

FADE TO BLACK

with **JIMMY CHURCH**
PRESENTS

JOHN MICHAEL GODIER

JAMES WEBB AND ALIEN LIFE

TUE AUG 02 LIVE

7:00 PM PT/10:00PM ET



1
00:02:54,850 --> 00:02:59,890
[Music]

2
00:03:06,070 --> 00:03:00,170
[Applause]

3
00:03:09,030 --> 00:03:06,080
[Music]

4
00:03:11,990 --> 00:03:09,040
the smoke radio for the masses headline

5
00:03:13,830 --> 00:03:12,000
edition july 8 1947

6
00:03:16,309 --> 00:03:13,840
the army air forces has announced that a

7
00:03:18,550 --> 00:03:16,319
flying disc has been found and is now in

8
00:03:20,710 --> 00:03:18,560
the possession of the army if the game

9
00:03:22,710 --> 00:03:20,720
is rigged change the game

10
00:03:25,589 --> 00:03:22,720
game changer

11
00:03:27,910 --> 00:03:25,599
i occasionally think how quickly

12
00:03:29,190 --> 00:03:27,920
our differences worldwide

13
00:03:31,910 --> 00:03:29,200

would vanish

14

00:03:33,800 --> 00:03:31,920

if we were facing an alien threat from

15

00:03:35,290 --> 00:03:33,810

outside this world

16

00:03:36,440 --> 00:03:35,300

[Music]

17

00:03:38,149 --> 00:03:36,450

[Applause]

18

00:03:40,869 --> 00:03:38,159

[Music]

19

00:03:43,589 --> 00:03:40,879

this is fade to black with your host

20

00:03:47,190 --> 00:03:43,599

jimmy church on the game changer radio

21

00:03:51,530 --> 00:03:49,350

i need your help to get to the year

22

00:03:56,229 --> 00:03:51,540

1985.

23

00:04:01,410 --> 00:03:58,229

you are listening to fate to flag with

24

00:04:14,149 --> 00:04:01,420

jimmy judge on the game changer network

25

00:04:18,310 --> 00:04:14,159

[Music]

26

00:04:18,320 --> 00:04:21,469

fade to black

27

00:04:26,469 --> 00:04:25,030

bespoke radio

28

00:04:29,430 --> 00:04:26,479

for

29

00:04:31,430 --> 00:04:29,440

the

30

00:04:33,880 --> 00:04:31,440

masses

31

00:04:39,590 --> 00:04:33,890

uh yeah man how you doing

32

00:04:45,590 --> 00:04:43,110

today's tuesday august 2nd

33

00:04:47,110 --> 00:04:45,600

2022

34

00:04:48,710 --> 00:04:47,120

and i would like to welcome everybody

35

00:04:51,430 --> 00:04:48,720

listening all around the world all

36

00:04:53,670 --> 00:04:51,440

across the united states

37

00:04:56,070 --> 00:04:53,680

hither and tether to and fro back and

38

00:04:57,510 --> 00:04:56,080

forth up and down east and west north

39

00:04:59,990 --> 00:04:57,520

and south

40

00:05:02,550 --> 00:05:00,000

far and near

41

00:05:07,029 --> 00:05:02,560

this is fade to black for kjcr the game

42

00:05:08,950 --> 00:05:07,039

changer and on x networks racehobbess

43

00:05:12,310 --> 00:05:08,960

i'm your host jimmy church what is

44

00:05:14,469 --> 00:05:12,320

cracking everybody how you doing

45

00:05:15,749 --> 00:05:14,479

how you doing

46

00:05:21,510 --> 00:05:15,759

yeah

47

00:05:27,749 --> 00:05:22,830

that's because

48

00:05:32,710 --> 00:05:31,189

might have the coolest name

49

00:05:34,310 --> 00:05:32,720

in our community

50

00:05:36,230 --> 00:05:34,320

if not the world he's with us tonight

51

00:05:39,749 --> 00:05:36,240

we're going to be talking about

52

00:05:41,590 --> 00:05:39,759

the james webb space telescope and the

53

00:05:43,830 --> 00:05:41,600

search for e.t we're going to be doing

54

00:05:45,430 --> 00:05:43,840

all of that tonight with john

55

00:05:48,310 --> 00:05:45,440

jmg

56

00:05:49,270 --> 00:05:48,320

tomorrow night isaac arthur is here wow

57

00:05:55,029 --> 00:05:49,280

i got

58

00:05:56,309 --> 00:05:55,039

how does that happen somebody pinch me

59

00:05:57,990 --> 00:05:56,319

tomorrow night we're going to be talking

60

00:06:00,390 --> 00:05:58,000

about time travel

61

00:06:03,830 --> 00:06:00,400

and then thursday is another fader night

62

00:06:05,110 --> 00:06:03,840

with open lines all night long

63

00:06:08,150 --> 00:06:05,120

all right

64

00:06:11,749 --> 00:06:08,160

man man man i've got a busy

65

00:06:15,189 --> 00:06:11,759

busy second half of 2022 coming up and

66

00:06:18,070 --> 00:06:15,199

in in just two short weeks

67

00:06:19,510 --> 00:06:18,080

on august 16th tuesday night right here

68

00:06:23,510 --> 00:06:19,520

in los angeles

69

00:06:27,510 --> 00:06:23,520

i will be at upars in studio city

70

00:06:30,150 --> 00:06:27,520

and after two years a two-year hiatus

71

00:06:33,510 --> 00:06:30,160

upars is back i will be speaking we will

72

00:06:35,510 --> 00:06:33,520

be broadcasting live from there

73

00:06:36,469 --> 00:06:35,520

and i'm gonna bring a little fade to

74

00:06:38,390 --> 00:06:36,479

black

75

00:06:40,469 --> 00:06:38,400

uh to you pars which i've done a few

76
00:06:41,670 --> 00:06:40,479
times over the years we've done a couple

77
00:06:44,390 --> 00:06:41,680
of uh

78
00:06:46,629 --> 00:06:44,400
live broadcasts uh for mu pars maybe

79
00:06:49,110 --> 00:06:46,639
maybe three

80
00:06:50,230 --> 00:06:49,120
um but uh it's gonna be great now it's

81
00:06:53,110 --> 00:06:50,240
only

82
00:06:56,230 --> 00:06:53,120
uh seating for 200 it's going to sell

83
00:06:59,029 --> 00:06:56,240
out it may have sold out you can go to

84
00:07:01,350 --> 00:06:59,039
uparsla.org

85
00:07:03,510 --> 00:07:01,360
for tickets and information but that's

86
00:07:06,150 --> 00:07:03,520
coming up in two short weeks tomorrow

87
00:07:09,350 --> 00:07:06,160
i'm gonna be filming uh

88
00:07:11,909 --> 00:07:09,360

i did some stuff today and tomorrow

89

00:07:13,749 --> 00:07:11,919

uh i'll be on location uh shooting for a

90

00:07:17,029 --> 00:07:13,759

new film that's coming up

91

00:07:19,589 --> 00:07:17,039

and uh that's tomorrow then uh i'm going

92

00:07:23,909 --> 00:07:19,599

to rush back to the studio for

93

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

isaac arthur uh uh tomorrow night

94

00:07:30,390 --> 00:07:27,039

and i'm going to egypt in october

95

00:07:32,950 --> 00:07:30,400

uh september 16th i will be

96

00:07:34,550 --> 00:07:32,960

uh in joshua tree for a private sky

97

00:07:35,830 --> 00:07:34,560

watch and that's going to be a two night

98

00:07:38,150 --> 00:07:35,840

event

99

00:07:40,870 --> 00:07:38,160

and uh one night in joshua tree and one

100

00:07:43,029 --> 00:07:40,880

night at giant rock

101
00:07:44,950 --> 00:07:43,039
and if you would like to be one of the

102
00:07:46,710 --> 00:07:44,960
lucky few that are going to be there for

103
00:07:49,670 --> 00:07:46,720
this all you've got to do is go to

104
00:07:50,629 --> 00:07:49,680
forbiddenclub.com

105
00:07:51,430 --> 00:07:50,639
and

106
00:07:54,070 --> 00:07:51,440
mint

107
00:07:56,710 --> 00:07:54,080
10 nfts you'll get your forbidden

108
00:07:58,469 --> 00:07:56,720
knowledge black card and then you will

109
00:08:00,950 --> 00:07:58,479
get an invitation to come and hang out

110
00:08:04,629 --> 00:08:00,960
with us in joshua tree

111
00:08:06,309 --> 00:08:04,639
and uh so there you go i do have uh

112
00:08:09,350 --> 00:08:06,319
uh coming up i can't believe it see

113
00:08:11,670 --> 00:08:09,360

we're in august then there is september

114

00:08:13,510 --> 00:08:11,680

and uh you know for the rest of the year

115

00:08:16,070 --> 00:08:13,520

i'm gonna be filming this new tv show

116

00:08:18,469 --> 00:08:16,080

i'm very excited about that and then

117

00:08:21,270 --> 00:08:18,479

uh coming up in february we've got

118

00:08:23,670 --> 00:08:21,280

conscious life expo and the plans are

119

00:08:24,950 --> 00:08:23,680

already in motion for that and then i

120

00:08:27,830 --> 00:08:24,960

will be

121

00:08:30,950 --> 00:08:27,840

uh speaking on a cruise that is going to

122

00:08:32,949 --> 00:08:30,960

depart out of los angeles uh down

123

00:08:35,110 --> 00:08:32,959

uh down south the coast into mexico and

124

00:08:38,070 --> 00:08:35,120

then turn around and return

125

00:08:39,909 --> 00:08:38,080

in los angeles so i'll be doing that too

126

00:08:41,430 --> 00:08:39,919

as well and that's in april april 7th

127

00:08:43,509 --> 00:08:41,440

through the 14th

128

00:08:46,389 --> 00:08:43,519

and i've got a lot of email from

129

00:08:47,990 --> 00:08:46,399

everybody and please excuse me i've been

130

00:08:50,550 --> 00:08:48,000

really really busy

131

00:08:52,949 --> 00:08:50,560

and i haven't handed off

132

00:08:54,870 --> 00:08:52,959

uh the information to everybody else

133

00:08:56,790 --> 00:08:54,880

that helps me with

134

00:08:57,750 --> 00:08:56,800

uh social media and the website and

135

00:09:00,870 --> 00:08:57,760

stuff

136

00:09:10,150 --> 00:09:00,880

will

137

00:09:12,870 --> 00:09:11,430

i was speaking to a friend of mine on

138

00:09:15,110 --> 00:09:12,880

the phone

139

00:09:17,110 --> 00:09:15,120

and i said uh today

140

00:09:18,230 --> 00:09:17,120

i said you know

141

00:09:21,590 --> 00:09:18,240

um

142

00:09:23,829 --> 00:09:21,600

it's so much better than being not busy

143

00:09:25,990 --> 00:09:23,839

right that's the opposite

144

00:09:27,509 --> 00:09:26,000

what's the opposite of being too busy

145

00:09:30,790 --> 00:09:27,519

not being busy

146

00:09:33,269 --> 00:09:30,800

and nah no no no no no

147

00:09:34,550 --> 00:09:33,279

you know and you know like my father

148

00:09:38,070 --> 00:09:34,560

told me

149

00:09:39,990 --> 00:09:38,080

it's the life you chose

150

00:09:41,670 --> 00:09:40,000

so you can't complain about it

151
00:09:44,470 --> 00:09:41,680
just trying to figure out how to keep my

152
00:09:45,110 --> 00:09:44,480
head above water follow me on twitter at

153
00:09:47,110 --> 00:09:45,120
j

154
00:09:48,470 --> 00:09:47,120
church radio you can follow me right

155
00:09:51,190 --> 00:09:48,480
there jaychurch radio follow me on

156
00:09:54,550 --> 00:09:51,200
instagram at jimmychurchradio the

157
00:09:57,190 --> 00:09:54,560
sandboxes hashtag f2b on twitter i'm

158
00:09:59,110 --> 00:09:57,200
looking at the mediterranean chickens

159
00:10:02,310 --> 00:09:59,120
giant taco

160
00:10:03,190 --> 00:10:02,320
oh i get today's tuesday

161
00:10:05,350 --> 00:10:03,200
ah

162
00:10:06,550 --> 00:10:05,360
i know what i'm doing tonight after this

163
00:10:08,790 --> 00:10:06,560

show

164

00:10:13,509 --> 00:10:08,800

i already did tostadas today though it

165

00:10:16,150 --> 00:10:13,519

does a tostada count for taco tuesday

166

00:10:18,550 --> 00:10:16,160

no it doesn't it does not doesn't even

167

00:10:21,030 --> 00:10:18,560

come close all right hashtag f2b is the

168

00:10:23,750 --> 00:10:21,040

sandbox on twitter i just jumped over

169

00:10:26,310 --> 00:10:23,760

to the chat rooms to say hello lots to

170

00:10:29,910 --> 00:10:26,320

do tonight this is gonna be a great show

171

00:10:35,590 --> 00:10:29,920

and uh so let's get straight to

172

00:10:39,750 --> 00:10:35,600

the breaking news in a civic science now

173

00:10:42,710 --> 00:10:39,760

listen to what i'm about to say

174

00:10:43,910 --> 00:10:42,720

well it's not me this is this is a press

175

00:10:46,470 --> 00:10:43,920

release

176

00:10:48,310 --> 00:10:46,480

came out earlier today and

177

00:10:50,870 --> 00:10:48,320

before i do this

178

00:10:53,110 --> 00:10:50,880

i've i've just got to thank renee

179

00:10:56,949 --> 00:10:53,120

i don't thank renee enough

180

00:10:58,069 --> 00:10:56,959

renee thank you you're the absolute very

181

00:11:01,670 --> 00:10:58,079

best

182

00:11:03,110 --> 00:11:01,680

news here

183

00:11:04,310 --> 00:11:03,120

and and i know what you guys are

184

00:11:07,110 --> 00:11:04,320

thinking

185

00:11:09,269 --> 00:11:07,120

wait wait jimmy doesn't pick the news uh

186

00:11:11,110 --> 00:11:09,279

no i don't

187

00:11:14,389 --> 00:11:11,120

i've got renee

188

00:11:17,030 --> 00:11:14,399

and and she's inside my head

189

00:11:19,829 --> 00:11:17,040

i don't know how she does it she's

190

00:11:22,389 --> 00:11:19,839

inside my head i do maybe a couple of

191

00:11:24,870 --> 00:11:22,399

news stories a week

192

00:11:27,350 --> 00:11:24,880

but she beats me to the punch every time

193

00:11:29,190 --> 00:11:27,360

i find it you know no she's already

194

00:11:33,750 --> 00:11:29,200

she's already sent it to me by the time

195

00:11:37,350 --> 00:11:33,760

i find it but then there is this

196

00:11:39,670 --> 00:11:37,360

in a civic science survey

197

00:11:40,949 --> 00:11:39,680

last month in mid-july

198

00:11:44,069 --> 00:11:40,959

13

199

00:11:45,750 --> 00:11:44,079

of u.s adults say they agree with the

200

00:11:47,110 --> 00:11:45,760

statement

201
00:11:48,630 --> 00:11:47,120
bigfoot

202
00:11:51,750 --> 00:11:48,640
sasquatch

203
00:11:52,949 --> 00:11:51,760
is a real living creature

204
00:11:56,949 --> 00:11:52,959
end quote

205
00:11:58,790 --> 00:11:56,959
that's up from 11 percent who said the

206
00:12:02,949 --> 00:11:58,800
same in may

207
00:12:04,389 --> 00:12:02,959
of 2020 two years ago that's an 18

208
00:12:06,790 --> 00:12:04,399
increase

209
00:12:10,949 --> 00:12:06,800
in bigfoot beliefs

210
00:12:13,590 --> 00:12:10,959
similarly to the 2020 study americans

211
00:12:15,990 --> 00:12:13,600
living in the west were still most

212
00:12:18,389 --> 00:12:16,000
likely to believe in bigfoot 15 of

213
00:12:21,430 --> 00:12:18,399

residents in the west are believers

214

00:12:22,949 --> 00:12:21,440
compared with 11 of those in the

215

00:12:24,389 --> 00:12:22,959
northeast

216

00:12:27,829 --> 00:12:24,399
however

217

00:12:30,069 --> 00:12:27,839
the overall uptick in sasquatch truthers

218

00:12:31,829 --> 00:12:30,079
has come from the cities

219

00:12:33,910 --> 00:12:31,839
in the suburbs

220

00:12:35,269 --> 00:12:33,920
now isn't that interesting

221

00:12:38,629 --> 00:12:35,279
gen x

222

00:12:40,790 --> 00:12:38,639
ages 35 to 54.

