03:18,569

chain but it is that and so hydrogen is

1476

01:03:24,229 --> 01:03:21,029

converted to helium in our star that

1477

01:03:33,379 --> 01:03:24,239

process requires 13 million kelvins to

1478

01:03:35,659 --> 01:03:33,389

do and that that is actually the

1479

01:03:38,450 --> 01:03:35,669

smallest temperature you can have to

1480

01:03:40,640 --> 01:03:38,460

have fusion so to make this same

1481

01:03:45,559 --> 01:03:40,650

process occur on earth we would have to

1482

01:03:48,010 --> 01:03:45,569

do this as well down here and fusion is

1483

01:03:50,599 --> 01:03:48,020

just at that temperature you can imagine

1484

01:03:53,299 --> 01:03:50,609

we can't do that for more than a

1485

01:03:55,520 --> 01:03:53,309

millisecond because the temperatures are

1486

01:03:58,010 --> 01:03:55,530

so hot that we don't have anything that

1487

01:03:59,740 --> 01:03:58,020

can contain that temperature there's no

1488

01:04:03,049 --> 01:03:59,750

material we have that can contain that

1489

01:04:06,710 --> 01:04:03,059

so how would we do it that's really one

1490

01:04:11,299 --> 01:04:06,720

of the biggest hurdles sea is containing

1491

01:04:13,250 --> 01:04:11,309

the reaction now you would talk a little

1492

01:04:16,339 --> 01:04:13,260

bit about satellites I see you on our

1493

01:04:18,380 --> 01:04:16,349

list of topics to discuss you're talking

1494

01:04:21,319 --> 01:04:18,390

about satellites in the sky not being

1495

01:04:24,589 --> 01:04:21,329

crap I'm doing enough sky watching and

1496

01:04:27,490 --> 01:04:24,599

yeah you do spot them and there are some

1497

01:04:32,210 --> 01:04:27,500

people who suggest you know where when

1498

01:04:35,150 --> 01:04:32,220

the usually it's a solar panel on the

1499

01:04:38,210 --> 01:04:35,160

satellite that catches the Sun in just

1500

01:04:40,120 --> 01:04:38,220

the right angle the satellite will flare

1501

01:04:44,839 --> 01:04:40,130

up and they're called Iridium flares

1502

01:04:47,660 --> 01:04:44,849

they are spectacular to see but it's not

1503

01:04:49,700 --> 01:04:47,670

the ETS responding to people on the

1504

01:04:51,589 --> 01:04:49,710

ground saying oh please show us you're

1505

01:04:54,559 --> 01:04:51,599

really extraterrestrial and the thing

1506

01:04:57,049 --> 01:04:54,569

brightens up and everybody thinks so et

1507

01:05:01,160 --> 01:04:57,059

is communicating with us that is not the

1508

01:05:03,530 --> 01:05:01,170

case is that about right yeah I mean my

1509

01:05:04,849 --> 01:05:03,540

view okay I don't believe it everything

1510

01:05:09,589 --> 01:05:04,859

that goes through the sky without

1511

01:05:12,020 --> 01:05:09,599

blinking an FAA mandated light scheme is

1512

01:05:13,700 --> 01:05:12,030

a UFO I know that there's some people to

1513

01:05:18,470 --> 01:05:13,710

take people out on a Sky Watch who try

1514

01:05:20,150 --> 01:05:18,480

to say that satellites do not you know

1515

01:05:21,589 --> 01:05:20,160

disappear when they're over your head

1516

01:05:25,099 --> 01:05:21,599

you know is that you see them coming the

1517

01:05:28,760 --> 01:05:25,109

advantage over your head that's actually

1518

01:05:30,490 --> 01:05:28,770

untrue in fact most satellites will

1519

01:05:32,329 --> 01:05:30,500

disappear somewhere over your head

1520

01:05:34,910 --> 01:05:32,339

depending on what time that you're

1521

01:05:38,480 --> 01:05:34,920

watching and that that angle which they

1522

01:05:41,839 --> 01:05:38,490

disappear gets no steeper and steeper as

1523

01:05:43,130 --> 01:05:41,849

the night progresses and the altitude of

1524

01:05:45,920 --> 01:05:43,140

the satellite max like well actually

1525

01:05:47,120 --> 01:05:45,930

they do every time their light is

1526
01:05:49,220 --> 01:05:47,130
changing to be yellow and the reason is

1527
01:05:52,130 --> 01:05:49,230
because from their point of view which

1528
01:05:54,290 --> 01:05:52,140
is hard for people to put

1529
01:05:56,120 --> 01:05:54,300
the perspective sometimes from a

1530
01:05:58,630 --> 01:05:56,130
satellites point of view the satellite

1531
01:06:01,610 --> 01:05:58,640
is dimming because it's seeing sunset

1532
01:06:02,960 --> 01:06:01,620
red point of view it's going around the

1533
01:06:04,340 --> 01:06:02,970
edge of the earth where the Sun is now

1534
01:06:06,680 --> 01:06:04,350
reaching and going through more

1535
01:06:10,220 --> 01:06:06,690
atmosphere and just like on earth it's

1536
01:06:12,050 --> 01:06:10,230
seeing a reddish sunset and so it sees a

1537
01:06:14,510 --> 01:06:12,060
red ring a red red sunset around the

1538
01:06:16,040 --> 01:06:14,520

Earth and as it sees that the colors

1539

01:06:17,450 --> 01:06:16,050

hitting it are gonna be redder and it's

1540

01:06:20,480 --> 01:06:17,460

gonna turn more and more yellow and

1541

01:06:22,670 --> 01:06:20,490

probably even red depending on its orbit

1542

01:06:25,060 --> 01:06:22,680

and speed and that's the thing that I

1543

01:06:27,850 --> 01:06:25,070

think people have to realize you know

1544

01:06:30,050 --> 01:06:27,860

and I've been in a few sky watches where

1545

01:06:33,760 --> 01:06:30,060

people have said those kinds of things

1546

01:06:36,170 --> 01:06:33,770

and I've gently corrected him you know a

1547

01:06:38,170 --> 01:06:36,180

loyal listener he's always with us we

1548

01:06:40,970 --> 01:06:38,180

love him his name is Michael Boyle and

1549

01:06:44,180 --> 01:06:40,980

he asked I wonder if millions and

1550

01:06:46,250 --> 01:06:44,190

trillions of nano satellites create

1551
01:06:48,410 --> 01:06:46,260
these Dyson swarms and maybe they're

1552
01:06:54,620 --> 01:06:48,420
actually visiting our Sun how do you

1553
01:06:56,750 --> 01:06:54,630
feel about that you know I might as a

1554
01:07:01,940 --> 01:06:56,760
person of science I can't say that it's

1555
01:07:04,490 --> 01:07:01,950
preposterous I mean I don't think that

1556
01:07:06,410 --> 01:07:04,500
anyone can say that I mean if I were to

1557
01:07:08,810 --> 01:07:06,420
say no that's impossible then that's

1558
01:07:10,190 --> 01:07:08,820
arrogance it's the very arrogance that I

1559
01:07:14,540 --> 01:07:10,200
rally against you know and I rail

1560
01:07:16,430 --> 01:07:14,550
against so I can't say it's not true but

1561
01:07:18,380 --> 01:07:16,440
I'm not saying it is I mean I there's I

1562
01:07:19,970 --> 01:07:18,390
just said well at this point I don't

1563
01:07:20,870 --> 01:07:19,980

know I haven't really researched that at

1564

01:07:27,140 --> 01:07:20,880

all

1565

01:07:30,020 --> 01:07:27,150

statement I wanted to make from the

1566

01:07:32,180 --> 01:07:30,030

crowd that just loves you here Alejandro

1567

01:07:35,480 --> 01:07:32,190

said Karen says mark should be a science

1568

01:07:37,580 --> 01:07:35,490

professor just so you know okay

1569

01:07:40,280 --> 01:07:37,590

wonderful girl she's wonderful we love

1570

01:07:41,840 --> 01:07:40,290

Karen pirard yes and UFO Congress of

1571

01:07:44,060 --> 01:07:41,850

course everybody needs to go to UFO

1572

01:07:46,190 --> 01:07:44,070

Congress right I'm speaking there in

1573

01:07:47,510 --> 01:07:46,200

September yes you are yes everybody

1574

01:07:49,490 --> 01:07:47,520

needs to go there because there's gonna

1575

01:07:50,900 --> 01:07:49,500

be plenty of wonderful speakers and go

1576

01:07:52,700 --> 01:07:50,910

there to listen to mark I'm gonna go

1577

01:07:54,560 --> 01:07:52,710

there to listen and Mark myself and I'm

1578

01:08:00,800 --> 01:07:54,570

also gonna yes I'm gonna interview you

1579

01:08:01,460 --> 01:08:00,810

there anyway good luck mark yeah got

1580

01:08:05,450 --> 01:08:01,470

very warm

1581

01:08:07,510 --> 01:08:05,460

you were warned okay so I'm mark my

1582

01:08:11,330 --> 01:08:07,520

question is the issue of belief and

1583

01:08:14,960 --> 01:08:11,340

emotion and science and evidence issue a

1584

01:08:18,170 --> 01:08:14,970

belief emotion and science in evidence

1585

01:08:20,120 --> 01:08:18,180

can you cover that topic yeah I actually

1586

01:08:23,660 --> 01:08:20,130

I have a little bit I can mention about

1587

01:08:26,360 --> 01:08:23,670

that um one of the things that I like to

1588

01:08:29,120 --> 01:08:26,370

tell people is that to believe in

1589

01:08:31,220 --> 01:08:29,130

something is okay but you need evidence

1590

01:08:32,599 --> 01:08:31,230

to support it for that belief especially

1591

01:08:35,240 --> 01:08:32,609

if you're trying to say

1592

01:08:36,920 --> 01:08:35,250

unknown submerged objects exist well why

1593

01:08:39,170 --> 01:08:36,930

do you say that because I believe that

1594

01:08:40,880 --> 01:08:39,180

UFOs can operate underwater

1595

01:08:43,329 --> 01:08:40,890

why do you think that's true because I

1596

01:08:47,390 --> 01:08:43,339

just believe it I mean that's a belief

1597

01:08:49,970 --> 01:08:47,400

what's your proof well I just think they

1598

01:08:54,650 --> 01:08:49,980

can okay usually that's kind of what you

1599

01:08:57,260 --> 01:08:54,660

get but scientist E is always behind the

1600

01:09:01,249 --> 01:08:57,270

curve we don't have good enough science

1601
01:09:05,539 --> 01:09:01,259
to actually even explain how these UFO

1602
01:09:07,160 --> 01:09:05,549
objects can travel in our atmosphere one

1603
01:09:09,620 --> 01:09:07,170
of the people that I would suggest you

1604
01:09:11,539 --> 01:09:09,630
talk to it was Robert Schroeder I don't

1605
01:09:13,039 --> 01:09:11,549
know if you've talked to Bob at all but

1606
01:09:15,680 --> 01:09:13,049
he's a friend of mine and he's written a

1607
01:09:17,380 --> 01:09:15,690
book called solving the UFO enigma he's

1608
01:09:20,420 --> 01:09:17,390
an aerospace engineer who was actually

1609
01:09:24,499 --> 01:09:20,430
go through his book and discusses string

1610
01:09:29,530 --> 01:09:24,509
theory and why UFO propulsion that uses

1611
01:09:32,930 --> 01:09:29,540
string theory tenets is a viable

1612
01:09:35,329 --> 01:09:32,940
possibility viable hypotheses now can it

1613
01:09:37,430 --> 01:09:35,339

be tested well not neat not yet but Doug

1614

01:09:42,019 --> 01:09:37,440

Trumbull and I are creating these they

1615

01:09:44,959 --> 01:09:42,029

were called you photographers that

1616

01:09:48,769 --> 01:09:44,969

having UF owned the name doesn't bring

1617

01:09:50,450 --> 01:09:48,779

funding okay we're fighting that too you

1618

01:09:55,130 --> 01:09:50,460

know the media the media is changing but

1619

01:09:57,470 --> 01:09:55,140

not fast enough and the aerial anomaly

1620

01:09:59,930 --> 01:09:57,480

detection system is going to use a units

1621

01:10:03,440 --> 01:09:59,940

on board that will look for telltale

1622

01:10:06,229 --> 01:10:03,450

signs that Bob Schroeder's thoughts are

1623

01:10:08,660 --> 01:10:06,239

in play okay and that is the production

1624

01:10:11,150 --> 01:10:08,670

of certain radiation that comes every

1625

01:10:13,370 --> 01:10:11,160

time the these objects appear and

1626
01:10:14,860 --> 01:10:13,380
disappear from our skies now we're not

1627
01:10:16,330 --> 01:10:14,870
talking about like

1628
01:10:17,890 --> 01:10:16,340
originally unit at Doug Trumbull had

1629
01:10:19,960 --> 01:10:17,900
which was a Humvee outfitted with it

1630
01:10:24,430 --> 01:10:19,970
once it telescopes it would rise out of

1631
01:10:27,450 --> 01:10:24,440
the top that was great and but when Doug

1632
01:10:32,400 --> 01:10:27,460
and I met six or seven years ago um we

1633
01:10:36,580 --> 01:10:32,410