223

00:12:43,190 --> 00:12:40,800
was more likely to believe in bigfoot

224

00:12:44,790 --> 00:12:43,200
while older adults were more likely to

225

00:12:47,750 --> 00:12:44,800
be skeptics

226

00:12:50,790 --> 00:12:47,760

but all age groups saw at least some

227

00:12:52,389 --> 00:12:50,800

growth in sasquatch belief

228

00:12:54,069 --> 00:12:52,399

now

229

00:12:57,430 --> 00:12:54,079

here we go

230

00:12:59,430 --> 00:12:57,440

also from the survey

231

00:13:00,629 --> 00:12:59,440

this is not me this is from the survey

232

00:13:03,030 --> 00:13:00,639

so

233

00:13:05,030 --> 00:13:03,040

don't send me an email send it to

234

00:13:07,430 --> 00:13:05,040

john michael gautier

235

00:13:09,350 --> 00:13:07,440

also from the survey bigfoot believers

236

00:13:13,350 --> 00:13:09,360

are generally

237

00:13:16,629 --> 00:13:13,360

more likely to be daily youtube users

238

00:13:18,230 --> 00:13:16,639

are more likely to play a musical

239

00:13:21,509 --> 00:13:18,240

instrument

240

00:13:23,990 --> 00:13:21,519

are more likely to plan to invest

241

00:13:29,269 --> 00:13:24,000

in cryptocurrency

242

00:13:30,629 --> 00:13:29,279

are more likely to bet on sports online

243

00:13:31,829 --> 00:13:30,639

i don't get that but that's in the

244

00:13:34,550 --> 00:13:31,839

survey

245

00:13:36,069 --> 00:13:34,560

more likely to believe in the loch ness

246

00:13:39,350 --> 00:13:36,079

monster

247

00:13:41,910 --> 00:13:39,360

more likely to enjoy the 1990s tv show

248

00:13:44,069 --> 00:13:41,920

the x-files

249

00:13:45,750 --> 00:13:44,079

and rounding up the list

250

00:13:49,350 --> 00:13:45,760

more likely

251
00:13:51,350 --> 00:13:49,360
to own a gun there you go that's all in

252
00:13:53,430 --> 00:13:51,360
the survey

253
00:13:55,030 --> 00:13:53,440
well

254
00:13:58,150 --> 00:13:55,040
down in chile

255
00:14:01,269 --> 00:13:58,160
a massive 656

256
00:14:04,069 --> 00:14:01,279
foot deep sinkhole with an 82 foot

257
00:14:06,069 --> 00:14:04,079
diameter has suddenly opened up near an

258
00:14:07,189 --> 00:14:06,079
underground copper mine in chile over

259
00:14:09,350 --> 00:14:07,199
the weekend

260
00:14:11,509 --> 00:14:09,360
specialist teams of geologists from

261
00:14:12,470 --> 00:14:11,519
chile's national service of geology and

262
00:14:14,150 --> 00:14:12,480
mining

263
00:14:18,550 --> 00:14:14,160

were rushed to the

264

00:14:21,110 --> 00:14:18,560

uh al caprosa mine which is operated by

265

00:14:22,870 --> 00:14:21,120

canada's london mining group and is

266

00:14:24,310 --> 00:14:22,880

located about 400 miles north of

267

00:14:26,389 --> 00:14:24,320

santiago

268

00:14:29,430 --> 00:14:26,399

chile issued an order to immediately

269

00:14:31,670 --> 00:14:29,440

stop work in the area to evaluate the

270

00:14:33,990 --> 00:14:31,680

situation talking about the mine

271

00:14:36,790 --> 00:14:34,000

development work in the area of the ala

272

00:14:38,710 --> 00:14:36,800

caporosa underground mine has been

273

00:14:39,670 --> 00:14:38,720

temporarily stopped as a preventive

274

00:14:43,430 --> 00:14:39,680

measure

275

00:14:44,550 --> 00:14:43,440

and is being monitored continuously and

276

00:14:45,910 --> 00:14:44,560

it is

277

00:14:49,110 --> 00:14:45,920

massive

278

00:14:51,750 --> 00:14:49,120

82 feet in diameter okay all right it is

279

00:14:53,670 --> 00:14:51,760

656

280

00:14:55,829 --> 00:14:53,680

feet deep

281

00:14:56,870 --> 00:14:55,839

all right virgin galactic back in the

282

00:14:59,750 --> 00:14:56,880

news

283

00:15:03,509 --> 00:14:59,760

virgin galactic holdings inc

284

00:15:05,829 --> 00:15:03,519

today announced it has secured land to

285

00:15:08,069 --> 00:15:05,839

move forward with a new astronaut campus

286

00:15:10,710 --> 00:15:08,079

and training facility in the state of

287

00:15:12,629 --> 00:15:10,720

new mexico near the company's commercial

288

00:15:15,750 --> 00:15:12,639

operations headquarters

289

00:15:19,030 --> 00:15:15,760

the land located in sierra county

290

00:15:20,790 --> 00:15:19,040

will be home to a new first of its kind

291

00:15:23,030 --> 00:15:20,800

astronaut campus

292

00:15:26,310 --> 00:15:23,040

for exclusive use by virgin galactic

293

00:15:29,269 --> 00:15:26,320

future astronauts and up to three of

294

00:15:33,189 --> 00:15:29,279

their guests in advance of a space

295

00:15:35,590 --> 00:15:33,199

flight from spaceport america conceptual

296

00:15:37,990 --> 00:15:35,600

design of the campus has already begun

297

00:15:40,389 --> 00:15:38,000

and virgin galactic plans to complete

298

00:15:43,749 --> 00:15:40,399

the build-out in parallel with the

299

00:15:45,829 --> 00:15:43,759

expansion and capacity of its fleet

300

00:15:51,030 --> 00:15:45,839

in new mexico

301
00:15:52,470 --> 00:15:51,040
there you go all right speaking of that

302
00:15:55,030 --> 00:15:52,480
speaking of that

303
00:15:57,430 --> 00:15:55,040
can i say this can i say this officially

304
00:15:58,389 --> 00:15:57,440
okay out here i live in the mojave

305
00:16:01,350 --> 00:15:58,399
desert

306
00:16:03,829 --> 00:16:01,360
and out here there are three major

307
00:16:06,389 --> 00:16:03,839
facilities you have

308
00:16:08,230 --> 00:16:06,399
you know lockheed skunk works and those

309
00:16:09,829 --> 00:16:08,240
facilities over here with nasa and the

310
00:16:12,310 --> 00:16:09,839
air force and

311
00:16:14,150 --> 00:16:12,320
and uh northrop grumman and the other

312
00:16:16,069 --> 00:16:14,160
clandestine stuff that's going on out

313
00:16:18,150 --> 00:16:16,079

there with buildings that don't have any

314

00:16:20,150 --> 00:16:18,160

names on it that's that's one spot then

315

00:16:21,670 --> 00:16:20,160

we have edwards air force base a testing

316

00:16:22,470 --> 00:16:21,680

and training facility of the secret

317

00:16:25,590 --> 00:16:22,480

stuff

318

00:16:27,350 --> 00:16:25,600

and that is a few miles away and then

319

00:16:29,590 --> 00:16:27,360

uh maybe another

320

00:16:33,670 --> 00:16:29,600

10 miles past that

321

00:16:37,509 --> 00:16:33,680

is uh the mojave airport and spaceport

322

00:16:39,829 --> 00:16:37,519

and virgin galactic is out there so

323

00:16:41,350 --> 00:16:39,839

two days ago i don't want to say i don't

324

00:16:44,389 --> 00:16:41,360

want to say much more than that but two

325

00:16:46,069 --> 00:16:44,399

days ago i was out in the area i was out

326

00:16:47,910 --> 00:16:46,079

in the area i was out driving around out

327

00:16:52,629 --> 00:16:47,920

there poking around taking pictures

328

00:16:54,949 --> 00:16:52,639

trying to get arrested and i saw this

329

00:16:56,870 --> 00:16:54,959

this plane take off

330

00:16:59,350 --> 00:16:56,880

i don't want to say anything else i

331

00:17:02,629 --> 00:16:59,360

really couldn't see

332

00:17:06,230 --> 00:17:02,639

it it was it was it was too fast i heard

333

00:17:07,189 --> 00:17:06,240

it first and uh i was outside of the

334

00:17:09,669 --> 00:17:07,199

jeep

335

00:17:11,189 --> 00:17:09,679

and then when i find i'm looking around

336

00:17:16,549 --> 00:17:11,199

i can hear it

337

00:17:19,429 --> 00:17:16,559

caught it as it was uh flying up and i

338

00:17:21,110 --> 00:17:19,439

caught it to my uh this would be my

339

00:17:22,549 --> 00:17:21,120

right this is my left

340

00:17:25,270 --> 00:17:22,559

to my left

341

00:17:27,350 --> 00:17:25,280

and and i could see it and it was

342

00:17:29,270 --> 00:17:27,360

arching up and

343

00:17:30,310 --> 00:17:29,280

but man

344

00:17:32,950 --> 00:17:30,320

all right i don't want to say anything

345

00:17:34,470 --> 00:17:32,960

else i got a basic shape

346

00:17:35,669 --> 00:17:34,480

it was uh bizarre i don't want to say

347

00:17:37,190 --> 00:17:35,679

what time i don't want to say

348

00:17:38,870 --> 00:17:37,200

specifically what day i don't want to

349

00:17:43,270 --> 00:17:38,880

give away any secrets because that thing

350

00:17:44,870 --> 00:17:43,280

looked top secret whatever it was

351
00:17:47,430 --> 00:17:44,880
i i don't know

352
00:17:50,870 --> 00:17:47,440
i'm assuming there's a pilot in there

353
00:17:53,430 --> 00:17:50,880
um but what what i mean he

354
00:17:54,950 --> 00:17:53,440
who whoever is in that

355
00:17:57,430 --> 00:17:54,960
is literally

356
00:17:59,750 --> 00:17:57,440
just hitting the gas

357
00:18:02,230 --> 00:17:59,760
just to the floor

358
00:18:04,710 --> 00:18:02,240
everything pushes forward

359
00:18:06,070 --> 00:18:04,720
and and what's he feeling

360
00:18:08,070 --> 00:18:06,080
what's he seeing

361
00:18:10,310 --> 00:18:08,080
that is just crazy to me

362
00:18:12,150 --> 00:18:10,320
that was just nuts all right

363
00:18:14,070 --> 00:18:12,160

all right that's it i don't want to say

364

00:18:15,270 --> 00:18:14,080

any more than that it was it was it was

365

00:18:17,430 --> 00:18:15,280

pretty crazy

366

00:18:18,549 --> 00:18:17,440

all right what's this picture

367

00:18:21,990 --> 00:18:18,559

mason

368

00:18:23,110 --> 00:18:22,000

raisin mage resin mage

369

00:18:26,710 --> 00:18:23,120

resin

370

00:18:28,390 --> 00:18:26,720

it's a picture of me vaping

371

00:18:30,390 --> 00:18:28,400

yeah there you go

372

00:18:32,549 --> 00:18:30,400

pretty cool that's an older picture

373

00:18:34,470 --> 00:18:32,559

because look at my hair

374

00:18:36,150 --> 00:18:34,480

caught me vaping on the air oh i did

375

00:18:37,990 --> 00:18:36,160

that on purpose i remember when i did

376

00:18:39,990 --> 00:18:38,000

that i was doing that for all of you

377

00:18:44,549 --> 00:18:40,000

guys during a commercial break

378

00:18:46,230 --> 00:18:44,559

i remember that i remember now

379

00:18:53,510 --> 00:18:46,240

i remember

380

00:18:57,270 --> 00:18:55,750

let's get this show cracking on this day

381

00:18:59,029 --> 00:18:57,280

in history

382

00:19:02,070 --> 00:18:59,039

otd

383

00:19:07,590 --> 00:19:05,990

the captain and crew of the css

384

00:19:10,470 --> 00:19:07,600

shenandoah

385

00:19:14,549 --> 00:19:10,480

still prowling the waters of the pacific

386

00:19:18,630 --> 00:19:14,559

in search of yankee whaling ships

387

00:19:21,909 --> 00:19:18,640

is finally informed by a british vessel

388

00:19:27,510 --> 00:19:21,919

that the south had lost the war

389

00:19:33,110 --> 00:19:30,070

it was like five years later after the

390

00:19:35,110 --> 00:19:33,120

end of the civil war the shenandoah

391

00:19:37,590 --> 00:19:35,120

just didn't know the shenandoah was the

392

00:19:40,310 --> 00:19:37,600

last confederate cruiser

393

00:19:41,510 --> 00:19:40,320

to set sail wasn't that like an episode

394

00:19:47,830 --> 00:19:41,520

of

395

00:19:50,390 --> 00:19:47,840

gilligan's island fader fact

396

00:19:53,990 --> 00:19:50,400

in 1989 i bet you john michael gautier

397

00:19:55,270 --> 00:19:54,000

doesn't know this i bet you he doesn't

398

00:19:56,870 --> 00:19:55,280

he's going to be nodding his head in

399

00:19:58,870 --> 00:19:56,880

just a second he's going to be getting i

400

00:20:01,350 --> 00:19:58,880

knew that i knew that

401
00:20:03,990 --> 00:20:01,360
in 1989

402
00:20:07,990 --> 00:20:04,000
scientists at ibm

403
00:20:11,510 --> 00:20:08,000
succeeded in arranging 35 individual

404
00:20:13,270 --> 00:20:11,520
xenon atoms on a substrate of chilled

405
00:20:15,430 --> 00:20:13,280
crystal of nickel

406
00:20:16,789 --> 00:20:15,440
to spell out

407
00:20:18,630 --> 00:20:16,799
ibm

408
00:20:20,789 --> 00:20:18,640
it was the first time adams had been

409
00:20:22,710 --> 00:20:20,799
precisely positioned

410
00:20:25,190 --> 00:20:22,720
on a flat surface

411
00:20:26,390 --> 00:20:25,200
and and oh john just threw up his hands

412
00:20:32,310 --> 00:20:26,400
he didn't know

413
00:20:34,310 --> 00:20:32,320

omni magazine or something back in the

414

00:20:36,390 --> 00:20:34,320

day and it was pretty impressive it

415

00:20:38,070 --> 00:20:36,400

wasn't as impressive as

416

00:20:39,029 --> 00:20:38,080

you guys remember the

417

00:20:42,870 --> 00:20:39,039

the

418

00:20:47,510 --> 00:20:42,880

guitar

419

00:20:51,830 --> 00:20:49,909

all right all right tonight very special

420

00:20:53,110 --> 00:20:51,840

guest john michael godier is with us

421

00:20:55,350 --> 00:20:53,120

we're going to be talking about the

422

00:20:56,710 --> 00:20:55,360

james webb space telescope and the

423

00:20:58,950 --> 00:20:56,720

search for e.t

424

00:21:00,789 --> 00:20:58,960

tomorrow night isaac arthur joins us

425

00:21:03,510 --> 00:21:00,799

we're going to be talking time travel

426
00:21:05,270 --> 00:21:03,520
with isaac haven't done that with isaac

427
00:21:06,950 --> 00:21:05,280
in uh in a few years it's going to be

428
00:21:09,909 --> 00:21:06,960
great thursday night

429
00:21:11,669 --> 00:21:09,919
is another fader night with open lines

430
00:21:13,110 --> 00:21:11,679
all night long

431
00:21:14,470 --> 00:21:13,120
all right

432
00:21:17,830 --> 00:21:14,480
now it's time for me to hit this river

433
00:21:20,390 --> 00:21:17,840
moon coffee jorge says hey jimmy

434
00:21:22,950 --> 00:21:20,400
that bully documentary you watched

435
00:21:24,230 --> 00:21:22,960
recently was it five years i don't i

436
00:21:26,070 --> 00:21:24,240
don't know

437
00:21:27,990 --> 00:21:26,080
i don't remember you know what jorge i

438
00:21:31,110 --> 00:21:28,000

will go and

439

00:21:34,310 --> 00:21:31,120

and check that out and i'll get back to

440

00:21:36,870 --> 00:21:34,320

you i've watched there's like three

441

00:21:39,669 --> 00:21:36,880

uh bowie documentaries uh that i've

442

00:21:42,630 --> 00:21:39,679

watched in the last few months

443

00:21:46,310 --> 00:21:42,640

so i'm not sure i'll see which one was

444

00:21:48,630 --> 00:21:46,320

the last one i did um also just recently

445

00:21:49,830 --> 00:21:48,640

there was another bowie documentary

446

00:21:54,070 --> 00:21:49,840

um

447

00:21:56,390 --> 00:21:54,080

about his his last recordings and uh

448

00:21:58,470 --> 00:21:56,400

and that was that was that was pretty

449

00:22:00,470 --> 00:21:58,480

amazing to see too as well so i'll get

450

00:22:02,549 --> 00:22:00,480

that up for you okay

451
00:22:04,950 --> 00:22:02,559
all right river moon coffee

452
00:22:08,710 --> 00:22:04,960
rivermoonwellness.com

453
00:22:10,549 --> 00:22:08,720
stephen owen you caught that

454
00:22:14,390 --> 00:22:10,559
you caught that

455
00:22:18,149 --> 00:22:14,400
that was my that was my queen's reich

456
00:22:20,310 --> 00:22:18,159
and he just posted that's awesome man

457
00:22:28,310 --> 00:22:20,320
i remember

458
00:22:31,029 --> 00:22:28,320
it's such a great record man

459
00:22:33,669 --> 00:22:31,039
it's such a great record i can't believe

460
00:22:36,390 --> 00:22:33,679
that's why i love the fader knots

461
00:22:39,430 --> 00:22:36,400
to be able to do that and grab a queen's

462
00:22:41,190 --> 00:22:39,440
right gif and get that up there that's

463
00:22:43,990 --> 00:22:41,200

another question for john michael godier

464

00:22:45,590 --> 00:22:44,000

he's smarter than me is it jif

465

00:22:47,510 --> 00:22:45,600

or is it gif

466

00:22:50,470 --> 00:22:47,520

the world wants to know we need to

467

00:22:52,630 --> 00:22:50,480

finally put that one to bed

468

00:22:54,950 --> 00:22:52,640

i mean like for reals

469

00:22:56,789 --> 00:22:54,960

uh last week

470

00:22:59,590 --> 00:22:56,799

i didn't say anything

471

00:23:01,510 --> 00:22:59,600

and uh i was i was i was with a couple

472

00:23:05,590 --> 00:23:01,520

of people a couple of friends and

473

00:23:09,830 --> 00:23:05,600

and were sitting and uh it was lunch

474

00:23:11,669 --> 00:23:09,840

and and talking and one of them said

475

00:23:13,350 --> 00:23:11,679

yeah i so you know i've been posting

476
00:23:14,950 --> 00:23:13,360
these gifs

477
00:23:15,909 --> 00:23:14,960
and uh

478
00:23:19,990 --> 00:23:15,919
and

479
00:23:26,310 --> 00:23:20,000
i so

480
00:23:27,909 --> 00:23:26,320
everything i and it's like i i don't

481
00:23:30,070 --> 00:23:27,919
need this right now

482
00:23:31,590 --> 00:23:30,080
i don't need to get into this

483
00:23:33,669 --> 00:23:31,600
this this thing

484
00:23:35,029 --> 00:23:33,679
so there you go all right

485
00:23:37,190 --> 00:23:35,039
uh where am i at river moon

486
00:23:40,870 --> 00:23:37,200
rivermoonwellness.com

487
00:23:44,070 --> 00:23:40,880
jimmy church's fade to black blend

488
00:23:44,870 --> 00:23:44,080

yeah right on cassandra you're the best

489

00:23:49,990 --> 00:23:44,880

it's

490

00:23:50,000 --> 00:23:53,590

i remember

491

00:24:01,350 --> 00:23:56,789

what

492

00:24:04,950 --> 00:24:02,950

now let's think about that for a second

493

00:24:07,430 --> 00:24:04,960

what do animals

494

00:24:10,310 --> 00:24:07,440

ponder

495

00:24:12,390 --> 00:24:10,320

you know i i did a show last last week

496

00:24:14,390 --> 00:24:12,400

with with christina gomez when we were

497

00:24:18,149 --> 00:24:14,400

talking about reincarnation

498

00:24:20,070 --> 00:24:18,159

and one of the things which has not well

499

00:24:21,430 --> 00:24:20,080

it does have everything to do with what

500

00:24:23,909 --> 00:24:21,440

i'm talking about right now because i

501
00:24:25,669 --> 00:24:23,919
just brought it up but the point being

502
00:24:28,390 --> 00:24:25,679
i said yeah what about what about

503
00:24:30,470 --> 00:24:28,400
animals do do we reincarnate do we ever

504
00:24:32,390 --> 00:24:30,480
come back as like a dog

505
00:24:34,310 --> 00:24:32,400
right you don't want to come back as an

506
00:24:36,470 --> 00:24:34,320
earthworm you know that that would that

507
00:24:38,789 --> 00:24:36,480
would just totally blow but

508
00:24:40,630 --> 00:24:38,799
but a dog that would be cool

509
00:24:43,350 --> 00:24:40,640
primate that would be pretty cool

510
00:24:46,630 --> 00:24:43,360
dolphin i could hang i could hang ring

511
00:24:49,990 --> 00:24:46,640
but when you look into a dog's eyes

512
00:24:51,350 --> 00:24:50,000
that there's something there but

513
00:24:54,390 --> 00:24:51,360

what do they

514

00:24:57,669 --> 00:24:55,990

and i know

515

00:25:01,590 --> 00:24:57,679

that uh

516

00:25:03,990 --> 00:25:01,600

some of you right now have a dog

517

00:25:05,990 --> 00:25:04,000

next to you listening to the show

518

00:25:06,950 --> 00:25:06,000

watching the show and dog is listening

519

00:25:08,070 --> 00:25:06,960

too

520

00:25:10,630 --> 00:25:08,080

and

521

00:25:12,390 --> 00:25:10,640

maybe the dog is like we ponder a lot

522

00:25:14,789 --> 00:25:12,400

church

523

00:25:17,269 --> 00:25:14,799

right maybe that's what they're thinking

524

00:25:18,870 --> 00:25:17,279

and like tonight you know the james webb

525

00:25:22,310 --> 00:25:18,880

telescope

526

00:25:27,510 --> 00:25:24,950

are dogs going church man the james webb

527

00:25:29,669 --> 00:25:27,520

telescope amazing images been wondering

528

00:25:31,269 --> 00:25:29,679

the same thing what's going on out there

529

00:25:32,710 --> 00:25:31,279

how's it possible to take these images

530

00:25:35,110 --> 00:25:32,720

how is it possible to look at the

531

00:25:37,669 --> 00:25:35,120

atmosphere of an exoplanet

532

00:25:39,750 --> 00:25:37,679

to see if it has a biosphere and methane

533

00:25:41,590 --> 00:25:39,760

gas how is that that is just

534

00:25:45,430 --> 00:25:41,600

extraordinary

535

00:25:51,029 --> 00:25:45,440

what do animals ponder

536

00:25:57,909 --> 00:25:54,789

if they don't ponder what we ponder i

537

00:26:01,909 --> 00:25:59,669

why is it

538

00:26:03,990 --> 00:26:01,919

that we are

539

00:26:07,510 --> 00:26:04,000

the only

540

00:26:11,430 --> 00:26:07,520

species on this planet

541

00:26:13,110 --> 00:26:11,440

that ponders those things

542

00:26:14,710 --> 00:26:13,120

we are tonight we're going to be talking

543

00:26:16,149 --> 00:26:14,720

about the james webb telescope we're

544

00:26:17,350 --> 00:26:16,159

going to be looking at some images we're

545

00:26:19,510 --> 00:26:17,360

going to be talking about these things

546

00:26:20,470 --> 00:26:19,520

we're going to be pondering

547

00:26:24,549 --> 00:26:20,480

and

548

00:26:26,390 --> 00:26:24,559

individually

549

00:26:30,789 --> 00:26:26,400

you me

550

00:26:32,310 --> 00:26:30,799

you're going to have your own thoughts

551
00:26:35,990 --> 00:26:32,320
what is it

552
00:26:40,870 --> 00:26:36,870
and

553
00:26:43,269 --> 00:26:40,880
what an animal ponder the same things

554
00:26:45,909 --> 00:26:43,279
probably not and why is it that we're

555
00:26:49,990 --> 00:26:45,919
the only ones blessed with this

556
00:26:56,630 --> 00:26:54,070
flash up some crazy gaseous nebula

557
00:26:59,269 --> 00:26:56,640
shot in infrared an image that we've

558
00:27:01,269 --> 00:26:59,279
never been able to see before

559
00:27:03,430 --> 00:27:01,279
and and we look at this

560
00:27:05,110 --> 00:27:03,440
you are going to look at the image

561
00:27:06,870 --> 00:27:05,120
and it's going to hit you a certain way

562
00:27:07,830 --> 00:27:06,880
you're going to look at that and you are

563
00:27:09,830 --> 00:27:07,840

going to

564

00:27:11,430 --> 00:27:09,840

think something

565

00:27:14,310 --> 00:27:11,440

you are going to

566

00:27:16,470 --> 00:27:14,320

ponder something

567

00:27:19,510 --> 00:27:16,480

maybe it's something like i would ponder

568

00:27:23,269 --> 00:27:19,520

you know like wow it i wonder what that

569

00:27:27,190 --> 00:27:23,279

that yellow swirly stuff is

570

00:27:28,870 --> 00:27:27,200

is it gas is it dust

571

00:27:31,110 --> 00:27:28,880

you know what what what is it that you

572

00:27:31,909 --> 00:27:31,120

are going i wonder what type of gas it

573

00:27:39,190 --> 00:27:31,919

is

574

00:27:41,990 --> 00:27:39,200

that that radiates that color

575

00:27:43,990 --> 00:27:42,000

of golden yellow

576

00:27:46,149 --> 00:27:44,000

what causes that

577

00:27:49,350 --> 00:27:46,159

that that's what i'm talking about

578

00:27:51,510 --> 00:27:49,360

and everybody is going to ponder

579

00:27:54,310 --> 00:27:51,520

something a little bit different

580

00:27:57,269 --> 00:27:54,320

and why is it that we are the only ones

581

00:28:00,070 --> 00:27:57,279

that just gets the chance to do that

582

00:28:02,630 --> 00:28:00,080

i i don't get it

583

00:28:04,710 --> 00:28:02,640

you know when we look at

584

00:28:06,950 --> 00:28:04,720

you look at chimpanzees

585

00:28:08,630 --> 00:28:06,960

right look at little little babies

586

00:28:10,389 --> 00:28:08,640

spider monkeys

587

00:28:12,070 --> 00:28:10,399

you know

588

00:28:14,149 --> 00:28:12,080

apes

589

00:28:17,110 --> 00:28:14,159

they look like us

590

00:28:19,830 --> 00:28:17,120

we can relate to them

591

00:28:22,870 --> 00:28:19,840

do they ponder

592

00:28:25,669 --> 00:28:24,230

fascinates me

593

00:28:27,909 --> 00:28:25,679

how is it

594

00:28:30,870 --> 00:28:27,919

that we are the only one

595

00:28:33,830 --> 00:28:30,880

and and i'll leave you with this one

596

00:28:36,710 --> 00:28:33,840

last thought today i was reading

597

00:28:38,549 --> 00:28:36,720

it's reading some stuff on on dna

598

00:28:40,310 --> 00:28:38,559

and uh

599

00:28:41,510 --> 00:28:40,320

not necessarily us but just dna in

600

00:28:42,789 --> 00:28:41,520

general

601
00:28:47,590 --> 00:28:42,799
and

602
00:28:48,470 --> 00:28:47,600
but

603
00:28:51,110 --> 00:28:48,480
with

604
00:28:54,870 --> 00:28:51,120
alien dna

605
00:28:56,310 --> 00:28:54,880
do scientists expect it to be different

606
00:28:59,110 --> 00:28:56,320
than ours

607
00:29:00,230 --> 00:28:59,120
dna on this planet everything's the same

608
00:29:02,389 --> 00:29:00,240
you know everything's a little bit

609
00:29:04,710 --> 00:29:02,399
different but dna in a banana and dna in

610
00:29:05,510 --> 00:29:04,720
humans pretty much the same

611
00:29:08,310 --> 00:29:05,520
and

612
00:29:11,990 --> 00:29:08,320
uh you know what constitutes different

613
00:29:14,070 --> 00:29:12,000

dna but what about alien dna

614

00:29:18,149 --> 00:29:14,080

is there three strands instead of two is

615

00:29:22,789 --> 00:29:19,909

think about that

616

00:29:26,630 --> 00:29:22,799

or is it just all the same

617

00:29:28,230 --> 00:29:26,640

and then what would make an alien

618

00:29:31,590 --> 00:29:28,240

civilization

619

00:29:33,830 --> 00:29:31,600

ponder or think differently than us

620

00:29:36,470 --> 00:29:33,840

and does it come down to dna

621

00:29:39,430 --> 00:29:36,480

like animals

622

00:29:40,950 --> 00:29:39,440

i am able to ponder

623

00:29:43,269 --> 00:29:40,960

this thought

624

00:29:44,470 --> 00:29:43,279

think about that just think about that

625

00:29:46,789 --> 00:29:44,480

it's heavy

626

00:29:49,350 --> 00:29:46,799

this is fade to black our guest tonight

627

00:29:50,549 --> 00:29:49,360

jean michael gautier is going to help me

628

00:29:53,510 --> 00:29:50,559

through

629

00:29:55,350 --> 00:29:53,520

these crazy doofus thoughts that i have

630

00:29:56,630 --> 00:29:55,360

this is fade to black i am your host

631

00:29:58,389 --> 00:29:56,640

jimmy church

632

00:30:00,470 --> 00:29:58,399

tonight john michael godier tomorrow

633

00:30:03,029 --> 00:30:00,480

night right here

634

00:30:05,350 --> 00:30:03,039

isaac arthur and time travel but tonight

635

00:30:07,350 --> 00:30:05,360

is john michael gautier in the james

636

00:30:10,070 --> 00:30:07,360

webb space telescope thursday is another

637

00:30:11,510 --> 00:30:10,080

fader night with open lines all night

638

00:30:14,549 --> 00:30:11,520

long this is fade to black i'm murals

639

00:30:15,750 --> 00:30:14,559

jimmy church on the x and game changer

640

00:30:17,350 --> 00:30:15,760

networks

641

00:30:21,860 --> 00:30:17,360

be right back after this short break

642

00:30:50,950 --> 00:30:47,430

[Music]

643

00:30:55,350 --> 00:30:53,110

this is nicole church daughter of you

644

00:30:57,430 --> 00:30:55,360

know who and you're listening to fade to

645

00:31:00,870 --> 00:30:57,440

black on jimmychurchradio.com

646

00:31:04,549 --> 00:31:03,029

you're listening to jimmy church and

647

00:31:10,950 --> 00:31:04,559

fade to black

648

00:31:17,430 --> 00:31:13,269

you're listening to jimmy church fade to

649

00:31:25,990 --> 00:31:19,669

fate to black will now pause for alien

650

00:31:30,789 --> 00:31:28,149

when you take the beans from central

651
00:31:33,190 --> 00:31:30,799
america with dashes of indonesian and

652
00:31:36,389 --> 00:31:33,200
african mixed in and then roasted to the

653
00:31:38,870 --> 00:31:36,399
dark side of fade to black you create

654
00:31:41,830 --> 00:31:38,880
the ultimate brew of fringe

655
00:31:45,110 --> 00:31:41,840
introducing the fade to black blend from

656
00:31:47,909 --> 00:31:45,120
river moon coffee yes river moon's

657
00:31:50,710 --> 00:31:47,919
darkest customized roast was created for

658
00:31:53,350 --> 00:31:50,720
the love of fade to black

659
00:31:55,909 --> 00:31:53,360
the alchemy of masterful roasting and

660
00:31:59,509 --> 00:31:55,919
smoking the beans is in every sip of

661
00:32:00,950 --> 00:31:59,519
this full-bodied dark java i need my

662
00:32:03,509 --> 00:32:00,960
coffee doc

663
00:32:06,070 --> 00:32:03,519

deep with distinct bittersweet chocolate

664

00:32:08,470 --> 00:32:06,080

highlights just like the bunker

665

00:32:11,350 --> 00:32:08,480

leaning further into the darkness of the

666

00:32:14,269 --> 00:32:11,360

roast is fade to black blend from river

667

00:32:16,310 --> 00:32:14,279

moon coffee just click on the banner at

668

00:32:20,070 --> 00:32:16,320

jimmychurchradio.com and use the promo

669

00:32:21,909 --> 00:32:20,080

code f2b blend for 15 off of your order

670

00:32:24,630 --> 00:32:21,919

today

671

00:32:27,430 --> 00:32:24,640

this is the only way

672

00:32:27,440 --> 00:32:29,750

make is

673

00:32:34,389 --> 00:32:31,509

this is jimmy church of fade to black

674

00:32:36,710 --> 00:32:34,399

and you can get our podcast for just two

675

00:32:40,830 --> 00:32:36,720

dollars per month all you have to do is

676

00:32:43,029 --> 00:32:40,840

click on the podcast banner over at

677

00:32:45,669 --> 00:32:43,039

jimmychurchradio.com hello fader knots

678

00:32:48,710 --> 00:32:45,679

jimmy church here you've seen me with my

679

00:32:50,630 --> 00:32:48,720

thunderstorm now you can purify the air

680

00:32:52,950 --> 00:32:50,640

in your home and get healthy clean fresh

681

00:32:55,350 --> 00:32:52,960

smelling air and eliminate odors just

682

00:32:57,590 --> 00:32:55,360

like i do right here in the bunker the

683

00:33:00,070 --> 00:32:57,600

eden pier thunderstorm uses oxy

684

00:33:02,470 --> 00:33:00,080

technology that naturally sends out o3

685

00:33:04,630 --> 00:33:02,480

molecules into the air which seek out

686

00:33:06,870 --> 00:33:04,640

odors and air pollutants in your home

687

00:33:09,430 --> 00:33:06,880

and destroys them it's called a

688

00:33:12,149 --> 00:33:09,440

thunderstorm because it purifies the air

689

00:33:14,149 --> 00:33:12,159

just like after a thunderstorm and right

690

00:33:16,870 --> 00:33:14,159

now you can save two hundred dollars on

691

00:33:19,590 --> 00:33:16,880

an eden pier thunderstorm three pack for

692

00:33:21,590 --> 00:33:19,600

whole home protection with this special

693

00:33:23,350 --> 00:33:21,600

offer you're getting three units for

694

00:33:24,710 --> 00:33:23,360

under two hundred dollars

695

00:33:25,710 --> 00:33:24,720

seriously

696

00:33:29,430 --> 00:33:25,720

go to

697

00:33:31,990 --> 00:33:29,440

edenpuredeals.com and use fader 3

698

00:33:34,630 --> 00:33:32,000

shipping is free and it's easy just

699

00:33:35,509 --> 00:33:34,640

scroll down you'll see my name right

700

00:33:38,630 --> 00:33:35,519

there

701
00:33:44,710 --> 00:33:38,640
jimmy church click on it and get your

702
00:33:48,669 --> 00:33:45,990
do you have an interest in the

703
00:33:51,509 --> 00:33:48,679
paranormal that you'll love the

704
00:33:53,190 --> 00:33:51,519
xnetwork.com the axe is your streaming

705
00:33:56,310 --> 00:33:53,200
audio and video for everything

706
00:33:59,830 --> 00:33:56,320
supernatural strange and mysterious like

707
00:34:02,149 --> 00:33:59,840
ufos bigfoot ghosts and so much more

708
00:34:05,509 --> 00:34:02,159
from hosts like jimmy church whitley

709
00:34:08,069 --> 00:34:05,519
strieber micah hanks and christina gomez

710
00:34:10,149 --> 00:34:08,079
visit the unexnetwork.com show page for

711
00:34:12,869 --> 00:34:10,159
a complete list of all the paranormal

712
00:34:14,790 --> 00:34:12,879
programs you'll find on the x be sure to

713
00:34:16,470 --> 00:34:14,800

follow us on twitter for updates at

714

00:34:19,190 --> 00:34:16,480

kunxdb

715

00:34:21,909 --> 00:34:19,200

follow our facebook group on x network

716

00:34:25,510 --> 00:34:21,919

find the podcast on spotify iheart

717

00:34:26,389 --> 00:34:25,520

audible and apple podcast it's time it's

718

00:34:28,109 --> 00:34:26,399

new

719

00:34:29,990 --> 00:34:28,119

it's the x

720

00:34:32,149 --> 00:34:30,000

x

721

00:34:34,869 --> 00:34:32,159

right now the world couldn't be more

722

00:34:37,669 --> 00:34:34,879

chaotic history shows us what gold does

723

00:34:40,149 --> 00:34:37,679

when the world goes crazy it goes up in

724

00:34:42,710 --> 00:34:40,159

value right now we're in unprecedented

725

00:34:45,669 --> 00:34:42,720

times the pandemic the war in ukraine

726

00:34:47,990 --> 00:34:45,679

the devaluation of the us dollar gold

727

00:34:49,909 --> 00:34:48,000

and other precious metals are a defense

728

00:34:52,470 --> 00:34:49,919

measure against the hyperinflation

729

00:34:54,790 --> 00:34:52,480

that's happening right now so what can

730

00:34:57,270 --> 00:34:54,800

you do to protect yourself call my

731

00:34:59,510 --> 00:34:57,280

friend alan johnson at united gold group

732

00:35:01,589 --> 00:34:59,520

he's dedicated to helping people secure

733

00:35:04,069 --> 00:35:01,599

their retirement income he'll help you

734

00:35:06,230 --> 00:35:04,079

with gold with silver and other precious

735

00:35:09,750 --> 00:35:06,240

metals and show you how to set up your

736

00:35:12,069 --> 00:35:09,760

own self-directed ira safe and secure

737

00:35:14,310 --> 00:35:12,079

united gold group makes gold ownership

738

00:35:17,190 --> 00:35:14,320

easy and affordable there couldn't be a

739

00:35:18,870 --> 00:35:17,200

better time so call now and get a silver

740

00:35:24,310 --> 00:35:18,880

american eagle proof set with a

741

00:35:24,320 --> 00:35:28,310

that's 800-753-8534

742

00:35:32,310 --> 00:35:30,030

or visit

743

00:35:35,349 --> 00:35:32,320

unitedgoldgroup.com reach out to my

744

00:35:40,390 --> 00:35:35,359

friend alan johnson

745

00:35:46,790 --> 00:35:42,790

fade to black

746

00:35:50,950 --> 00:35:46,800

is not your father's radio show

747

00:35:53,030 --> 00:35:50,960

on the game changer radio network

748

00:35:54,310 --> 00:35:53,040

hi this is rob reiner from anvil and

749

00:35:59,940 --> 00:35:54,320

you're listening to jimmy

750

00:36:03,170 --> 00:36:01,190

[Music]