met because I did an NPR show on

1634
01:10:38,050 --> 01:10:36,590
Connecticut's x-files and at the end of

1635
01:10:39,280 --> 01:10:38,060
that the guy said that the host said I

1636
01:10:41,410 --> 01:10:39,290
got to get you on with Douglas Trumbull

1637
01:10:43,420 --> 01:10:41,420
I said Doug Trumbull and to me that was

1638
01:10:45,040 --> 01:10:43,430

a childhood idol what did you tell the

1639

01:10:47,230 --> 01:10:45,050

folks who aren't familiar with Doug's

1640

01:10:50,650 --> 01:10:47,240

work a little bit about him that was

1641

01:10:54,910 --> 01:10:50,660

just about it okay Frank you should be

1642

01:10:57,450 --> 01:10:54,920

here that's cool

1643

01:11:00,730 --> 01:10:57,460

Doug troubles Academy Award winner he

1644

01:11:03,400 --> 01:11:00,740

did 2001 a Space Odyssey with Stanley

1645

01:11:06,180 --> 01:11:03,410

Kubrick I mean the master he saw

1646

01:11:09,670 --> 01:11:06,190

Kubrick's methods in his head and

1647

01:11:11,230 --> 01:11:09,680

brought it to life and he does wonderful

1648

01:11:12,610 --> 01:11:11,240

talks on all these by the way if you

1649

01:11:14,800 --> 01:11:12,620

ever get a chance to hear Doug talk

1650

01:11:16,090 --> 01:11:14,810

about those experiences oh my gosh I've

1651

01:11:17,950 --> 01:11:16,100

seen these talks so many times it's

1652

01:11:19,750 --> 01:11:17,960

funny as heck when you hear how they did

1653

01:11:23,020 --> 01:11:19,760

some of these effects especially before

1654

01:11:24,370 --> 01:11:23,030

they had computers yeah use the guy well

1655

01:11:26,590 --> 01:11:24,380

I don't know if he invented it but he

1656

01:11:31,480 --> 01:11:26,600

used that I guess a known technique to

1657

01:11:34,240 --> 01:11:31,490

create that infinity wormhole that was

1658

01:11:36,400 --> 01:11:34,250

right and we just do these incredible

1659

01:11:38,290 --> 01:11:36,410

recreate me just invent new ways to do

1660

01:11:40,870 --> 01:11:38,300

things as wonderful working with Doug

1661

01:11:42,100 --> 01:11:40,880

and so Doug you know he did Blade Runner

1662

01:11:43,720 --> 01:11:42,110

he did Close Encounters of the Third

1663

01:11:44,980 --> 01:11:43,730

Kind which actually brought probably

1664

01:11:48,550 --> 01:11:44,990

some of the people listening to your

1665

01:11:52,000 --> 01:11:48,560

show you know to you apology was seeing

1666

01:11:54,310 --> 01:11:52,010

the light show and the effects that Doug

1667

01:11:58,120 --> 01:11:54,320

created for that know what Spielberg and

1668

01:12:00,540 --> 01:11:58,130

then so I was just fascinated with Doug

1669

01:12:04,750 --> 01:12:00,550

for years and and you know shows like

1670

01:12:07,060 --> 01:12:04,760

you know what is it you know he has a

1671

01:12:10,150 --> 01:12:07,070

guy she's got so many shows brainstorm

1672

01:12:11,680 --> 01:12:10,160

he did a movie you know Natalie Wood

1673

01:12:14,320 --> 01:12:11,690

actually died during the making of that

1674

01:12:16,030 --> 01:12:14,330

movie and that was his reason for

1675

01:12:17,890 --> 01:12:16,040

leaving Hollywood where he was born and

1676

01:12:20,590 --> 01:12:17,900

raised and he moved into the hills of

1677

01:12:21,970 --> 01:12:20,600

Western Massachusetts and it's where

1678

01:12:25,020 --> 01:12:21,980

they are that he created the Back to the

1679

01:12:28,330 --> 01:12:25,030

Future ride at Disney or universal right

1680

01:12:31,270 --> 01:12:28,340

and it became the the

1681

01:12:34,090 --> 01:12:31,280

quintessential ride where you were

1682

01:12:37,480 --> 01:12:34,100

immersed in an environment fully

1683

01:12:40,060 --> 01:12:37,490

immersive and he invented that

1684

01:12:43,450 --> 01:12:40,070

technology and so he used it it looks or

1685

01:12:45,040 --> 01:12:43,460

and other rides made you know belted

1686

01:12:47,620 --> 01:12:45,050

this out and used it as a technique as

1687

01:12:51,280 --> 01:12:47,630

well tremendous and then of course he

1688

01:12:53,530 --> 01:12:51,290

was the CEO of IMAX in the 90s for a

1689

01:12:55,690 --> 01:12:53,540

long time actually and he parted ways

1690

01:12:57,100 --> 01:12:55,700

with them when they didn't want to do

1691

01:12:59,440 --> 01:12:57,110

what we're doing now with the studio up

1692

01:13:02,380 --> 01:12:59,450

there and that is used higher frame rate

1693

01:13:06,040 --> 01:13:02,390

technology in full 3d with brighter

1694

01:13:08,170 --> 01:13:06,050

screens and it's just amazing with a

1695

01:13:10,660 --> 01:13:08,180

highest resolution and you know that

1696

01:13:14,740 --> 01:13:10,670

that kind of technology which he calls

1697

01:13:19,960 --> 01:13:14,750

magi ma GI is something that is going to

1698

01:13:22,960 --> 01:13:19,970

usher in a whole new era of of well I

1699

01:13:25,030 --> 01:13:22,970

should say moviemaking and also movies

1700

01:13:26,440 --> 01:13:25,040

now a lot of Directors have already used

1701

01:13:28,780 --> 01:13:26,450

this technique in their films

1702

01:13:31,390 --> 01:13:28,790

i-isn't Cameron a big proponent of the

1703

01:13:33,370 --> 01:13:31,400

faster frame rate yes actually he was

1704

01:13:36,820 --> 01:13:33,380

he's been up there a few times actually

1705

01:13:39,460 --> 01:13:36,830

at the studio and angly was there a few

1706

01:13:41,740 --> 01:13:39,470

times I mean these guys have you know

1707

01:13:43,780 --> 01:13:41,750

there's a lot of people in Hollywood are

1708

01:13:44,380 --> 01:13:43,790

embracing the technology for all the

1709

01:13:47,230 --> 01:13:44,390

right reasons

1710

01:13:49,120 --> 01:13:47,240

you know it's just that the movie houses

1711

01:13:51,850 --> 01:13:49,130

and so forth when they play the movies

1712

01:13:53,530 --> 01:13:51,860

you know they want to pack in people

1713

01:13:56,890 --> 01:13:53,540

they aren't thinking of the technology

1714

01:13:58,930 --> 01:13:56,900

so they have to get it right and you

1715

01:14:01,870 --> 01:13:58,940

know it's a slow grind but you know what

1716

01:14:04,950 --> 01:14:01,880

they're gonna get it right and so being

1717

01:14:07,680 --> 01:14:04,960

that it's not getting done right Doug

1718

01:14:11,050 --> 01:14:07,690

invented this this these pods these

1719

01:14:13,780 --> 01:14:11,060

mobile theaters that you can just take

1720

01:14:15,370 --> 01:14:13,790

and show it right and I have to tell you

1721

01:14:17,980 --> 01:14:15,380

I've been there and the inventor of the

1722

01:14:19,570 --> 01:14:17,990

woofer created the sound system for our

1723

01:14:20,440 --> 01:14:19,580

pods that are up there and I gotta tell

1724

01:14:23,890 --> 01:14:20,450

you that when you're sitting there

1725

01:14:27,010 --> 01:14:23,900

watching a movie you know I have to tell

1726

01:14:30,340 --> 01:14:27,020

you this is funny story um he put the

1727

01:14:32,260 --> 01:14:30,350

shuttle launch on you know in a one of

1728

01:14:33,820 --> 01:14:32,270

our pods up there and you're watching

1729

01:14:35,920 --> 01:14:33,830

the shuttle launch and you're going from

1730

01:14:39,910 --> 01:14:35,930

the ground from the Cape all the way to

1731

01:14:42,099 --> 01:14:39,920

space alright and you are sitting there

1732

01:14:44,049 --> 01:14:42,109

seeing it from different perspectives

1733

01:14:45,609 --> 01:14:44,059

and when the shuttle fires off you will

1734

01:14:47,529 --> 01:14:45,619

swear that you are in the shuttle

1735

01:14:50,169 --> 01:14:47,539

because all the seeds start bouncing

1736

01:14:53,189 --> 01:14:50,179

alright and the bouncing is passive

1737

01:14:55,959 --> 01:14:53,199

created by infrasound sound you cannot

1738

01:14:58,449 --> 01:14:55,969

hear but that is coursing through your

1739

01:15:00,939 --> 01:14:58,459

body and your seats it makes those seeds

1740

01:15:02,649 --> 01:15:00,949

vibrate and bounce up and down and it's

1741

01:15:05,529 --> 01:15:02,659

not sound you hear the sound you hear is

1742

01:15:08,649 --> 01:15:05,539

a different engineered sound alright but

1743

01:15:10,629 --> 01:15:08,659

it adds this this next dimension to a

1744

01:15:12,549 --> 01:15:10,639

ride experience for instance and so you

1745

01:15:14,199 --> 01:15:12,559

go all the way to space and I was

1746

01:15:17,439 --> 01:15:14,209

sitting there watching this for the

1747

01:15:19,479 --> 01:15:17,449

first time and in the middle of it I

1748

01:15:22,000 --> 01:15:19,489

look over at him and he's looking at me

1749

01:15:23,259 --> 01:15:22,010

with this funny look because I realized

1750

01:15:24,179 --> 01:15:23,269

at that point I was screaming like a

1751

01:15:26,649 --> 01:15:24,189

little girl

1752

01:15:30,629 --> 01:15:26,659

okay watching this because I'm so

1753

01:15:37,959 --> 01:15:35,290

and because I I had a debate with him

1754

01:15:40,029 --> 01:15:37,969

about whether you know we should

1755

01:15:42,729 --> 01:15:40,039

consider say using these these rides

1756

01:15:44,619 --> 01:15:42,739

simulators these f-16 simulators to

1757

01:15:47,469 --> 01:15:44,629

actually move people around actually

1758

01:15:48,579 --> 01:15:47,479

give them the feelings you know and he

1759

01:15:50,169 --> 01:15:48,589

said no I think we can do with

1760

01:15:51,549 --> 01:15:50,179

infrasound and I didn't like that I

1761

01:15:53,859 --> 01:15:51,559

thought that idea wouldn't work but what

1762

01:15:56,859 --> 01:15:53,869

do I know you know well so he did it his

1763

01:15:59,009 --> 01:15:56,869

way and the first time I rode that that

1764

01:16:04,000 --> 01:15:59,019

fast and I call it a ride

1765

01:16:06,969 --> 01:16:04,010

went through that I was like wow he was

1766

01:16:10,119 --> 01:16:06,979

right I'm gonna date myself a little bit

1767

01:16:11,529 --> 01:16:10,129

here mark but there were a few movies

1768

01:16:13,750 --> 01:16:11,539

that tried out something called

1769

01:16:16,599 --> 01:16:13,760

Sensurround in the 70s do you remember

1770

01:16:18,219 --> 01:16:16,609

that at all yeah I do okay did you ever

1771

01:16:18,549 --> 01:16:18,229

see a movie with out there there was one

1772

01:16:22,599 --> 01:16:18,559

called

1773

01:16:25,000 --> 01:16:22,609

earthquake where did you ever see a

1774

01:16:27,369 --> 01:16:25,010

movie like that gag is the experience

1775

01:16:29,319 --> 01:16:27,379

can you explain the difference in the

1776

01:16:31,419 --> 01:16:29,329

experience for yeah I mean he's probably

1777

01:16:33,069 --> 01:16:31,429

that nobody's actually listening that I

1778

01:16:35,199 --> 01:16:33,079

saw that movie in the theater would that

1779

01:16:36,489 --> 01:16:35,209

would that set up it was interesting

1780

01:16:38,439 --> 01:16:36,499

though it was a there was a nice little

1781

01:16:39,489 --> 01:16:38,449

gimmick but that sounds like it's a

1782

01:16:42,849 --> 01:16:39,499

little bit more than that

1783

01:16:44,349 --> 01:16:42,859

yeah much more than that actually that

1784

01:16:44,799 --> 01:16:44,359

the sound engineering is very very

1785

01:16:46,810 --> 01:16:44,809

different

1786

01:16:48,969 --> 01:16:46,820

you're there in sense Ron you just had

1787

01:16:51,609 --> 01:16:48,979

you know for instance if you heard that

1788

01:16:53,589 --> 01:16:51,619

loud horn behind you and it was sort of

1789

01:16:55,180 --> 01:16:53,599

behind you the actor on the screen you'd

1790

01:16:56,800 --> 01:16:55,190

hear from behind you

1791

01:16:58,570 --> 01:16:56,810

so it was kind of giving you the feeling

1792

01:17:01,209 --> 01:16:58,580