751
00:36:18,310 --> 00:36:03,180
radio

752
00:36:22,950 --> 00:36:20,230
welcome back fade to black i am your

753
00:36:24,790 --> 00:36:22,960
host jimmy church

754
00:36:27,589 --> 00:36:24,800
tonight

755
00:36:29,829 --> 00:36:27,599
john michael gautier joins us for a full

756
00:36:32,870 --> 00:36:29,839
night of the james webb space telescopes

757
00:36:34,870 --> 00:36:32,880
and it's search i said telescopes well

758
00:36:36,390 --> 00:36:34,880
that's actually correct

759
00:36:39,270 --> 00:36:36,400
actually

760
00:36:41,270 --> 00:36:39,280
it's got one more than one set of lenses

761
00:36:43,190 --> 00:36:41,280
on that thing

762
00:36:44,710 --> 00:36:43,200
and it's search for et and life on

763
00:36:46,069 --> 00:36:44,720

exoplanets we're going to be going

764

00:36:47,670 --> 00:36:46,079

through all of that

765

00:36:50,550 --> 00:36:47,680

he's a science fiction author and

766

00:36:53,910 --> 00:36:50,560

futurist with two novels out

767

00:36:56,230 --> 00:36:53,920

the salvagers and supermind and is the

768

00:36:58,710 --> 00:36:56,240

host of two youtube channels his

769

00:37:00,870 --> 00:36:58,720

personal one under his own name and a

770

00:37:03,750 --> 00:37:00,880

science-based talk show

771

00:37:05,589 --> 00:37:03,760

the event horizon yes it's where i get

772

00:37:07,430 --> 00:37:05,599

all of my material it's not that big of

773

00:37:08,710 --> 00:37:07,440

a deal everybody knows that now

774

00:37:11,349 --> 00:37:08,720

where his

775

00:37:13,750 --> 00:37:11,359

interviews and his guests

776

00:37:16,950 --> 00:37:13,760

are subjects ranging from alien life the

777

00:37:18,550 --> 00:37:16,960

fermi paradox astrophysics exoplanets

778

00:37:21,190 --> 00:37:18,560

that's right where i get all of my

779

00:37:23,190 --> 00:37:21,200

material he his content is also

780

00:37:23,990 --> 00:37:23,200

available as a podcast on spotify and

781

00:37:26,390 --> 00:37:24,000

apple

782

00:37:28,470 --> 00:37:26,400

all of his websites links channels all

783

00:37:30,550 --> 00:37:28,480

that stuff is right there on our website

784

00:37:32,069 --> 00:37:30,560

and throughout social media and i would

785

00:37:33,430 --> 00:37:32,079

like to welcome back to fade to black

786

00:37:35,510 --> 00:37:33,440

the one and only

787

00:37:36,470 --> 00:37:35,520

john michael gautier there he is how you

788

00:37:39,430 --> 00:37:36,480

doing man

789

00:37:41,750 --> 00:37:39,440

hi everybody hey jimmy um hey jimmy i

790

00:37:42,470 --> 00:37:41,760

got another spider story for you

791

00:38:00,630 --> 00:37:42,480

i

792

00:38:03,750 --> 00:38:00,640

oh

793

00:38:07,190 --> 00:38:03,760

brown recluse is no joke you know black

794

00:38:09,910 --> 00:38:07,200

widow whatever right whatever i i looked

795

00:38:11,510 --> 00:38:09,920

it up once and and i was shocked but

796

00:38:13,109 --> 00:38:11,520

this is a fact

797

00:38:14,630 --> 00:38:13,119

um

798

00:38:20,870 --> 00:38:14,640

last year

799

00:38:23,990 --> 00:38:20,880

nobody died from a black widow bite

800

00:38:25,589 --> 00:38:24,000

zero right happens all the time

801
00:38:27,829 --> 00:38:25,599
zero deaths

802
00:38:31,109 --> 00:38:27,839
brown recluse i don't i don't want to

803
00:38:32,870 --> 00:38:31,119
look up that number i had a neighbor

804
00:38:35,670 --> 00:38:32,880
next door neighbor

805
00:38:38,230 --> 00:38:35,680
um i pulled up and

806
00:38:40,870 --> 00:38:38,240
and i hadn't seen him in in in like a

807
00:38:42,710 --> 00:38:40,880
week or something and saw his wife

808
00:38:44,230 --> 00:38:42,720
and he's out in the front yard and he's

809
00:38:46,390 --> 00:38:44,240
like hey jimmy i said hey what's going

810
00:38:48,069 --> 00:38:46,400
on i said where have you been

811
00:38:49,829 --> 00:38:48,079
and uh you know normally i saw him every

812
00:38:52,390 --> 00:38:49,839
day and he goes man i got

813
00:38:54,390 --> 00:38:52,400

and he turns around and he pulls up his

814

00:38:58,230 --> 00:38:54,400

shirt and he goes i got bit by a brown

815

00:38:59,589 --> 00:38:58,240

recluse i was like dude oh my god

816

00:39:02,310 --> 00:38:59,599

what

817

00:39:05,510 --> 00:39:02,320

and it was gnarly and i'm not going to

818

00:39:07,349 --> 00:39:05,520

describe what i saw but it was horrific

819

00:39:09,349 --> 00:39:07,359

and and

820

00:39:12,710 --> 00:39:09,359

he goes look really close you'll see the

821

00:39:15,910 --> 00:39:12,720

spider bite in the middle which was

822

00:39:17,910 --> 00:39:15,920

that big it's this big little tiny dot

823

00:39:18,950 --> 00:39:17,920

and that's it

824

00:39:21,030 --> 00:39:18,960

so

825

00:39:24,310 --> 00:39:21,040

wow did you go to the hospital well you

826

00:39:26,230 --> 00:39:24,320

did right what did they do venom uh this

827

00:39:28,950 --> 00:39:26,240

one wasn't that bad i have uh it's

828

00:39:31,430 --> 00:39:28,960

happened to me twice and the first one i

829

00:39:32,310 --> 00:39:31,440

had the necrotizing tissue which was not

830

00:39:34,950 --> 00:39:32,320

you know

831

00:39:37,030 --> 00:39:34,960

this one was just painful and

832

00:39:38,710 --> 00:39:37,040

it was right on the you know like the

833

00:39:40,790 --> 00:39:38,720

the sole of my foot

834

00:39:42,470 --> 00:39:40,800

and um it just

835

00:39:44,230 --> 00:39:42,480

hurt for a week but now it's starting to

836

00:39:45,910 --> 00:39:44,240

go away so i think i don't think i got a

837

00:39:49,990 --> 00:39:45,920

really bad one

838

00:39:52,150 --> 00:39:50,000

but um but it's it's the same thing so

839

00:39:53,589 --> 00:39:52,160

yeah i uh uh

840

00:39:56,710 --> 00:39:53,599

you know i live out here in the desert

841

00:39:58,870 --> 00:39:56,720

so there's all kinds of crazy stuff that

842

00:40:00,630 --> 00:39:58,880

humans have never seen before you know i

843

00:40:01,589 --> 00:40:00,640

discover new species every day of

844

00:40:04,230 --> 00:40:01,599

something

845

00:40:06,630 --> 00:40:04,240

and uh crazy insects i'm walking out

846

00:40:08,390 --> 00:40:06,640

onto the back patio out of the screen

847

00:40:11,109 --> 00:40:08,400

door we were talking about that earlier

848

00:40:13,109 --> 00:40:11,119

today right spider webs and uh but i

849

00:40:15,829 --> 00:40:13,119

walked through and the spider web

850

00:40:17,190 --> 00:40:15,839

uh this was uh about three months ago it

851

00:40:18,950 --> 00:40:17,200

hit me in the face

852

00:40:21,510 --> 00:40:18,960

and i just happened to look up and in

853

00:40:24,390 --> 00:40:21,520

the corner right right above my head you

854

00:40:26,550 --> 00:40:24,400

know it was a black widow but i mean

855

00:40:29,430 --> 00:40:26,560

big ginormous

856

00:40:30,309 --> 00:40:29,440

and i just kind of scooted around and

857

00:40:34,630 --> 00:40:30,319

uh

858

00:40:36,230 --> 00:40:34,640

i grabbed the spatula from my grill

859

00:40:39,349 --> 00:40:36,240

and said you know what you know and i

860

00:40:41,109 --> 00:40:39,359

just picked her up and she crawled onto

861

00:40:41,990 --> 00:40:41,119

the spatula i just walked out to the

862

00:40:45,109 --> 00:40:42,000

yard

863

00:40:46,710 --> 00:40:45,119

and and flinged her and and let her go

864

00:40:49,510 --> 00:40:46,720

and live her life

865

00:40:50,710 --> 00:40:49,520

but uh no not you're not going to camp

866

00:40:52,390 --> 00:40:50,720

out

867

00:40:55,510 --> 00:40:52,400

right

868

00:40:57,829 --> 00:40:55,520

above my head where i walk out of the

869

00:40:58,710 --> 00:40:57,839

the sliding door but are you feeling

870

00:41:01,190 --> 00:40:58,720

better

871

00:41:03,910 --> 00:41:01,200

oh yeah yeah it's it's it's going away

872

00:41:07,589 --> 00:41:03,920

um it was uh i i wasn't limping around

873

00:41:09,030 --> 00:41:07,599

though from it um did you see it so in

874

00:41:11,109 --> 00:41:09,040

the house

875

00:41:14,630 --> 00:41:11,119

in the studio

876

00:41:17,109 --> 00:41:14,640

literally three feet that way oh man and

877

00:41:22,230 --> 00:41:17,119

it was in there while i was on with you

878

00:41:26,069 --> 00:41:24,230

okay all right knock on wood fingers

879

00:41:28,630 --> 00:41:26,079

crossed uh we're gonna get through this

880

00:41:31,190 --> 00:41:28,640

show um what did it we've got a lot to

881

00:41:33,430 --> 00:41:31,200

talk about tonight and a lot of things

882

00:41:35,510 --> 00:41:33,440

but just one quick ques what did it feel

883

00:41:37,750 --> 00:41:35,520

like when it happened

884

00:41:39,270 --> 00:41:37,760

didn't didn't feel a thing either time

885

00:41:41,990 --> 00:41:39,280

that's what i've heard i should have

886

00:41:44,230 --> 00:41:42,000

heard uh you just notice it the next day

887

00:41:45,109 --> 00:41:44,240

yeah that's what i've heard that's crazy

888

00:41:47,589 --> 00:41:45,119

yeah

889

00:41:49,109 --> 00:41:47,599

that's crazy all right all right well

890

00:41:50,710 --> 00:41:49,119

i'm glad you're feeling better i mean

891

00:41:52,550 --> 00:41:50,720

just to mention

892

00:41:56,710 --> 00:41:52,560

when i was uh

893

00:41:58,870 --> 00:41:56,720

i was probably like in second grade

894

00:42:00,309 --> 00:41:58,880

you know when you really absorb stuff

895

00:42:02,230 --> 00:42:00,319

for the rest of your life right and

896

00:42:05,829 --> 00:42:02,240

carries with you i remember my second

897

00:42:09,109 --> 00:42:05,839

grade teacher and black widows and this

898

00:42:10,790 --> 00:42:09,119

and i went to wanna know brown recluse

899

00:42:12,790 --> 00:42:10,800

and she showed a picture

900

00:42:14,470 --> 00:42:12,800

right and you're like in second grade

901
00:42:16,790 --> 00:42:14,480
you know what

902
00:42:19,270 --> 00:42:16,800
and that's what you want to be scared of

903
00:42:21,829 --> 00:42:19,280
and for the rest of my life

904
00:42:23,910 --> 00:42:21,839
you know that's it that's it i i was

905
00:42:25,190 --> 00:42:23,920
warned i was warned

906
00:42:26,390 --> 00:42:25,200
all right

907
00:42:28,390 --> 00:42:26,400
now

908
00:42:30,309 --> 00:42:28,400
uh because we have so much to discuss

909
00:42:33,510 --> 00:42:30,319
tonight um john if you don't mind i just

910
00:42:34,390 --> 00:42:33,520
want to uh jump straight into it

911
00:42:35,349 --> 00:42:34,400
um

912
00:42:39,190 --> 00:42:35,359
and

913
00:42:41,750 --> 00:42:39,200

listening earlier

914

00:42:42,829 --> 00:42:41,760

when i was talking about the ability of

915

00:42:47,109 --> 00:42:42,839

humans to

916

00:42:49,510 --> 00:42:47,119

ponder um is an extraordinary gift that

917

00:42:51,109 --> 00:42:49,520

uh humans have been blessed with you

918

00:42:53,750 --> 00:42:51,119

know and i don't know if other species

919

00:42:54,710 --> 00:42:53,760

on this planet uh have the ability to

920

00:43:01,430 --> 00:42:54,720

ponder

921

00:43:03,589 --> 00:43:01,440

but the james webb space telescope

922

00:43:06,710 --> 00:43:03,599

is allowing all of us

923

00:43:08,230 --> 00:43:06,720

to ponder in our own little way in our

924

00:43:10,710 --> 00:43:08,240

own little world

925

00:43:13,510 --> 00:43:10,720

how is it that we have the gift you have

926
00:43:15,670 --> 00:43:13,520
the gift to ponder to look at these

927
00:43:17,270 --> 00:43:15,680
images uh today we were talking about a

928
00:43:20,230 --> 00:43:17,280
couple of the images

929
00:43:21,670 --> 00:43:20,240
and your thoughts uh you know that

930
00:43:23,030 --> 00:43:21,680
you're mentioning

931
00:43:25,109 --> 00:43:23,040
aren't

932
00:43:26,470 --> 00:43:25,119
my ponderings

933
00:43:28,309 --> 00:43:26,480
right you understand what i'm saying

934
00:43:30,550 --> 00:43:28,319
right i mean it's the way that we

935
00:43:31,510 --> 00:43:30,560
perceive images and thoughts and music

936
00:43:32,390 --> 00:43:31,520
and stuff

937
00:43:36,150 --> 00:43:32,400
um

938
00:43:38,470 --> 00:43:36,160

uh what why do we have that gift

939

00:43:41,349 --> 00:43:38,480

well i think that

940

00:43:44,150 --> 00:43:41,359

our evolution must have been dependent

941

00:43:45,349 --> 00:43:44,160

on our increasing intelligence keeping

942

00:43:47,910 --> 00:43:45,359

us alive

943

00:43:50,790 --> 00:43:47,920

and the reason that we're here and

944

00:43:53,430 --> 00:43:50,800

species of other species of human like

945

00:43:55,190 --> 00:43:53,440

homo erectus or or whatever

946

00:43:58,069 --> 00:43:55,200

they are not here is because they didn't

947

00:43:59,829 --> 00:43:58,079

have the wide ability and the wide diet

948

00:44:01,829 --> 00:43:59,839

you know to think about you know can i

949

00:44:05,670 --> 00:44:01,839

eat that berry or whatever

950

00:44:07,589 --> 00:44:05,680

and they didn't survive whereas we did

951
00:44:11,109 --> 00:44:07,599
simply because we have that wide variety

952
00:44:13,030 --> 00:44:11,119
and ability to say well what if you know

953
00:44:15,510 --> 00:44:13,040
um and that that seems to be one of the

954
00:44:16,630 --> 00:44:15,520
things that divides uh the hominids is

955
00:44:17,510 --> 00:44:16,640
that we're

956
00:44:19,109 --> 00:44:17,520
we're

957
00:44:20,870 --> 00:44:19,119
the first ones that were really

958
00:44:23,030 --> 00:44:20,880
adaptable because we can ask these kinds

959
00:44:26,069 --> 00:44:23,040
of questions

960
00:44:28,230 --> 00:44:26,079
just as you discover the universe your

961
00:44:30,630 --> 00:44:28,240
your natural curiosity and everything

962
00:44:31,990 --> 00:44:30,640
that's that's instilled in humanity just

963
00:44:34,390 --> 00:44:32,000

keeps that going

964

00:44:36,790 --> 00:44:34,400

well and it's it's got to be all dna

965

00:44:37,750 --> 00:44:36,800

based right i mean it just it just has

966

00:44:38,950 --> 00:44:37,760

to be

967

00:44:42,150 --> 00:44:38,960

uh the

968

00:44:44,069 --> 00:44:42,160

the hunting ability of of different

969

00:44:45,589 --> 00:44:44,079

animals and predators

970

00:44:48,230 --> 00:44:45,599

you know that that's a gift that we

971

00:44:51,109 --> 00:44:48,240

don't have you know smelling blood from

972

00:44:54,230 --> 00:44:51,119

you know 10 miles away and being able to

973

00:44:57,349 --> 00:44:54,240

track or whatever the nocturnal v

974

00:44:59,750 --> 00:44:57,359

these things well that's a dna gift it's

975

00:45:03,190 --> 00:44:59,760

not necessarily something that's taught

976

00:45:04,710 --> 00:45:03,200

so it's dna so is it just in our dna

977

00:45:06,790 --> 00:45:04,720

well it's initially in our dna our

978

00:45:08,390 --> 00:45:06,800

ability to uh be intelligent is

979

00:45:11,750 --> 00:45:08,400

obviously governed by the power of our

980

00:45:13,670 --> 00:45:11,760

brain which is governed by genetics um

981

00:45:15,670 --> 00:45:13,680

and so in that sense yes that's

982

00:45:17,750 --> 00:45:15,680

absolutely correct in in another sense

983

00:45:19,910 --> 00:45:17,760

though is that you know you can foster

984

00:45:21,190 --> 00:45:19,920

and teach a kid to be more curious than

985

00:45:25,030 --> 00:45:21,200

they would have been

986

00:45:27,670 --> 00:45:25,040

uh without it you know oh

987

00:45:31,510 --> 00:45:27,680

yeah well that that was heavy

988

00:45:33,190 --> 00:45:31,520

that was heavy right so without it it's

989

00:45:35,990 --> 00:45:33,200

in your dna but you have to be taught

990

00:45:37,670 --> 00:45:36,000

how to use it right right yeah

991

00:45:39,430 --> 00:45:37,680

you can hone it you know you it's like a

992

00:45:40,710 --> 00:45:39,440

skill you know

993

00:45:42,710 --> 00:45:40,720

and um

994

00:45:44,470 --> 00:45:42,720

that's why you know if if your kids

995

00:45:47,670 --> 00:45:44,480

chose any interest in science buy them a

996

00:45:52,069 --> 00:45:47,680

telescope and a microscope you know

997

00:45:53,829 --> 00:45:52,079

and when uh the james webb writes

998

00:45:55,670 --> 00:45:53,839

well you know what uh i've got a

999

00:45:57,829 --> 00:45:55,680

telescope it hasn't helped me yet but

1000

00:45:58,630 --> 00:45:57,839

let's see if it

1001
00:46:02,390 --> 00:45:58,640
maybe

1002
00:46:03,349 --> 00:46:02,400
because of that telescope uh we'll see

1003
00:46:04,790 --> 00:46:03,359
what happens

1004
00:46:06,390 --> 00:46:04,800
the um

1005
00:46:08,950 --> 00:46:06,400
the images

1006
00:46:10,470 --> 00:46:08,960
uh oh now let's let's let's back up for

1007
00:46:11,910 --> 00:46:10,480
a second because

1008
00:46:15,190 --> 00:46:11,920
uh

1009
00:46:16,630 --> 00:46:15,200
hubble and i've talked about this for

1010
00:46:20,870 --> 00:46:16,640
for so many years

1011
00:46:22,790 --> 00:46:20,880
um hubble and when hubble's first images

1012
00:46:25,349 --> 00:46:22,800
uh started coming back to us and we were

1013
00:46:27,109 --> 00:46:25,359

comparing them to well pixelated

1014

00:46:30,710 --> 00:46:27,119

satellite images number one and number

1015

00:46:33,030 --> 00:46:30,720

two our our ground base uh telescopes uh

1016

00:46:35,589 --> 00:46:33,040

which uh have gotten bigger and better

1017

00:46:39,030 --> 00:46:35,599

and depending on where they are and with

1018

00:46:41,430 --> 00:46:39,040

uh the atmosphere uh interfering or not

1019

00:46:44,390 --> 00:46:41,440

have been pretty incredible but then

1020

00:46:46,150 --> 00:46:44,400

hubble comes along and we thought

1021

00:46:48,230 --> 00:46:46,160

there's no way that it could ever get

1022

00:46:51,109 --> 00:46:48,240

better than this

1023

00:46:54,470 --> 00:46:51,119

and we were able to look at those images

1024

00:46:56,230 --> 00:46:54,480

when you first saw the hubble deep field

1025

00:46:59,270 --> 00:46:56,240

which was probably one of the biggest

1026

00:47:01,670 --> 00:46:59,280

game changer in in human history

1027

00:47:03,910 --> 00:47:01,680

uh those images when they came in

1028

00:47:06,790 --> 00:47:03,920

and now you're looking at the james webb

1029

00:47:08,470 --> 00:47:06,800

space telescope's images today same

1030

00:47:11,670 --> 00:47:08,480

impact for you

1031

00:47:14,150 --> 00:47:11,680

yeah it is um the

1032

00:47:15,190 --> 00:47:14,160

oh i can i i actually have a different

1033

00:47:17,589 --> 00:47:15,200

one though

1034

00:47:19,589 --> 00:47:17,599

uh the deep field was amazing i and i

1035

00:47:22,630 --> 00:47:19,599

absolutely love it and just the idea of

1036

00:47:24,309 --> 00:47:22,640

seeing gravity just is amazing to me but

1037

00:47:27,270 --> 00:47:24,319

what really amazes me about this

1038

00:47:28,950 --> 00:47:27,280

telescope so far is the exoplanet wasp

1039

00:47:32,150 --> 00:47:28,960

96b

1040

00:47:34,470 --> 00:47:32,160

where james webb was able to um

1041

00:47:35,750 --> 00:47:34,480

image this as it transited in front of

1042

00:47:37,270 --> 00:47:35,760

its star

1043

00:47:38,870 --> 00:47:37,280

and

1044

00:47:40,470 --> 00:47:38,880

essentially

1045

00:47:42,630 --> 00:47:40,480

see the weather

1046

00:47:45,829 --> 00:47:42,640

in other words you're looking at

1047

00:47:47,510 --> 00:47:45,839

the weather of an exoplanet

1048

00:47:50,230 --> 00:47:47,520

immense you know

1049

00:47:51,190 --> 00:47:50,240

amounts of distance away

1050

00:47:52,790 --> 00:47:51,200

and

1051
00:47:55,109 --> 00:47:52,800
you can actually tell that there's water

1052
00:47:57,829 --> 00:47:55,119
vapor active in its atmosphere from the

1053
00:47:59,349 --> 00:47:57,839
james webb data this is in contrast to

1054
00:48:01,990 --> 00:47:59,359
what we knew about this exoplanet

1055
00:48:03,829 --> 00:48:02,000
because the last measurements done

1056
00:48:06,870 --> 00:48:03,839
seemed to show that number one we saw

1057
00:48:08,950 --> 00:48:06,880
sodium which you normally wouldn't see

1058
00:48:10,710 --> 00:48:08,960
and number two

1059
00:48:12,630 --> 00:48:10,720
from that that

1060
00:48:14,790 --> 00:48:12,640
observation of sodium they concluded

1061
00:48:16,470 --> 00:48:14,800
that it had no clouds

1062
00:48:18,710 --> 00:48:16,480
well with the james webb data that

1063
00:48:20,630 --> 00:48:18,720

revises that science and says no there

1064

00:48:22,630 --> 00:48:20,640

are clouds so we might have actually

1065

00:48:24,790 --> 00:48:22,640

just caught that planet

1066

00:48:26,470 --> 00:48:24,800

on a a cloudless day

1067

00:48:30,470 --> 00:48:26,480

and now it's got a weather system you

1068

00:48:32,870 --> 00:48:30,480

know and that we're actually able to see

1069

00:48:35,270 --> 00:48:32,880

some type of weather on an exoplanet

1070

00:48:36,710 --> 00:48:35,280

that's light years away

1071

00:48:39,750 --> 00:48:36,720

there was alright

1072

00:48:40,549 --> 00:48:39,760

i've just i've just posted up uh

1073

00:48:43,190 --> 00:48:40,559

uh

1074

00:48:47,030 --> 00:48:43,200

the the data there's a few different

1075

00:48:49,670 --> 00:48:47,040

images of of the wasp uh out there

1076
00:48:51,589 --> 00:48:49,680
um and i thought that this was the best

1077
00:48:54,470 --> 00:48:51,599
graphic to

1078
00:48:57,349 --> 00:48:54,480
uh that this is an interpolation of the

1079
00:49:00,950 --> 00:48:57,359
the actual data as it came in but uh

1080
00:49:01,750 --> 00:49:00,960
this is the the wasp uh data

1081
00:49:04,870 --> 00:49:01,760
and

1082
00:49:08,309 --> 00:49:04,880
walk us through this um because

1083
00:49:11,030 --> 00:49:08,319
first off uh what's the distance here

1084
00:49:14,230 --> 00:49:11,040
wasp 96b um

1085
00:49:16,549 --> 00:49:14,240
i you know i'm not actually sure um we

1086
00:49:19,109 --> 00:49:16,559
can find out in two seconds though yeah

1087
00:49:20,549 --> 00:49:19,119
yeah and and so

1088
00:49:22,470 --> 00:49:20,559

again

1089

00:49:23,589 --> 00:49:22,480

you know talking about the ability to

1090

00:49:25,829 --> 00:49:23,599

ponder

1091

00:49:28,150 --> 00:49:25,839

and to think about things to to look up

1092

00:49:30,470 --> 00:49:28,160

at the stars and then

1093

00:49:32,549 --> 00:49:30,480

and wonder if there's an exoplanet out

1094

00:49:35,990 --> 00:49:32,559

there another planet

1095

00:49:38,470 --> 00:49:36,000

um is one thing but the ability now to

1096

00:49:41,829 --> 00:49:38,480

go and i agree with you

1097

00:49:44,549 --> 00:49:41,839

the ability to not just see

1098

00:49:45,829 --> 00:49:44,559

and detect an exoplanet

1099

00:49:49,030 --> 00:49:45,839

but to now

1100

00:49:52,230 --> 00:49:49,040

look at its atmosphere

1101

00:49:54,710 --> 00:49:52,240

and and measure its breakdown

1102

00:49:57,270 --> 00:49:54,720

that's that that's absolute crazy town

1103

00:49:59,910 --> 00:49:57,280

to me it is extremely distant it's at

1104

00:50:03,190 --> 00:49:59,920

1200 light years away yeah that's great

1105

00:50:05,990 --> 00:50:03,200

12 100 light years and we have some

1106

00:50:08,470 --> 00:50:06,000

sense of its weather because of the

1107

00:50:10,630 --> 00:50:08,480

clear detection of water vapor in the

1108

00:50:13,510 --> 00:50:10,640

atmosphere and how do you do that with

1109

00:50:16,470 --> 00:50:13,520

james webb as you wait for the star to

1110

00:50:18,470 --> 00:50:16,480

start passing in front

1111

00:50:20,870 --> 00:50:18,480

or you wait for the planet actually to

1112

00:50:22,309 --> 00:50:20,880

start passing in front of its host star

1113

00:50:23,990 --> 00:50:22,319

and as it does that

1114

00:50:25,670 --> 00:50:24,000

the light from the

1115

00:50:26,390 --> 00:50:25,680

the background star

1116

00:50:28,790 --> 00:50:26,400

is

1117

00:50:31,829 --> 00:50:28,800

altered by the atmosphere of the

1118

00:50:34,710 --> 00:50:31,839

exoplanet and that lets you see

1119

00:50:37,510 --> 00:50:34,720

and glimpse what chemicals are there

1120

00:50:39,589 --> 00:50:37,520

a spectrum breakdown a spectrum analysis

1121

00:50:40,630 --> 00:50:39,599

that's right and webb is very good at

1122

00:50:43,270 --> 00:50:40,640

that

1123

00:50:45,030 --> 00:50:43,280

and i was just looking uh

1124

00:50:46,549 --> 00:50:45,040

at the observation list the ongoing

1125

00:50:48,390 --> 00:50:46,559

observation lists

1126
00:50:51,510 --> 00:50:48,400
and they're just looking at all sorts of

1127
00:50:52,710 --> 00:50:51,520
exoplanets this week um

1128
00:50:55,510 --> 00:50:52,720
and in addition to that they've been

1129
00:50:57,750 --> 00:50:55,520
doing observations of the trappist-1

1130
00:50:59,910 --> 00:50:57,760
system which is probably the most

1131
00:51:00,870 --> 00:50:59,920
interesting exoplanet system we have so

1132
00:51:03,349 --> 00:51:00,880
far

1133
00:51:05,109 --> 00:51:03,359
and they're taking a look at that so

1134
00:51:07,589 --> 00:51:05,119
expect a lot of science and a lot of

1135
00:51:10,230 --> 00:51:07,599
papers coming out in the you know next

1136
00:51:13,430 --> 00:51:10,240
few months regarding uh trappist-1 in

1137
00:51:16,230 --> 00:51:13,440
particular and trappist-1 don't uh don't

1138
00:51:18,549 --> 00:51:16,240

be confused with the number one

1139

00:51:19,510 --> 00:51:18,559

there's seven exoplanets in that star

1140

00:51:21,270 --> 00:51:19,520

system

1141

00:51:23,829 --> 00:51:21,280

three within the habitable zone of the

1142

00:51:26,230 --> 00:51:23,839

star that is correct

1143

00:51:27,670 --> 00:51:26,240

and one specifically and i've looked at

1144

00:51:29,270 --> 00:51:27,680

some of the comments from some of the

1145

00:51:29,990 --> 00:51:29,280

astrophysicists

1146

00:51:32,470 --> 00:51:30,000

uh

1147

00:51:35,030 --> 00:51:32,480

talking about trappist-1 they they

1148

00:51:37,829 --> 00:51:35,040

absolutely believe one has life

1149

00:51:39,030 --> 00:51:37,839

yeah they're trying to disprove it

1150

00:51:40,950 --> 00:51:39,040

that's what

1151
00:51:42,309 --> 00:51:40,960
it very well could and if you and webb

1152
00:51:43,510 --> 00:51:42,319
will be able to see that because what

1153
00:51:45,270 --> 00:51:43,520
you look for

1154
00:51:47,510 --> 00:51:45,280
the first thing that you would look for

1155
00:51:50,230 --> 00:51:47,520
is disequilibriums

1156
00:51:52,150 --> 00:51:50,240
in gases in other words you know oxygen

1157
00:51:54,549 --> 00:51:52,160
is really reactive

1158
00:51:57,589 --> 00:51:54,559
and it likes to combine with other stuff

1159
00:51:59,750 --> 00:51:57,599
so when you see oxygen in an atmosphere

1160
00:52:02,309 --> 00:51:59,760
if it's in a disequilibrium like earth

1161
00:52:03,670 --> 00:52:02,319
is earth has way too much oxygen for its

1162
00:52:05,910 --> 00:52:03,680
own you know

1163
00:52:07,510 --> 00:52:05,920

ability to produce it

1164

00:52:09,750 --> 00:52:07,520

that's when you know that you're you're

1165

00:52:11,990 --> 00:52:09,760

looking at photosynthesis you know

1166

00:52:13,589 --> 00:52:12,000

there's an actual biosphere there's an

1167

00:52:14,870 --> 00:52:13,599

actual biosphere there so that's what

1168

00:52:18,470 --> 00:52:14,880

one of the things the first things i'll

1169

00:52:19,990 --> 00:52:18,480

look at is gas disequilibriums to see

1170

00:52:21,990 --> 00:52:20,000

because if you've got a disequilibrium

1171

00:52:24,309 --> 00:52:22,000

it means that something is replenishing

1172

00:52:26,230 --> 00:52:24,319

that gas as it reacts away

1173

00:52:29,430 --> 00:52:26,240

and you look for that you look for

1174

00:52:31,430 --> 00:52:29,440

methane and you know um gases that break

1175

00:52:33,829 --> 00:52:31,440

down and need to be replenished

1176
00:52:35,990 --> 00:52:33,839
so um that's one of the ways that you do

1177
00:52:37,910 --> 00:52:36,000
it you know you look for a biosphere but

1178
00:52:40,790 --> 00:52:37,920
there's other things you can do if you

1179
00:52:43,670 --> 00:52:40,800
start looking at exoplanets and you see

1180
00:52:46,309 --> 00:52:43,680
weird spikes in the chemistry such as

1181
00:52:48,390 --> 00:52:46,319
those produced by freon

1182
00:52:49,829 --> 00:52:48,400
you know cfcs

1183
00:52:52,710 --> 00:52:49,839
you know there's a civilization there

1184
00:52:55,349 --> 00:52:52,720
that yeah somebody's using a a lot of

1185
00:52:56,790 --> 00:52:55,359
aqua net hairspray

1186
00:52:59,270 --> 00:52:56,800
and here's the thing and i don't say

1187
00:53:02,470 --> 00:52:59,280
that in a just way i'm i'm saying that

1188
00:53:05,030 --> 00:53:02,480

like like uh in a very factual

1189

00:53:08,710 --> 00:53:05,040

uh manner when you look at the breakdown

1190

00:53:10,790 --> 00:53:08,720

here of of the wasp spectrum analysis

1191

00:53:13,430 --> 00:53:10,800

where they've detected water they've

1192

00:53:15,270 --> 00:53:13,440

detected methane they've detected carbon

1193

00:53:17,750 --> 00:53:15,280

dioxide

1194

00:53:19,670 --> 00:53:17,760

they detected ozone which is what you

1195

00:53:21,589 --> 00:53:19,680

just brought up

1196

00:53:23,510 --> 00:53:21,599

that that is

1197

00:53:25,349 --> 00:53:23,520

that is pretty telling

1198

00:53:27,349 --> 00:53:25,359

it feels like

1199

00:53:29,109 --> 00:53:27,359

earth doesn't it

1200

00:53:31,589 --> 00:53:29,119

it does accept that it's the wrong kind

1201

00:53:34,069 --> 00:53:31,599

of planet it's a big gas giant

1202

00:53:36,710 --> 00:53:34,079

and uh the reason that it was chosen was

1203

00:53:38,549 --> 00:53:36,720

because it was big and visible

1204

00:53:40,150 --> 00:53:38,559

where a web will contract down a bit

1205

00:53:42,230 --> 00:53:40,160

though is when you get into terrestrial

1206

00:53:44,870 --> 00:53:42,240

worlds and trying to figure those out it

1207

00:53:45,990 --> 00:53:44,880

can't do those at great distance

1208

00:53:47,109 --> 00:53:46,000

now

1209

00:53:50,150 --> 00:53:47,119

can we talk

1210

00:53:53,270 --> 00:53:50,160

just real briefly uh before the break

1211

00:53:54,790 --> 00:53:53,280

um we hear about gas giants like jupiter

1212

00:53:57,670 --> 00:53:54,800

which

1213

00:53:59,910 --> 00:53:57,680

could have the makings of uh

1214

00:54:02,630 --> 00:53:59,920

uh becoming a star or maybe it's a

1215

00:54:04,549 --> 00:54:02,640

failed star it just didn't uh do what it

1216

00:54:07,910 --> 00:54:04,559

needed to do or whatever but

1217

00:54:09,829 --> 00:54:07,920

but there is no actual terra firma right

1218

00:54:11,750 --> 00:54:09,839

they may be circular they may be

1219

00:54:13,829 --> 00:54:11,760

beautiful spherical

1220

00:54:16,309 --> 00:54:13,839

they're very beautiful but there's

1221

00:54:19,190 --> 00:54:16,319

there's no there's no rocks

1222

00:54:22,390 --> 00:54:19,200

there is and there isn't um

1223

00:54:26,069 --> 00:54:22,400

way way deep into a gas giant like

1224

00:54:28,309 --> 00:54:26,079

jupiter there probably is a rocky core

1225

00:54:30,549 --> 00:54:28,319

that's you know the the you know the

1226

00:54:31,910 --> 00:54:30,559

material from the protoplanetary disk

1227

00:54:34,230 --> 00:54:31,920

that it coalesced out of so there

1228

00:54:35,670 --> 00:54:34,240

probably is an earth-sized core there

1229

00:54:37,589 --> 00:54:35,680

you know

1230

00:54:40,230 --> 00:54:37,599

the real planet jupiter

1231

00:54:43,589 --> 00:54:40,240

then it's surrounded by

1232

00:54:45,190 --> 00:54:43,599

essentially a very calm

1233

00:54:49,910 --> 00:54:45,200

ocean

1234

00:54:52,470 --> 00:54:49,920

metallic hydrogen

1235

00:54:53,670 --> 00:54:52,480

and this is hydrogen that is compacted

1236

00:54:55,270 --> 00:54:53,680

so

1237

00:54:57,910 --> 00:54:55,280

uh

1238

00:54:59,430 --> 00:54:57,920

densely that it actually exists in its

1239

00:55:01,349 --> 00:54:59,440

metallic form

1240

00:55:03,030 --> 00:55:01,359

and it's one of the weirder substances

1241

00:55:05,349 --> 00:55:03,040

in the universe because if that if that

1242

00:55:07,990 --> 00:55:05,359

model is correct which is it hasn't been

1243

00:55:08,950 --> 00:55:08,000

proven but it probably is correct

1244

00:55:10,950 --> 00:55:08,960

then

1245

00:55:13,349 --> 00:55:10,960

metallic hydrogen

1246

00:55:15,109 --> 00:55:13,359

in addition to being compact like that

1247

00:55:16,950 --> 00:55:15,119

we think it might be metastable in other

1248

00:55:18,230 --> 00:55:16,960

words you could actually remove metallic

1249

00:55:20,789 --> 00:55:18,240

hydrogen

1250

00:55:23,109 --> 00:55:20,799

and have it off the gas giant

1251
00:55:24,390 --> 00:55:23,119
and that that'd be pretty strange stuff

1252
00:55:26,230 --> 00:55:24,400
um

1253
00:55:27,750 --> 00:55:26,240
so you've got that and then above that

1254
00:55:28,630 --> 00:55:27,760
as the pressure decreases the higher you

1255
00:55:33,910 --> 00:55:28,640
get

1256
00:55:36,309 --> 00:55:33,920
hydrogen and helium envelope that that

1257
00:55:38,870 --> 00:55:36,319
covers a gas giant and they probably all

1258
00:55:41,349 --> 00:55:38,880
work very similar to this um where it

1259
00:55:44,150 --> 00:55:41,359
gets weird is it possible well is it i

1260
00:55:47,750 --> 00:55:44,160
just cut you off gmg i apologize for

1261
00:55:50,390 --> 00:55:47,760
that but is it possible for life uh to

1262
00:55:52,950 --> 00:55:50,400
develop on a planet like that and if it

1263
00:55:54,950 --> 00:55:52,960

did would you live in cities that

1264

00:55:56,630 --> 00:55:54,960

floated instead of

1265

00:55:59,270 --> 00:55:56,640

on the surface of

1266

00:56:00,710 --> 00:55:59,280

metallic hydrogen oceans which sounds

1267

00:56:02,630 --> 00:56:00,720

beautiful by the way

1268

00:56:05,670 --> 00:56:02,640

it probably wouldn't be there but there

1269

00:56:08,069 --> 00:56:05,680

has been um some hypotheses that you

1270

00:56:10,630 --> 00:56:08,079

could have a situation where in the

1271

00:56:14,150 --> 00:56:10,640

upper atmosphere of gas giant clinging

1272

00:56:17,349 --> 00:56:14,160

to uh water vapor uh droplets you could

1273

00:56:18,630 --> 00:56:17,359

have you could have um some form of life

1274

00:56:20,549 --> 00:56:18,640

now

1275

00:56:21,910 --> 00:56:20,559

that would be something like microbial

1276

00:56:23,670 --> 00:56:21,920

life the problem is how does it get

1277

00:56:25,190 --> 00:56:23,680

started so it almost would have to be

1278

00:56:25,990 --> 00:56:25,200

contamination

1279

00:56:28,230 --> 00:56:26,000

that

1280

00:56:30,309 --> 00:56:28,240

was there some panspermic meteorite

1281

00:56:31,109 --> 00:56:30,319

deposited you know some microbial life

1282

00:56:32,870 --> 00:56:31,119

there

1283

00:56:35,190 --> 00:56:32,880

but that people have gone further and

1284

00:56:36,230 --> 00:56:35,200

most notably with with gas giant life

1285

00:56:39,030 --> 00:56:36,240

was carl

1286

00:56:41,510 --> 00:56:39,040

sagan who envisioned an entire ecosystem

1287

00:56:44,549 --> 00:56:41,520

evolving in the upper atmosphere of a

1288

00:56:47,349 --> 00:56:44,559

gas giant and he saw gigantic gas bags

1289

00:56:48,870 --> 00:56:47,359

that float around and you know predatory

1290

00:56:50,309 --> 00:56:48,880

things that eat them and all these all

1291

00:56:53,510 --> 00:56:50,319

these sorts of things

1292

00:56:54,870 --> 00:56:53,520

but that was 30 35 years ago

1293

00:56:57,349 --> 00:56:54,880

and it's it's

1294

00:56:59,190 --> 00:56:57,359

it's hard to envision that life can get

1295

00:57:00,950 --> 00:56:59,200

that far but at the same time every time

1296

00:57:02,789 --> 00:57:00,960

we say life can't do something it does

1297

00:57:05,190 --> 00:57:02,799

it so

1298

00:57:08,069 --> 00:57:05,200

right right right um

1299

00:57:09,829 --> 00:57:08,079

we we've we've got to take a break um

1300

00:57:12,470 --> 00:57:09,839

but here's

1301
00:57:13,910 --> 00:57:12,480
here's a question that you can answer

1302
00:57:16,069 --> 00:57:13,920
really quickly and it's going to set up

1303
00:57:18,710 --> 00:57:16,079
for everything that is about to follow

1304
00:57:22,789 --> 00:57:18,720
after the break

1305
00:57:24,870 --> 00:57:22,799
a spectrum analysis is something that

1306
00:57:26,870 --> 00:57:24,880
can happen

1307
00:57:30,470 --> 00:57:26,880
absolutely quickly

1308
00:57:32,950 --> 00:57:30,480
once you get the data so when you have a

1309
00:57:34,390 --> 00:57:32,960
a transiting planet something passing in

1310
00:57:38,710 --> 00:57:34,400
front of a star

1311
00:57:40,470 --> 00:57:38,720
um and you uh take those images

1312
00:57:42,710 --> 00:57:40,480
pretty much the analysis

1313
00:57:44,390 --> 00:57:42,720

is is instantaneous after that right we

1314

00:57:46,950 --> 00:57:44,400

don't have to wait for months

1315

00:57:49,430 --> 00:57:46,960

the analysis can be done very quickly

1316

00:57:51,270 --> 00:57:49,440

yeah in that case it it's fairly

1317

00:57:52,870 --> 00:57:51,280

straightforward because the raw data is

1318

00:57:55,030 --> 00:57:52,880

pretty easy to process it's when you get

1319

00:57:55,990 --> 00:57:55,040

into the imagery that it takes a bit

1320

00:57:57,349 --> 00:57:56,000

longer

1321

00:57:59,270 --> 00:57:57,359

but they can do it they can do it in a

1322

00:58:00,870 --> 00:57:59,280

matter of you know even even a complex

1323

00:58:03,670 --> 00:58:00,880

image they can do in a matter of a few

1324

00:58:05,190 --> 00:58:03,680

days yeah that's crazy isn't it is it

1325

00:58:07,750 --> 00:58:05,200

isn't that just

1326

00:58:10,470 --> 00:58:07,760

now um one

1327

00:58:13,750 --> 00:58:10,480

one last there's another quick question

1328

00:58:15,750 --> 00:58:13,760

do you think that now nasa has already

1329

00:58:17,829 --> 00:58:15,760

answered this question and said no but i

1330

00:58:19,670 --> 00:58:17,839

don't believe them

1331

00:58:20,870 --> 00:58:19,680

okay and i think that things can be

1332

00:58:24,069 --> 00:58:20,880

modified

1333

00:58:26,309 --> 00:58:24,079

but do you think that the james webb

1334

00:58:27,829 --> 00:58:26,319

would be able to

1335

00:58:30,789 --> 00:58:27,839

see

1336

00:58:33,349 --> 00:58:30,799

a techno signature of

1337

00:58:35,670 --> 00:58:33,359

of a lit up city

1338

00:58:37,109 --> 00:58:35,680

during the night

1339

00:58:40,470 --> 00:58:37,119

okay the

1340

00:58:42,870 --> 00:58:40,480

how that works yes in in principle you

1341

00:58:43,670 --> 00:58:42,880

can do that and there have been papers

1342

00:58:46,870 --> 00:58:43,680

on

1343

00:58:48,309 --> 00:58:46,880

detecting artificial lighting at um

1344

00:58:50,950 --> 00:58:48,319

at exoplanets

1345

00:58:53,750 --> 00:58:50,960

and there's one even further than that

1346

00:58:56,630 --> 00:58:53,760

i'll get to that in a minute but

1347

00:58:58,789 --> 00:58:56,640

yes you might be able to do it as long

1348

00:58:59,990 --> 00:58:58,799

as the exoplanet is close

1349

00:59:03,589 --> 00:59:00,000

however

1350

00:59:09,030 --> 00:59:05,990

and web could definitely do this look

1351
00:59:10,549 --> 00:59:09,040
for it on ort cloud bodies and see if

1352
00:59:12,309 --> 00:59:10,559
there is

1353
00:59:14,549 --> 00:59:12,319
street licensing or cloud

1354
00:59:15,430 --> 00:59:14,559
on on these kuiper belt objects

1355
00:59:17,349 --> 00:59:15,440
yeah

1356
00:59:19,349 --> 00:59:17,359
well i could progress it in a paper

1357
00:59:20,789 --> 00:59:19,359
because it's eminently doable we can do

1358
00:59:21,910 --> 00:59:20,799
it with with

1359
00:59:24,789 --> 00:59:21,920
any large

1360
00:59:28,069 --> 00:59:24,799
telescope based on uh based on earth and

1361
00:59:31,750 --> 00:59:28,079
do a techno signature search close in

1362
00:59:34,470 --> 00:59:31,760
just to see you never know right avi avi

1363
00:59:36,630 --> 00:59:34,480

speculated avilobe of harvard

1364

00:59:39,829 --> 00:59:36,640

um he's spoken about this and he's

1365

00:59:40,789 --> 00:59:39,839

written about it uh too as well where

1366

00:59:42,630 --> 00:59:40,799

um

1367

00:59:46,069 --> 00:59:42,640

would it be possible

1368

00:59:49,190 --> 00:59:46,079

if we had a satellite-based telescope

1369

00:59:51,510 --> 00:59:49,200

positioned out at the end of everything

1370

00:59:53,990 --> 00:59:51,520

here you know in pluto's orbit

1371

00:59:56,309 --> 00:59:54,000

and turn around and looked back at earth

1372

00:59:59,190 --> 00:59:56,319

would we be able to see

1373

01:00:01,349 --> 00:59:59,200

cities on earth during the night

1374

01:00:03,910 --> 01:00:01,359

and it wasn't you know it wasn't clearly

1375

01:00:05,670 --> 01:00:03,920

answered but he thinks it's doable

1376

01:00:07,990 --> 01:00:05,680

we're not you know we're talking about

1377

01:00:11,270 --> 01:00:08,000

looking out into other star systems

1378

01:00:12,390 --> 01:00:11,280

he was contemplating the ability just to

1379

01:00:16,789 --> 01:00:12,400

prove it

1380

01:00:20,309 --> 01:00:16,799

you know here in in our own solar system

1381

01:00:23,030 --> 01:00:20,319

um and and that hasn't firmly been

1382

01:00:25,510 --> 01:00:23,040

answered yet and so how could we do it

1383

01:00:30,309 --> 01:00:25,520

with say wasp or something else that or

1384

01:00:31,990 --> 01:00:30,319

trappist trappist isn't that far away um

1385

01:00:34,870 --> 01:00:32,000

it was 40 light years i think something

1386

01:00:36,710 --> 01:00:34,880

yeah yeah 40 it's it's it's next door

1387

01:00:39,190 --> 01:00:36,720

well let's take our break right here our

1388

01:00:42,390 --> 01:00:39,200

guest tonight john michael gautier the

1389

01:00:43,829 --> 01:00:42,400

event horizon actually there's no

1390

01:00:45,910 --> 01:00:43,839

the

1391

01:00:47,750 --> 01:00:45,920

it's just event horizon i am your host

1392

01:00:49,190 --> 01:00:47,760

jimmy church i guess tonight john

1393

01:00:51,990 --> 01:00:49,200

michael godier we're going to take a

1394

01:00:54,230 --> 01:00:52,000

quick break we will be right back

1395

01:00:56,230 --> 01:00:54,240

more on the james webb space telescope

1396

01:00:58,560 --> 01:00:56,240

we've got some crazy images coming up

1397

01:01:05,020 --> 01:00:58,570

i'm real simply church stay with us

1398

01:01:28,069 --> 01:01:25,910

[Music]

1399

01:01:33,030 --> 01:01:28,079

this is fade to black with jimmy church

1400

01:01:38,950 --> 01:01:35,510

your 1 million gigawatt paranormal

1401

01:01:41,510 --> 01:01:38,960

powerhouse kumx db

1402

01:01:43,910 --> 01:01:41,520

the x

1403

01:01:47,030 --> 01:01:43,920

oh fader knots jimmy church here you've

1404

01:01:49,109 --> 01:01:47,040

seen me with my thunderstorm now you can

1405

01:01:51,109 --> 01:01:49,119

purify the air in your home and get

1406

01:01:53,430 --> 01:01:51,119

healthy clean fresh smelling air and

1407

01:01:55,430 --> 01:01:53,440

eliminate odors just like i do right

1408

01:01:57,990 --> 01:01:55,440

here in the bunker the eden pier

1409

01:02:00,470 --> 01:01:58,000

thunderstorm uses oxy technology that

1410

01:02:02,789 --> 01:02:00,480

naturally sends out o3 molecules into

1411

01:02:05,109 --> 01:02:02,799

the air which seek out odors and air

1412

01:02:07,670 --> 01:02:05,119

pollutants in your home and destroys

1413

01:02:10,150 --> 01:02:07,680

them it's called a thunderstorm because

1414

01:02:12,630 --> 01:02:10,160

it purifies the air just like after a

1415

01:02:14,390 --> 01:02:12,640

thunderstorm and right now you can save

1416

01:02:17,270 --> 01:02:14,400

two hundred dollars on an eden pier

1417

01:02:19,430 --> 01:02:17,280

thunderstorm three pack for whole home

1418

01:02:21,510 --> 01:02:19,440

protection with this special offer

1419

01:02:22,789 --> 01:02:21,520

you're getting three units for under two

1420

01:02:24,150 --> 01:02:22,799

hundred dollars

1421

01:02:25,150 --> 01:02:24,160

seriously

1422

01:02:28,870 --> 01:02:25,160

go to

1423

01:02:31,430 --> 01:02:28,880

edenpuredeals.com and use fader three

1424

01:02:34,150 --> 01:02:31,440

shipping is free and it's easy just

1425

01:02:34,950 --> 01:02:34,160

scroll down you'll see my name right

1426

01:02:38,150 --> 01:02:34,960

there

1427

01:02:44,230 --> 01:02:38,160

jimmy church click on it and get your

1428

01:02:48,470 --> 01:02:46,390

this is billy carson founder and ceo of

1429

01:02:50,710 --> 01:02:48,480

forbidden knowledge dot tv forbidden

1430

01:02:52,470 --> 01:02:50,720

knowledge dot tv is the fastest growing

1431

01:02:54,309 --> 01:02:52,480

and one of the most watched networks in

1432

01:02:56,069 --> 01:02:54,319

the world and i would like to personally

1433

01:02:58,789 --> 01:02:56,079

invite you to check out our expanding

1434

01:03:01,029 --> 01:02:58,799

library of tv film lectures and special

1435

01:03:03,589 --> 01:03:01,039

presentations forbidden knowledge dot tv

1436

01:03:06,309 --> 01:03:03,599

has over 6 000 videos covering lost

1437

01:03:08,150 --> 01:03:06,319

history health ufos spirituality and our

1438

01:03:10,470 --> 01:03:08,160

future we are committed to our community

1439

01:03:12,870 --> 01:03:10,480

and with my personal invitation you can

1440

01:03:15,510 --> 01:03:12,880

right now get your own free 30-day

1441

01:03:17,829 --> 01:03:15,520

membership at forbidden knowledge dot tv

1442

01:03:22,549 --> 01:03:17,839

your own library of information starts

1443

01:03:26,710 --> 01:03:24,630

because you never got that pony you

1444

01:03:28,390 --> 01:03:26,720

always wanted

1445

01:03:30,789 --> 01:03:28,400

damn it

1446

01:03:33,670 --> 01:03:30,799

jimmy church and fade to black on the

1447

01:03:36,870 --> 01:03:33,680

game changer network

1448

01:03:39,270 --> 01:03:36,880

listen i know and you know that you've

1449

01:03:41,510 --> 01:03:39,280

always wanted your first crystal skull

1450

01:03:43,670 --> 01:03:41,520

or maybe you're a collector just like me

1451
01:03:45,510 --> 01:03:43,680
but you just don't know where to go to

1452
01:03:48,150 --> 01:03:45,520
find the real thing

1453
01:03:50,150 --> 01:03:48,160
then i met carolyn ford over at einstein

1454
01:03:52,630 --> 01:03:50,160
the crystalskull.com

1455
01:03:54,549 --> 01:03:52,640
carolyn is the guardian of einstein one

1456
01:03:57,029 --> 01:03:54,559
of the most respected ancient crystal

1457
01:03:58,870 --> 01:03:57,039
skulls in the world all of her unique

1458
01:04:01,270 --> 01:03:58,880
skulls have been imprinted sitting with

1459
01:04:03,190 --> 01:04:01,280
einstein in his sacred lodge and are

1460
01:04:05,910 --> 01:04:03,200
carved from the finest gemstone and

1461
01:04:07,990 --> 01:04:05,920
materials imprinting is the process of

1462
01:04:11,510 --> 01:04:08,000
receiving the ancient wisdom from the

1463
01:04:13,990 --> 01:04:11,520

master skull or master computer einstein

1464

01:04:15,750 --> 01:04:14,000

the ancient crystal skull to see

1465

01:04:18,470 --> 01:04:15,760

carolyn's current collection of crystal

1466

01:04:20,789 --> 01:04:18,480

skulls just visit her store at einstein

1467

01:04:23,349 --> 01:04:20,799

the crystal skull.com click on the

1468

01:04:25,990 --> 01:04:23,359

banner over on our site don't forget to

1469

01:04:28,710 --> 01:04:26,000

use the promo code jimmy at checkout to

1470

01:04:31,670 --> 01:04:28,720

receive 10 off of your order today

1471

01:04:34,549 --> 01:04:31,680

that's promo code jimmy finding your

1472

01:04:45,190 --> 01:04:34,559

first or next crystal skull is easy just

1473

01:04:48,950 --> 01:04:47,029

hi this is race hobbes here repping the

1474

01:04:52,350 --> 01:04:48,960

planet and you're listening to my good

1475

01:04:53,510 --> 01:04:52,360

friend jimmy church fade to black

1476

01:04:55,750 --> 01:04:53,520

[Music]

1477

01:04:57,750 --> 01:04:55,760

this is toby kebble you're listening to

1478

01:05:00,789 --> 01:04:57,760

jimmychurchradio.com

1479

01:05:03,109 --> 01:05:00,799

don't hurt me jimmy i'm only little hey

1480

01:05:11,349 --> 01:05:03,119

i'm adrian grenier and this is ari gold

1481

01:05:14,549 --> 01:05:12,309

brothers

1482

01:05:16,150 --> 01:05:14,559

and you're listening to jimmy church a

1483

01:05:17,829 --> 01:05:16,160

revolution

1484

01:05:19,750 --> 01:05:17,839

this is jimmy church of fade to black

1485

01:05:22,069 --> 01:05:19,760

and you can become an official fate or

1486

01:05:23,029 --> 01:05:22,079

not by just going to our membership

1487

01:05:26,390 --> 01:05:23,039

section

1488

01:05:30,710 --> 01:05:28,390

hello this is serena wright taylor from

1489

01:05:33,029 --> 01:05:30,720

conscious life expo and you're listening

1490

01:05:35,430 --> 01:05:33,039

to fade to black with jimmy church who

1491

01:05:38,710 --> 01:05:35,440

holds the lucky pony record for the best

1492

01:05:40,870 --> 01:05:38,720

astrological chart since 1963.

1493

01:05:42,549 --> 01:05:40,880

true story

1494

01:05:44,230 --> 01:05:42,559

this is micah hanks of the ghrelian

1495

01:05:52,990 --> 01:05:44,240

report and you're listening to jimmy

1496

01:06:08,470 --> 01:06:02,630

[Music]