that this the sensors that the sensory

1793

01:17:05,200 --> 01:17:01,219

sounds were actually coming you know

1794

01:17:06,910 --> 01:17:05,210

from these different locations sound

1795

01:17:09,550 --> 01:17:06,920

would travel from left to right right to

1796

01:17:11,950 --> 01:17:09,560

left properly and in a very very you

1797

01:17:13,510 --> 01:17:11,960

know exaggerated way so you'd know

1798

01:17:15,939 --> 01:17:13,520

that's what was going on a plane would

1799

01:17:17,260 --> 01:17:15,949

fly by low from left to right here from

1800

01:17:18,700 --> 01:17:17,270

the left coming in and then going right

1801
01:17:21,550 --> 01:17:18,710
over your head and off to the right you

1802
01:17:23,470 --> 01:17:21,560
know it was a new experience I also

1803
01:17:28,720 --> 01:17:23,480
attended movies that were in smellorama

1804
01:17:30,400 --> 01:17:28,730
oh yeah yeah smellorama was the weirdest

1805
01:17:32,050 --> 01:17:30,410
one ever because they gave you this

1806
01:17:40,660 --> 01:17:32,060
little car didn't have to scratch and

1807
01:17:42,160 --> 01:17:40,670
sniff yes yeah it's smellorama

1808
01:17:45,729 --> 01:17:42,170
I went to one smellorama and say you

1809
01:17:47,439 --> 01:17:45,739
know I can do that again it's gotta be

1810
01:17:49,959 --> 01:17:47,449
tough though these theaters they do have

1811
01:17:52,780 --> 01:17:49,969
a lot invested in their their setups

1812
01:17:56,290 --> 01:17:52,790
sound is better today it is I there's no

1813
01:17:57,729 --> 01:17:56,300

doubt about it is you know and the other

1814

01:17:59,560 --> 01:17:57,739

thing is it means tough to get people to

1815

01:18:00,070 --> 01:17:59,570

park for money to do investigation the

1816

01:18:03,340 --> 01:18:00,080

UFOs

1817

01:18:05,350 --> 01:18:03,350

so we did a movie dogs called you Fatah

1818

01:18:08,080 --> 01:18:05,360

and it was a it's a 14 minute test movie

1819

01:18:10,209 --> 01:18:08,090

to show the entire process of the Magi

1820

01:18:14,200 --> 01:18:10,219

process which is you know the 4k

1821

01:18:17,110 --> 01:18:14,210

high-res video you know at 120 frames

1822

01:18:20,800 --> 01:18:17,120

per second you know with ultra bright

1823

01:18:22,330 --> 01:18:20,810

screens and in full 3d and you know you

1824

01:18:25,209 --> 01:18:22,340

really think the actors right in front

1825

01:18:26,979 --> 01:18:25,219

of you you actually feel that they're

1826

01:18:32,560 --> 01:18:26,989

right in front of you it's very very

1827

01:18:35,620 --> 01:18:32,570

much a true experience okay so and that

1828

01:18:36,689 --> 01:18:35,630

was 120 frames a second year say yes yes

1829

01:18:41,050 --> 01:18:36,699

okay okay

1830

01:18:42,490 --> 01:18:41,060

and typically film is 24 video it's 30

1831

01:18:44,530 --> 01:18:42,500

so you're talking about a big difference

1832

01:18:46,959 --> 01:18:44,540

there it's a huge difference you know

1833

01:18:48,910 --> 01:18:46,969

and huge difference you know and so you

1834

01:18:50,680 --> 01:18:48,920

can actually watch a car go across the

1835

01:18:53,070 --> 01:18:50,690

screen in the front row and it won't be

1836

01:18:56,410 --> 01:18:53,080

you know blurry like it would be it

1837

01:18:59,740 --> 01:18:56,420

29.97 or whatever frames per second you

1838

01:19:01,900 --> 01:18:59,750

know but the fact of the matter is you

1839

01:19:05,320 --> 01:19:01,910

know when I met Doug you that was there

1840

01:19:07,419 --> 01:19:05,330

the first Doug I was shaking I was

1841

01:19:08,950 --> 01:19:07,429

shaking because I really felt like oh my

1842

01:19:10,270 --> 01:19:08,960

gosh this guy is a

1843

01:19:12,250 --> 01:19:10,280

you know my am I even telling about my

1844

01:19:14,500 --> 01:19:12,260

website I just put it I put it was in

1845

01:19:15,940 --> 01:19:14,510

the signature at the bottom so we went

1846

01:19:17,440 --> 01:19:15,950

to the website this yield is excellent

1847

01:19:18,640 --> 01:19:17,450

every respect we could use you right now

1848

01:19:19,990 --> 01:19:18,650

come on up and let's work on a project

1849

01:19:22,540 --> 01:19:20,000

what

1850

01:19:24,700 --> 01:19:22,550

oh I started shaking and I drove up

1851

01:19:26,320 --> 01:19:24,710

there and the first time I met him I was

1852

01:19:29,440 --> 01:19:26,330

shaking like a leaf because this is the

1853

01:19:31,840 --> 01:19:29,450

man that I basically patterned my bat my

1854

01:19:35,890 --> 01:19:31,850

business after you know the work he's

1855

01:19:37,690 --> 01:19:35,900

done so anyway he was very gracious

1856

01:19:40,690 --> 01:19:37,700

turned out to be one of the best friends

1857

01:19:42,510 --> 01:19:40,700

you ever had and we've worked on a

1858

01:19:46,120 --> 01:19:42,520

number of projects we did the Apple iPad

1859

01:19:48,850 --> 01:19:46,130

Pro commercial there that was on the NFL

1860

01:19:51,250 --> 01:19:48,860

games we did Burger King commercial

1861

01:19:55,120 --> 01:19:51,260

there we did a lot of others a few other

1862

01:19:57,790 --> 01:19:55,130

projects there as well and it was a good

1863

01:19:58,840 --> 01:19:57,800

test bed for getting a team together you

1864

01:20:01,900 --> 01:19:58,850

know and that was what his purpose was

1865

01:20:03,160 --> 01:20:01,910

to get a team together and in the Burger

1866

01:20:05,170 --> 01:20:03,170

King commercial I went up there to work

1867

01:20:07,420 --> 01:20:05,180

on one thing and ended up working on

1868

01:20:10,870 --> 01:20:07,430

like 12 things but I by the end of it

1869

01:20:13,150 --> 01:20:10,880

you know 12 10 12 days later and I

1870

01:20:15,190 --> 01:20:13,160

didn't hear he didn't look at me once he

1871

01:20:16,630 --> 01:20:15,200

didn't talk to me once but he was

1872

01:20:19,390 --> 01:20:16,640

watching when I was doing at the end of

1873

01:20:20,650 --> 01:20:19,400

the days he came up and he wanted he

1874

01:20:22,660 --> 01:20:20,660

thanked me publicly in front of

1875

01:20:24,520 --> 01:20:22,670

everybody saying and literally went down

1876

01:20:26,560 --> 01:20:24,530

the list of everything I did it was like

1877

01:20:29,680 --> 01:20:26,570

wow you know he did know the guy's a

1878

01:20:34,090 --> 01:20:29,690

genius he really is and people like that

1879

01:20:37,120 --> 01:20:34,100

are really good to know you know he's a

1880

01:20:38,410 --> 01:20:37,130

good man his wife Julia my gosh she ties

1881

01:20:42,160 --> 01:20:38,420

it all together like you can't believe

1882

01:20:44,160 --> 01:20:42,170

no she's a very very powerful very very

1883

01:20:48,430 --> 01:20:44,170

strong woman she remembers everything

1884

01:20:50,979 --> 01:20:48,440

you know she minds is a just oh I can't

1885

01:20:52,510 --> 01:20:50,989

think like she does you know and I just

1886

01:20:55,209 --> 01:20:52,520

respect her very much it's just a

1887

01:20:57,100 --> 01:20:55,219

tremendous amount of interplay and Doug

1888

01:21:00,040 --> 01:20:57,110

of course depends on her a lot and she's

1889

01:21:02,320 --> 01:21:00,050

she's crazy crazy good you know so

1890

01:21:04,300 --> 01:21:02,330

that's a great place to be it's a great

1891

01:21:06,220 --> 01:21:04,310

place to learn stuff and so together

1892

01:21:10,900 --> 01:21:06,230

we're doing this UFO thing you know this

1893

01:21:14,020 --> 01:21:10,910

this UFO detection system and so that's

1894

01:21:15,970 --> 01:21:14,030

from that's and and Julia said to us

1895

01:21:18,040 --> 01:21:15,980

when he got up there and the Burger King

1896

01:21:19,630 --> 01:21:18,050

commercial she goes I know Doug likes

1897

01:21:22,150 --> 01:21:19,640

what you're doing with the UFO stuff she

1898

01:21:22,600 --> 01:21:22,160

goes but you can't talk about it

1899

01:21:29,560 --> 01:21:22,610

until

1900

01:21:31,900 --> 01:21:29,570

after this is done and I mean just sort

1901

01:21:33,460 --> 01:21:31,910

of like you know raises eyebrows and can

1902

01:21:36,280 --> 01:21:33,470

tilted aside like now that's it you know

1903

01:21:37,840 --> 01:21:36,290

she's spoken it sounds like the missus

1904

01:21:41,530 --> 01:21:37,850

is sort of like the line producer up

1905

01:21:44,700 --> 01:21:41,540

there she very much is she has her pulse

1906

01:21:47,740 --> 01:21:44,710

and everything and thankfully so because

1907

01:21:49,930 --> 01:21:47,750

she's the sweetest lady on planet earth

1908

01:21:52,950 --> 01:21:49,940

and she gets the job done like you'd

1909

01:21:57,340 --> 01:21:52,960

never believe you know so yeah it's true

1910

01:21:59,440 --> 01:21:57,350

no I wanted to ask you a few things it's

1911

01:22:02,650 --> 01:21:59,450

gonna be kind of a strange question so

1912

01:22:05,280 --> 01:22:02,660

I'm gonna vacillate between acting Pro

1913

01:22:07,360 --> 01:22:05,290

something and contrarian about it and

1914

01:22:10,390 --> 01:22:07,370

then I have a question for you

1915

01:22:13,270 --> 01:22:10,400

afterwards okay so I'm just gonna talk

1916

01:22:17,080 --> 01:22:13,280

for a while and then you can just blow

1917

01:22:19,330 --> 01:22:17,090

me off or you can actually give me some

1918

01:22:23,040 --> 01:22:19,340

feedback on what I have to say sure

1919

01:22:26,860 --> 01:22:23,050

so alien life has existed or it does

1920

01:22:29,370 --> 01:22:26,870

exist there is no valid and clear

1921

01:22:32,170 --> 01:22:29,380

evidence for the existence of alien life

1922

01:22:34,330 --> 01:22:32,180

it is very likely that extraterrestrial

1923

01:22:37,540 --> 01:22:34,340

life consists of non-rational viruses

1924

01:22:38,110 --> 01:22:37,550

bacteria or algae making it difficult to

1925

01:22:41,890 --> 01:22:38,120

discover

1926

01:22:44,110 --> 01:22:41,900

okay the galaxy is so old that other

1927

01:22:47,380 --> 01:22:44,120

technological species living in it

1928

01:22:50,920 --> 01:22:47,390

before I should be obvious by now yet we

1929

01:22:53,620 --> 01:22:50,930

have no evidence of it earth is a planet

1930

01:22:55,450 --> 01:22:53,630

there is ample evidence that life exists

1931

01:22:58,000 --> 01:22:55,460

on earth there is evidence that other

1932

01:23:00,250 --> 01:22:58,010

planets are similar to Earth there is no

1933

01:23:03,400 --> 01:23:00,260

evidence that Earth is unique there has

1934

01:23:06,760 --> 01:23:03,410

not yet been any form of contact with

1935

01:23:09,040 --> 01:23:06,770

extraterrestrial beings to move on from

1936

01:23:10,060 --> 01:23:09,050

the fact that we have to move on from

1937

01:23:11,440 --> 01:23:10,070

the Pavin searching for

1938

01:23:14,170 --> 01:23:11,450

extraterrestrials since time immemorial

1939

01:23:17,860 --> 01:23:14,180

and yet we still have no definite proof

1940

01:23:19,840 --> 01:23:17,870

they exist or alien civilizations could

1941

01:23:23,040 --> 01:23:19,850

actively hide for good reasons these are

1942

01:23:27,100 --> 01:23:23,050

all things I hear smattered throughout

1943

01:23:30,070 --> 01:23:27,110

UF ology sphere of conversations about

1944

01:23:31,930 --> 01:23:30,080

these these kinds of topics people go

1945

01:23:33,880 --> 01:23:31,940

back and forth they Jacque in between oh

1946

01:23:35,080 --> 01:23:33,890

there's extraterrestrials out there oh

1947

01:23:36,459 --> 01:23:35,090

no there's not

1948

01:23:38,770 --> 01:23:36,469

there's no scientific data

1949

01:23:40,840 --> 01:23:38,780

to correlate or defend that or support

1950

01:23:43,030 --> 01:23:40,850

it oh yes there's people say yes there