1497

01:06:09,750 --> 01:06:08,480

welcome back fade to black i'm nervous

1498

01:06:12,789 --> 01:06:09,760

jimmy church tonight john michael

1499

01:06:14,549 --> 01:06:12,799

gautier is with us event horizon

1500

01:06:16,549 --> 01:06:14,559

and right now

1501
01:06:19,109 --> 01:06:16,559
you can get the eden pier thunderstorm

1502
01:06:20,549 --> 01:06:19,119
this is mine this is the one i have here

1503
01:06:23,750 --> 01:06:20,559
in the studio

1504
01:06:26,309 --> 01:06:23,760
you can plug it in the wall i use usb

1505
01:06:28,789 --> 01:06:26,319
which is right here it's got a little uh

1506
01:06:29,910 --> 01:06:28,799
dial on the side max and all of that

1507
01:06:30,789 --> 01:06:29,920
stuff

1508
01:06:33,910 --> 01:06:30,799
and

1509
01:06:37,029 --> 01:06:33,920
you can purify your air you can

1510
01:06:37,910 --> 01:06:37,039
kill viruses but the point is smells

1511
01:06:40,390 --> 01:06:37,920
great

1512
01:06:42,470 --> 01:06:40,400
and you can't hear it and you can put

1513
01:06:44,789 --> 01:06:42,480

one in your car one in the kitchen they

1514

01:06:46,950 --> 01:06:44,799

have a three pack deal going on right

1515

01:06:49,910 --> 01:06:46,960

now just for the fader knots three pack

1516

01:06:52,549 --> 01:06:49,920

where you are gonna save over 200 and

1517

01:06:56,069 --> 01:06:52,559

get free shipping just click on the link

1518

01:06:57,829 --> 01:06:56,079

below simple promo code fader three

1519

01:06:59,349 --> 01:06:57,839

and you can be just like jimmy you can

1520

01:07:01,750 --> 01:06:59,359

smell fresh

1521

01:07:04,150 --> 01:07:01,760

all right no word on what it does with

1522

01:07:07,190 --> 01:07:04,160

brown recluse spiders but uh i'll see if

1523

01:07:08,069 --> 01:07:07,200

i can get some data on that and uh there

1524

01:07:09,829 --> 01:07:08,079

you go

1525

01:07:10,789 --> 01:07:09,839

all right our guest tonight the one and

1526

01:07:12,829 --> 01:07:10,799

only

1527

01:07:15,750 --> 01:07:12,839

john michael godier now

1528

01:07:17,589 --> 01:07:15,760

uh jgm

1529

01:07:18,950 --> 01:07:17,599

man you know what i never call you by

1530

01:07:21,190 --> 01:07:18,960

your name

1531

01:07:24,069 --> 01:07:21,200

hey you know i kind of noticed that in

1532

01:07:25,910 --> 01:07:24,079

in our emails and things and when we

1533

01:07:28,309 --> 01:07:25,920

talk on the phone

1534

01:07:30,390 --> 01:07:28,319

i you got two you got too many cool

1535

01:07:31,109 --> 01:07:30,400

things going on man

1536

01:07:33,270 --> 01:07:31,119

yeah

1537

01:07:35,349 --> 01:07:33,280

i got i thought my name sounds like i

1538

01:07:36,789 --> 01:07:35,359

should be playing hockey up in canada

1539

01:07:39,990 --> 01:07:36,799

and there's a reason for that because

1540

01:07:41,910 --> 01:07:40,000

i'm connected to montreal so

1541

01:07:43,750 --> 01:07:41,920

well okay but you've got all your front

1542

01:07:45,430 --> 01:07:43,760

teeth though i do

1543

01:07:48,390 --> 01:07:45,440

you know i didn't say i was good at

1544

01:07:50,470 --> 01:07:48,400

hockey but

1545

01:07:53,029 --> 01:07:50,480

yeah that's right though and now coming

1546

01:07:57,829 --> 01:07:53,039

on to the eyes john michael gautier from

1547

01:08:01,430 --> 01:07:59,190

um

1548

01:08:02,950 --> 01:08:01,440

i want to uh we've been talking about

1549

01:08:04,470 --> 01:08:02,960

the deep field

1550

01:08:07,029 --> 01:08:04,480

and uh

1551

01:08:08,950 --> 01:08:07,039

the first images i'm gonna i'm gonna pop

1552

01:08:12,390 --> 01:08:08,960

one up here there's there's two i'm

1553

01:08:13,430 --> 01:08:12,400

gonna show but uh here we go

1554

01:08:14,710 --> 01:08:13,440

and

1555

01:08:15,910 --> 01:08:14,720

uh

1556

01:08:17,510 --> 01:08:15,920

man

1557

01:08:19,990 --> 01:08:17,520

right

1558

01:08:21,990 --> 01:08:20,000

and and i thought that the hubble i went

1559

01:08:23,430 --> 01:08:22,000

back and i did what everybody else did i

1560

01:08:25,749 --> 01:08:23,440

went back and looked at the hubble i

1561

01:08:28,470 --> 01:08:25,759

know that you did too

1562

01:08:29,590 --> 01:08:28,480

yeah and and and then you come back to

1563

01:08:32,709 --> 01:08:29,600

it's like

1564

01:08:34,630 --> 01:08:32,719

it night and day doesn't do this justice

1565

01:08:35,590 --> 01:08:34,640

in in comparisons

1566

01:08:38,870 --> 01:08:35,600

um

1567

01:08:41,669 --> 01:08:38,880

the richness of the detail the focus

1568

01:08:43,669 --> 01:08:41,679

and and things you can see down uh to

1569

01:08:46,309 --> 01:08:43,679

levels of precision

1570

01:08:48,789 --> 01:08:46,319

that uh you just can't imagine this but

1571

01:08:50,789 --> 01:08:48,799

here it is it's going on in real time

1572

01:08:54,149 --> 01:08:50,799

uh tell us about your thoughts uh when

1573

01:08:55,110 --> 01:08:54,159

you first saw the james webb's deep

1574

01:08:59,510 --> 01:08:55,120

field

1575

01:09:01,430 --> 01:08:59,520

observation was on the gravitational

1576
01:09:02,470 --> 01:09:01,440
lensing and how clear it was as opposed

1577
01:09:04,950 --> 01:09:02,480
to hubble

1578
01:09:07,349 --> 01:09:04,960
okay stop stop stop stop okay actually

1579
01:09:09,390 --> 01:09:07,359
actually i'm just going to let everybody

1580
01:09:12,550 --> 01:09:09,400
know it's right here in my notes

1581
01:09:15,990 --> 01:09:12,560
gravitational lensing okay

1582
01:09:19,269 --> 01:09:16,000
this is a complex issue and and

1583
01:09:22,229 --> 01:09:19,279
uh we need to explain uh to the audience

1584
01:09:23,189 --> 01:09:22,239
exactly what it is because nasa and

1585
01:09:25,829 --> 01:09:23,199
others

1586
01:09:27,829 --> 01:09:25,839
just say gravitational lensing and they

1587
01:09:29,430 --> 01:09:27,839
just you know it's just something a term

1588
01:09:32,390 --> 01:09:29,440

that's thrown about

1589

01:09:35,349 --> 01:09:32,400

uh like everybody understands uh what

1590

01:09:39,749 --> 01:09:35,359

what they're referring to um this is a

1591

01:09:43,030 --> 01:09:39,759

very complex phenomenon and it's amazing

1592

01:09:44,309 --> 01:09:43,040

but nobody really understands so we're

1593

01:09:47,990 --> 01:09:44,319

going to be talking about that a lot

1594

01:09:51,269 --> 01:09:48,000

tonight what is gravitational lensing

1595

01:09:53,910 --> 01:09:51,279

okay this goes back to albert einstein

1596

01:09:57,430 --> 01:09:53,920

and his predictions of uh his theory of

1597

01:09:59,990 --> 01:09:57,440

relativity and our theories and what it

1598

01:10:02,790 --> 01:10:00,000

is is that gravity

1599

01:10:03,910 --> 01:10:02,800

is capable of bending space-time that's

1600

01:10:06,950 --> 01:10:03,920

what it is

1601
01:10:09,430 --> 01:10:06,960
is a warp in space time caused by the

1602
01:10:11,830 --> 01:10:09,440
presence of an object so if you think

1603
01:10:13,990 --> 01:10:11,840
about it like your bed all right and you

1604
01:10:16,470 --> 01:10:14,000
put a bowling ball right in the center

1605
01:10:18,630 --> 01:10:16,480
of the bed it makes an indentation

1606
01:10:21,110 --> 01:10:18,640
and that curve of the sheets going down

1607
01:10:23,110 --> 01:10:21,120
to the bowling ball is how space behaves

1608
01:10:26,149 --> 01:10:23,120
as a matter of fact einstein's

1609
01:10:27,110 --> 01:10:26,159
mathematics that he used are essentially

1610
01:10:28,709 --> 01:10:27,120
the same

1611
01:10:30,870 --> 01:10:28,719
physical mathematics that you would use

1612
01:10:33,669 --> 01:10:30,880
to describe a trampoline bending you

1613
01:10:35,350 --> 01:10:33,679

know it's that sort of tensor type stuff

1614

01:10:37,350 --> 01:10:35,360

well when light

1615

01:10:40,149 --> 01:10:37,360

gets near an intense gravitational

1616

01:10:41,830 --> 01:10:40,159

source such as an entire galaxy it's

1617

01:10:44,149 --> 01:10:41,840

visibly bent

1618

01:10:46,470 --> 01:10:44,159

and so what you see in the deep field of

1619

01:10:48,709 --> 01:10:46,480

from both web and holy you see these

1620

01:10:53,750 --> 01:10:48,719

arcs of light and what those are

1621

01:10:56,229 --> 01:10:53,760

are distorted galaxies behind the object

1622

01:10:57,590 --> 01:10:56,239

being bent around and distorted from

1623

01:10:58,390 --> 01:10:57,600

your point of view

1624

01:11:00,390 --> 01:10:58,400

and

1625

01:11:02,950 --> 01:11:00,400

usually that foreground object is

1626

01:11:05,110 --> 01:11:02,960

definitely in the case of web is a

1627

01:11:06,790 --> 01:11:05,120

galaxy a foreground galaxy and it's the

1628

01:11:08,709 --> 01:11:06,800

entire collective

1629

01:11:09,910 --> 01:11:08,719

gravity of all those stars bending the

1630

01:11:12,950 --> 01:11:09,920

light around

1631

01:11:15,430 --> 01:11:12,960

but it's just uh it's just because

1632

01:11:17,189 --> 01:11:15,440

space-time can curve in the presence of

1633

01:11:19,830 --> 01:11:17,199

gravity and warp

1634

01:11:21,830 --> 01:11:19,840

and you can see it uh occurring uh

1635

01:11:23,590 --> 01:11:21,840

throughout this image right here and in

1636

01:11:26,310 --> 01:11:23,600

fact anywhere

1637

01:11:28,550 --> 01:11:26,320

uh where you just affix your eyes you

1638

01:11:31,270 --> 01:11:28,560

know just pick a point of light and you

1639

01:11:32,310 --> 01:11:31,280

will see gravitational lensing occurring

1640

01:11:34,470 --> 01:11:32,320

right there

1641

01:11:36,470 --> 01:11:34,480

now what's important about this is that

1642

01:11:39,270 --> 01:11:36,480

we can actually use gravitational

1643

01:11:42,470 --> 01:11:39,280

lensing in certain uh instances as a

1644

01:11:45,189 --> 01:11:42,480

tool we can make it into a telescope and

1645

01:11:47,590 --> 01:11:45,199

the the first idea

1646

01:11:49,590 --> 01:11:47,600

of just this naturally happening and

1647

01:11:51,189 --> 01:11:49,600

getting lucky is something that james

1648

01:11:53,270 --> 01:11:51,199

webb looked at just today and released

1649

01:11:55,030 --> 01:11:53,280

an image and it's a star called

1650

01:11:56,310 --> 01:11:55,040

arendelle

1651

01:11:58,790 --> 01:11:56,320

and

1652

01:12:01,110 --> 01:11:58,800

i actually have it here uh go ahead

1653

01:12:04,149 --> 01:12:01,120

continue i'm gonna pull that up

1654

01:12:05,910 --> 01:12:04,159

this star is the most distant single

1655

01:12:07,910 --> 01:12:05,920

object we can see

1656

01:12:10,070 --> 01:12:07,920

and what's happening with arendelle is

1657

01:12:12,470 --> 01:12:10,080

that it um it

1658

01:12:13,910 --> 01:12:12,480

it is

1659

01:12:15,750 --> 01:12:13,920

so distant

1660

01:12:17,830 --> 01:12:15,760

that we're seeing it we're looking back

1661

01:12:19,430 --> 01:12:17,840

in time as we look out into the universe

1662

01:12:22,470 --> 01:12:19,440

you look back in time

1663

01:12:25,189 --> 01:12:22,480

and we're seeing it just 900 million

1664

01:12:26,709 --> 01:12:25,199

years after the big bang

1665

01:12:29,270 --> 01:12:26,719

you know where's in a universe that's

1666

01:12:31,189 --> 01:12:29,280

13.8 billion years old so we're seeing

1667

01:12:32,630 --> 01:12:31,199

this very very early start it's called a

1668

01:12:35,350 --> 01:12:32,640

population three it's the third

1669

01:12:36,470 --> 01:12:35,360

incarnation of stars that were uh

1670

01:12:39,510 --> 01:12:36,480

present

1671

01:12:41,990 --> 01:12:39,520

in the universe after the big bang and

1672

01:12:44,790 --> 01:12:42,000

as a result it has almost no

1673

01:12:46,950 --> 01:12:44,800

heavier elements in it it's just a big

1674

01:12:48,070 --> 01:12:46,960

ball of hydrogen helium and a little bit

1675

01:12:50,149 --> 01:12:48,080

of lithium

1676

01:12:52,149 --> 01:12:50,159

and um

1677

01:12:55,669 --> 01:12:52,159

it uh that that tells you it's very

1678

01:12:58,390 --> 01:12:55,679

early because as stars get older they

1679

01:13:01,189 --> 01:12:58,400

you know explode in supernovas and they

1680

01:13:02,790 --> 01:13:01,199

populate the area around them with uh

1681

01:13:04,550 --> 01:13:02,800

heavier elements

1682

01:13:06,790 --> 01:13:04,560

and so when you look at a star like the

1683

01:13:09,189 --> 01:13:06,800

sun you see all kinds of elements in it

1684

01:13:10,950 --> 01:13:09,199

well in this case you don't and that

1685

01:13:12,630 --> 01:13:10,960

tells you it's early the other thing is

1686

01:13:14,950 --> 01:13:12,640

that because it's being gravitationally

1687

01:13:18,390 --> 01:13:14,960

lensed and just a chance event for us to

1688

01:13:20,229 --> 01:13:18,400

even be able to pick the star out

1689

01:13:22,470 --> 01:13:20,239

because that's happening we're also

1690

01:13:25,350 --> 01:13:22,480

seeing something that is no longer there

1691

01:13:28,390 --> 01:13:25,360

because arendelle at the size that it is

1692

01:13:30,950 --> 01:13:28,400

at 50 to 100 times the size of the sun

1693

01:13:33,990 --> 01:13:30,960

has long long long ago exploded as a

1694

01:13:36,950 --> 01:13:34,000

supernova so we're seeing a ghost

1695

01:13:40,310 --> 01:13:36,960

this is this is the image here

1696

01:13:41,990 --> 01:13:40,320

that is the southern ring nebula i think

1697

01:13:45,430 --> 01:13:42,000

and i thought

1698

01:13:48,550 --> 01:13:45,440

i thought i had today's image

1699

01:13:50,630 --> 01:13:48,560

uh which uh it's the cartwheel galaxy

1700

01:13:53,270 --> 01:13:50,640

but that was the cartwheel galaxy aaron

1701

01:13:55,830 --> 01:13:53,280

dill is uh different that one just also

1702

01:13:57,910 --> 01:13:55,840

just came out yeah and

1703

01:13:58,830 --> 01:13:57,920

i thought i had it here i guess i don't

1704

01:14:03,830 --> 01:13:58,840

i

1705

01:14:06,149 --> 01:14:03,840

have aaron dell

1706

01:14:07,830 --> 01:14:06,159

um i'll have it uh for the next breakout

1707

01:14:10,390 --> 01:14:07,840

i'll i'll pull it up

1708

01:14:13,750 --> 01:14:10,400

um let's uh

1709

01:14:14,790 --> 01:14:13,760

let's actually i want to go back to

1710

01:14:19,430 --> 01:14:14,800

the

1711

01:14:21,830 --> 01:14:19,440

because

1712

01:14:24,790 --> 01:14:21,840

they did what uh

1713

01:14:27,110 --> 01:14:24,800

the same process that they did with uh

1714

01:14:29,350 --> 01:14:27,120

um the hubble which they took the deep

1715

01:14:33,750 --> 01:14:29,360

field then they took an area

1716

01:14:36,229 --> 01:14:33,760

of the deep field that was uh minus

1717

01:14:38,709 --> 01:14:36,239

uh anything interesting or the least

1718

01:14:41,270 --> 01:14:38,719

interesting part of the image

1719

01:14:44,229 --> 01:14:41,280

and then did another exposure which

1720

01:14:47,590 --> 01:14:44,239

um with uh with hubble they did a

1721

01:14:50,070 --> 01:14:47,600

two-week exposure on this hubble does it

1722

01:14:52,470 --> 01:14:50,080

in what uh i mean uh james webb does it

1723

01:14:55,030 --> 01:14:52,480

in 12 hours i think right

1724

01:14:57,030 --> 01:14:55,040

am i correct much much faster much

1725

01:14:59,430 --> 01:14:57,040

faster and this is

1726

01:15:01,270 --> 01:14:59,440

so this is the deep field that was

1727

01:15:02,709 --> 01:15:01,280

released first and then they released

1728

01:15:06,070 --> 01:15:02,719

this image

1729

01:15:07,669 --> 01:15:06,080

and i believe it's from the center of

1730

01:15:10,950 --> 01:15:07,679

this image

1731

01:15:14,709 --> 01:15:10,960

and this is what they came back with

1732

01:15:16,550 --> 01:15:14,719

and now the the other thing um

1733

01:15:18,229 --> 01:15:16,560

that's the arendelle image

1734

01:15:21,430 --> 01:15:18,239

oh that's the arendelle

1735

01:15:24,550 --> 01:15:21,440

image yep i know i grabbed it yep i knew

1736

01:15:25,189 --> 01:15:24,560

i grabbed it but but

1737

01:15:28,149 --> 01:15:25,199

uh

1738

01:15:30,390 --> 01:15:28,159

nasa did a a press release on this and

1739

01:15:32,790 --> 01:15:30,400

so i'll come back uh to aaron dell in

1740

01:15:34,950 --> 01:15:32,800

just a second and in the press release

1741

01:15:36,830 --> 01:15:34,960

when they did the deep field

1742

01:15:42,470 --> 01:15:36,840

i used to

1743

01:15:44,630 --> 01:15:42,480

that i would uh do uh at conferences so

1744

01:15:47,430 --> 01:15:44,640

i'd walk out in a big crowd

1745

01:15:49,910 --> 01:15:47,440

and uh and this is how i would start my

1746

01:15:52,550 --> 01:15:49,920

presentation i'd go up to somebody in

1747

01:15:53,750 --> 01:15:52,560

the front row and go hey man you got a

1748

01:15:55,350 --> 01:15:53,760

dime

1749

01:15:57,990 --> 01:15:55,360

somebody dig in their pocket and give me

1750

01:16:00,070 --> 01:15:58,000

a diamond i go okay you take this dime

1751

01:16:02,870 --> 01:16:00,080

and you go out in your backyard and you

1752

01:16:04,790 --> 01:16:02,880

pick a spot in the sky with no stars and

1753

01:16:06,790 --> 01:16:04,800

you hold up this dime

1754

01:16:09,990 --> 01:16:06,800

you are now looking at

1755

01:16:13,750 --> 01:16:10,000

150 000 galaxies

1756

01:16:15,910 --> 01:16:13,760

and everybody go oh man that's amazing

1757

01:16:17,270 --> 01:16:15,920

really is that true and people come up

1758

01:16:18,950 --> 01:16:17,280

to me and ask me

1759

01:16:21,510 --> 01:16:18,960

you know that was my thing that was my

1760

01:16:23,110 --> 01:16:21,520

shtick right okay

1761

01:16:25,350 --> 01:16:23,120

so they do this press release what do

1762

01:16:28,229 --> 01:16:25,360

they do what do they announce well this

1763

01:16:30,149 --> 01:16:28,239

is if you hold up a grain of sand

1764

01:16:34,550 --> 01:16:30,159

at arm's length

1765

01:16:37,030 --> 01:16:34,560

you're looking at 150 000 galaxies and

1766

01:16:38,630 --> 01:16:37,040

so it was

1767

01:16:41,030 --> 01:16:38,640

i don't know if somebody from nasa was

1768

01:16:42,310 --> 01:16:41,040

at one of my presentations but the point

1769

01:16:44,390 --> 01:16:42,320

being

1770

01:16:45,350 --> 01:16:44,400

that i would go out and talk about this

1771

01:16:47,669 --> 01:16:45,360

dime

1772

01:16:51,189 --> 01:16:47,679

and now nasa is coming back with well no

1773

01:16:53,350 --> 01:16:51,199

this is a grain of sand in the night sky

1774

01:16:56,630 --> 01:16:53,360

and this is what you are seeing

1775

01:16:58,070 --> 01:16:56,640

this is monumental isn't it this kind of

1776

01:17:00,070 --> 01:16:58,080

thought process

1777

01:17:01,430 --> 01:17:00,080

that you are looking at that many

1778

01:17:03,750 --> 01:17:01,440

galaxies

1779

01:17:05,669 --> 01:17:03,760

everywhere you move that grain of sand

1780

01:17:06,709 --> 01:17:05,679

in the night sky that is what you're

1781

01:17:08,550 --> 01:17:06,719

going to see

1782

01:17:10,149 --> 01:17:08,560

well and you can also you can flip it

1783

01:17:13,270 --> 01:17:10,159

around and say that

1784

01:17:14,630 --> 01:17:13,280

there are more galaxies

1785

01:17:16,709 --> 01:17:14,640

in the universe in the observable

1786

01:17:19,590 --> 01:17:16,719

universe and there are grains of sand

1787

01:17:25,910 --> 01:17:22,229

you know it that's crazy right

1788

01:17:28,070 --> 01:17:25,920

like if you go out to the biggest beach

1789

01:17:31,270 --> 01:17:28,080

that you can imagine

1790

01:17:34,229 --> 01:17:31,280

uh that that you you know barefooted on

1791

01:17:37,270 --> 01:17:34,239

when you were a kid the biggest beach in

1792

01:17:40,390 --> 01:17:37,280

all that sand and you pick up one grain

1793

01:17:42,550 --> 01:17:40,400

of sand one grain of sand

1794

01:17:45,350 --> 01:17:42,560

that's our sun

1795

01:17:48,310 --> 01:17:45,360

that's what you know and and then it's

1796

01:17:49,430 --> 01:17:48,320

the whole earth it's not just that beach

1797

01:17:51,510 --> 01:17:49,440

right

1798

01:17:53,510 --> 01:17:51,520

it's mind-bending each one of those

1799

01:17:54,550 --> 01:17:53,520

galaxies in the deep field consists of

1800

01:17:58,470 --> 01:17:54,560

between

1801

01:18:00,950 --> 01:17:58,480

on average one to 200 billion stars

1802

01:18:04,070 --> 01:18:00,960

each each and they probably are

1803

01:18:05,430 --> 01:18:04,080

outnumbered in that galaxy by planets

1804

01:18:07,590 --> 01:18:05,440

so

1805

01:18:09,510 --> 01:18:07,600

even then just the

1806

01:18:11,750 --> 01:18:09,520

just the math of it all

1807

01:18:15,030 --> 01:18:11,760

says there just has to be enormous

1808

01:18:16,950 --> 01:18:15,040

amounts of analogs of earth that could

1809

01:18:19,750 --> 01:18:16,960

well have life and could well have

1810

01:18:20,550 --> 01:18:19,760

intelligence and hopefully

1811

01:18:22,550 --> 01:18:20,560

now

1812

01:18:25,910 --> 01:18:22,560

okay so let's stay on this grains of

1813

01:18:27,830 --> 01:18:25,920

sand uh analogy and it's it you know

1814

01:18:30,950 --> 01:18:27,840

it's mind-blowing to us because we live

1815

01:18:33,030 --> 01:18:30,960

here and we see what sand is right but

1816

01:18:35,830 --> 01:18:33,040

and and the big

1817

01:18:38,310 --> 01:18:35,840

in the big picture

1818

01:18:39,750 --> 01:18:38,320

earth is just so insignificant right

1819

01:18:43,350 --> 01:18:39,760

significant yep

1820

01:18:46,709 --> 01:18:43,360

it's completely insignificant so

1821

01:18:49,030 --> 01:18:46,719

is the same analogy the same you could

1822

01:18:51,430 --> 01:18:49,040

almost say metaphor

1823

01:18:53,750 --> 01:18:51,440

the same view

1824

01:18:56,149 --> 01:18:53,760

can you apply that to life too as well

1825

01:18:58,870 --> 01:18:56,159

is there as much life out there as we

1826

01:19:00,950 --> 01:18:58,880

have sands grains of sand

1827

01:19:03,110 --> 01:19:00,960

well that's just the question

1828

01:19:06,709 --> 01:19:03,120

and that's that's a two-part question

1829

01:19:10,149 --> 01:19:06,719

the first is is there

1830

01:19:12,310 --> 01:19:10,159

life defined as as you know microbial

1831

01:19:14,630 --> 01:19:12,320

you know simple life

1832

01:19:15,830 --> 01:19:14,640

very very very easily there could be

1833

01:19:18,070 --> 01:19:15,840

there could be

1834

01:19:20,630 --> 01:19:18,080

many many many millions or billions or

1835

01:19:22,550 --> 01:19:20,640

trillions of occurrences of microbial

1836

01:19:24,070 --> 01:19:22,560

life in the universe because the more we

1837

01:19:26,310 --> 01:19:24,080

find out

1838

01:19:28,790 --> 01:19:26,320

bits and pieces of the puzzle on how a

1839

01:19:31,189 --> 01:19:28,800

biogenesis occurred on earth it turns

1840

01:19:32,709 --> 01:19:31,199

out it's easier than it than we we

1841

01:19:34,630 --> 01:19:32,719

thought and

1842

01:19:37,189 --> 01:19:34,640

this was driven home recently

1843

01:19:38,470 --> 01:19:37,199

with a discovery that

1844

01:19:40,229 --> 01:19:38,480

rna

1845

01:19:42,950 --> 01:19:40,239

you know we have been looking at all of

1846

01:19:45,030 --> 01:19:42,960

these complex ways that maybe how rna

1847

01:19:46,870 --> 01:19:45,040

could have come about you know in nature

1848

01:19:48,709 --> 01:19:46,880

and then all of a sudden some scientists

1849

01:19:50,310 --> 01:19:48,719

found that it was it happens when you

1850

01:19:51,590 --> 01:19:50,320

percolate water through volcanic rock

1851
01:19:53,510 --> 01:19:51,600
and you just have the right chemicals

1852
01:19:55,189 --> 01:19:53,520
and there it is it pops out

1853
01:19:57,669 --> 01:19:55,199
and it's an experiment that can be done

1854
01:20:00,550 --> 01:19:57,679
in a high school classroom so and will

1855
01:20:02,550 --> 01:20:00,560
be so it turned out easier and we were

1856
01:20:04,630 --> 01:20:02,560
just overcooking the turkey looking for

1857
01:20:06,709 --> 01:20:04,640
these really really complex ways to do

1858
01:20:09,669 --> 01:20:06,719
this when the answer was simple and that

1859
01:20:11,510 --> 01:20:09,679
keeps happening so

1860
01:20:13,430 --> 01:20:11,520
that's sort of pointing the arrow in the

1861
01:20:15,590 --> 01:20:13,440
direction that microbial life is not

1862
01:20:18,470 --> 01:20:15,600
that big of a deal to get going the

1863
01:20:19,990 --> 01:20:18,480

problem is is that once microbial life

1864

01:20:23,510 --> 01:20:20,000
started on earth

1865

01:20:25,990 --> 01:20:23,520
it froze and sat there it just sat there

1866

01:20:27,990 --> 01:20:26,000
not doing much of anything for 1.8

1867

01:20:30,550 --> 01:20:28,000
billion years before

1868

01:20:31,669 --> 01:20:30,560
the prokaryotic to eukaryotically

1869

01:20:33,910 --> 01:20:31,679
occurred

1870

01:20:36,470 --> 01:20:33,920
and that's where maybe the filter is is

1871

01:20:39,110 --> 01:20:36,480
that maybe the reason we don't see

1872

01:20:41,510 --> 01:20:39,120
techno signatures everywhere is because

1873

01:20:43,110 --> 01:20:41,520
it's a lot harder to get past that stage

1874

01:20:45,990 --> 01:20:43,120
once you have it so it's a universe

1875

01:20:48,070 --> 01:20:46,000
maybe that teams with microbial life but

1876

01:20:49,910 --> 01:20:48,080

only occasionally does it does it get

1877

01:20:51,510 --> 01:20:49,920

anywhere further

1878

01:20:53,030 --> 01:20:51,520

and then to get to us

1879

01:20:56,390 --> 01:20:53,040

a whole lot of things had to happen on

1880

01:20:58,550 --> 01:20:56,400

this planet to just sort of get there um

1881

01:21:01,189 --> 01:20:58,560

and for most of most of this planet's

1882

01:21:03,110 --> 01:21:01,199

existence with complex macrofauna there

1883

01:21:03,910 --> 01:21:03,120

was nothing here it was dinosaurs you

1884

01:21:04,870 --> 01:21:03,920

know

1885

01:21:09,270 --> 01:21:04,880

well

1886

01:21:11,590 --> 01:21:09,280

yes yes okay so you you have to have

1887

01:21:13,510 --> 01:21:11,600

i i'm just going to just say it you have

1888

01:21:15,990 --> 01:21:13,520

to have the right biosphere

1889

01:21:17,750 --> 01:21:16,000

we didn't have the right biosphere for

1890

01:21:21,110 --> 01:21:17,760

the first two billion years of this

1891

01:21:24,870 --> 01:21:21,120

planet it was we had lots of volcanic

1892

01:21:27,030 --> 01:21:24,880

activity right yeah we had a

1893

01:21:30,229 --> 01:21:27,040

molten lava

1894

01:21:32,950 --> 01:21:30,239

surface uh here and it took everything

1895

01:21:34,229 --> 01:21:32,960

else and comets crashing in the arrival

1896

01:21:37,030 --> 01:21:34,239

of water

1897

01:21:39,750 --> 01:21:37,040

uh and then atmospheric change

1898

01:21:42,070 --> 01:21:39,760

uh to allow the other stuff to

1899

01:21:43,990 --> 01:21:42,080

to have a happy dance but before that

1900

01:21:46,790 --> 01:21:44,000

the ingredients were here but there

1901

01:21:48,709 --> 01:21:46,800

wasn't an oven to cook it in

1902

01:21:50,790 --> 01:21:48,719

that's right and there's also other

1903

01:21:52,790 --> 01:21:50,800

possibilities hiding in there because

1904

01:21:55,189 --> 01:21:52,800

during during the time when life arose

1905

01:21:58,310 --> 01:21:55,199

on earth earth was not the optimum

1906

01:21:59,750 --> 01:21:58,320

planet to produce life mars was mars was

1907

01:22:01,430 --> 01:21:59,760

actually a better environment in those

1908

01:22:04,310 --> 01:22:01,440

days than earth was

1909

01:22:06,149 --> 01:22:04,320

so you got to ask the question did life

1910

01:22:08,790 --> 01:22:06,159

originally arise on mars and got and get

1911

01:22:10,870 --> 01:22:08,800

deposited here i mean are we martians

1912

01:22:12,790 --> 01:22:10,880

you know um so there's all kinds of

1913

01:22:14,950 --> 01:22:12,800

interesting questions that in the coming

1914

01:22:17,110 --> 01:22:14,960

decades we should be able to answer

1915

01:22:18,870 --> 01:22:17,120

now the the the million-dollar question

1916

01:22:21,350 --> 01:22:18,880

then we're going to get back to

1917

01:22:23,350 --> 01:22:21,360

some of these images

1918

01:22:25,430 --> 01:22:23,360

is

1919

01:22:27,990 --> 01:22:25,440

when we talk about

1920

01:22:30,070 --> 01:22:28,000

life that's one thing there's life is

1921

01:22:32,470 --> 01:22:30,080

everywhere i think we can all accept

1922

01:22:35,110 --> 01:22:32,480

that i mean

1923

01:22:35,990 --> 01:22:35,120

at the very smallest of levels

1924

01:22:39,189 --> 01:22:36,000

but

1925

01:22:42,310 --> 01:22:39,199

something more advanced than us

1926

01:22:44,310 --> 01:22:42,320

not dinosaurs that would be cool

1927

01:22:48,550 --> 01:22:44,320

not reptile you know

1928

01:22:50,149 --> 01:22:48,560

something more advanced than us

1929

01:22:53,270 --> 01:22:50,159

that's the question

1930

01:22:55,669 --> 01:22:53,280

and how much of that do you think is is

1931

01:22:57,350 --> 01:22:55,679

just in our milky way

1932

01:22:58,709 --> 01:22:57,360

well i don't know you know you can't

1933

01:23:02,550 --> 01:22:58,719

really put a number on it because we

1934

01:23:04,550 --> 01:23:02,560

don't know you have to remember that um

1935

01:23:05,910 --> 01:23:04,560

you have to remember that

1936

01:23:07,590 --> 01:23:05,920

when we need to we have to make

1937

01:23:09,910 --> 01:23:07,600

assumptions about

1938

01:23:12,470 --> 01:23:09,920

intelligent alien life and the first is

1939

01:23:13,830 --> 01:23:12,480

we have to assume that we know what that

1940

01:23:16,629 --> 01:23:13,840

would look like

1941

01:23:18,149 --> 01:23:16,639

so if you got a civilization that's

1942

01:23:19,430 --> 01:23:18,159

a hundred thousand years more advanced

1943

01:23:21,510 --> 01:23:19,440

than humans

1944

01:23:23,750 --> 01:23:21,520

how do we envision what that looks like

1945

01:23:24,550 --> 01:23:23,760

so we would know what to look for you

1946

01:23:28,310 --> 01:23:24,560

know

1947

01:23:30,790 --> 01:23:28,320

sufficiently advanced technology is

1948

01:23:34,070 --> 01:23:30,800

indistinguishable from magic so

1949

01:23:36,550 --> 01:23:34,080

it you may see a cloud of of gas out out

1950

01:23:37,430 --> 01:23:36,560

in the uh interstellar medium

1951

01:23:39,030 --> 01:23:37,440

and

1952

01:23:41,270 --> 01:23:39,040

say well it's just a cloud of gas but

1953

01:23:43,590 --> 01:23:41,280

then in reality it was a cloud of

1954

01:23:45,669 --> 01:23:43,600

nanotechnological assembler robots and

1955

01:23:48,629 --> 01:23:45,679

things like that you wouldn't know you

1956

01:23:49,830 --> 01:23:48,639

know so you can't you have to make the

1957

01:23:51,189 --> 01:23:49,840

assumption that you would know what

1958

01:23:53,430 --> 01:23:51,199

you're looking for

1959

01:23:55,830 --> 01:23:53,440

all we can do is say well we don't know

1960

01:23:57,430 --> 01:23:55,840

but we can try certain things and

1961

01:23:59,110 --> 01:23:57,440

trying certain things includes radio

1962

01:24:02,470 --> 01:23:59,120

telescopes you know

1963

01:24:04,390 --> 01:24:02,480

where you're looking for signals and

1964

01:24:06,550 --> 01:24:04,400

of technological origin because what you

1965

01:24:08,229 --> 01:24:06,560

can do is tell you know technological

1966

01:24:09,350 --> 01:24:08,239

signals are technological signals

1967

01:24:10,629 --> 01:24:09,360

they're

1968

01:24:12,550 --> 01:24:10,639

that type of stuff doesn't occur in

1969

01:24:13,350 --> 01:24:12,560

nature you know so you're looking for

1970

01:24:17,430 --> 01:24:13,360

the

1971

01:24:19,990 --> 01:24:17,440

produces but that's not to say an alien

1972

01:24:20,950 --> 01:24:20,000

even still uses ra radio we don't know

1973

01:24:23,830 --> 01:24:20,960

you know

1974

01:24:25,350 --> 01:24:23,840

um and as a result so the the answer

1975

01:24:26,470 --> 01:24:25,360

there to the fermi paradox is simply

1976

01:24:29,110 --> 01:24:26,480

that we don't know how to look for

1977

01:24:30,950 --> 01:24:29,120

aliens you know and i

1978

01:24:32,870 --> 01:24:30,960

i i i'd say that's probably a pretty

1979

01:24:34,870 --> 01:24:32,880

strong candidate because we we really

1980

01:24:37,590 --> 01:24:34,880

make a lot of assumption assumptions

1981

01:24:39,270 --> 01:24:37,600

when we we try to envision what aliens

1982

01:24:41,110 --> 01:24:39,280

would or would not do

1983

01:24:43,430 --> 01:24:41,120

well okay so

1984

01:24:44,390 --> 01:24:43,440

the correct answer without giving it a

1985

01:24:46,629 --> 01:24:44,400

number

1986

01:24:49,669 --> 01:24:46,639

is just a lot

1987

01:24:51,030 --> 01:24:49,679

it could be a lot um it could be

1988

01:24:55,110 --> 01:24:51,040

well there are things that govern it i

1989

01:24:58,550 --> 01:24:56,709

immediately almost immediately go

1990

01:25:00,149 --> 01:24:58,560

extinct when they hit a technological

1991

01:25:02,070 --> 01:25:00,159

age say they only last three four

1992

01:25:03,750 --> 01:25:02,080

hundred years in a technological age

1993

01:25:06,070 --> 01:25:03,760

then there's probably only one in the

1994

01:25:08,070 --> 01:25:06,080

galaxy at any given time but if you take

1995

01:25:09,990 --> 01:25:08,080

it as the whole history of the galaxy of

1996

01:25:10,790 --> 01:25:10,000

13.8 billion years and you're looking at

1997

01:25:12,709 --> 01:25:10,800

all the

1998

01:25:14,629 --> 01:25:12,719

extinct species

1999

01:25:15,990 --> 01:25:14,639

there's probably i would say

2000

01:25:18,550 --> 01:25:16,000

you could make a case that there's been

2001

01:25:20,470 --> 01:25:18,560

quite a few but we don't know you know

2002

01:25:21,830 --> 01:25:20,480

there may they may be they may even be

2003

01:25:23,990 --> 01:25:21,840

common when we just don't know what

2004

01:25:26,550 --> 01:25:24,000

we're looking at and we barely looked

2005

01:25:28,870 --> 01:25:26,560

you know seti has barely looked it's

2006

01:25:31,189 --> 01:25:28,880

going to be 30 40 years before we're in

2007

01:25:33,270 --> 01:25:31,199

territory where we can say well why are

2008

01:25:34,870 --> 01:25:33,280

we not finding anything something

2009

01:25:36,629 --> 01:25:34,880

something's weird here but we're nowhere

2010

01:25:39,990 --> 01:25:36,639

near that territory yet

2011

01:25:42,470 --> 01:25:40,000

no we're not and if we've only logged in

2012

01:25:45,270 --> 01:25:42,480

uh officially 5 000 exoplanets we've got

2013

01:25:46,790 --> 01:25:45,280

another 10 000 candidates and

2014

01:25:49,030 --> 01:25:46,800

and uh

2015

01:25:51,590 --> 01:25:49,040

exponentially that number is increasing

2016

01:25:54,870 --> 01:25:51,600

every single day i mean we

2017

01:25:57,350 --> 01:25:54,880

it's crazy now with our ability to

2018

01:25:59,990 --> 01:25:57,360

uh to select candidates but it's a it's

2019

01:26:02,709 --> 01:26:00,000

time and it's a numbers game

2020

01:26:05,590 --> 01:26:02,719

and the way that uh everything is being

2021

01:26:08,310 --> 01:26:05,600

looked at now with sections of the sky

2022

01:26:10,629 --> 01:26:08,320

uh the southern horizon uh the northern

2023

01:26:12,790 --> 01:26:10,639

side of things uh where you are looking

2024

01:26:14,790 --> 01:26:12,800

at you know twenty thousand planets uh

2025

01:26:16,629 --> 01:26:14,800

or twenty thousand stars

2026

01:26:19,189 --> 01:26:16,639

uh per sector

2027

01:26:20,790 --> 01:26:19,199

and and getting this done and with tests

2028

01:26:23,189 --> 01:26:20,800

we're gonna try to do most of this in

2029

01:26:25,910 --> 01:26:23,199

the next two years

2030

01:26:28,470 --> 01:26:25,920

with only 5 000 exoplanets right now in

2031

01:26:30,870 --> 01:26:28,480

the books we are going to have to

2032

01:26:32,629 --> 01:26:30,880

analyze the data at some point it's not

2033

01:26:35,430 --> 01:26:32,639

going to be computers doing this it's

2034

01:26:37,350 --> 01:26:35,440

manhattan doing most of the

2035

01:26:39,990 --> 01:26:37,360

the legwork right now but you still have

2036

01:26:41,030 --> 01:26:40,000

to get humans involved to look at the

2037

01:26:43,590 --> 01:26:41,040

data

2038

01:26:46,550 --> 01:26:43,600

and and and see what is real and what is

2039

01:26:50,310 --> 01:26:46,560

not and we are going to have a backlog

2040

01:26:51,430 --> 01:26:50,320

of hundreds of thousands of planets very

2041

01:26:54,149 --> 01:26:51,440

soon

2042

01:26:56,390 --> 01:26:54,159

and so it now it just becomes a numbers

2043

01:26:58,790 --> 01:26:56,400

game doesn't it that if that's what we

2044

01:27:00,629 --> 01:26:58,800

can see if that is where we are right

2045

01:27:03,110 --> 01:27:00,639

now which is not much

2046

01:27:07,510 --> 01:27:03,120

and there are trillions just in our

2047

01:27:09,669 --> 01:27:07,520

milky way to go and analyze uh it's just

2048

01:27:10,470 --> 01:27:09,679

probably never going to get done

2049

01:27:11,830 --> 01:27:10,480

no

2050

01:27:13,510 --> 01:27:11,840

at some point it becomes physically

2051

01:27:15,110 --> 01:27:13,520

impossible to

2052

01:27:15,990 --> 01:27:15,120

care right right

2053

01:27:17,669 --> 01:27:16,000

um

2054

01:27:19,110 --> 01:27:17,679

and you know you've got another wild

2055

01:27:20,870 --> 01:27:19,120

card here you've got the ice shell moons

2056

01:27:22,870 --> 01:27:20,880

you know we've got a bunch of oceans

2057

01:27:25,669 --> 01:27:22,880

locked underneath ice in these moons

2058

01:27:27,430 --> 01:27:25,679

like ganymede and io and uh well not io

2059

01:27:29,430 --> 01:27:27,440

but um

2060

01:27:31,750 --> 01:27:29,440

but europa enceladus

2061

01:27:34,709 --> 01:27:31,760

and we've got tons of those and any one

2062

01:27:35,910 --> 01:27:34,719

of them could host an oceanic uh

2063

01:27:38,229 --> 01:27:35,920

biosphere

2064

01:27:40,629 --> 01:27:38,239

any one of them so

2065

01:27:42,950 --> 01:27:40,639

we don't know yet what the rules are you

2066

01:27:45,110 --> 01:27:42,960

know on on on how that kind of life

2067

01:27:47,030 --> 01:27:45,120

could work well and we won't know until

2068

01:27:47,990 --> 01:27:47,040

we drill into one and you know take a

2069

01:27:48,870 --> 01:27:48,000

look

2070

01:27:52,470 --> 01:27:48,880

um

2071

01:27:53,750 --> 01:27:52,480

but if those things end up having life

2072

01:27:56,070 --> 01:27:53,760

and

2073

01:27:57,910 --> 01:27:56,080

things the analogs of fish or whatever

2074

01:27:59,910 --> 01:27:57,920

then this universe

2075

01:28:02,470 --> 01:27:59,920

it just got way better because they are

2076

01:28:04,870 --> 01:28:02,480

way more common uh sources of liquid

2077

01:28:07,830 --> 01:28:04,880

water than an earth-like planet is

2078

01:28:11,510 --> 01:28:07,840

when we talk about looking at the oldest

2079

01:28:13,110 --> 01:28:11,520

galaxy so far the oldest star so far the

2080

01:28:16,390 --> 01:28:13,120

oldest this

2081

01:28:18,390 --> 01:28:16,400

um which direction are we looking in

2082

01:28:20,950 --> 01:28:18,400

in other words uh

2083

01:28:22,310 --> 01:28:20,960

okay big bang right boom universe out

2084

01:28:24,629 --> 01:28:22,320

this way so

2085

01:28:27,030 --> 01:28:24,639

we are not looking to the center of the

2086

01:28:30,229 --> 01:28:27,040

universe we're looking

2087

01:28:32,950 --> 01:28:30,239

to the edges of the universe well the

2088

01:28:34,950 --> 01:28:32,960

the rule on that is that the universe

2089

01:28:36,149 --> 01:28:34,960

does not seem to have a center

2090

01:28:37,990 --> 01:28:36,159

um

2091

01:28:39,110 --> 01:28:38,000

and there's a really good reason for

2092

01:28:41,510 --> 01:28:39,120

that because

2093

01:28:43,910 --> 01:28:41,520

if you if you think about a center of a

2094

01:28:45,669 --> 01:28:43,920

basketball or a center of a circle

2095

01:28:47,669 --> 01:28:45,679

you can you can determine that because

2096

01:28:49,830 --> 01:28:47,679

you've got a point of reference to

2097

01:28:51,189 --> 01:28:49,840

figure out what the center is and there

2098

01:28:53,430 --> 01:28:51,199

are different points of references

2099

01:28:55,350 --> 01:28:53,440

different types of centers there's

2100

01:28:56,790 --> 01:28:55,360

things like a center of rotation in

2101

01:28:58,070 --> 01:28:56,800

other words you're watching a bicycle

2102

01:28:59,590 --> 01:28:58,080

wheel and you can see where the center

2103

01:29:01,590 --> 01:28:59,600

of rotation is

2104

01:29:04,310 --> 01:29:01,600

the universe doesn't have one there's

2105

01:29:06,310 --> 01:29:04,320

center of mass universe doesn't have one

2106

01:29:08,149 --> 01:29:06,320

you can establish a center of charge

2107

01:29:10,390 --> 01:29:08,159

universe doesn't have one

2108

01:29:12,950 --> 01:29:10,400

you can

2109

01:29:15,110 --> 01:29:12,960

there's even even even sort of like

2110

01:29:16,229 --> 01:29:15,120

think of it like a bowl like a salad

2111

01:29:17,590 --> 01:29:16,239

bowl

2112

01:29:19,590 --> 01:29:17,600

you can even figure out where that

2113

01:29:21,110 --> 01:29:19,600

curvature meets and you can make a

2114

01:29:23,030 --> 01:29:21,120

center

2115

01:29:25,350 --> 01:29:23,040

the universe geometry is flat it doesn't

2116

01:29:27,270 --> 01:29:25,360

have such a thing

2117

01:29:30,149 --> 01:29:27,280

it doesn't make any sense and then

2118

01:29:31,990 --> 01:29:30,159

finally in in regards to what you're

2119

01:29:34,229 --> 01:29:32,000

you're explaining that's called the

2120

01:29:36,310 --> 01:29:34,239

center of expansion meaning it's like an

2121

01:29:38,550 --> 01:29:36,320

explosion and it's going out from one

2122

01:29:40,709 --> 01:29:38,560

single point well isn't that what we

2123

01:29:42,629 --> 01:29:40,719

were taught that's well it's what we're

2124

01:29:44,950 --> 01:29:42,639

conventionally that's how we think we

2125

01:29:47,910 --> 01:29:44,960

think in terms of an explosion so the

2126
01:29:49,430 --> 01:29:47,920
center must be where the explosives were

2127
01:29:50,629 --> 01:29:49,440
but the thing is that doesn't really

2128
01:29:53,189 --> 01:29:50,639
work for the universe because the

2129
01:29:55,910 --> 01:29:53,199
universe

2130
01:29:58,229 --> 01:29:55,920
includes the space itself

2131
01:30:00,470 --> 01:29:58,239
so in other words space itself didn't

2132
01:30:02,470 --> 01:30:00,480
exist it's part of the big bang

2133
01:30:04,550 --> 01:30:02,480
therefore

2134
01:30:06,470 --> 01:30:04,560
it just expands out

2135
01:30:07,430 --> 01:30:06,480
and if there were a center of the

2136
01:30:09,350 --> 01:30:07,440
universe

2137
01:30:11,030 --> 01:30:09,360
and it did work like an explosion we

2138
01:30:12,950 --> 01:30:11,040

would see the cosmic microwave

2139

01:30:15,350 --> 01:30:12,960

background radiation coming from one

2140

01:30:18,070 --> 01:30:15,360

point the center of the universe we

2141

01:30:20,790 --> 01:30:18,080

don't it comes in at from all directions

2142

01:30:23,750 --> 01:30:20,800

any direction we look it's the same

2143

01:30:25,750 --> 01:30:23,760

so it means that space time itself

2144

01:30:31,669 --> 01:30:25,760

was

2145

01:30:33,669 --> 01:30:31,679

the big bang and that the correct answer

2146

01:30:34,950 --> 01:30:33,679

to where was where did the universe

2147

01:30:37,030 --> 01:30:34,960

begin

2148

01:30:38,550 --> 01:30:37,040

isn't the point because space was

2149

01:30:41,189 --> 01:30:38,560

created by it

2150

01:30:42,550 --> 01:30:41,199

it just it's it comes down to one word

2151
01:30:45,110 --> 01:30:42,560
nothing

2152
01:30:48,070 --> 01:30:45,120
but then okay i've got to take a break

2153
01:30:49,830 --> 01:30:48,080
but but we're measuring the temperature

2154
01:30:51,990 --> 01:30:49,840
right and so

2155
01:30:53,350 --> 01:30:52,000
we can see the temperature changes in

2156
01:30:56,070 --> 01:30:53,360
the expansion

2157
01:30:58,149 --> 01:30:56,080
we can see that we can see that the uh

2158
01:31:00,709 --> 01:30:58,159
we can we can see a quite a bit from it

2159
01:31:02,310 --> 01:31:00,719
it's just that we can't establish a

2160
01:31:04,470 --> 01:31:02,320
center point because there is no

2161
01:31:06,310 --> 01:31:04,480
reference to do so so we don't know

2162
01:31:08,550 --> 01:31:06,320
where the big bang happened is what

2163
01:31:10,390 --> 01:31:08,560

you're saying we don't know and the

2164

01:31:14,070 --> 01:31:10,400

reality is that what the universe tells

2165

01:31:15,750 --> 01:31:14,080

us the observation is that it is

2166

01:31:17,750 --> 01:31:15,760

number one it's geometry is flat which

2167

01:31:18,709 --> 01:31:17,760

means that you can run two railroad

2168

01:31:20,070 --> 01:31:18,719

tracks

2169

01:31:22,550 --> 01:31:20,080

all the way across the universe and they

2170

01:31:25,430 --> 01:31:22,560

will never meet so there is no overall

2171

01:31:26,870 --> 01:31:25,440

curvature that we can discern to space

2172

01:31:29,270 --> 01:31:26,880

there is local curvature and there's

2173

01:31:31,030 --> 01:31:29,280

curvature you know time things like that

2174

01:31:32,709 --> 01:31:31,040

fourth dimension type stuff but that's

2175

01:31:35,189 --> 01:31:32,719

what that that doesn't matter in three

2176

01:31:37,910 --> 01:31:35,199

dimensions there is it's it's flat

2177

01:31:39,910 --> 01:31:37,920

and that suggests only if a handful of

2178

01:31:41,750 --> 01:31:39,920

possible geometries for the universe the

2179

01:31:43,350 --> 01:31:41,760

other problem is that

2180

01:31:45,030 --> 01:31:43,360

the universe we can only see a part of

2181

01:31:47,430 --> 01:31:45,040

it the observable universe we have no

2182

01:31:48,550 --> 01:31:47,440

idea how much further it extends

2183

01:31:51,990 --> 01:31:48,560

and how much

2184

01:31:53,590 --> 01:31:52,000

left us so

2185

01:31:55,430 --> 01:31:53,600

the thing is is that everything that we

2186

01:31:56,629 --> 01:31:55,440

see that the universe is showing us so

2187

01:31:58,790 --> 01:31:56,639

far

2188

01:32:00,950 --> 01:31:58,800

is that it's infinite

2189

01:32:03,189 --> 01:32:00,960

so what you have just told me and i've

2190

01:32:05,110 --> 01:32:03,199

got to take a break and i'm going to cut

2191

01:32:07,189 --> 01:32:05,120

i'm going to cut jmg off right now so

2192

01:32:09,030 --> 01:32:07,199

you can't answer what i'm about to say

2193

01:32:11,669 --> 01:32:09,040

you have just told us

2194

01:32:13,750 --> 01:32:11,679

that there was no big bang

2195

01:32:15,669 --> 01:32:13,760

and with that we're going to take our

2196

01:32:19,750 --> 01:32:15,679

break right here

2197

01:32:21,750 --> 01:32:19,760

i don't i don't get it i i i simply uh

2198

01:32:23,750 --> 01:32:21,760

don't understand doesn't make any sense

2199

01:32:25,350 --> 01:32:23,760

this is fade to black well it makes

2200

01:32:27,750 --> 01:32:25,360

sense

2201
01:32:29,830 --> 01:32:27,760
if there was no big bang this is fade to

2202
01:32:31,590 --> 01:32:29,840
black our guest tonight

2203
01:32:38,080 --> 01:32:31,600
john michael godier we'll be right back

2204
01:32:55,590 --> 01:32:52,390
[Music]

2205
01:32:57,740 --> 01:32:55,600
way out here we listen to jimmy church

2206
01:33:00,390 --> 01:32:57,750
you're listening to fade to black

2207
01:33:02,470 --> 01:33:00,400
[Applause]

2208
01:33:04,070 --> 01:33:02,480
you're listening to jimmy church and

2209
01:33:09,290 --> 01:33:04,080
fade to black

2210
01:33:09,300 --> 01:33:18,720
[Applause]

2211
01:33:23,030 --> 01:33:21,030
[Music]

2212
01:33:25,430 --> 01:33:23,040
the believer is the chilling true story

2213
01:33:27,669 --> 01:33:25,440

of dr john mack a renowned harvard

2214

01:33:30,229 --> 01:33:27,679

psychiatrist and pulitzer prize winner

2215

01:33:32,950 --> 01:33:30,239

this is a outreach program from the

2216

01:33:35,350 --> 01:33:32,960

cosmos to the consciously impaired he

2217

01:33:37,110 --> 01:33:35,360

risked it all to investigate human

2218

01:33:38,310 --> 01:33:37,120

encounters with aelia

2219

01:33:40,950 --> 01:33:38,320

the believer

2220

01:33:43,189 --> 01:33:40,960

alien encounters hard science and the

2221

01:33:45,110 --> 01:33:43,199

passion of john mack written by

2222

01:33:47,430 --> 01:33:45,120

award-winning former new york times

2223

01:33:49,430 --> 01:33:47,440

journalist and author ralph blumenthal

2224

01:33:51,030 --> 01:33:49,440

now available in paperback from high

2225

01:33:53,350 --> 01:33:51,040

road books

2226
01:33:55,270 --> 01:33:53,360
introducing the game changer blend from

2227
01:33:57,750 --> 01:33:55,280
river moon coffee that delivers a

2228
01:34:00,790 --> 01:33:57,760
customized blend made specifically for

2229
01:34:03,830 --> 01:34:00,800
the fader knots if the game is rigged

2230
01:34:06,629 --> 01:34:03,840
change the game it's a boulder cup with

2231
01:34:08,870 --> 01:34:06,639
some bite game changer is the coffee of

2232
01:34:11,189 --> 01:34:08,880
choice for those that prefer an organic

2233
01:34:14,790 --> 01:34:11,199
dark roast that is slightly lighter and

2234
01:34:17,030 --> 01:34:14,800
milder but it's still dark with wild

2235
01:34:19,669 --> 01:34:17,040
notes of pecans and chocolate with a

2236
01:34:22,070 --> 01:34:19,679
rich balanced full-bodied cup that is

2237
01:34:24,709 --> 01:34:22,080
roasted to perfection for a great coffee

2238
01:34:27,990 --> 01:34:24,719

to start your day as an after dinner

2239

01:34:30,790 --> 01:34:28,000

coffee or anywhere in between artisan

2240

01:34:33,350 --> 01:34:30,800

small batch roasted to perfection usda

2241

01:34:35,750 --> 01:34:33,360

certified organic all river moon coffee

2242

01:34:38,629 --> 01:34:35,760

is freshly roasted and packaged in the

2243

01:34:40,709 --> 01:34:38,639

usa just go to rivermooncoffee.com or

2244

01:34:44,629 --> 01:34:40,719

click on the banners over on our site

2245

01:34:47,629 --> 01:34:44,639

and use the promo code f2b blend for 15

2246

01:34:49,430 --> 01:34:47,639

off of your order today

2247

01:34:51,510 --> 01:34:49,440

rivermooncoffee.com

2248

01:34:54,229 --> 01:34:51,520

do you want to be an official fate or

2249

01:34:56,470 --> 01:34:54,239

not of course you do this is jimmy

2250

01:34:57,669 --> 01:34:56,480

church of fade to black just go to our

2251

01:35:00,229 --> 01:34:57,679

membership section at

2252

01:35:02,149 --> 01:35:00,239

jimmychurchradio.com

2253

01:35:03,990 --> 01:35:02,159

vader knots when you think about the

2254

01:35:05,910 --> 01:35:04,000

future of our country and where we're

2255

01:35:09,030 --> 01:35:05,920

headed do you wonder about the food

2256

01:35:11,189 --> 01:35:09,040

supply i do disruptions in the food

2257

01:35:13,990 --> 01:35:11,199

supply chain could be disastrous and

2258

01:35:15,990 --> 01:35:14,000

they usually occur with little warning

2259

01:35:18,950 --> 01:35:16,000

that's why the smartest thing you can do

2260

01:35:21,990 --> 01:35:18,960

today is to stockpile emergency food

2261

01:35:24,709 --> 01:35:22,000

water and other essentials i personally

2262

01:35:26,950 --> 01:35:24,719

recommend my patriot supply they're the

2263

01:35:29,510 --> 01:35:26,960

nation's largest emergency preparedness

2264

01:35:31,990 --> 01:35:29,520

company serving millions of customers

2265

01:35:34,629 --> 01:35:32,000

for more than a decade in fact they're

2266

01:35:37,510 --> 01:35:34,639

the only source my family trusts for our

2267

01:35:40,629 --> 01:35:37,520

preparedness plan you should too

2268

01:35:43,189 --> 01:35:40,639

right now save 20 off a full four week

2269

01:35:46,790 --> 01:35:43,199

supply of delicious meals that provide 2

2270

01:35:49,669 --> 01:35:46,800

000 calories a day saving 20 helps too

2271

01:35:52,709 --> 01:35:49,679

doesn't it especially now so go to

2272

01:35:55,990 --> 01:35:52,719

prepare with jimmy.com and get ready

2273

01:35:59,830 --> 01:35:56,000

that's prepare with jimmy.com there's no

2274

01:36:03,870 --> 01:35:59,840

time to lose do it now

2275

01:36:06,229 --> 01:36:03,880

so you love talk radio then you'll love

2276

01:36:09,189 --> 01:36:06,239

talkstreamlive.com talk stream live is

2277

01:36:11,350 --> 01:36:09,199

always on 24 7 with the best streaming

2278

01:36:13,590 --> 01:36:11,360

talk shows find your favorite talkers

2279

01:36:16,229 --> 01:36:13,600

and discover some new ones it's free

2280

01:36:18,229 --> 01:36:16,239

readily available online or on mobile

2281

01:36:20,310 --> 01:36:18,239

with any smartphone or tablet finding

2282

01:36:22,870 --> 01:36:20,320

your favorite talk shows all in one

2283

01:36:23,790 --> 01:36:22,880

place has gotten a whole lot easier just

2284

01:36:36,260 --> 01:36:23,800

go to

2285

01:36:40,870 --> 01:36:38,950

[Music]

2286

01:36:42,629 --> 01:36:40,880

hi i'm ray sobbs and i'm here to tell

2287

01:36:44,629 --> 01:36:42,639

you about something i really think

2288

01:36:46,870 --> 01:36:44,639

you're gonna like the onyx network is a

2289

01:36:49,350 --> 01:36:46,880

part of a larger group called annex

2290

01:36:51,990 --> 01:36:49,360

media and one of the things we offer is

2291

01:36:54,229 --> 01:36:52,000

the quarterly on x magazine which is

2292

01:36:56,950 --> 01:36:54,239

available both in print and digital

2293

01:36:59,430 --> 01:36:56,960

formats this amazing magazine covers all

2294

01:37:02,070 --> 01:36:59,440

aspects of the unexplained and makes for

2295

01:37:03,669 --> 01:37:02,080

a great coffee table periodical that is

2296

01:37:06,149 --> 01:37:03,679

certain to spark enlightening

2297

01:37:07,750 --> 01:37:06,159

conversations in your living rooms we

2298

01:37:10,430 --> 01:37:07,760

invite you to check out the latest

2299

01:37:13,030 --> 01:37:10,440

digital issue for free just go to

2300

01:37:15,109 --> 01:37:13,040

nxnetwork.com forward slash membership

2301

01:37:17,270 --> 01:37:15,119

and fill out your free membership with

2302

01:37:19,990 --> 01:37:17,280

your name and email and become a new

2303

01:37:22,070 --> 01:37:20,000

free member the new summer issue is now

2304

01:37:24,310 --> 01:37:22,080

available and the theme is time

2305

01:37:26,310 --> 01:37:24,320

anomalies which includes a feature

2306

01:37:29,109 --> 01:37:26,320

article written by our managing editor

2307

01:37:31,109 --> 01:37:29,119

lee spiegel just go to unex network dot

2308

01:37:33,590 --> 01:37:31,119

com forward slash memberships that's

2309

01:37:36,229 --> 01:37:33,600

annex network dot com forward slash

2310

01:37:41,270 --> 01:37:36,239

memberships and get your free e-copy of

2311

01:37:48,070 --> 01:37:43,270

you are listening to fate to black with

2312

01:37:50,629 --> 01:37:48,080

jimmy church on the game changer network

2313

01:37:53,510 --> 01:37:50,639

hi i'm reece evans you're listening to

2314

01:37:56,390 --> 01:37:53,520

jimmy church this is revolution the

2315

01:37:59,669 --> 01:37:56,400

revolution will not be televised the

2316

01:38:03,290 --> 01:37:59,679

revolution is on radio

2317

01:38:30,350 --> 01:38:28,550

[Music]

2318

01:38:34,580 --> 01:38:30,360

hey

2319

01:38:43,910 --> 01:38:34,590

[Music]