1951

01:23:45,689 --> 01:23:43,040

is there's their study that's actively

1952

01:23:48,010 --> 01:23:45,699

looking for communication from

1953

01:23:51,130 --> 01:23:48,020

extraterrestrial life I mean we could go

1954

01:23:53,260 --> 01:23:51,140

on and on can you just talk about all

1955

01:23:58,420 --> 01:23:53,270

that whatever perspective you have about

1956

01:24:00,880 --> 01:23:58,430

any of it well first of all my my

1957

01:24:03,370 --> 01:24:00,890

perspective is that if we start from a

1958

01:24:06,100 --> 01:24:03,380

scientific basis we don't need to

1959

01:24:10,540 --> 01:24:06,110

speculate so much because there is a

1960

01:24:12,820 --> 01:24:10,550

number of factual Tatem out there that

1961

01:24:16,170 --> 01:24:12,830

we can bring to bear to show people why

1962

01:24:20,500 --> 01:24:16,180

the the existence of an extraterrestrial

1963

01:24:24,939 --> 01:24:20,510

species other than microbial say might

1964

01:24:29,410 --> 01:24:24,949

very well be a reality now there's a

1965

01:24:31,180 --> 01:24:29,420

number of cultural cultural belief

1966

01:24:32,350 --> 01:24:31,190

systems on this planet that may very

1967

01:24:35,140 --> 01:24:32,360

well be based on an extraterrestrial

1968

01:24:36,910 --> 01:24:35,150

presence having been here the wondjina

1969

01:24:38,830 --> 01:24:36,920

in Australia the Kimberley region of

1970

01:24:41,950 --> 01:24:38,840

Australia the wonjun were rumored to

1971

01:24:43,770 --> 01:24:41,960

come from the sky live under the water

1972

01:24:46,600 --> 01:24:43,780

and have full mastery of the water

1973

01:24:48,970 --> 01:24:46,610

that's the longitude myth you know

1974

01:24:51,100 --> 01:24:48,980

valcamonica Italy there's there's the

1975

01:24:54,459 --> 01:24:51,110

helmeted warriors in pictographs in a

1976

01:24:56,979 --> 01:24:54,469

cave in India there are spacecraft

1977

01:24:59,950 --> 01:24:56,989

depicted in stone and cave paintings

1978

01:25:03,160 --> 01:24:59,960

actually that show weird beams emanating

1979

01:25:04,840 --> 01:25:03,170

from a disc-shaped craft now is that

1980

01:25:06,580 --> 01:25:04,850

possibly something else well sure I mean

1981

01:25:08,110 --> 01:25:06,590

you know if you look at petroglyphs they

1982

01:25:10,209 --> 01:25:08,120

you know the spaceship looking things

1983

01:25:13,689 --> 01:25:10,219

are generally clouds you know and the

1984

01:25:15,790 --> 01:25:13,699

ones with lines under them are rain but

1985

01:25:19,090 --> 01:25:15,800

these are very specific things that are

1986

01:25:23,020 --> 01:25:19,100

very different you know I did a talk in

1987

01:25:25,360 --> 01:25:23,030

Denver one year where I let loose the

1988

01:25:28,120 --> 01:25:25,370

the thing that I found and that was that

1989

01:25:30,729 --> 01:25:28,130

throughout all these disparate cultures

1990

01:25:32,470 --> 01:25:30,739

that never talk to each other there's

1991

01:25:36,100 --> 01:25:32,480

one thing that is between them all

1992

01:25:40,630 --> 01:25:36,110

that's common and that is their deities

1993

01:25:42,880 --> 01:25:40,640

are displayed with helmets or halos okay

1994

01:25:44,170 --> 01:25:42,890

we know that Renaissance painters put

1995

01:25:47,110 --> 01:25:44,180

halos around all the deities

1996

01:25:49,180 --> 01:25:47,120

well the valcamonica aliens can have

1997

01:25:49,910 --> 01:25:49,190

those could be halos as well around

1998

01:25:52,010 --> 01:25:49,920

their heads

1999

01:25:53,300 --> 01:25:52,020

or helmets now I don't think there's

2000

01:25:54,260 --> 01:25:53,310

space helmets I'll tell you why in a

2001

01:25:58,210 --> 01:25:54,270

minute

2002

01:26:01,030 --> 01:25:58,220

the wanjina also have these weird

2003

01:26:03,970 --> 01:26:01,040

helmets like like things around them

2004

01:26:10,190 --> 01:26:03,980

what I think they really would be is

2005

01:26:11,810 --> 01:26:10,200

some type of electro electro well I

2006

01:26:13,390 --> 01:26:11,820

should say kind of force field that

2007

01:26:16,160 --> 01:26:13,400

would prevent any kind of infectious

2008

01:26:19,190 --> 01:26:16,170

debris or so forth germs from getting in

2009

01:26:20,900 --> 01:26:19,200

basically a bug zapper for the aliens

2010

01:26:23,360 --> 01:26:20,910

that they can wear on their heads that

2011

01:26:26,090 --> 01:26:23,370

would keep any of those toxins or

2012

01:26:29,600 --> 01:26:26,100

viruses that are native to the planet

2013

01:26:31,280 --> 01:26:29,610

indigenous from getting in maybe that's

2014

01:26:33,340 --> 01:26:31,290

what they saw and I think they were

2015

01:26:35,840 --> 01:26:33,350

reproduced on the cave walls and in the

2016

01:26:37,610 --> 01:26:35,850

petroglyphs petroglyphs you know

2017

01:26:39,710 --> 01:26:37,620

throughout history through all these

2018

01:26:41,540 --> 01:26:39,720

disparate cultures this is something

2019

01:26:44,570 --> 01:26:41,550

that cannot be ignored

2020

01:26:49,130 --> 01:26:44,580

why did deities get shown with these

2021

01:26:52,250 --> 01:26:49,140

halos and the answer is not forthcoming

2022

01:26:55,270 --> 01:26:52,260

all right so but this is an example of

2023

01:26:57,140 --> 01:26:55,280

what you're saying okay this we have a

2024

01:26:58,460 --> 01:26:57,150

variety of things happening on this

2025

01:27:00,680 --> 01:26:58,470

planet that could have come from

2026

01:27:02,690 --> 01:27:00,690

extraterrestrial origin right now

2027

01:27:05,390 --> 01:27:02,700

there's someone I know in fact I was

2028

01:27:06,410 --> 01:27:05,400

just talking to her today a woman named

2029

01:27:09,790 --> 01:27:06,420

Kat torrelson

2030

01:27:13,430 --> 01:27:09,800

from Norway right and Kat is a woman who

2031

01:27:16,850 --> 01:27:13,440

had some very strange experiences in her

2032

01:27:19,580 --> 01:27:16,860

life and now has physical evidence in

2033

01:27:21,980 --> 01:27:19,590

her body that there is a change that

2034

01:27:23,570 --> 01:27:21,990

happened to her she could take magnets

2035

01:27:25,280 --> 01:27:23,580

and put them on her body and they show

2036

01:27:28,010 --> 01:27:25,290

up and they if they go on her body in a

2037

01:27:30,080 --> 01:27:28,020

symmetrical pattern okay

2038

01:27:31,640 --> 01:27:30,090

symmetrical pattern you put some money

2039

01:27:33,920 --> 01:27:31,650

decided for the bridge of her nose they

2040

01:27:35,960 --> 01:27:33,930

go across her the top of her chest and

2041

01:27:37,640 --> 01:27:35,970

there's they're in symmetry and these

2042

01:27:39,620 --> 01:27:37,650

are magnets it's just stick to her and

2043

01:27:42,290 --> 01:27:39,630

you can take them in you say wow they're

2044

01:27:44,030 --> 01:27:42,300

being held to her body you know she

2045

01:27:45,020 --> 01:27:44,040

doesn't know why they're there and she's

2046

01:27:46,790 --> 01:27:45,030

never known you should get her on the

2047

01:27:51,290 --> 01:27:46,800

show actually she beautiful marvelous

2048

01:27:54,110 --> 01:27:51,300

guess she speaks in English yeah and so

2049

01:27:55,760 --> 01:27:54,120

I think that for instance so so we see

2050

01:27:59,410 --> 01:27:55,770

that we have people that have this kind

2051
01:28:02,570 --> 01:27:59,420
of what we'll call trace evidence okay

2052
01:28:03,689 --> 01:28:02,580
things that have happened to them and I

2053
01:28:06,180 --> 01:28:03,699
think that that's some

2054
01:28:10,350 --> 01:28:06,190
that cannot be ignored now some of the

2055
01:28:11,880 --> 01:28:10,360
people were me so okay sorry huh she's

2056
01:28:15,000 --> 01:28:11,890
not someone that's making this up okay

2057
01:28:17,520 --> 01:28:15,010
she is actually shows you what's going

2058
01:28:18,930 --> 01:28:17,530
on okay she shows you what's happening

2059
01:28:21,120 --> 01:28:18,940
it's visible right in front of you she

2060
01:28:22,500 --> 01:28:21,130
doesn't have to say a word just throw

2061
01:28:24,660 --> 01:28:22,510
magnets up in the air stand under and

2062
01:28:26,669 --> 01:28:24,670
boom they go to doesn't do it that way

2063
01:28:30,660 --> 01:28:26,679

but they actually stick to her body in

2064

01:28:33,270 --> 01:28:30,670

very precise locations and this is an

2065

01:28:35,070 --> 01:28:33,280

example so this is a phenomena right

2066

01:28:37,530 --> 01:28:35,080

that that's happening here how do we

2067

01:28:39,780 --> 01:28:37,540

explain that how do I explain that you

2068

01:28:42,300 --> 01:28:39,790

know I mean you know is this something

2069

01:28:43,890 --> 01:28:42,310

she was born with iron deposits

2070

01:28:44,520 --> 01:28:43,900

throughout her body in strange locations

2071

01:28:47,520 --> 01:28:44,530

or something

2072

01:28:49,410 --> 01:28:47,530

who knows we'll have to get her on and

2073

01:28:51,450 --> 01:28:49,420

ask her directly but she's also got the

2074

01:28:56,910 --> 01:28:51,460

alien contact as well to go along with

2075

01:28:58,290 --> 01:28:56,920

this you say yes she's like a book that

2076

01:29:00,110 --> 01:28:58,300

she just came out with you know and I'm

2077

01:29:02,550 --> 01:29:00,120

not trying to promote a book right

2078

01:29:04,439 --> 01:29:02,560

what's the book we I know who she is

2079

01:29:07,200 --> 01:29:04,449

she's a loving person okay yeah she

2080

01:29:09,660 --> 01:29:07,210

really is and yeah I mean it's called a

2081

01:29:12,330 --> 01:29:09,670

hybrid story and it's available on her

2082

01:29:22,640 --> 01:29:12,340

site which is a it's pronounced kepis

2083

01:29:28,410 --> 01:29:26,040

it's a good book yeah and I think that

2084

01:29:30,510 --> 01:29:28,420

you know what I'm talking about this for

2085

01:29:33,380 --> 01:29:30,520

a reason and that is that these types of

2086

01:29:38,220 --> 01:29:33,390

experiences these types of actual

2087

01:29:41,430 --> 01:29:38,230

tangible processes that might be might

2088

01:29:44,280 --> 01:29:41,440

being undertaken by alien beings on on

2089

01:29:45,750 --> 01:29:44,290

people here on the planet they're all

2090

01:29:47,820 --> 01:29:45,760

questionable because they're always so

2091

01:29:50,459 --> 01:29:47,830

subjective you know oh well we don't

2092

01:29:52,979 --> 01:29:50,469

know for sure we never know for sure I

2093

01:29:54,270 --> 01:29:52,989

don't have any evidence okay I'm like

2094

01:29:56,490 --> 01:29:54,280

that too I want to see evidence as well

2095

01:29:59,880 --> 01:29:56,500

and you can find the book so our

2096

01:30:04,380 --> 01:29:59,890

listeners can hear that yeah yeah it's a

2097

01:30:11,310 --> 01:30:04,390

it's a Kate Thorkelson calm it's a que a

2098

01:30:12,930 --> 01:30:11,320

te th o r v al d s en calm and you can

2099

01:30:14,430 --> 01:30:12,940

get the book of hybrid story on her site

2100

01:30:16,939 --> 01:30:14,440

I'm not getting anything from the book I

2101

01:30:18,949 --> 01:30:16,949

mean I just no no I know it also

2102

01:30:20,000 --> 01:30:18,959

like to make it clear people that write

2103

01:30:23,029 --> 01:30:20,010

books in ufology

2104

01:30:25,430 --> 01:30:23,039

they don't make any money I don't care

2105

01:30:28,009 --> 01:30:25,440

what anybody says it's very rare when

2106

01:30:30,919 --> 01:30:28,019

that happens so we would love to be able

2107

01:30:33,799 --> 01:30:30,929

to mention we're not we're fine with

2108

01:30:36,080 --> 01:30:33,809

commercialization by the way well all

2109

01:30:38,060 --> 01:30:36,090

the folks at home do watch the full'

2110

01:30:39,919 --> 01:30:38,070

commercials when they play on our

2111

01:30:43,430 --> 01:30:39,929

channel now because we're monetized now

2112

01:30:45,790 --> 01:30:43,440

so we want those pennies rolling in we

2113

01:30:48,350 --> 01:30:45,800

need we need the money

2114

01:30:50,330 --> 01:30:48,360

we need the mite we're desperate we're

2115

01:30:52,160 --> 01:30:50,340

desperate for the money so by all means

2116

01:30:53,810 --> 01:30:52,170

all you got to do you don't have to send

2117

01:30:55,879 --> 01:30:53,820

a dime but watch those commercials you

2118

01:30:57,140 --> 01:30:55,889

can watch anything else you want in some

2119

01:30:58,939 --> 01:30:57,150

other window but let the full

2120

01:31:02,870 --> 01:30:58,949

commercials run because that's how we

2121

01:31:11,689 --> 01:31:02,880

get paid clear that Frank is taking all

2122

01:31:13,370 --> 01:31:11,699

the money I'm not getting any wants it

2123

01:31:15,589 --> 01:31:13,380

and you know I'm okay with that

2124

01:31:17,919 --> 01:31:15,599

I'm okay I got it I need the money more

2125

01:31:21,140 --> 01:31:17,929

than she does let's put it that way okay

2126

01:31:24,949 --> 01:31:21,150

so I have a question that I think it's

2127

01:31:28,430 --> 01:31:24,959

important and that is it's just a random

2128

01:31:32,870 --> 01:31:28,440

question it's what is the hallmark of

2129

01:31:37,520 --> 01:31:32,880

your research mark the hallmark of mine

2130

01:31:39,919 --> 01:31:37,530

is that I'm taking the astronomical

2131

01:31:42,439 --> 01:31:39,929

knowledge that I have and I'm showing

2132

01:31:46,850 --> 01:31:42,449

people why it's important to understand

2133

01:31:50,390 --> 01:31:46,860

because this information is how you can

2134

01:31:52,729 --> 01:31:50,400

justify the belief you have that you

2135

01:31:54,979 --> 01:31:52,739

usually may have no justification for I

2136

01:31:57,020 --> 01:31:54,989

believe they're there because I can't

2137

01:31:58,180 --> 01:31:57,030

imagine the universe's you know we're

2138

01:32:00,850 --> 01:31:58,190

that we're the only ones in the universe

2139

01:32:03,739 --> 01:32:00,860

well if you have a little bit of

2140

01:32:05,359 --> 01:32:03,749

knowledge you'll be dangerous and if you

2141

01:32:07,759 --> 01:32:05,369

understand some astronomy then you will

2142

01:32:11,689 --> 01:32:07,769

be able to take that and apply it to

2143

01:32:13,129 --> 01:32:11,699

other claims people make you know for

2144

01:32:18,370 --> 01:32:13,139

instance I don't believe anyone's been

2145

01:32:20,989 --> 01:32:18,380

to Mars with Barack Obama okay I don't I

2146

01:32:24,109 --> 01:32:20,999

don't buy that for a minute you type out

2147

01:32:28,100 --> 01:32:24,119

Andrew basiago yeah I don't mind that

2148

01:32:30,680 --> 01:32:28,110

okay now is that arrogance no that's

2149

01:32:33,050 --> 01:32:30,690

practicality I think that

2150

01:32:36,950 --> 01:32:33,060

those kinds of things simply couldn't

2151
01:32:39,290 --> 01:32:36,960
have gone unnoticed so you don't think

2152
01:32:43,940 --> 01:32:39,300
he went there to fight aliens on Mars I

2153
01:32:45,590 --> 01:32:43,950
do not believe he's fighting around his

2154
01:32:49,100 --> 01:32:45,600
head I think and then it's just me but

2155
01:32:51,680 --> 01:32:49,110
look and I I'm very happy to say these

2156
01:32:53,270 --> 01:32:51,690
things frankly because you know it's

2157
01:32:55,880 --> 01:32:53,280
like with other people in ufology that

2158
01:32:57,710 --> 01:32:55,890
make all these claims and and say come

2159
01:32:59,900 --> 01:32:57,720
to me I know all the answers that's

2160
01:33:02,390 --> 01:32:59,910
baloney because you don't none of those

2161
01:33:04,190 --> 01:33:02,400
people know the answers no one knows the

2162
01:33:06,530 --> 01:33:04,200
answers you know and I don't think that

2163
01:33:08,420 --> 01:33:06,540

it's I don't think we can just say we

2164

01:33:10,580 --> 01:33:08,430

know the answers and then charge a large

2165

01:33:12,350 --> 01:33:10,590

dollar amount to know the answer and

2166

01:33:14,420 --> 01:33:12,360

then get some kind of an answer that

2167

01:33:16,730 --> 01:33:14,430

isn't enough you know and that's all we

2168

01:33:18,860 --> 01:33:16,740

get nice so we'll just forget about the

2169

01:33:21,200 --> 01:33:18,870

Pegasus project then anyway I was gonna

2170

01:33:23,150 --> 01:33:21,210

ask you what is your takeaway regarding

2171

01:33:25,490 --> 01:33:23,160

the topic of science combined with

2172

01:33:27,820 --> 01:33:25,500

ufology and other phenomena I'm gonna

2173

01:33:31,070 --> 01:33:27,830

ask that again what is your takeaway

2174

01:33:33,320 --> 01:33:31,080

regarding the topic of science married

2175

01:33:36,490 --> 01:33:33,330

two combined with ufology and other

2176
01:33:40,130 --> 01:33:36,500
phenomena is it and why is it important

2177
01:33:45,350 --> 01:33:40,140
to you it's very important because if we

2178
01:33:49,190 --> 01:33:45,360
understand that there is is is some

2179
01:33:53,330 --> 01:33:49,200
factual scientific data that sits behind

2180
01:33:57,140 --> 01:33:53,340
the claims that are made then it's more

2181
01:34:00,260 --> 01:33:57,150
palatable alright to the media in

2182
01:34:02,060 --> 01:34:00,270
particular now the media is the biggest

2183
01:34:06,260 --> 01:34:02,070
enemy to you apology there is it's not

2184
01:34:07,430 --> 01:34:06,270
the government it's the media okay and

2185
01:34:08,930 --> 01:34:07,440
Richard the ones a good friend of mine

2186
01:34:10,370 --> 01:34:08,940
but I can tell you that you know he

2187
01:34:12,620 --> 01:34:10,380
might have a slightly different opinion

2188
01:34:14,420 --> 01:34:12,630

about it but I do believe that the media

2189

01:34:17,210 --> 01:34:14,430

is one of the biggest enemies because

2190

01:34:19,070 --> 01:34:17,220

the media wants to sensationalize and

2191

01:34:22,790 --> 01:34:19,080

solve ratings and get ratings and stuff

2192

01:34:25,040 --> 01:34:22,800

and so they will at a conference that's

2193

01:34:26,330 --> 01:34:25,050

a serious conference on you apology they

2194

01:34:27,680 --> 01:34:26,340

will go and take photographs of the

2195

01:34:29,240 --> 01:34:27,690

green blow-up alien that someone's got

2196

01:34:32,330 --> 01:34:29,250

in a vendor table and make that the

2197

01:34:35,720 --> 01:34:32,340

centerpiece of their story okay so if

2198

01:34:40,070 --> 01:34:35,730

you have a scientific background and you

2199

01:34:41,900 --> 01:34:40,080

use science to show why aliens from

2200

01:34:43,970 --> 01:34:41,910

another planet elsewhere in the universe

2201

01:34:45,860 --> 01:34:43,980

could very well be here

2202

01:34:47,600 --> 01:34:45,870

and you provided a methodology by which

2203

01:34:50,480 --> 01:34:47,610

they could travel here in an

2204

01:34:53,150 --> 01:34:50,490

interstellar manner well then the media

2205

01:34:55,550 --> 01:34:53,160

says what I don't understand I don't get

2206

01:34:57,200 --> 01:34:55,560

it but I guess he should I guess I guess

2207

01:34:59,300 --> 01:34:57,210

it's right and they get consultants in

2208

01:35:02,230 --> 01:34:59,310

and other people that say well yeah I

2209

01:35:04,220 --> 01:35:02,240

mean there is a bunch of string theory

2210

01:35:06,800 --> 01:35:04,230

possibilities and there's the Alcubierre

2211

01:35:09,020 --> 01:35:06,810

drive for going shorter distances

2212

01:35:10,580 --> 01:35:09,030

interstellar wise no we're in fact I

2213

01:35:13,790 --> 01:35:10,590

have paid researchers doing that right

2214

01:35:16,270 --> 01:35:13,800

now you know working on that so the fact

2215

01:35:18,680 --> 01:35:16,280

that these things are out there will

2216

01:35:20,600 --> 01:35:18,690

legitimate you apology in a way that's

2217

01:35:23,270 --> 01:35:20,610

never before been done and so the

2218

01:35:25,640 --> 01:35:23,280

science is very important you have to go

2219

01:35:28,610 --> 01:35:25,650

hand in hand with the science if the

2220

01:35:30,620 --> 01:35:28,620

science says it can't be done well then

2221

01:35:32,690 --> 01:35:30,630

that's based on our science we know now

2222

01:35:38,330 --> 01:35:32,700

but truly there are other things that

2223

01:35:41,060 --> 01:35:38,340

can a little bit of trouble with the

2224

01:35:43,040 --> 01:35:41,070

with the sound here it probably is just

2225

01:35:44,840 --> 01:35:43,050

about a good enough time to wrap up but

2226

01:35:46,430 --> 01:35:44,850

I do want to run that before we get out

2227

01:35:46,940 --> 01:35:46,440

of here I do want to run something by

2228

01:35:48,620 --> 01:35:46,950

you

2229

01:35:51,490 --> 01:35:48,630

this set came actually from a

2230

01:35:54,380 --> 01:35:51,500

conversation regarding somebody that you

2231

01:35:56,840 --> 01:35:54,390

hold in high regard that Carl Sagan and

2232

01:35:59,990 --> 01:35:56,850

Kip Thorne where he said it's it's not

2233

01:36:03,770 --> 01:36:00,000

only important to think about what that

2234

01:36:06,080 --> 01:36:03,780

could be possible by an advanced ET

2235

01:36:07,760 --> 01:36:06,090

civilization or maybe us you know a few

2236

01:36:09,980 --> 01:36:07,770

thousand years down the road but it's

2237

01:36:11,990 --> 01:36:09,990

also important to think about what would

2238

01:36:15,290 --> 01:36:12,000

never be possible regardless of how

2239

01:36:17,060 --> 01:36:15,300

advanced he became and I think I think

2240

01:36:19,840 --> 01:36:17,070

that was a really good point I think it

2241

01:36:22,280 --> 01:36:19,850

was a really good point so yeah I mean

2242

01:36:23,780 --> 01:36:22,290

Carl Sagan my favorite astronomer Kip

2243

01:36:26,410 --> 01:36:23,790

Thorne my favorite Astra business I mean

2244

01:36:29,300 --> 01:36:26,420

I side with Kip Thorne for several hours

2245

01:36:34,010 --> 01:36:29,310

so many years ago and we talked about

2246

01:36:35,450 --> 01:36:34,020

black holes and he was actually saying

2247

01:36:37,730 --> 01:36:35,460

he had an argument with Stephen Hawking

2248

01:36:39,470 --> 01:36:37,740

and that this is this is this gives you

2249

01:36:42,020 --> 01:36:39,480

an idea of how the greatest minds on the

2250

01:36:43,700 --> 01:36:42,030

earth think rate he was arguing with

2251
01:36:46,460 --> 01:36:43,710
Stephen Hawking that we could kind of do

2252
01:36:48,770 --> 01:36:46,470
what you might call time-travel it's

2253
01:36:51,920 --> 01:36:48,780
really more like information time-travel

2254
01:36:54,200 --> 01:36:51,930
not really time travel per se he said

2255
01:36:55,640 --> 01:36:54,210
you could see yourself under the right

2256
01:36:57,440 --> 01:36:55,650
conditions you could be traveling into a

2257
01:36:59,030 --> 01:36:57,450
black hole with your spaceship

2258
01:37:00,890 --> 01:36:59,040
regardless of the fact that you'd be

2259
01:37:03,620 --> 01:37:00,900
totally string of light and liquefied

2260
01:37:05,210 --> 01:37:03,630
doing so okay but if you could there is

2261
01:37:06,950 --> 01:37:05,220
a possibility that you might also see

2262
01:37:10,430 --> 01:37:06,960
yourself emerging from the complimentary

2263
01:37:12,770 --> 01:37:10,440

white hole before you actually enter the

2264

01:37:15,860 --> 01:37:12,780

black hole and he was talk about the

2265

01:37:18,170 --> 01:37:15,870

information from the ship doing so and

2266

01:37:21,110 --> 01:37:18,180

Hawking said no no that's not true and

2267

01:37:24,830 --> 01:37:21,120

so Thorne wrote his argument to Hawking

2268

01:37:26,630 --> 01:37:24,840

and Hawking read it in or wrote an

2269

01:37:29,810 --> 01:37:26,640

argument in beyond and you know against

2270

01:37:32,990 --> 01:37:29,820

it back to Kip and they read each

2271

01:37:34,780 --> 01:37:33,000

other's arguments and said oh you're

2272

01:37:36,890 --> 01:37:34,790

right Stephen you can't do it and

2273

01:37:40,550 --> 01:37:36,900

Hawking said actually you're right Kip

2274

01:37:43,490 --> 01:37:40,560

you can actually swap positions on the

2275

01:37:45,410 --> 01:37:43,500

whole concept I think that's a little

2276

01:37:47,150 --> 01:37:45,420

bit of a myth that gets out there that

2277

01:37:49,580 --> 01:37:47,160

science is monolithic and that these

2278

01:37:51,740 --> 01:37:49,590

guys don't have serious disagreements

2279

01:37:54,290 --> 01:37:51,750

about all manner of things and their

2280

01:37:55,730 --> 01:37:54,300

fields exactly right you know but it

2281

01:37:57,950 --> 01:37:55,740

also shows you that even the greatest

2282

01:38:01,310 --> 01:37:57,960

minds even the greatest minds on our

2283

01:38:04,580 --> 01:38:01,320

planet can't agree all the time because

2284

01:38:07,010 --> 01:38:04,590

the science is still not quite ready for