2320

01:38:45,109 --> 01:38:43,920

all right welcome back faded black i'm

2321

01:38:49,430 --> 01:38:45,119

your host jimmy church tonight john

2322

01:38:53,350 --> 01:38:49,440

michael gautier event horizon is with us

2323

01:38:55,189 --> 01:38:53,360

all of his links are below and also over

2324

01:38:56,229 --> 01:38:55,199

on our website and throughout social

2325

01:38:58,790 --> 01:38:56,239

media

2326

01:39:00,790 --> 01:38:58,800

and seriously event horizon is just an

2327

01:39:04,070 --> 01:39:00,800

incredible show and i don't

2328

01:39:07,430 --> 01:39:04,080

um uh uh a couple of things before we

2329

01:39:09,669 --> 01:39:07,440

get i don't know who your uh announcer

2330

01:39:10,950 --> 01:39:09,679

is your voiceover person but she's

2331

01:39:12,870 --> 01:39:10,960

amazing

2332

01:39:13,750 --> 01:39:12,880

and we're actually in the chat every

2333

01:39:16,390 --> 01:39:13,760

night

2334

01:39:18,310 --> 01:39:16,400

is she really yeah she was

2335

01:39:19,430 --> 01:39:18,320

is she uh uh

2336

01:39:22,709 --> 01:39:19,440

who

2337

01:39:25,189 --> 01:39:22,719

pretty sure

2338

01:39:30,070 --> 01:39:27,189

she makes you smarter than you are you

2339

01:39:32,470 --> 01:39:30,080

know that right oh absolutely oh yes

2340

01:39:33,189 --> 01:39:32,480

um i'm i'm just the ear candy

2341

01:39:36,950 --> 01:39:33,199

the

2342

01:39:38,870 --> 01:39:36,960

production team ross and aaron um i i i

2343

01:39:40,870 --> 01:39:38,880

i could not do that with without them i

2344

01:39:43,590 --> 01:39:40,880

can't yeah it's just absolutely

2345

01:39:47,270 --> 01:39:43,600

incredible uh it's such a great program

2346

01:39:49,430 --> 01:39:47,280

um and also i'm we're not prepared to to

2347

01:39:51,189 --> 01:39:49,440

do anything formal uh we won't do it

2348

01:39:53,750 --> 01:39:51,199

tonight but we'll do it soon

2349

01:39:55,109 --> 01:39:53,760

uh we've got a very interesting project

2350

01:39:57,189 --> 01:39:55,119

that we're going to be working on

2351

01:39:59,109 --> 01:39:57,199

together later on this month

2352

01:40:01,030 --> 01:39:59,119

and uh i'm very excited about that and i

2353

01:40:03,350 --> 01:40:01,040

can't wait to make that announcement and

2354

01:40:06,310 --> 01:40:03,360

uh it's going to be very cool it's

2355

01:40:08,070 --> 01:40:06,320

definitely a yin and yang

2356

01:40:10,950 --> 01:40:08,080

you know you're just here to make me

2357

01:40:12,629 --> 01:40:10,960

look good uh john michael and

2358

01:40:14,870 --> 01:40:12,639

that's not not the first time that's

2359

01:40:15,750 --> 01:40:14,880

been said to me

2360

01:40:20,149 --> 01:40:15,760

right

2361

01:40:27,430 --> 01:40:20,159

uh

2362

01:40:30,310 --> 01:40:27,440

break but there's actually been some

2363

01:40:32,870 --> 01:40:30,320

realistic conversation about whether or

2364

01:40:37,669 --> 01:40:32,880

not there was actually a big bang

2365

01:40:41,270 --> 01:40:37,679

and if if if everything is moving

2366

01:40:43,350 --> 01:40:41,280

in its own direction and i've had many

2367

01:40:46,870 --> 01:40:43,360

smart people

2368

01:40:49,990 --> 01:40:46,880

uh explain this to me like for instance

2369

01:40:53,030 --> 01:40:50,000

uh the best example i can give on that

2370

01:40:56,870 --> 01:40:53,040

is okay so if there was uh you know this

2371

01:40:58,550 --> 01:40:56,880

is micro this tiny pin boom bam

2372

01:41:01,189 --> 01:40:58,560

everything happened and that's the big

2373

01:41:02,390 --> 01:41:01,199

bang right uh something from nothing

2374

01:41:03,910 --> 01:41:02,400

well

2375

01:41:06,629 --> 01:41:03,920

that would indicate to me that

2376

01:41:08,709 --> 01:41:06,639

everything blasted out from a central

2377

01:41:10,870 --> 01:41:08,719

source that you had mentioned earlier

2378

01:41:12,950 --> 01:41:10,880

that makes a lot of sense and everything

2379

01:41:14,790 --> 01:41:12,960

would be moving in a direction and we

2380

01:41:17,030 --> 01:41:14,800

are observing that

2381

01:41:20,550 --> 01:41:17,040

except

2382

01:41:22,229 --> 01:41:20,560

galaxies and things are

2383

01:41:24,709 --> 01:41:22,239

are going in

2384

01:41:25,830 --> 01:41:24,719

every direction

2385

01:41:32,550 --> 01:41:25,840

and

2386

01:41:33,990 --> 01:41:32,560

now that wouldn't make any sense if

2387

01:41:35,910 --> 01:41:34,000

everything was just moving in the same

2388

01:41:38,709 --> 01:41:35,920

direction we would be moving along with

2389

01:41:41,030 --> 01:41:38,719

andromeda right but that's not the case

2390

01:41:43,750 --> 01:41:41,040

we are actually going to collide and

2391

01:41:45,270 --> 01:41:43,760

galaxies do that all the time so if that

2392

01:41:48,229 --> 01:41:45,280

is the case

2393

01:41:50,709 --> 01:41:48,239

how is it possible to know

2394

01:41:52,790 --> 01:41:50,719

what is the oldest thing

2395

01:41:54,870 --> 01:41:52,800

that we have ever seen if everything is

2396

01:41:57,830 --> 01:41:54,880

moving in its own direction i mean how

2397

01:41:59,430 --> 01:41:57,840

would we determine the age of something

2398

01:42:01,750 --> 01:41:59,440

from something else

2399

01:42:04,390 --> 01:42:01,760

well it's it it's based on this uh you

2400

01:42:06,390 --> 01:42:04,400

can tell distance by redshift because

2401

01:42:08,629 --> 01:42:06,400

the expansion of the universe in between

2402

01:42:10,870 --> 01:42:08,639

two objects will redshift light so you

2403

01:42:13,590 --> 01:42:10,880

look at and this is this is the main

2404

01:42:15,669 --> 01:42:13,600

reason why jwst

2405

01:42:17,669 --> 01:42:15,679

is an infrared telescope is because of

2406

01:42:19,350 --> 01:42:17,679

that redshift so it can look at the most

2407

01:42:20,790 --> 01:42:19,360

distant galaxies

2408

01:42:23,510 --> 01:42:20,800

because they're all redshifted from the

2409

01:42:26,310 --> 01:42:23,520

expansion of the universe um

2410

01:42:29,189 --> 01:42:26,320

okay okay but but but here's the butt

2411

01:42:31,510 --> 01:42:29,199

though and this is okay so now let's

2412

01:42:33,270 --> 01:42:31,520

take a look i've looked at maps of the

2413

01:42:35,350 --> 01:42:33,280

observable universe

2414

01:42:37,510 --> 01:42:35,360

uh done by temperature and and other

2415

01:42:39,990 --> 01:42:37,520

ways and you've seen the same analysis

2416

01:42:43,430 --> 01:42:40,000

that i have okay so if we're looking at

2417

01:42:45,750 --> 01:42:43,440

the observable universe and it's 85 90

2418

01:42:46,870 --> 01:42:45,760

billion light years across which is a

2419

01:42:49,750 --> 01:42:46,880

crazy

2420

01:42:51,750 --> 01:42:49,760

uh amount of time uh a distance i should

2421

01:42:52,709 --> 01:42:51,760

say in that time but

2422

01:42:56,390 --> 01:42:52,719

if

2423

01:42:59,510 --> 01:42:56,400

this is you know the farthest distance

2424

01:43:02,470 --> 01:42:59,520

is away but what if a galaxy

2425

01:43:05,590 --> 01:43:02,480

is traveling this way uh through the

2426

01:43:08,629 --> 01:43:05,600

center of the observable universe

2427

01:43:10,470 --> 01:43:08,639

it could be older than everything else

2428

01:43:12,950 --> 01:43:10,480

but closer to us

2429

01:43:16,310 --> 01:43:12,960

than than the stuff that is distant

2430

01:43:18,709 --> 01:43:16,320

and so how would we know the ages

2431

01:43:19,510 --> 01:43:18,719

of things if they are moving

2432

01:43:23,750 --> 01:43:19,520

uh

2433

01:43:25,750 --> 01:43:23,760

doesn't make any sense there's a bunch

2434

01:43:27,830 --> 01:43:25,760

of different ways uh one of them and how

2435

01:43:29,510 --> 01:43:27,840

this was originally done by edwin hubble

2436

01:43:31,030 --> 01:43:29,520

back in the early 20th century was

2437

01:43:33,510 --> 01:43:31,040

looking at something called a cepheid

2438

01:43:35,350 --> 01:43:33,520

variable and that gives you a what's

2439

01:43:37,350 --> 01:43:35,360

called a standard candlestick and you're

2440

01:43:39,910 --> 01:43:37,360

able to work out distances rough

2441

01:43:42,070 --> 01:43:39,920

distances anyway based on cepheid

2442

01:43:44,070 --> 01:43:42,080

variables in other galaxies as you can

2443

01:43:47,189 --> 01:43:44,080

see you know they they they're stars

2444

01:43:49,430 --> 01:43:47,199

that vary in brightness or on on a known

2445

01:43:50,870 --> 01:43:49,440

scale and they just they have a method

2446

01:43:52,870 --> 01:43:50,880

of doing that that's one way to tell

2447

01:43:55,030 --> 01:43:52,880

distance another way to do it much

2448

01:43:58,790 --> 01:43:55,040

closer and this is one of the

2449

01:44:01,109 --> 01:43:58,800

the ways we establish uh distances in um

2450

01:44:02,950 --> 01:44:01,119

in inside the milky way galaxies through

2451

01:44:05,189 --> 01:44:02,960

parallax and we actually have a

2452

01:44:07,430 --> 01:44:05,199

spacecraft called gaia that does that

2453

01:44:09,350 --> 01:44:07,440

and it's the same effect that parallax

2454

01:44:11,030 --> 01:44:09,360

the same effect as if it you know

2455

01:44:14,229 --> 01:44:11,040

positions seem to move when you open and

2456

01:44:16,709 --> 01:44:14,239

close one eye into each other and that's

2457

01:44:19,030 --> 01:44:16,719

that's how it works and um you're able

2458

01:44:20,709 --> 01:44:19,040

to determine distances that way

2459

01:44:23,830 --> 01:44:20,719

so there's a there's a there's a mixed

2460

01:44:25,590 --> 01:44:23,840

bag of of tricks astronomers have to uh

2461

01:44:27,350 --> 01:44:25,600

determine distances

2462

01:44:29,910 --> 01:44:27,360

sometimes though it can be pretty tricky

2463

01:44:31,910 --> 01:44:29,920

because if you're if for some reason

2464

01:44:34,310 --> 01:44:31,920

some of that information is obscured or

2465

01:44:36,709 --> 01:44:34,320

there's just no good way to tell that it

2466

01:44:39,109 --> 01:44:36,719

can be a it can be a big question mark

2467

01:44:41,109 --> 01:44:39,119

however to your point about the big bang

2468

01:44:42,629 --> 01:44:41,119

on whether or not it happened

2469

01:44:44,550 --> 01:44:42,639

well we have a lot of evidence for it

2470

01:44:46,629 --> 01:44:44,560

because if it didn't happen then what

2471

01:44:49,350 --> 01:44:46,639

created the cosmic microwave background

2472

01:44:51,510 --> 01:44:49,360

radiation and what created uh

2473

01:44:53,669 --> 01:44:51,520

the apparent expansion of the universe

2474

01:44:55,910 --> 01:44:53,679

that hubble discovered edwin hubble

2475

01:44:57,270 --> 01:44:55,920

discovered and things like that so you

2476

01:44:59,189 --> 01:44:57,280

got to have some other mechanism to

2477

01:45:00,310 --> 01:44:59,199

create that that but here's the weird

2478

01:45:08,950 --> 01:45:00,320

thing

2479

01:45:11,109 --> 01:45:08,960

then it was just some quantum

2480

01:45:14,870 --> 01:45:11,119

fluctuation that randomly happened and

2481

01:45:17,270 --> 01:45:14,880

boom it expanded and there's a universe

2482

01:45:18,870 --> 01:45:17,280

but that brings in a question

2483

01:45:21,669 --> 01:45:18,880

can you repeat it

2484

01:45:23,830 --> 01:45:21,679

and there are hypotheses that we could

2485

01:45:25,750 --> 01:45:23,840

in a particle accelerator

2486

01:45:27,590 --> 01:45:25,760

um somewhat more

2487

01:45:29,510 --> 01:45:27,600

powerful than anything we have right now

2488

01:45:31,510 --> 01:45:29,520

but not that that powerful

2489

01:45:33,830 --> 01:45:31,520

if we could find something called a a

2490

01:45:35,910 --> 01:45:33,840

monopole which are theorized to exist we

2491

01:45:37,109 --> 01:45:35,920

might be able to create a situation

2492

01:45:39,109 --> 01:45:37,119

where

2493

01:45:42,390 --> 01:45:39,119

a universe comes out of the quantum foam

2494

01:45:44,310 --> 01:45:42,400

in in the particle accelerator and boom

2495

01:45:46,790 --> 01:45:44,320

it's a wormhole that leads to another

2496

01:45:48,709 --> 01:45:46,800

universe that's expanding on its own and

2497

01:45:50,550 --> 01:45:48,719

we just created a universe and that's

2498

01:45:51,750 --> 01:45:50,560

actually one of the most

2499

01:45:53,990 --> 01:45:51,760

straightforward

2500

01:45:56,870 --> 01:45:54,000

artificial things we can do with with

2501

01:45:58,550 --> 01:45:56,880

nature is to do this

2502

01:46:00,229 --> 01:45:58,560

but that's that's kind of a problem

2503

01:46:02,310 --> 01:46:00,239

because

2504

01:46:04,550 --> 01:46:02,320

if we can do it in the lab well how does

2505

01:46:05,910 --> 01:46:04,560

nature do it on its own is it more

2506

01:46:08,070 --> 01:46:05,920

likely that

2507

01:46:11,030 --> 01:46:08,080

this universe is artificial

2508

01:46:13,270 --> 01:46:11,040

and it's been created by some scientists

2509

01:46:14,229 --> 01:46:13,280

in another universe and

2510

01:46:15,910 --> 01:46:14,239

um

2511

01:46:17,830 --> 01:46:15,920

yeah those are questions that have yet

2512

01:46:19,750 --> 01:46:17,840

to be asked and when we do that

2513

01:46:21,430 --> 01:46:19,760

experiment and try to create a universe

2514

01:46:23,430 --> 01:46:21,440

if we're successful

2515

01:46:26,390 --> 01:46:23,440

we're gonna have to ask some really

2516

01:46:28,790 --> 01:46:26,400

serious existential questions about our

2517

01:46:30,070 --> 01:46:28,800

situation yeah completely

2518

01:46:32,709 --> 01:46:30,080

existential

2519

01:46:34,149 --> 01:46:32,719

and and here's the other complex issue

2520

01:46:35,669 --> 01:46:34,159

and again we're talking about the james

2521

01:46:37,350 --> 01:46:35,679

webb telescope tonight that's why i love

2522

01:46:40,550 --> 01:46:37,360

having you on the show because

2523

01:46:44,709 --> 01:46:43,109

but here's the thing

2524

01:46:45,750 --> 01:46:44,719

if there was

2525

01:46:46,629 --> 01:46:45,760

one

2526

01:46:51,910 --> 01:46:46,639

the

2527

01:46:59,430 --> 01:46:51,920

and

2528

01:47:02,550 --> 01:46:59,440

was absolutely dead nuts perfect

2529

01:47:06,229 --> 01:47:02,560

one number one thing off one little

2530

01:47:08,950 --> 01:47:06,239

particle with some strange gravity to it

2531

01:47:11,990 --> 01:47:08,960

the universe doesn't happen everything

2532

01:47:15,510 --> 01:47:12,000

is off right and so the big bang isn't a

2533

01:47:17,590 --> 01:47:15,520

big bang it's a big thud it may start

2534

01:47:20,390 --> 01:47:17,600

but then it could actually

2535

01:47:22,950 --> 01:47:20,400

disappear into nothing and the question

2536

01:47:25,590 --> 01:47:22,960

is how many universes

2537

01:47:27,669 --> 01:47:25,600

are happening or potentially happening

2538

01:47:30,149 --> 01:47:27,679

just like you're suggesting right there

2539

01:47:32,750 --> 01:47:30,159

but because something is just off

2540

01:47:36,310 --> 01:47:32,760

gravitationally chemically

2541

01:47:38,149 --> 01:47:36,320

gaseously whatever it could be that the

2542

01:47:39,910 --> 01:47:38,159

universe doesn't get its kickstart and

2543

01:47:42,070 --> 01:47:39,920

doesn't complete

2544

01:47:43,669 --> 01:47:42,080

right and and it could be happening all

2545

01:47:45,830 --> 01:47:43,679

the time right

2546

01:47:48,310 --> 01:47:45,840

right now inside of our own universe

2547

01:47:49,910 --> 01:47:48,320

another universe another big bang

2548

01:47:51,430 --> 01:47:49,920

could be happening all the time but

2549

01:47:53,590 --> 01:47:51,440

something is just

2550

01:47:56,470 --> 01:47:53,600

computationally off

2551

01:47:57,990 --> 01:47:56,480

well there's a that's a can of worms

2552

01:48:00,709 --> 01:47:58,000

because this is where we this is where

2553

01:48:02,870 --> 01:48:00,719

we go to science crazy town um the thing

2554

01:48:05,030 --> 01:48:02,880

about it is is that

2555

01:48:06,629 --> 01:48:05,040

what you're what you're what you

2556

01:48:09,350 --> 01:48:06,639

explained was the anthropic principle

2557

01:48:11,669 --> 01:48:09,360

that the universe seems fine-tuned

2558

01:48:12,709 --> 01:48:11,679

for consciousness and life to exist

2559

01:48:13,830 --> 01:48:12,719

within it

2560

01:48:16,709 --> 01:48:13,840

and

2561

01:48:18,950 --> 01:48:16,719

that is uh that's a real mystery

2562

01:48:20,070 --> 01:48:18,960

if this is the only universe because i

2563

01:48:21,830 --> 01:48:20,080

know that everything starts looking

2564

01:48:23,189 --> 01:48:21,840

spooky you know like oh somebody

2565

01:48:25,350 --> 01:48:23,199

fine-tuned this

2566

01:48:27,430 --> 01:48:25,360

uh but if it's part of a multiverse and

2567

01:48:29,750 --> 01:48:27,440

they're an infinite amount of universes

2568

01:48:31,590 --> 01:48:29,760

in whatever model of multiverse you want

2569

01:48:32,950 --> 01:48:31,600

there's a bunch of them

2570

01:48:34,229 --> 01:48:32,960

then we're just the one that got lucky

2571

01:48:36,629 --> 01:48:34,239

and then there's a bunch of dead ones

2572

01:48:38,870 --> 01:48:36,639

out there that you know have a number is

2573

01:48:41,109 --> 01:48:38,880

off a little bit so matter can't exist

2574

01:48:44,470 --> 01:48:41,119

you know like that

2575

01:48:47,350 --> 01:48:44,480

but there is zero evidence whatsoever

2576
01:48:48,790 --> 01:48:47,360
for a multiverse it's just

2577
01:48:51,510 --> 01:48:48,800
a hypothesis

2578
01:48:52,310 --> 01:48:51,520
so if this is universe is alone

2579
01:48:56,629 --> 01:48:52,320
then

2580
01:48:58,229 --> 01:48:56,639
it it's

2581
01:48:59,510 --> 01:48:58,239
if it's not and it's part of a

2582
01:49:01,430 --> 01:48:59,520
multiverse

2583
01:49:03,750 --> 01:49:01,440
that's where you get into a weird one

2584
01:49:06,229 --> 01:49:03,760
because who is to say that the

2585
01:49:08,390 --> 01:49:06,239
evolutionary process does not apply to

2586
01:49:10,390 --> 01:49:08,400
universes and that the reason that we're

2587
01:49:12,149 --> 01:49:10,400
sitting in one that's habitable

2588
01:49:13,990 --> 01:49:12,159

is because the one that spawned it was

2589

01:49:16,149 --> 01:49:14,000

habitable and the one before it that

2590

01:49:17,750 --> 01:49:16,159

spawned it was habitable and that it's

2591

01:49:20,390 --> 01:49:17,760

survival of the fittest and that the

2592

01:49:23,189 --> 01:49:20,400

universe that is most

2593

01:49:25,109 --> 01:49:23,199

well suited for not just life but just

2594

01:49:27,910 --> 01:49:25,119

matter and functioning

2595

01:49:30,709 --> 01:49:27,920

and creating black holes to create other

2596

01:49:32,950 --> 01:49:30,719

universes or um

2597

01:49:34,790 --> 01:49:32,960

you know quantum foam universes whatever

2598

01:49:36,629 --> 01:49:34,800

the one that's able to spawn the most of

2599

01:49:39,430 --> 01:49:36,639

those the conditions

2600

01:49:41,669 --> 01:49:39,440

is the most successful universe and that

2601
01:49:44,310 --> 01:49:41,679
means that it is the most populous

2602
01:49:46,310 --> 01:49:44,320
universe in the multiverse so it's a

2603
01:49:48,709 --> 01:49:46,320
it's the evolutionary principle

2604
01:49:50,790 --> 01:49:48,719
applied to galaxies and we just happen

2605
01:49:52,709 --> 01:49:50,800
to be in a very successful universe that

2606
01:49:54,390 --> 01:49:52,719
is spawning black holes which are

2607
01:49:57,030 --> 01:49:54,400
creating more universes

2608
01:50:00,229 --> 01:49:57,040
and it just has more kids than a dead

2609
01:50:02,870 --> 01:50:00,239
universe does which has none okay so

2610
01:50:04,870 --> 01:50:02,880
two two questions oh man

2611
01:50:07,510 --> 01:50:04,880
so much for the james wood telescope

2612
01:50:11,589 --> 01:50:07,520
we'll do that next week everybody

2613
01:50:12,870 --> 01:50:11,599

is this okay if if um

2614

01:50:16,070 --> 01:50:12,880

uh

2615

01:50:18,149 --> 01:50:16,080

13.8 billion years that's that's what

2616

01:50:20,870 --> 01:50:18,159

we've given us right now that's the

2617

01:50:23,030 --> 01:50:20,880

number 13.8 billion years

2618

01:50:26,310 --> 01:50:23,040

but

2619

01:50:28,950 --> 01:50:26,320

space is forever

2620

01:50:30,149 --> 01:50:28,960

right no matter no matter how you look

2621

01:50:32,709 --> 01:50:30,159

at it

2622

01:50:33,910 --> 01:50:32,719

and and what you contemplate that may be

2623

01:50:36,470 --> 01:50:33,920

out there

2624

01:50:40,229 --> 01:50:36,480

it's still forever and forever is a

2625

01:50:43,510 --> 01:50:40,239

friggin long time and 13 bill 0.8

2626
01:50:46,709 --> 01:50:43,520
billion years in the scope of forever

2627
01:50:49,910 --> 01:50:46,719
is absolutely nothing

2628
01:50:51,510 --> 01:50:49,920
it's nothing nothing so there there must

2629
01:50:53,510 --> 01:50:51,520
have there is no other way to look at

2630
01:50:55,350 --> 01:50:53,520
this john

2631
01:50:59,270 --> 01:50:55,360
that there have been

2632
01:51:01,189 --> 01:50:59,280
an infinite amount of universes

2633
01:51:02,470 --> 01:51:01,199
forever

2634
01:51:04,229 --> 01:51:02,480
so

2635
01:51:06,390 --> 01:51:04,239
yeah forever is an interesting word

2636
01:51:08,149 --> 01:51:06,400
because and i'm going to reframe it in a

2637
01:51:10,149 --> 01:51:08,159
different word infinity

2638
01:51:12,149 --> 01:51:10,159

and that changes

2639

01:51:14,229 --> 01:51:12,159

everything that we think because if the

2640

01:51:15,350 --> 01:51:14,239

universe is infinite and it has no

2641

01:51:17,030 --> 01:51:15,360

boundaries

2642

01:51:19,510 --> 01:51:17,040

you have just answered the rb alone

2643

01:51:21,589 --> 01:51:19,520

question there are aliens they must be

2644

01:51:22,629 --> 01:51:21,599

there there must be intelligent life

2645

01:51:24,870 --> 01:51:22,639

because

2646

01:51:27,589 --> 01:51:24,880

it's so bad since the nature of infinity

2647

01:51:30,790 --> 01:51:27,599

is that there are exact copies of us

2648

01:51:32,390 --> 01:51:30,800

exact earths out there and every

2649

01:51:34,790 --> 01:51:32,400

number of them

2650

01:51:37,030 --> 01:51:34,800

everywhere yes i there is one there

2651

01:51:38,709 --> 01:51:37,040

there is a universe or a uh

2652

01:51:40,870 --> 01:51:38,719

you know there is an earth analog out

2653

01:51:43,270 --> 01:51:40,880

there that looks exactly like earth

2654

01:51:45,589 --> 01:51:43,280

where you're appearing on event horizon

2655

01:51:48,870 --> 01:51:45,599

instead of me appearing on fade to black

2656

01:51:50,550 --> 01:51:48,880

that's right

2657

01:51:52,550 --> 01:51:50,560

it's a numbers game

2658

01:51:54,709 --> 01:51:52,560

it's probably name it because it's the

2659

01:51:57,669 --> 01:51:54,719

biggest number of all infinity it's the

2660

01:52:00,550 --> 01:51:57,679

biggest number of all yeah and if if you

2661

01:52:02,629 --> 01:52:00,560

and i and four friends are playing poker

2662

01:52:06,310 --> 01:52:02,639

and we're dealing cards

2663

01:52:08,870 --> 01:52:06,320

um eventually it could be the next hand

2664

01:52:12,070 --> 01:52:08,880

or it could be a million hands later but

2665

01:52:14,709 --> 01:52:12,080

we will shuffle an identical deck

2666

01:52:17,350 --> 01:52:14,719

and and everybody will have the

2667

01:52:18,310 --> 01:52:17,360

identical hands

2668

01:52:20,790 --> 01:52:18,320

in

2669

01:52:23,109 --> 01:52:20,800

and that that is just a numbers game and

2670

01:52:25,189 --> 01:52:23,119

particles only combine so many different

2671

01:52:27,910 --> 01:52:25,199

ways it's not infinite

2672

01:52:29,270 --> 01:52:27,920

it's limited in fact it's very limited

2673

01:52:31,189 --> 01:52:29,280

on

2674

01:52:32,629 --> 01:52:31,199

and we know what those numbers are and

2675

01:52:34,390 --> 01:52:32,639

that makes that see

2676

01:52:36,870 --> 01:52:34,400

because of the limitations

2677

01:52:37,990 --> 01:52:36,880

that is what makes things impossible or

2678

01:52:41,510 --> 01:52:38,000

possible

2679

01:52:43,430 --> 01:52:41,520

allowed you know by the very nature of

2680

01:52:45,430 --> 01:52:43,440

the particles and everything else but

2681

01:52:47,189 --> 01:52:45,440

what's interesting is that when you're

2682

01:52:48,310 --> 01:52:47,199

dealing with infinite time as you

2683

01:52:50,709 --> 01:52:48,320

mentioned

2684

01:52:53,750 --> 01:52:50,719

where time never stops and it just

2685

01:52:56,149 --> 01:52:53,760

infinitely goes forward forever

2686

01:52:57,510 --> 01:52:56,159

then you run into really weird concepts

2687

01:52:59,510 --> 01:52:57,520

for example

2688

01:53:02,070 --> 01:52:59,520

if you wait long enough

2689

01:53:04,310 --> 01:53:02,080

you could blink out of existence and

2690

01:53:06,470 --> 01:53:04,320

quantum teleport to another part of the

2691

01:53:08,870 --> 01:53:06,480

universe instantaneously if you wait

2692

01:53:10,870 --> 01:53:08,880

long enough you can if you wait long

2693

01:53:13,750 --> 01:53:10,880

enough it's non-zero

2694

01:53:15,430 --> 01:53:13,760

go through a car windshield in a wreck

2695

01:53:17,430 --> 01:53:15,440

without any of your atoms interacting

2696

01:53:19,510 --> 01:53:17,440

with the glass and you pass through it

2697

01:53:21,510 --> 01:53:19,520

if you wait long enough and this is

2698

01:53:23,030 --> 01:53:21,520

where it gets really bad because if you

2699

01:53:25,109 --> 01:53:23,040

wait long enough

2700

01:53:28,229 --> 01:53:25,119

in a dead universe

2701

01:53:31,030 --> 01:53:28,239

out of out of just just

2702

01:53:33,350 --> 01:53:31,040

probabilities and you know just

2703

01:53:35,030 --> 01:53:33,360

you know random fluctuations

2704

01:53:37,189 --> 01:53:35,040

a consciousness will appear in the

2705

01:53:38,550 --> 01:53:37,199

universe briefly

2706

01:53:41,990 --> 01:53:38,560

probably

2707

01:53:44,149 --> 01:53:42,000

and think for a little bit and then

2708

01:53:47,510 --> 01:53:44,159

dissipate but

2709

01:53:49,990 --> 01:53:47,520

random consciousness will come together

2710

01:53:51,910 --> 01:53:50,000

within the universe no matter what

2711

01:53:54,470 --> 01:53:51,920

if you wait long enough now understand

2712

01:53:57,189 --> 01:53:54,480

you're talking about beyond

2713

01:53:58,550 --> 01:53:57,199

quintillions of years to wait for this

2714

01:53:59,430 --> 01:53:58,560

to happen and it's called a boltzmann

2715

01:54:01,510 --> 01:53:59,440

brain

2716

01:54:04,870 --> 01:54:01,520

and i always i've already

2717

01:54:08,629 --> 01:54:04,880

but it could also happen tomorrow

2718

01:54:10,310 --> 01:54:08,639

but what happens if such a

2719

01:54:11,589 --> 01:54:10,320

boltzmann brain appears in a dead

2720

01:54:13,350 --> 01:54:11,599

universe

2721

01:54:15,030 --> 01:54:13,360

you know an unsuccessful one or one

2722

01:54:18,149 --> 01:54:15,040

that's lived out of its lifetime and

2723

01:54:20,550 --> 01:54:19,270

it's going to look around and see

2724

01:54:21,669 --> 01:54:20,560

nothing

2725

01:54:23,030 --> 01:54:21,679

so

2726

01:54:24,550 --> 01:54:23,040

why would it

2727

01:54:26,070 --> 01:54:24,560

even bother to look out into the

2728

01:54:27,910 --> 01:54:26,080

blackness of space

2729

01:54:30,310 --> 01:54:27,920

rather than run a simulation of what

2730

01:54:32,709 --> 01:54:30,320

that universe was like

2731

01:54:34,070 --> 01:54:32,719

and you know once like and learn what it

2732

01:54:36,629 --> 01:54:34,080

can learn

2733

01:54:39,270 --> 01:54:36,639

and um which would be limited

2734

01:54:41,430 --> 01:54:39,280

and that leads you to the the question

2735

01:54:44,390 --> 01:54:41,440

if if we're all just fever dreams of a

2736

01:54:46,790 --> 01:54:44,400

boltzmann brain in a dead universe

2737

01:54:48,470 --> 01:54:46,800

well now the boltzmann brain which was

2738

01:54:50,950 --> 01:54:48,480

one of the best thought experiments i

2739

01:54:53,669 --> 01:54:50,960

think ever presented and not only that

2740

01:54:55,510 --> 01:54:53,679

the idea and the concept uh about this

2741

01:54:57,750 --> 01:54:55,520

to start the argument because that's

2742

01:54:59,990 --> 01:54:57,760

what it's been ever since

2743

01:55:01,270 --> 01:55:00,000

we're talking about decades ago

2744

01:55:05,830 --> 01:55:01,280

and

2745

01:55:07,270 --> 01:55:05,840

in 2022 talking about the boltzmann

2746

01:55:10,629 --> 01:55:07,280

brain

2747

01:55:12,390 --> 01:55:10,639

and the concept of that it breaks down

2748

01:55:14,310 --> 01:55:12,400

into this

2749

01:55:16,149 --> 01:55:14,320

everything

2750

01:55:17,669 --> 01:55:16,159

is possible

2751
01:55:19,510 --> 01:55:17,679
anything

2752
01:55:23,109 --> 01:55:19,520
is possible

2753
01:55:26,310 --> 01:55:23,119
that's it now everything will happen and

2754
01:55:28,629 --> 01:55:26,320
can happen it's just when and no matter

2755
01:55:30,709 --> 01:55:28,639
what the no matter what the forget about

2756
01:55:33,189 --> 01:55:30,719