2285

01:38:08,840 --> 01:38:07,020

our consumption we're not quite there

2286

01:38:11,120 --> 01:38:08,850

yet there's a lot we don't know and

2287

01:38:13,370 --> 01:38:11,130

that's I think probably why I'm into

2288

01:38:14,840 --> 01:38:13,380

science in the first place because every

2289

01:38:17,030 --> 01:38:14,850

time I wake up there's new things that I

2290

01:38:19,730 --> 01:38:17,040

don't understand out there and so Frank

2291

01:38:21,800 --> 01:38:19,740

I did want to ask mark a question that

2292

01:38:25,160 --> 01:38:21,810

is my understanding there are three main

2293

01:38:28,400 --> 01:38:25,170

types of models for science in please

2294

01:38:29,750 --> 01:38:28,410

correct me mark if I'm wrong that is are

2295

01:38:31,940 --> 01:38:29,760

their physical mathematical and

2296

01:38:33,950 --> 01:38:31,950

conceptual now let's just say that's

2297

01:38:35,960 --> 01:38:33,960

true if the three main types of models

2298

01:38:38,570 --> 01:38:35,970

being used in science or physical

2299

01:38:41,390 --> 01:38:38,580

mathematical and conceptual and now

2300

01:38:42,980 --> 01:38:41,400

let's just assume for a moment that it's

2301

01:38:46,820 --> 01:38:42,990

possible that if there are

2302

01:38:48,470 --> 01:38:46,830

extraterrestrials that they are eons

2303

01:38:51,770 --> 01:38:48,480

ahead of us millions of years ahead of

2304

01:38:54,920 --> 01:38:51,780

us would they still be using that kind

2305

01:38:58,070 --> 01:38:54,930

of possibly outdated scientific model or

2306

01:39:00,200 --> 01:38:58,080

models that were using now or not are

2307

01:39:03,170 --> 01:39:00,210

they using something else or they even

2308

01:39:06,950 --> 01:39:03,180

bothering the science at that point well

2309

01:39:08,720 --> 01:39:06,960

I think we need to know we we this is

2310

01:39:11,100 --> 01:39:08,730

like kind of putting the cart before the

2311

01:39:14,160 --> 01:39:11,110

horse in a way we have to understand

2312

01:39:15,690 --> 01:39:14,170

what the civilization is based on where

2313

01:39:17,370 --> 01:39:15,700

how did it come about you know we have

2314

01:39:18,750 --> 01:39:17,380

to know a lot about the civilization

2315

01:39:23,670 --> 01:39:18,760

before we can make that decision for

2316

01:39:28,920 --> 01:39:23,680

instance we can't impose our morality on

2317

01:39:30,930 --> 01:39:28,930

a visiting aliens race because we like

2318

01:39:32,820 --> 01:39:30,940

to we we are preservers of life in

2319

01:39:33,720 --> 01:39:32,830

general we like to preserve life we you

2320

01:39:35,520 --> 01:39:33,730

know if you see a little puppy on the

2321

01:39:37,460 --> 01:39:35,530

road about that you hit by a car you

2322

01:39:40,440 --> 01:39:37,470

will probably risk your life to save it

2323

01:39:42,990 --> 01:39:40,450

okay that's a decision you make because

2324

01:39:44,400 --> 01:39:43,000

you want to help protect life that seems

2325

01:39:46,860 --> 01:39:44,410

like it's less capable of protecting

2326

01:39:49,290 --> 01:39:46,870

itself okay

2327

01:39:52,440 --> 01:39:49,300

would an alien race necessarily feel

2328

01:39:56,130 --> 01:39:52,450

that way not necessarily it might not

2329

01:39:58,470 --> 01:39:56,140

even enter the mind of such a race of

2330

01:40:00,540 --> 01:39:58,480

beings and it's not because they're evil

2331

01:40:01,760 --> 01:40:00,550

and rotten but it's because that's how

2332

01:40:04,620 --> 01:40:01,770

they evolved

2333

01:40:07,050 --> 01:40:04,630

maybe that's the revolution you know

2334

01:40:10,020 --> 01:40:07,060

maybe they don't have the concepts of

2335

01:40:13,320 --> 01:40:10,030

like love maybe they don't mate maybe

2336

01:40:15,390 --> 01:40:13,330

they proceeded to maybe they're all

2337

01:40:17,850 --> 01:40:15,400

test-tube preachers who knows maybe

2338

01:40:20,310 --> 01:40:17,860

they're engineered maybe the aliens

2339

01:40:24,720 --> 01:40:20,320

visiting our planet now are biological

2340

01:40:27,510 --> 01:40:24,730

robots okay as a possibility and so you

2341

01:40:30,590 --> 01:40:27,520

know we can't impose any of our

2342

01:40:34,770 --> 01:40:30,600

scientific understandings constructs and

2343

01:40:37,050 --> 01:40:34,780

philosophies on an alien race because we

2344

01:40:38,580 --> 01:40:37,060

simply don't know how they think we can

2345

01:40:41,310 --> 01:40:38,590

always speculate like you say I mean and

2346

01:40:46,650 --> 01:40:41,320

that's always fun to do you know but we

2347

01:40:49,110 --> 01:40:46,660

can't really say so I I can't give an

2348

01:40:52,770 --> 01:40:49,120

answer because there's no way to

2349

01:40:54,840 --> 01:40:52,780

actually we can't impose our will or our

2350

01:40:57,180 --> 01:40:54,850

thought processes on an alien race that

2351
01:40:59,820 --> 01:40:57,190
we haven't even met yet well you would

2352
01:41:02,670 --> 01:40:59,830
talked earlier about various animals on

2353
01:41:05,460 --> 01:41:02,680
earth and how certain behaviors are

2354
01:41:07,890 --> 01:41:05,470
common and then the high-powered jets go

2355
01:41:09,840 --> 01:41:07,900
off and then they're gone so we do see a

2356
01:41:12,150 --> 01:41:09,850
little bit of that chase game in the UFO

2357
01:41:15,510 --> 01:41:12,160
behavior have you have you noticed that

2358
01:41:17,850 --> 01:41:15,520
sort of thing yourself mark yeah I mean

2359
01:41:19,830 --> 01:41:17,860
in the Nimitz encounter and you know the

2360
01:41:21,990 --> 01:41:19,840
whole 8a program and Alejandro's

2361
01:41:24,510 --> 01:41:22,000
excellent resource I'm talking about

2362
01:41:29,970 --> 01:41:24,520
these things as well

2363
01:41:32,160 --> 01:41:29,980

the you see what seems to be a chase

2364

01:41:35,670 --> 01:41:32,170

type mentality being undertaken by the

2365

01:41:38,130 --> 01:41:35,680

UFO in one case there was a female a

2366

01:41:41,340 --> 01:41:38,140

person who was flying one of the f-18

2367

01:41:43,830 --> 01:41:41,350

Hornets I think and she noticed the the

2368

01:41:45,630 --> 01:41:43,840

water churning down below and then this

2369

01:41:48,840 --> 01:41:45,640

thing shot away back to where they were

2370

01:41:51,030 --> 01:41:48,850

supposed to be earlier and or where they

2371

01:41:54,420 --> 01:41:51,040

were going to and it seemed like it was

2372

01:41:55,650 --> 01:41:54,430

playing kind of a game with them so and

2373

01:41:59,640 --> 01:41:55,660

I can have some of those facts wrong

2374

01:42:02,550 --> 01:41:59,650

because includes a lot of other cases

2375

01:42:05,430 --> 01:42:02,560

too sure so it's possible that that's

2376

01:42:07,710 --> 01:42:05,440

that's being done and yes ask okay

2377

01:42:09,360 --> 01:42:07,720

what's the reason well is it the same

2378

01:42:13,500 --> 01:42:09,370

reason we throw a dog a bone and say

2379

01:42:15,750 --> 01:42:13,510

fetch is that what's going on I mean are

2380

01:42:17,700 --> 01:42:15,760

we seen at that level I could tell you

2381

01:42:19,500 --> 01:42:17,710

this I'll say this right now when people

2382

01:42:21,170 --> 01:42:19,510

say that we're just ants to an alien

2383

01:42:24,330 --> 01:42:21,180

civilization I don't believe that I

2384

01:42:27,060 --> 01:42:24,340

don't believe that can an skill you know

2385

01:42:29,490 --> 01:42:27,070

okay if you step on an anthill are the

2386

01:42:32,130 --> 01:42:29,500

ants gonna reach out and and and shoot

2387

01:42:33,810 --> 01:42:32,140

you and hurt you with the possibility of

2388

01:42:37,440 --> 01:42:33,820

destroying your ship no not at all

2389

01:42:39,420 --> 01:42:37,450

however if you there's some ants in a

2390

01:42:43,110 --> 01:42:39,430

very dangerous okay but let's be clear

2391

01:42:44,700 --> 01:42:43,120

you can run away from them okay aliens

2392

01:42:46,740 --> 01:42:44,710

are gonna be uses of the the people of

2393

01:42:50,640 --> 01:42:46,750

the earth as something to be dealt with

2394

01:42:51,900 --> 01:42:50,650

in with caution all right and they're

2395

01:42:53,370 --> 01:42:51,910

gonna be very careful about it

2396

01:42:54,720 --> 01:42:53,380

if you were coming here you would not

2397

01:42:56,610 --> 01:42:54,730

put yourself down on the White House

2398

01:42:58,890 --> 01:42:56,620

lawn and say I am here you would

2399

01:43:01,740 --> 01:42:58,900

surreptitiously in you look at us and

2400

01:43:03,990 --> 01:43:01,750

try and size us up you would hide in the

2401

01:43:06,870 --> 01:43:04,000

oceans because we're not there we're not

2402

01:43:09,240 --> 01:43:06,880

down in the oceans alright if I ask you

2403

01:43:10,380 --> 01:43:09,250

right now how many submarines do we own

2404

01:43:14,040 --> 01:43:10,390

that are down in the Mariana Trench

2405

01:43:15,510 --> 01:43:14,050

absolutely none okay we have a few that

2406

01:43:19,110 --> 01:43:15,520

have gone down there for a brief period

2407

01:43:21,990 --> 01:43:19,120

of time right and Jim Cameron actually

2408

01:43:25,950 --> 01:43:22,000

brought one down there okay but the fact

2409

01:43:30,090 --> 01:43:25,960

is we're not there we don't exist down

2410

01:43:30,810 --> 01:43:30,100

there there's places on our world where

2411

01:43:33,120 --> 01:43:30,820

they hide

2412

01:43:35,160 --> 01:43:33,130

and if they can go interstellar and

2413

01:43:38,400 --> 01:43:35,170

worry about the vacuum of space well

2414

01:43:41,100 --> 01:43:38,410

then they could probably manage these

2415

01:43:42,590 --> 01:43:41,110

deep-ocean locations as well and go down

2416

01:43:46,590 --> 01:43:42,600

there through the medium of the water

2417

01:43:47,610 --> 01:43:46,600

and and hide from us that way so when

2418

01:43:49,770 --> 01:43:47,620

you look at the for instance the number

2419

01:43:51,600 --> 01:43:49,780

of USO reports around the world the

2420

01:43:52,920 --> 01:43:51,610

Russians had lots of them okay Americans

2421

01:43:53,870 --> 01:43:52,930

have lots of them there's programs in

2422

01:43:56,040 --> 01:43:53,880

place to study them

2423

01:43:57,960 --> 01:43:56,050

that's not for nothing that's because

2424

01:44:00,410 --> 01:43:57,970

they're happening okay

2425

01:44:02,870 --> 01:44:00,420

the Navy is just come out and said hey

2426

01:44:06,180 --> 01:44:02,880

UFOs are something we have to deal with

2427

01:44:09,030 --> 01:44:06,190

and we're gonna all the time but

2428

01:44:11,610 --> 01:44:09,040

frequently frequently enough that it

2429

01:44:13,380 --> 01:44:11,620

merits attention hey I think that's

2430

01:44:16,320 --> 01:44:13,390

great I want to see this happen unless

2431

01:44:19,470 --> 01:44:16,330

he disclosure but you know I think that

2432

01:44:21,060 --> 01:44:19,480

our planet is only so big and any

2433

01:44:22,590 --> 01:44:21,070

visiting species would have seen the

2434

01:44:24,990 --> 01:44:22,600

oxygen in our atmosphere and said hey

2435

01:44:26,310 --> 01:44:25,000

there's life there because otherwise the

2436

01:44:28,860 --> 01:44:26,320

oxygen wouldn't be in the air is being

2437

01:44:32,760 --> 01:44:28,870

replenished by something you know and

2438

01:44:36,000 --> 01:44:32,770

that something is life okay I have one

2439

01:44:38,310 --> 01:44:36,010

last question that's it you sure but

2440

01:44:41,130 --> 01:44:38,320

mine mines a very different kind of

2441

01:44:43,830 --> 01:44:41,140

question mark it's very it's kind of

2442

01:44:47,670 --> 01:44:43,840

self-defeat this way okay so my question

2443

01:44:51,960 --> 01:44:47,680

is this okay let me preface it with a

2444

01:44:55,110 --> 01:44:51,970

few things first Ray Bradbury who is an

2445

01:44:56,760 --> 01:44:55,120

American author and screenwriter and he

2446

01:44:58,230 --> 01:44:56,770

wrote I know you know these authors have

2447

01:45:00,420 --> 01:44:58,240

been about to say very well

2448

01:45:03,630 --> 01:45:00,430

he wrote a fantasy science fiction

2449

01:45:06,180 --> 01:45:03,640

horror in mystery mystery fiction okay

2450

01:45:08,670 --> 01:45:06,190

now he didn't really have to prove the

2451
01:45:10,830 --> 01:45:08,680
atmospheres of the books or stories that

2452
01:45:13,410 --> 01:45:10,840
he was writing he was just more

2453
01:45:15,810 --> 01:45:13,420
interested in bringing fantasy into the

2454
01:45:18,060 --> 01:45:15,820
world of people so they could just think

2455
01:45:19,980 --> 01:45:18,070
about it he who's a very creative writer

2456
01:45:23,250 --> 01:45:19,990
that was sort of his his edge that was

2457
01:45:26,640 --> 01:45:23,260
it was no for now moving on Isaac Asimov

2458
01:45:28,530 --> 01:45:26,650
who wrote hard science fiction known as

2459
01:45:30,600 --> 01:45:28,540
a category of science fiction and it's

2460
01:45:33,360 --> 01:45:30,610
characterized by concern for scientific

2461
01:45:37,950 --> 01:45:33,370
accuracy and logic a one other

2462
01:45:40,890 --> 01:45:37,960
individual side from I'm sorry Isaac

2463
01:45:42,780 --> 01:45:40,900

Asimov was arthur c clarke who was also

2464

01:45:46,260 --> 01:45:42,790

one of the most significant writers of

2465

01:45:47,910 --> 01:45:46,270

hard science fiction all 3-peat iconic

2466

01:45:49,550 --> 01:45:47,920

folks we already know who they are

2467

01:45:52,070 --> 01:45:49,560

now if you

2468

01:45:55,160 --> 01:45:52,080

if you were to be a science fiction

2469

01:45:57,860 --> 01:45:55,170

writer would you be writing in a natural

2470

01:46:00,560 --> 01:45:57,870

creative manner in a to ative way like

2471

01:46:02,540 --> 01:46:00,570

Ray Bradbury did where he just put pen

2472

01:46:05,660 --> 01:46:02,550

in the paper and started writing or

2473

01:46:07,520 --> 01:46:05,670

would you be like Isaac Asimov or arthur

2474

01:46:09,950 --> 01:46:07,530

c clarke or many of the other hard

2475

01:46:12,200 --> 01:46:09,960

science fiction writers who were had a

2476

01:46:13,820 --> 01:46:12,210

great concern for proving the

2477

01:46:16,970 --> 01:46:13,830

atmospheres regarding what they're

2478

01:46:19,130 --> 01:46:16,980

talking about and writing them extremely

2479

01:46:22,100 --> 01:46:19,140

very strict and conservative

2480

01:46:24,340 --> 01:46:22,110

scientifically which type of genre would

2481

01:46:25,940 --> 01:46:24,350

you or category of science which you

2482

01:46:28,010 --> 01:46:25,950

science fiction

2483

01:46:30,440 --> 01:46:28,020

would you write that's a very easy

2484

01:46:34,730 --> 01:46:30,450

answer and it's because you know who my

2485

01:46:36,350 --> 01:46:34,740

friends are now i thught rumbles one of

2486

01:46:38,600 --> 01:46:36,360

my good friends and doug is one of those

2487

01:46:41,180 --> 01:46:38,610

people that is a hard science fiction

2488

01:46:43,490 --> 01:46:41,190

guy he wouldn't do anything that wasn't

2489

01:46:46,160 --> 01:46:43,500

actually plausible and that's what I

2490

01:46:47,780 --> 01:46:46,170

always was drawn to so I've written

2491

01:46:50,360 --> 01:46:47,790

science fiction I've written many

2492

01:46:53,480 --> 01:46:50,370

science fiction short stories okay but

2493

01:46:55,340 --> 01:46:53,490

the fact is they were all did they all

2494

01:46:57,350 --> 01:46:55,350

dealt with hard science and if I didn't

2495

01:46:59,150 --> 01:46:57,360

know the science I wouldn't write it I

2496

01:47:01,430 --> 01:46:59,160

wouldn't speculate too far beyond

2497

01:47:04,850 --> 01:47:01,440

capability so for instance I had one

2498

01:47:05,930 --> 01:47:04,860

story about a lone asteroid miner that

2499

01:47:07,430 --> 01:47:05,940

would be out there in the middle of the

2500

01:47:09,320 --> 01:47:07,440

solar system mining asteroids and he had

2501
01:47:11,600 --> 01:47:09,330
a robotic helper now we didn't have any

2502
01:47:13,340 --> 01:47:11,610
robots they're humanoid and can walk

2503
01:47:15,050 --> 01:47:13,350
around and do stuff a bit so I went I

2504
01:47:17,840 --> 01:47:15,060
speculated that much ahead that's all I

2505
01:47:20,180 --> 01:47:17,850
did you know he could go outside and not

2506
01:47:22,220 --> 01:47:20,190
worry about the atmosphere blown apart

2507
01:47:26,000 --> 01:47:22,230
and boiling his blood because he didn't

2508
01:47:27,440 --> 01:47:26,010
have any okay so I had this asteroid we

2509
01:47:29,300 --> 01:47:27,450
call I called him a belter and he'd be

2510
01:47:30,590 --> 01:47:29,310
out there mining asteroids he had these

2511
01:47:33,500 --> 01:47:30,600
little adventures you know he'd come to

2512
01:47:36,110 --> 01:47:33,510
the asteroid Ceres you know which was a

2513
01:47:38,690 --> 01:47:36,120

dwarf planet actually and he'd bring his

2514

01:47:40,820 --> 01:47:38,700

load over there and you know get into

2515

01:47:41,330 --> 01:47:40,830

arguments and controversies that's all

2516

01:47:44,810 --> 01:47:41,340

whoa

2517

01:47:46,730 --> 01:47:44,820

okay so for me I would be one of these

2518

01:47:49,160 --> 01:47:46,740

guys that would want to see it plausible

2519

01:47:51,490 --> 01:47:49,170

I might speculate a little bit but I

2520

01:47:56,510 --> 01:47:51,500

would try to make the overall premise a

2521

01:47:59,300 --> 01:47:56,520

plausible premise so the technology of

2522

01:48:02,080 --> 01:47:59,310

the ship would be plausible the the

2523

01:48:07,480 --> 01:48:02,090

mission would be something plausible

2524

01:48:11,560 --> 01:48:07,490

so it would probably be that III

2525

01:48:15,280 --> 01:48:11,570

I bristle at not being able to put some

2526

01:48:17,380 --> 01:48:15,290

type of meat behind a process that I

2527

01:48:19,300 --> 01:48:17,390

might suggest could exist you know I

2528

01:48:21,820 --> 01:48:19,310

might I don't want to have some science

2529

01:48:24,520 --> 01:48:21,830

behind it you know and that's why

2530

01:48:28,180 --> 01:48:24,530

nowadays if I were to write more short

2531

01:48:30,220 --> 01:48:28,190

stories I might include UFOs that are

2532

01:48:33,460 --> 01:48:30,230

actually doing the things that we see

2533

01:48:36,310 --> 01:48:33,470

UFOs doing because there's scientific

2534

01:48:39,310 --> 01:48:36,320

basis now for how they behave again

2535

01:48:42,610 --> 01:48:39,320

going back to my friend Rob Bob Bob

2536

01:48:44,830 --> 01:48:42,620

Schroeder if you look at his book you'll

2537

01:48:46,720 --> 01:48:44,840

see every one of the things that UFOs

2538

01:48:48,940 --> 01:48:46,730

seem to do they seem to disappear in one

2539

01:48:51,390 --> 01:48:48,950

place appear in another the shimmer and

2540

01:48:54,910 --> 01:48:51,400

disappear they changed colors all those

2541

01:48:58,120 --> 01:48:54,920

processes are understandable in terms of

2542

01:48:59,680 --> 01:48:58,130

the the propulsion that they use if you

2543

01:49:02,320 --> 01:48:59,690

look at what's happening while the

2544

01:49:05,200 --> 01:49:02,330

propulsion is underway every one of

2545

01:49:07,900 --> 01:49:05,210

those phenomena is predictable and

2546

01:49:11,470 --> 01:49:07,910

that's something that makes it realistic

2547

01:49:12,940 --> 01:49:11,480

and plausible see so it's not like you

2548

01:49:15,520 --> 01:49:12,950

know and as we learn more science we're

2549

01:49:17,860 --> 01:49:15,530

gonna see this more and more so I really

2550

01:49:20,290 --> 01:49:17,870

think that the I really think that a

2551

01:49:23,650 --> 01:49:20,300

hard science fiction is my bag

2552

01:49:24,910 --> 01:49:23,660

and moving forward I suspect that UFOs

2553

01:49:28,870 --> 01:49:24,920

are gonna move more into the hard

2554

01:49:31,060 --> 01:49:28,880

science fiction arena fantastic mark I

2555

01:49:33,430 --> 01:49:31,070

wanted to thank you for having been on

2556

01:49:35,950 --> 01:49:33,440

our show today I'm gonna drop a few

2557

01:49:37,870 --> 01:49:35,960

links into the chat before Frank ends

2558

01:49:39,640 --> 01:49:37,880

the show show it so Frank give me just a

2559

01:49:42,940 --> 01:49:39,650

little bit of leeway time to do that and

2560

01:49:45,190 --> 01:49:42,950

those links are the YouTube channel to

2561

01:49:47,860 --> 01:49:45,200

your podcasts the Facebook groups that

2562

01:49:52,300 --> 01:49:47,870

you have there's also an astro imaging

2563

01:49:56,470 --> 01:49:52,310

live.com FX models.com and another

2564

01:49:58,870 --> 01:49:56,480

Facebook group or FX model of planetary

2565

01:50:01,930 --> 01:49:58,880

I can't read that but I wanted to drop

2566

01:50:04,600 --> 01:50:01,940

planetary replicas yeah division yes and

2567

01:50:07,000 --> 01:50:04,610

kgr radio.com sky tour so I want to make

2568

01:50:07,750 --> 01:50:07,010

sure that I input all of that before the

2569

01:50:09,880 --> 01:50:07,760

end of the show

2570

01:50:11,700 --> 01:50:09,890

and also could you just let us know a

2571

01:50:14,320 --> 01:50:11,710

little bit about the book that she wrote

2572

01:50:15,310 --> 01:50:14,330

yeah the populated universe isn't that

2573

01:50:16,540 --> 01:50:15,320

any editing right now

2574

01:50:19,510 --> 01:50:16,550

actually I just was looking at the

2575

01:50:22,000 --> 01:50:19,520

manuscript again today it's a story that

2576

01:50:23,770 --> 01:50:22,010

it's a nonfiction of course and it's

2577

01:50:26,410 --> 01:50:23,780

about exoplanets planets around other

2578

01:50:30,490 --> 01:50:26,420

stars and it talks about the prospects

2579

01:50:31,959 --> 01:50:30,500

of extraterrestrial life as we know the

2580

01:50:35,830 --> 01:50:31,969

possibilities through the study of

2581

01:50:39,459 --> 01:50:35,840

exoplanets it dares to speculate about

2582

01:50:42,310 --> 01:50:39,469

the possibility of life-forms that are

2583

01:50:43,990 --> 01:50:42,320

somewhat like us but it also discusses

2584

01:50:46,240 --> 01:50:44,000

the reasons why they may not look like

2585

01:50:47,979 --> 01:50:46,250

us you know through all the extinction

2586

01:50:50,010 --> 01:50:47,989

events here on earth we came out a very

2587

01:50:53,859 --> 01:50:50,020

circuitous path to become what we are

2588

01:50:56,740 --> 01:50:53,869

now I we traveled that path through

2589

01:50:59,319 --> 01:50:56,750

evolution and other civilizations will

2590

01:51:01,839 --> 01:50:59,329

do the same now when people say in fact

2591

01:51:04,450 --> 01:51:01,849

I'll tell you this when people said in

2592

01:51:07,060 --> 01:51:04,460

the past ok Paul it's a reptilian

2593

01:51:08,530 --> 01:51:07,070

species that we saw I should just

2594

01:51:11,890 --> 01:51:08,540

dismiss them out of hand oh yeah right

2595

01:51:14,649 --> 01:51:11,900

ok what's his reptilian stuff well then

2596

01:51:16,629 --> 01:51:14,659

again when I looked at the extinction

2597

01:51:19,600 --> 01:51:16,639

events here on the planet I noticed that

2598

01:51:22,180 --> 01:51:19,610

had the Chicxulub impact the one that

2599

01:51:24,189 --> 01:51:22,190

killed the dinosaur has not occurred you

2600

01:51:25,660 --> 01:51:24,199

know my thought was well there was any

2601
01:51:29,379 --> 01:51:25,670
dinosaurs that were getting smarter at

2602
01:51:31,149 --> 01:51:29,389
the time and in fact there were there

2603
01:51:33,459 --> 01:51:31,159
was one group of theropods meat-eaters

2604
01:51:34,959 --> 01:51:33,469
that were actually growing in cranial

2605
01:51:36,819 --> 01:51:34,969
capacity does that mean they were gonna

2606
01:51:38,830 --> 01:51:36,829
reach intelligence no not necessarily

2607
01:51:41,169 --> 01:51:38,840
you know intelligence isn't a

2608
01:51:43,330 --> 01:51:41,179
destination it's a possibility just one

2609
01:51:44,500 --> 01:51:43,340
potential path you know it's not a

2610
01:51:47,560 --> 01:51:44,510
foregone conclusion

2611
01:51:49,930 --> 01:51:47,570
however there were dinosaurs that were

2612
01:51:52,709 --> 01:51:49,940
getting smarter at the time if and when

2613
01:51:54,970 --> 01:51:52,719

they were they were thrown out into the

2614

01:51:59,589 --> 01:51:54,980

into the abyss of the universe you know

2615

01:52:03,819 --> 01:51:59,599

basically so I think that there there's

2616

01:52:07,000 --> 01:52:03,829

a strong possibility that life elsewhere

2617

01:52:09,129 --> 01:52:07,010

may take many different forms but it

2618

01:52:11,589 --> 01:52:09,139

will all be based probably and this is

2619

01:52:14,439 --> 01:52:11,599

again I might be a carbon bigot or a

2620

01:52:18,040 --> 01:52:14,449

carbon chauvinist but I think that

2621

01:52:20,800 --> 01:52:18,050

carbon will probably be the base for a

2622

01:52:22,180 --> 01:52:20,810

lot of life out there you know and the

2623

01:52:24,280 --> 01:52:22,190

human race for instance is we knew our

2624

01:52:25,780 --> 01:52:24,290

DNA you know it's based on you know

2625

01:52:29,080 --> 01:52:25,790

carbon hydrogen oxygen nitrogen

2626

01:52:32,979 --> 01:52:29,090

phosphorus and sulfur that's chomps

2627

01:52:36,189 --> 01:52:32,989

okay and chomps is a well-known acronym

2628

01:52:38,050 --> 01:52:36,199

for that and there might be other life

2629

01:52:41,109 --> 01:52:38,060

forms out there like that because that

2630

01:52:45,399 --> 01:52:41,119

is a pattern a template that's produced

2631

01:52:47,040 --> 01:52:45,409

by the universe so one one thing I

2632

01:52:52,600 --> 01:52:47,050

wanted to mention to you is that

2633

01:52:55,149 --> 01:52:52,610

Alejandro wanted you to say he said he's

2634

01:52:58,890 --> 01:52:55,159

a buck-toothed guy with a gold tooth and

2635

01:53:02,580 --> 01:52:58,900

a lazy eye and when I did the Phoenix

2636

01:53:05,169 --> 01:53:02,590

and did the Phoenix MUFON meeting and

2637

01:53:08,379 --> 01:53:05,179

before I was introduced the state

2638

01:53:10,870 --> 01:53:08,389

director for Arizona's Phoenix group big

2639

01:53:13,260 --> 01:53:10,880

group was making announcements I mean

2640

01:53:17,890 --> 01:53:13,270

while does this janitorial guy walks in

2641

01:53:19,540 --> 01:53:17,900

with big ugly teeth a gold tooth and a

2642

01:53:21,760 --> 01:53:19,550

lazy eye and starts a feather dusting

2643

01:53:23,379 --> 01:53:21,770

like pictures in the wall walks up to

2644

01:53:26,200 --> 01:53:23,389

the microphone feather-duster microphone

2645

01:53:27,520 --> 01:53:26,210

boom you know and then hears that the

2646

01:53:38,140 --> 01:53:27,530

UFO thing and he takes the microphone

2647

01:53:40,390 --> 01:53:38,150

out of the state directors hands oh oh

2648

01:53:42,339 --> 01:53:40,400

yeah they're getting some belligerent

2649

01:53:44,439 --> 01:53:42,349

responses which is exactly what I was

2650

01:53:45,850 --> 01:53:44,449

looking for and of course he's wearing a

2651

01:53:47,140 --> 01:53:45,860

really ugly shirt you know it just

2652

01:53:48,760 --> 01:53:47,150

doesn't match nothing matches he's

2653

01:53:49,839 --> 01:53:48,770

wearing shorts with two different

2654

01:53:54,310 --> 01:53:49,849

colored socks on

2655

01:53:55,660 --> 01:53:54,320

I mean Clem is a character and so now

2656

01:53:57,850 --> 01:53:55,670

Hondros smiling right now he's hearing

2657

01:54:02,620 --> 01:53:57,860

that I know he is cuz he was there okay

2658

01:54:04,990 --> 01:54:02,630

he saw this and then Jim the guy that

2659

01:54:07,780 --> 01:54:05,000

was the state director he is still he

2660

01:54:09,280 --> 01:54:07,790

was trying to say more announcements and

2661

01:54:11,770 --> 01:54:09,290

Clem just took that microphone and when

2662

01:54:13,689 --> 01:54:11,780

I talked about his UFO event you know he

2663

01:54:16,330 --> 01:54:13,699

came down out of the sky they killed my

2664

01:54:20,140 --> 01:54:16,340

mouth my dog Petey in the driveway they

2665

01:54:22,209 --> 01:54:20,150

slammed about like BAM and somebody do

2666

01:54:23,680 --> 01:54:22,219

that to my wife Eunice you know and all

2667

01:54:28,000 --> 01:54:23,690

those things and of course people like

2668

01:54:30,580 --> 01:54:28,010

starting the boo and yell it was real

2669

01:54:35,470 --> 01:54:30,590

okay now we did it for a reason though

2670

01:54:38,229 --> 01:54:35,480

see Clem was the typical typical you

2671

01:54:41,379 --> 01:54:38,239

know redneck guy that you know has an

2672

01:54:42,880 --> 01:54:41,389

experience and he talked about how the

2673

01:54:45,700 --> 01:54:42,890

media gave him this

2674

01:54:47,350 --> 01:54:45,710

special hat they said he should wear ok

2675

01:54:49,690 --> 01:54:47,360

well the game of this really cool hat

2676

01:54:51,640 --> 01:54:49,700

made of this like tinfoil II stuff he

2677

01:54:55,750 --> 01:54:51,650

said I wear this every time I talk about

2678

01:54:58,840 --> 01:54:55,760

UFO ease ok and he puts it on all right

2679

01:55:01,390 --> 01:54:58,850

and the point of them well this was you

2680

01:55:06,340 --> 01:55:01,400

know that the media paints everyone who

2681

01:55:07,900 --> 01:55:06,350

reports UFOs as clem okay and that was

2682

01:55:09,040 --> 01:55:07,910

the point of that and and that came

2683

01:55:11,230 --> 01:55:09,050

across loud and clear

2684

01:55:14,020 --> 01:55:11,240

because when GM introduced Mark Dantonio

2685

01:55:20,260 --> 01:55:14,030

as doing the talk I took off the glasses

2686

01:55:24,220 --> 01:55:20,270

took out the teeth everything and took

2687

01:55:25,450 --> 01:55:24,230

off the shirt show my through ok and the

2688

01:55:26,710 --> 01:55:25,460

guys in the audience the people in the

2689

01:55:28,180 --> 01:55:26,720

audience that were like yelling at me

2690

01:55:30,610 --> 01:55:28,190

start shrinking in their chairs you know

2691

01:55:31,900 --> 01:55:30,620

get really small you know be I don't

2692

01:55:34,390 --> 01:55:31,910

wanna be noticed I don't want to know

2693

01:55:36,670 --> 01:55:34,400

with me oh ok which is fine I I

2694

01:55:38,590 --> 01:55:36,680

appreciate I respected that opinion but

2695

01:55:41,410 --> 01:55:38,600

the whole point of that the whole point

2696

01:55:43,080 --> 01:55:41,420

of Clem was to show and I still use Clem

2697

01:55:46,350 --> 01:55:43,090

to this day for a lot of these reasons

2698

01:55:49,540 --> 01:55:46,360

the whole point was to show people that

2699

01:55:51,490 --> 01:55:49,550

you know when you mention the UFO event

2700

01:55:53,260 --> 01:55:51,500

you're you expect to be treated by

2701
01:55:54,910 --> 01:55:53,270
enough and as Anna and they will treat

2702
01:55:57,010 --> 01:55:54,920
you that way the media is not your

2703
01:55:58,780 --> 01:55:57,020
friend when it comes to this you know

2704
01:56:05,440 --> 01:55:58,790
there's always smiles and anchors faces

2705
01:56:07,620 --> 01:56:05,450
well what about that story just watch

2706
01:56:10,840 --> 01:56:07,630
out for aliens folks you know they are

2707
01:56:12,400 --> 01:56:10,850
so the point of my talk was we have to

2708
01:56:13,870 --> 01:56:12,410
change the media message we have to

2709
01:56:16,360 --> 01:56:13,880
change that the way the media perceives

2710
01:56:18,280 --> 01:56:16,370
people who report these and how you do

2711
01:56:20,470 --> 01:56:18,290
it you do it with science which is what

2712
01:56:23,410 --> 01:56:20,480
my talk was about they don't understand

2713
01:56:25,330 --> 01:56:23,420

science the media can't comprehend the

2714

01:56:27,870 --> 01:56:25,340

realities of science until you tell them

2715

01:56:30,520 --> 01:56:27,880

that science says it's possible and

2716

01:56:30,700 --> 01:56:30,530

bottom line it's where they'd argue you

2717

01:56:32,800 --> 01:56:30,710

know

2718

01:56:37,060 --> 01:56:32,810

let me see their science degrees now

2719

01:56:39,370 --> 01:56:37,070

I'll let them argue with me ok right I

2720

01:56:41,050 --> 01:56:39,380

mean that's what you do frankly and so

2721

01:56:43,210 --> 01:56:41,060

that was the point of that and it was

2722

01:56:44,710 --> 01:56:43,220

over kind of well I kind of liked it cuz

2723

01:56:46,990 --> 01:56:44,720

your clem got to walk around for about

2724

01:56:49,120 --> 01:56:47,000

20 minutes dusting all kinds of things

2725

01:56:51,220 --> 01:56:49,130

including like I think the shoes and one

2726

01:56:55,300 --> 01:56:51,230

guy in the front row you know it was

2727

01:56:56,509 --> 01:56:55,310

just funny as heck so anyway that's what

2728

01:57:00,140 --> 01:56:56,519

that's what that was about

2729

01:57:02,569 --> 01:57:00,150

well I would like to thank you for all

2730

01:57:05,989 --> 01:57:02,579

of your effort in the UFO community and

2731

01:57:08,149 --> 01:57:05,999

you do remind me of J Allen Hynek so I'm

2732

01:57:11,989 --> 01:57:08,159

gonna call you the J Allen Hynek of

2733

01:57:15,169 --> 01:57:11,999

ufology and I'm just so grateful that

2734

01:57:18,620 --> 01:57:15,179

you came on at the show today it was

2735

01:57:20,060 --> 01:57:18,630

great and we love to have you back on

2736

01:57:22,939 --> 01:57:20,070

again will you please come back on our

2737

01:57:27,100 --> 01:57:22,949

show I'd be happy to there's always

2738

01:57:29,419 --> 01:57:27,110

something different to talk about okay

2739

01:57:31,759 --> 01:57:29,429

Thank You audience you guys are great

2740

01:57:36,529 --> 01:57:31,769

beloved questions we need to tell

2741

01:57:38,810 --> 01:57:36,539

everybody to watch your kgr radio sky

2742

01:57:43,790 --> 01:57:38,820

tour show so can you please let them

2743

01:57:47,029 --> 01:57:43,800

know yeah on K GRA radio.com

2744

01:57:52,069 --> 01:57:47,039

Sunday nights eight to ten you can check

2745

01:57:53,839 --> 01:57:52,079

in to sky ture radio and my host my

2746

01:57:55,580 --> 01:57:53,849

co-host Amanda and I will take you

2747

01:57:58,189 --> 01:57:55,590

through a journey of astronomy and we

2748

01:58:00,020 --> 01:57:58,199

will talk about UFOs and other things

2749

01:58:03,560 --> 01:58:00,030

that occur in the astronomical community

2750

01:58:04,910 --> 01:58:03,570

and we do this kind of with a little

2751
01:58:08,169 --> 01:58:04,920
sense of humor I guess you can figure

2752
01:58:10,399 --> 01:58:08,179
out I'm kind of a funny guy

2753
01:58:12,200 --> 01:58:10,409
for everybody and I believe this science

2754
01:58:16,160 --> 01:58:12,210
is reachable by everybody and it's

2755
01:58:17,600 --> 01:58:16,170
important to make sure that it's stated

2756
01:58:19,819 --> 01:58:17,610
in a way that people can understand

2757
01:58:21,589 --> 01:58:19,829
because too many times science gets so

2758
01:58:23,209 --> 01:58:21,599
arrogant that they they speak in these

2759
01:58:25,700 --> 01:58:23,219
highfalutin terms and nobody can

2760
01:58:27,439 --> 01:58:25,710
understand well I don't believe that's

2761
01:58:29,029 --> 01:58:27,449
the way it ought to be okay I don't

2762
01:58:30,500 --> 01:58:29,039
appreciate it and I don't want anyone

2763
01:58:33,259 --> 01:58:30,510

else to have to sit there wondering what

2764

01:58:37,069 --> 01:58:33,269

someone is saying so its guide to a

2765

01:58:39,140 --> 01:58:37,079

radio on kgr a radio calm Sunday nights

2766

01:58:40,520 --> 01:58:39,150

eight to ten skites or a live stream is

2767

01:58:43,339 --> 01:58:40,530

every clear night now as we speak

2768

01:58:45,890 --> 01:58:43,349

the observatory here at Sky tour live

2769

01:58:47,870 --> 01:58:45,900

stream is up and running and it's a

2770

01:58:51,229 --> 01:58:47,880

clear night and the telescope is pointed

2771

01:58:53,149 --> 01:58:51,239

at the sky and it's midnight right now

2772

01:58:55,459 --> 01:58:53,159

so I'm not sure how long will stream if

2773

01:58:57,830 --> 01:58:55,469

we stream it all tonight but I am gonna

2774

01:58:59,870 --> 01:58:57,840

go check the conditions and see and if

2775

01:59:06,919 --> 01:58:59,880

the conditions are still good we will

2776

01:59:09,359 --> 01:59:06,929

have a stream tonight absolute I

2777

01:59:13,770 --> 01:59:09,369

appreciate it thank you for the

2778

01:59:15,209 --> 01:59:13,780

time I I i respect respect you chant for

2779

01:59:22,739 --> 01:59:15,219

putting up with Frank from apparently

2780

01:59:24,569 --> 01:59:22,749

here you can come back but I want to

2781

01:59:26,909 --> 01:59:24,579

also make sure that that you get

2782

01:59:32,250 --> 01:59:26,919

celebrated as someone in you apology

2783

01:59:34,049 --> 01:59:32,260

who's also reaching for answers channel

2784

01:59:34,319 --> 01:59:34,059

thank you for having me on I appreciate

2785

01:59:37,080 --> 01:59:34,329

it

2786

01:59:39,000 --> 01:59:37,090

thanks a lot market maybe we can trade

2787

01:59:43,709 --> 01:59:39,010

co-hosts one night and see how you like

2788

01:59:46,139 --> 01:59:43,719

it on your end they're dealing Tony not

2789

01:59:47,790 --> 01:59:46,149

a bad idea you know I don't think Amanda

2790

01:59:49,469 --> 01:59:47,800

would have a problem and you bring

2791

01:59:50,850 --> 01:59:49,479

Amanda on and she will be I think

2792

01:59:53,459 --> 01:59:50,860

they'll be really fun to have her on

2793

01:59:58,799 --> 01:59:53,469

yeah you have to throw in a draft pick

2794

02:00:01,169 --> 01:59:58,809

though Amanda and a draft pick for chant

2795

02:00:06,479 --> 02:00:01,179

for one night I'll make that deal right

2796

02:00:10,199 --> 02:00:06,489

now yeah yeah okay well well break and

2797

02:00:11,669 --> 02:00:10,209

think about know what do you guys in the

2798

02:00:15,959 --> 02:00:11,679

chat think I mean if you think that's a

2799

02:00:16,619 --> 02:00:15,969

possibility then okay we'll go there you

2800

02:00:18,239 --> 02:00:16,629

guys are

2801

02:00:19,949 --> 02:00:18,249

yeah you have a great audience to chant

2802

02:00:21,089 --> 02:00:19,959

you know it's very active it got a lot

2803

02:00:22,859 --> 02:00:21,099

of questions you know they're good

2804

02:00:25,080 --> 02:00:22,869

people here so you're building a good

2805

02:00:28,469 --> 02:00:25,090

following and I'm really happy about it

2806

02:00:30,629 --> 02:00:28,479

that you have this forum and yes and

2807

02:00:32,729 --> 02:00:30,639

that folks at home watch those

2808

02:00:35,369 --> 02:00:32,739

commercials all the way through there's

2809

02:00:38,189 --> 02:00:35,379

a new Rambo movie coming out watch that

2810

02:00:39,989 --> 02:00:38,199

full two-minute commercial for the Rambo

2811

02:00:45,299 --> 02:00:39,999

movie show me the money

2812

02:00:47,279 --> 02:00:45,309

and good night everybody fantastic