the boltzmann brain you know this is

2757
01:55:35,669 --> 01:55:33,199
this is my thought experiment you and i

2758
01:55:37,189 --> 01:55:35,679
are cruising along right in space right

2759
01:55:38,950 --> 01:55:37,199
we got our starship

2760
01:55:41,189 --> 01:55:38,960
right jimmy and john

2761
01:55:43,830 --> 01:55:41,199
and then out in front of us and we're

2762
01:55:46,390 --> 01:55:43,840
out at the edges of the known universe

2763
01:55:49,350 --> 01:55:46,400

cruising around and looking and then we

2764

01:55:52,709 --> 01:55:49,360

pick up something and we pull up to it

2765

01:55:56,149 --> 01:55:52,719

and it's a 1966 ford mustang convertible

2766

01:56:00,070 --> 01:55:57,109

we could

2767

01:56:02,950 --> 01:56:00,080

you could if you wait long enough and

2768

01:56:06,310 --> 01:56:02,960

we're driving you will pass by

2769

01:56:09,990 --> 01:56:06,320

a unicorn driving a chrysler yes you

2770

01:56:12,830 --> 01:56:10,000

will yeah it will it it absol that atom

2771

01:56:16,070 --> 01:56:12,840

the particle everything just just

2772

01:56:20,550 --> 01:56:16,080

magically together yeah yeah it's a

2773

01:56:21,510 --> 01:56:20,560

crazy concept uh to to to think about

2774

01:56:23,830 --> 01:56:21,520

but

2775

01:56:27,430 --> 01:56:23,840

anything is possible

2776

01:56:29,350 --> 01:56:27,440

um i i lenny suskin uh does a couple of

2777

01:56:30,390 --> 01:56:29,360

presentations on this

2778

01:56:35,830 --> 01:56:30,400

and

2779

01:56:37,589 --> 01:56:35,840

your brain to melt

2780

01:56:39,750 --> 01:56:37,599

in that

2781

01:56:41,669 --> 01:56:39,760

when you listen to he does he does an

2782

01:56:43,830 --> 01:56:41,679

explanation of oatmeal or something

2783

01:56:46,790 --> 01:56:43,840

falling out of a bowl and breaking on

2784

01:56:49,189 --> 01:56:46,800

the floor and that one day the you'll

2785

01:56:50,870 --> 01:56:49,199

knock the oatmeal off of the counter and

2786

01:56:52,390 --> 01:56:50,880

it's going to fit and shatter on the

2787

01:56:54,950 --> 01:56:52,400

floor and then it's going to gather

2788

01:56:57,750 --> 01:56:54,960

itself back up adam by adam and come

2789

01:57:00,149 --> 01:56:57,760

back up into your hand and move in the

2790

01:57:02,550 --> 01:57:00,159

opposite direction now he says he goes

2791

01:57:04,709 --> 01:57:02,560

now um

2792

01:57:07,510 --> 01:57:04,719

probably won't happen

2793

01:57:09,109 --> 01:57:07,520

but it could happen and if you wait long

2794

01:57:11,589 --> 01:57:09,119

enough

2795

01:57:13,430 --> 01:57:11,599

it probably will right now and it just

2796

01:57:16,390 --> 01:57:13,440

causes your brain

2797

01:57:18,950 --> 01:57:16,400

to uh to to go into meltdown that it's

2798

01:57:20,310 --> 01:57:18,960

just a numbers game and it also it also

2799

01:57:21,830 --> 01:57:20,320

gives you an insight onto the true

2800

01:57:23,589 --> 01:57:21,840

nature of reality

2801

01:57:26,149 --> 01:57:23,599

and that it's not really what we

2802

01:57:28,870 --> 01:57:26,159

experience in our day-to-day lives it's

2803

01:57:30,709 --> 01:57:28,880

weirder than that you know and it's it's

2804

01:57:32,950 --> 01:57:30,719

just weird on its own

2805

01:57:34,790 --> 01:57:32,960

and there are other other parts of

2806

01:57:36,709 --> 01:57:34,800

physics like the the

2807

01:57:39,270 --> 01:57:36,719

well the double slit experiment you know

2808

01:57:42,629 --> 01:57:39,280

the observer problem where you you

2809

01:57:44,470 --> 01:57:42,639

apparently need a a conscious observer

2810

01:57:45,750 --> 01:57:44,480

to collapse something's wave function

2811

01:57:46,709 --> 01:57:45,760

although some people dispute that of

2812

01:57:49,030 --> 01:57:46,719

course

2813

01:57:50,470 --> 01:57:49,040

um but

2814

01:57:52,149 --> 01:57:50,480

you have to

2815

01:57:53,910 --> 01:57:52,159

observe something in order for it to

2816

01:57:55,430 --> 01:57:53,920

happen for its wave function to collapse

2817

01:57:56,950 --> 01:57:55,440

and then people have asked the question

2818

01:57:59,510 --> 01:57:56,960

well does the universe have a wave

2819

01:58:02,149 --> 01:57:59,520

function to collapse and if it does

2820

01:58:03,990 --> 01:58:02,159

what's collapsing it us

2821

01:58:05,350 --> 01:58:04,000

is it is it human consciousness and

2822

01:58:07,669 --> 01:58:05,360

those questions have been asked nobody

2823

01:58:08,790 --> 01:58:07,679

knows the answers but it's interesting

2824

01:58:12,229 --> 01:58:08,800

you know

2825

01:58:14,390 --> 01:58:12,239

science is full of science is full of

2826

01:58:15,669 --> 01:58:14,400

really weird stuff

2827

01:58:17,109 --> 01:58:15,679

that

2828

01:58:18,790 --> 01:58:17,119

can actually be

2829

01:58:20,950 --> 01:58:18,800

legitimately

2830

01:58:23,510 --> 01:58:20,960

tested and proven and shown and you know

2831

01:58:26,149 --> 01:58:23,520

suggested and hypothesized and all that

2832

01:58:27,990 --> 01:58:26,159

it is chock full of it and it's not that

2833

01:58:29,910 --> 01:58:28,000

well known as opposed to things like the

2834

01:58:31,510 --> 01:58:29,920

paranormal and stuff like that that you

2835

01:58:33,510 --> 01:58:31,520

you know is a different sort of thing

2836

01:58:36,550 --> 01:58:33,520

and but science is every bit as weird as

2837

01:58:37,830 --> 01:58:36,560

everything else it is and and so here's

2838

01:58:40,470 --> 01:58:37,840

the thing

2839

01:58:42,709 --> 01:58:40,480

when we talk about observation in in

2840

01:58:45,589 --> 01:58:42,719

measurement right we just just stop

2841

01:58:46,470 --> 01:58:45,599

right there two simple concepts right

2842

01:58:50,229 --> 01:58:46,480

but

2843

01:58:53,510 --> 01:58:50,239

if we are observing if things change

2844

01:58:57,030 --> 01:58:53,520

when they are observed which is

2845

01:58:58,310 --> 01:58:57,040

what physics is telling us is the nature

2846

01:59:01,990 --> 01:58:58,320

of everything

2847

01:59:03,350 --> 01:59:02,000

then are we changing the universe by

2848

01:59:06,550 --> 01:59:03,360

observing it

2849

01:59:08,790 --> 01:59:06,560

and and the collapsing of their

2850

01:59:09,910 --> 01:59:08,800

and not only that but the entanglement

2851
01:59:12,870 --> 01:59:09,920
nature

2852
01:59:15,669 --> 01:59:12,880
and and the locality of things

2853
01:59:18,950 --> 01:59:15,679
by just observing it are we actually

2854
01:59:21,589 --> 01:59:18,960
changing our own reality by just looking

2855
01:59:23,669 --> 01:59:21,599
at it and attempting to measure it well

2856
01:59:25,669 --> 01:59:23,679
that's the problem because the double

2857
01:59:27,510 --> 01:59:25,679
slit experiment is completely repeatable

2858
01:59:29,109 --> 01:59:27,520
we've been doing it for years and what

2859
01:59:31,669 --> 01:59:29,119
happens in this experiment is you take a

2860
01:59:34,790 --> 01:59:31,679
laser and you run it through

2861
01:59:36,870 --> 01:59:34,800
some paper slits double slits and

2862
01:59:38,149 --> 01:59:36,880
you'll see on the other side

2863
01:59:39,830 --> 01:59:38,159

um

2864

01:59:41,669 --> 01:59:39,840

you'll see an interference pattern you

2865

01:59:43,669 --> 01:59:41,679

know from the laser

2866

01:59:45,350 --> 01:59:43,679

unless you look directly at it and then

2867

01:59:46,470 --> 01:59:45,360

all of a sudden it shrinks down to two

2868

01:59:49,270 --> 01:59:46,480

slits

2869

01:59:51,030 --> 01:59:49,280

so the double slit experiment shows that

2870

01:59:53,589 --> 01:59:51,040

light behaves

2871

01:59:55,189 --> 01:59:53,599

as a wave if you're not measuring it but

2872

01:59:58,470 --> 01:59:55,199

if you're looking at it it behaves like

2873

02:00:00,870 --> 01:59:58,480

a particle it reduces down boom you know

2874

02:00:02,950 --> 02:00:00,880

so it instead of going like say you're

2875

02:00:04,550 --> 02:00:02,960

on a dock and you see the ocean you know

2876
02:00:06,149 --> 02:00:04,560
and the ocean will go through and create

2877
02:00:07,910 --> 02:00:06,159
interference patterns because of the

2878
02:00:10,310 --> 02:00:07,920
waves waves

2879
02:00:11,990 --> 02:00:10,320
waves

2880
02:00:13,669 --> 02:00:12,000
yeah right then you then you look down

2881
02:00:16,310 --> 02:00:13,679
at the ocean and it suddenly becomes a

2882
02:00:18,950 --> 02:00:16,320
piece of ice moving one direction

2883
02:00:20,709 --> 02:00:18,960
and that that happens under observation

2884
02:00:22,709 --> 02:00:20,719
in that experiment

2885
02:00:24,310 --> 02:00:22,719
so if you apply that to the universe is

2886
02:00:25,270 --> 02:00:24,320
the universe there if you're not looking

2887
02:00:27,830 --> 02:00:25,280
at it

2888
02:00:30,070 --> 02:00:27,840

maybe not

2889

02:00:34,470 --> 02:00:30,080

exactly

2890

02:00:37,030 --> 02:00:34,480

um

2891

02:00:40,470 --> 02:00:37,040

uh i just i wanted to post this up this

2892

02:00:42,470 --> 02:00:40,480

went down about 500 comments ago jmg is

2893

02:00:44,870 --> 02:00:42,480

the best he has the best takes on the

2894

02:00:48,470 --> 02:00:44,880

fermi paradox no he doesn't i do

2895

02:00:49,830 --> 02:00:48,480

but uh and all the spooky space stuff

2896

02:00:51,109 --> 02:00:49,840

which applies to what we're talking

2897

02:00:54,470 --> 02:00:51,119

about right now

2898

02:00:56,470 --> 02:00:54,480

and uh now let's uh i i got to squeeze a

2899

02:00:58,790 --> 02:00:56,480

break in uh here john so let's go ahead

2900

02:01:01,109 --> 02:00:58,800

and do that and when we come back i do

2901

02:01:03,830 --> 02:01:01,119

want to swing back uh to the

2902

02:01:06,550 --> 02:01:03,840

to the james webb uh because there is a

2903

02:01:07,510 --> 02:01:06,560

difference believe it or not uh for

2904

02:01:10,310 --> 02:01:07,520

between

2905

02:01:13,350 --> 02:01:10,320

infrared and and full spectrum and and

2906

02:01:15,990 --> 02:01:13,360

what is that and and and how is

2907

02:01:17,830 --> 02:01:16,000

the james webb not only uh able to do

2908

02:01:20,950 --> 02:01:17,840

this but what's the difference in and

2909

02:01:22,550 --> 02:01:20,960

what is actually being observed and

2910

02:01:24,229 --> 02:01:22,560

we'll do all of that when we come back

2911

02:01:26,470 --> 02:01:24,239

after this short break this is fade to

2912

02:01:27,990 --> 02:01:26,480

black i am your host jimmy church stay

2913

02:01:30,310 --> 02:01:28,000

with us

2914

02:01:32,229 --> 02:01:30,320

john michael gautier event horizon is

2915

02:01:33,990 --> 02:01:32,239

with us tonight

2916

02:01:35,990 --> 02:01:34,000

i've got a ton of images and we're going

2917

02:01:37,589 --> 02:01:36,000

to go through those too as well how is

2918

02:01:39,240 --> 02:01:37,599

it happening well he's gonna tell us

2919

02:01:46,870 --> 02:01:39,250

when we come back stay with us

2920

02:01:57,910 --> 02:01:46,880

[Music]

2921

02:02:01,350 --> 02:01:57,920

your 1 million gigawatt paranormal

2922

02:02:03,109 --> 02:02:01,360

powerhouse kumx db

2923

02:02:05,189 --> 02:02:03,119

the x

2924

02:02:07,990 --> 02:02:05,199

right now the world couldn't be more

2925

02:02:10,790 --> 02:02:08,000

chaotic history shows us what gold does

2926
02:02:13,270 --> 02:02:10,800
when the world goes crazy it goes up in

2927
02:02:15,750 --> 02:02:13,280
value right now we're in unprecedented

2928
02:02:18,390 --> 02:02:15,760
times the pandemic the war in ukraine

2929
02:02:20,550 --> 02:02:18,400
the evaluation of the us dollar

2930
02:02:22,390 --> 02:02:20,560
gold and other precious metals are a

2931
02:02:25,109 --> 02:02:22,400
defense measure against the hyper

2932
02:02:27,669 --> 02:02:25,119
inflation that's happening right now so

2933
02:02:29,910 --> 02:02:27,679
what can you do to protect yourself call

2934
02:02:32,149 --> 02:02:29,920
my friend alan johnson at united gold

2935
02:02:34,229 --> 02:02:32,159
group he's dedicated to helping people

2936
02:02:36,709 --> 02:02:34,239
secure their retirement income he'll

2937
02:02:38,790 --> 02:02:36,719
help you with gold with silver and other

2938
02:02:42,149 --> 02:02:38,800

precious metals and show you how to set

2939

02:02:44,550 --> 02:02:42,159

up your own self-directed ira safe and

2940

02:02:46,709 --> 02:02:44,560

secure united gold group makes gold

2941

02:02:49,270 --> 02:02:46,719

ownership easy and affordable there

2942

02:02:51,430 --> 02:02:49,280

couldn't be a better time so call now

2943

02:02:54,070 --> 02:02:51,440

and get a silver american eagle proof

2944

02:03:01,430 --> 02:02:54,080

set with a qualified ira call

2945

02:03:05,430 --> 02:03:03,149

or visit

2946

02:03:09,109 --> 02:03:05,440

unitedgoldgroup.com reach out to my

2947

02:03:13,510 --> 02:03:11,109

the believer is the chilling true story

2948

02:03:15,750 --> 02:03:13,520

of dr john mack a renowned harvard

2949

02:03:18,310 --> 02:03:15,760

psychiatrist and pulitzer prize winner

2950

02:03:21,030 --> 02:03:18,320

this is a outreach program from the

2951
02:03:23,430 --> 02:03:21,040
cosmos to the consciously impaired he

2952
02:03:25,189 --> 02:03:23,440
risked it all to investigate human

2953
02:03:26,390 --> 02:03:25,199
encounters with aelia

2954
02:03:29,030 --> 02:03:26,400
the believer

2955
02:03:31,270 --> 02:03:29,040
alien encounters hard science and the

2956
02:03:33,189 --> 02:03:31,280
passion of john mack written by

2957
02:03:35,510 --> 02:03:33,199
award-winning former new york times

2958
02:03:37,510 --> 02:03:35,520
journalist and author ralph blumenthal

2959
02:03:39,669 --> 02:03:37,520
now available in paperback from high

2960
02:03:41,350 --> 02:03:39,679
road books

2961
02:03:43,990 --> 02:03:41,360
are you ready to read about true

2962
02:03:46,790 --> 02:03:44,000
paranormal events unex media publishes

2963
02:03:49,189 --> 02:03:46,800

non-fiction books about ufos ghosts and

2964

02:03:52,470 --> 02:03:49,199

haunted places time anomalies cryptid

2965

02:03:54,629 --> 02:03:52,480

creatures and more just like kunx db

2966

02:03:57,629 --> 02:03:54,639

radio it's all about unexplained

2967

02:03:59,589 --> 02:03:57,639

phenomena visit

2968

02:04:01,830 --> 02:03:59,599

www.unxmedia.com to see our list of

2969

02:04:04,390 --> 02:04:01,840

great book titles by debbie zigglemeyer

2970

02:04:07,030 --> 02:04:04,400

gene walker devin listrom wayne lawrence

2971

02:04:10,310 --> 02:04:07,040

bill spicer and yours truly margie k

2972

02:04:12,069 --> 02:04:10,320

that's on xmedia.com

2973

02:04:15,510 --> 02:04:12,079

this is jimmy church of fade to black

2974

02:04:18,629 --> 02:04:15,520

and i only drink fade to black blend

2975

02:04:20,310 --> 02:04:18,639

coffee from river moon just click on the

2976

02:04:21,990 --> 02:04:20,320

river moon coffee banner at

2977

02:04:26,069 --> 02:04:22,000

jimmychurchradio.com

2978

02:04:28,709 --> 02:04:26,079

promo code f2b blend

2979

02:04:31,510 --> 02:04:28,719

this is the only way forward

2980

02:04:33,990 --> 02:04:31,520

this is aid to black

2981

02:04:37,430 --> 02:04:34,000

make contact

2982

02:04:39,750 --> 02:04:37,440

join us august 5th through the 7th 2022

2983

02:04:42,229 --> 02:04:39,760

at the drury conference center in cape

2984

02:04:44,709 --> 02:04:42,239

girardeau missouri for the launch of the

2985

02:04:47,669 --> 02:04:44,719

midwest conference on the unknown there

2986

02:04:50,149 --> 02:04:47,679

are three interactive days packed with

2987

02:04:52,629 --> 02:04:50,159

vendors exhibitors and nationally

2988

02:04:56,229 --> 02:04:52,639

recognized researchers presenting on

2989

02:04:58,950 --> 02:04:56,239

unknown topics like ufo uap phenomenon

2990

02:05:02,310 --> 02:04:58,960

ghosts and bigfoot and missouri's own

2991

02:05:04,390 --> 02:05:02,320

momo the missouri monster cape girardo

2992

02:05:08,550 --> 02:05:04,400

has long been one of the most sought out

2993

02:05:11,669 --> 02:05:08,560

areas for ufo enthusiasts since the 1941

2994

02:05:14,149 --> 02:05:11,679

ufo crash and now is your chance to be a

2995

02:05:15,310 --> 02:05:14,159

part of the inaugural conference visit

2996

02:05:18,550 --> 02:05:15,320

cape

2997

02:05:21,030 --> 02:05:18,560

events.com or follow us on facebook at

2998

02:05:24,149 --> 02:05:21,040

midwest conference on the unknown for

2999

02:05:27,750 --> 02:05:24,159

more information ex-listeners get 30

3000

02:05:29,390 --> 02:05:27,760

off by using the promo code xvip

3001
02:05:33,700 --> 02:05:29,400
that's cape

3002
02:05:36,149 --> 02:05:33,710
events.com promo code xvip

3003
02:05:38,229 --> 02:05:36,159
[Music]

3004
02:05:40,870 --> 02:05:38,239
when you take the beans from central

3005
02:05:43,350 --> 02:05:40,880
america with dashes of indonesian and

3006
02:05:46,470 --> 02:05:43,360
african mixed in and then roasted to the

3007
02:05:49,030 --> 02:05:46,480
dark side of fate to black you create

3008
02:05:51,910 --> 02:05:49,040
the ultimate brew of fringe

3009
02:05:55,189 --> 02:05:51,920
introducing the fade to black blend from

3010
02:05:58,069 --> 02:05:55,199
river moon coffee yes river moon's

3011
02:06:00,870 --> 02:05:58,079
darkest customized roast was created for

3012
02:06:03,430 --> 02:06:00,880
the love of fade to black

3013
02:06:06,069 --> 02:06:03,440

the alchemy of masterful roasting and

3014

02:06:09,589 --> 02:06:06,079

smoking the beans is in every sip of

3015

02:06:11,030 --> 02:06:09,599

this full-bodied dark java i need my

3016

02:06:13,589 --> 02:06:11,040

coffee doc

3017

02:06:16,629 --> 02:06:13,599

deep with distinct bittersweet chocolate

3018

02:06:19,109 --> 02:06:16,639

highlights just like the bunker leaning

3019

02:06:21,750 --> 02:06:19,119

further into the darkness of the roast

3020

02:06:24,430 --> 02:06:21,760

is fade to black blend from river moon

3021

02:06:26,390 --> 02:06:24,440

coffee just click on the banner at

3022

02:06:30,149 --> 02:06:26,400

jimmychurchradio.com and use the promo

3023

02:06:40,470 --> 02:06:30,159

code f2b blend for 15 off of your order

3024

02:06:46,069 --> 02:06:42,310

you want to know a secret

3025

02:06:47,430 --> 02:06:46,079

i love police i really love ponies i'm

3026

02:06:49,669 --> 02:06:47,440

serious

3027

02:06:51,030 --> 02:06:49,679

i couldn't stay sane without pawn mr

3028

02:06:53,109 --> 02:06:51,040

brush

3029

02:06:59,589 --> 02:06:53,119

why fade to black

3030

02:07:05,720 --> 02:07:01,750

this is fade to black with jimmy church

3031

02:07:18,390 --> 02:07:05,730

on the game changer radio network

3032

02:07:22,069 --> 02:07:20,069

welcome back fade to black i am your

3033

02:07:25,430 --> 02:07:22,079

host jimmy church tonight john michael

3034

02:07:26,709 --> 02:07:25,440

godier event horizon is with us

3035

02:07:27,669 --> 02:07:26,719

and uh

3036

02:07:30,709 --> 02:07:27,679

now

3037

02:07:35,189 --> 02:07:30,719

i i i just want to get straight back uh

3038

02:07:38,149 --> 02:07:35,199

uh into it if i can jmg which is is is

3039

02:07:40,229 --> 02:07:38,159

this and we're gonna i've got images oh

3040

02:07:42,149 --> 02:07:40,239

okay look everybody look i'm just gonna

3041

02:07:47,510 --> 02:07:42,159

i'm gonna pop this up we'll talk about

3042

02:07:51,750 --> 02:07:49,669

eventually

3043

02:07:53,350 --> 02:07:51,760

could be a trillion years could be two

3044

02:07:56,310 --> 02:07:53,360

trillion years

3045

02:07:58,390 --> 02:07:56,320

but eventually

3046

02:08:00,069 --> 02:07:58,400

the glue

3047

02:08:03,030 --> 02:08:00,079

and the energy

3048

02:08:06,069 --> 02:08:03,040

that keeps particles together

3049

02:08:11,910 --> 02:08:09,109

right the

3050

02:08:13,669 --> 02:08:11,920

we would right we could be on a colony

3051

02:08:15,830 --> 02:08:13,679

spaceship to a trillion years now

3052

02:08:16,950 --> 02:08:15,840

cruising and it just dissolves into

3053

02:08:19,589 --> 02:08:16,960

nothing

3054

02:08:21,030 --> 02:08:19,599

and and eventually

3055

02:08:23,189 --> 02:08:21,040

you know

3056

02:08:25,669 --> 02:08:23,199

the the energy that we

3057

02:08:27,430 --> 02:08:25,679

we think lasts forever technically isn't

3058

02:08:29,750 --> 02:08:27,440

forever is it

3059

02:08:31,669 --> 02:08:29,760

well the question the question is is at

3060

02:08:33,750 --> 02:08:31,679

what level do you want to go because

3061

02:08:35,990 --> 02:08:33,760

the real question is does the proton

3062

02:08:37,510 --> 02:08:36,000

eventually decay that's right there's

3063

02:08:39,270 --> 02:08:37,520

some people that say it does some people

3064

02:08:41,830 --> 02:08:39,280

that say they don't but the actual

3065

02:08:44,069 --> 02:08:41,840

energy the constituents of the proton we

3066

02:08:45,990 --> 02:08:44,079

don't we don't know you know what do the

3067

02:08:46,950 --> 02:08:46,000

quarks do after the you know what

3068

02:08:47,990 --> 02:08:46,960

happens

3069

02:08:49,669 --> 02:08:48,000

so

3070

02:08:52,069 --> 02:08:49,679

every everything does seem to decay

3071

02:08:53,109 --> 02:08:52,079

though i mean even black holes evaporate

3072

02:08:54,790 --> 02:08:53,119

you know

3073

02:08:57,910 --> 02:08:54,800

um but

3074

02:08:59,990 --> 02:08:57,920

it all hinges on that question really uh

3075

02:09:02,310 --> 02:09:00,000

as far as the cohesion of the the far

3076

02:09:05,189 --> 02:09:02,320

universe far future universe

3077

02:09:06,470 --> 02:09:05,199

is if the proton decays or not and we

3078

02:09:09,830 --> 02:09:06,480

don't know

3079

02:09:12,149 --> 02:09:09,840

well okay and and this is

3080

02:09:13,990 --> 02:09:12,159

and it's crazy that we're talking about

3081

02:09:17,430 --> 02:09:14,000

you know potentially trillions and

3082

02:09:20,550 --> 02:09:17,440

trillions of years you know when our uh

3083

02:09:22,229 --> 02:09:20,560

universe is 13.8 billion years old we're

3084

02:09:23,910 --> 02:09:22,239

talking about trillions of years in the

3085

02:09:26,870 --> 02:09:23,920

future that's a long time it's a

3086

02:09:29,669 --> 02:09:26,880

constant numbers those are zeros those

3087

02:09:30,790 --> 02:09:29,679

are digits that we cannot wrap our our

3088

02:09:33,270 --> 02:09:30,800

head around

3089

02:09:35,109 --> 02:09:33,280

uh that that length of time but the

3090

02:09:35,990 --> 02:09:35,119

point is simple

3091

02:09:42,950 --> 02:09:36,000

we

3092

02:09:45,189 --> 02:09:42,960

right so that energy is transferred into

3093

02:09:47,910 --> 02:09:45,199

our body it's from a star some distant

3094

02:09:50,870 --> 02:09:47,920

star gave up its life you know so it

3095

02:09:53,669 --> 02:09:50,880

could be wheat and corn and whatever

3096

02:09:55,270 --> 02:09:53,679

protein for us to eat and and that's

3097

02:09:58,709 --> 02:09:55,280

what we do

3098

02:10:01,109 --> 02:09:58,719

but to have energy

3099

02:10:03,430 --> 02:10:01,119

where does the energy come from for a

3100

02:10:05,430 --> 02:10:03,440

particle to hold itself together

3101
02:10:08,470 --> 02:10:05,440
that's that's the thing and how can that

3102
02:10:10,390 --> 02:10:08,480
energy just last for trillions of years

3103
02:10:12,950 --> 02:10:10,400
i i i don't get that

3104
02:10:15,990 --> 02:10:12,960
they're not eating food right

3105
02:10:17,750 --> 02:10:16,000
so it would eventually i guess it would

3106
02:10:20,390 --> 02:10:17,760
have to end

3107
02:10:23,030 --> 02:10:20,400
well that gets into the

3108
02:10:24,629 --> 02:10:23,040
the question of entropy right

3109
02:10:26,950 --> 02:10:24,639
and that

3110
02:10:28,550 --> 02:10:26,960
order gets increasingly disordered and

3111
02:10:29,830 --> 02:10:28,560
it's a rule you know

3112
02:10:33,189 --> 02:10:29,840
um

3113
02:10:35,830 --> 02:10:33,199

it's a law it's a law but really

3114

02:10:37,589 --> 02:10:35,840

energy and matter are the same thing you

3115

02:10:40,229 --> 02:10:37,599

know matter you could you could say is

3116

02:10:41,430 --> 02:10:40,239

condensed energy you know

3117

02:10:44,709 --> 02:10:41,440

and

3118

02:10:46,870 --> 02:10:44,719

can't destroy it i mean it's just it's

3119

02:10:49,430 --> 02:10:46,880

just there it's it's been there since

3120

02:10:50,390 --> 02:10:49,440

the uh the big bang so you're just doing

3121

02:10:51,830 --> 02:10:50,400

things

3122

02:10:53,990 --> 02:10:51,840

you know um

3123

02:10:55,990 --> 02:10:54,000

little tricks of entropy to to liberate

3124

02:10:58,310 --> 02:10:56,000

energy from you know certain things

3125

02:11:00,950 --> 02:10:58,320

chemical processes things like that

3126

02:11:02,069 --> 02:11:00,960

so it's all it all goes back to that

3127

02:11:03,830 --> 02:11:02,079

that

3128

02:11:05,189 --> 02:11:03,840

residual energy but the real the real

3129

02:11:06,790 --> 02:11:05,199

mystery is

3130

02:11:08,390 --> 02:11:06,800

okay well we understand that part of

3131

02:11:10,229 --> 02:11:08,400

energy and we use it

3132

02:11:11,830 --> 02:11:10,239

but what what is driving the expansion

3133

02:11:14,390 --> 02:11:11,840

of the universe and causing it to

3134

02:11:16,310 --> 02:11:14,400

accelerate it's getting faster

3135

02:11:18,229 --> 02:11:16,320

which is really mystifying

3136

02:11:20,709 --> 02:11:18,239

what energy is being applied to

3137

02:11:21,990 --> 02:11:20,719

space-time which is this is dark energy

3138

02:11:25,510 --> 02:11:22,000

that it's termed

3139

02:11:28,149 --> 02:11:25,520

that that's doing that and could we ever

3140

02:11:30,870 --> 02:11:28,159

make use of that so there's some other

3141

02:11:34,310 --> 02:11:30,880

form of energy in this universe driving

3142

02:11:36,229 --> 02:11:34,320

the expansion of space time that is a

3143

02:11:37,270 --> 02:11:36,239

complete unknown to us a complete

3144

02:11:40,310 --> 02:11:37,280

mystery

3145

02:11:43,270 --> 02:11:40,320

and the the other part uh to that which

3146

02:11:44,149 --> 02:11:43,280

is to me the most uh

3147

02:11:46,069 --> 02:11:44,159

uh

3148

02:11:47,910 --> 02:11:46,079

fascinating it's all fascinating but one

3149

02:11:49,109 --> 02:11:47,920

of the most fascinating aspects of all

3150

02:11:50,830 --> 02:11:49,119

of this

3151
02:11:53,910 --> 02:11:50,840
is that

3152
02:11:57,189 --> 02:11:53,920
uh relative to us

3153
02:12:00,870 --> 02:11:57,199
the expansion of the universe at at one

3154
02:12:03,830 --> 02:12:00,880
point is is ftl it's faster than light

3155
02:12:07,189 --> 02:12:03,840
so if if that is the case but it's the

3156
02:12:10,470 --> 02:12:07,199
space itself in between these objects

3157
02:12:13,750 --> 02:12:10,480
that is doing the expansion

3158
02:12:15,910 --> 02:12:13,760
it's if if we were next to

3159
02:12:17,430 --> 02:12:15,920
one of those galaxies that is at the

3160
02:12:19,510 --> 02:12:17,440
speed of light

3161
02:12:22,149 --> 02:12:19,520
it's not that we are traveling at the

3162
02:12:25,589 --> 02:12:22,159
speed of light we are with space

3163
02:12:27,990 --> 02:12:25,599

that is expanding at the speed of light

3164

02:12:29,510 --> 02:12:28,000

okay that okay so we're uh everything is

3165

02:12:30,709 --> 02:12:29,520

relative it's only because of our

3166

02:12:32,550 --> 02:12:30,719

position

3167

02:12:34,790 --> 02:12:32,560

but here is

3168

02:12:35,830 --> 02:12:34,800

if that is a crazy enough right to think

3169

02:12:37,910 --> 02:12:35,840

about

3170

02:12:39,669 --> 02:12:37,920

it's how much

3171

02:12:42,709 --> 02:12:39,679

falls off

3172

02:12:44,390 --> 02:12:42,719

the event horizon right how much of it i

3173

02:12:48,550 --> 02:12:44,400

did that for you you like that i did

3174

02:12:51,510 --> 02:12:48,560

that for you i did that for you how much

3175

02:12:53,189 --> 02:12:51,520

and we will never know

3176

02:12:55,430 --> 02:12:53,199

absolutely

3177

02:12:57,109 --> 02:12:55,440

never there's no way to find out we

3178

02:12:59,669 --> 02:12:57,119

can't ever know how big the universe is

3179

02:13:01,510 --> 02:12:59,679

um all we can do is just infer

3180

02:13:03,990 --> 02:13:01,520

based on its geometry if we can figure

3181

02:13:06,550 --> 02:13:04,000

it out that you know if you could figure

3182

02:13:08,950 --> 02:13:06,560

out the actual geometry see

3183

02:13:10,870 --> 02:13:08,960

infinite universe is only one there are

3184

02:13:12,709 --> 02:13:10,880

two others that i know that are possible

3185

02:13:14,470 --> 02:13:12,719

geometries for the universe that would

3186

02:13:15,510 --> 02:13:14,480

account for what we see

3187

02:13:17,189 --> 02:13:15,520

and

3188

02:13:18,629 --> 02:13:17,199

in that event you might be able to work

3189

02:13:20,149 --> 02:13:18,639

out if you can figure out if it's one of

3190

02:13:22,950 --> 02:13:20,159

those two other geometries that's not

3191

02:13:24,629 --> 02:13:22,960

infinite you could figure out maybe work

3192

02:13:27,830 --> 02:13:24,639

out how big the universe actually is

3193

02:13:29,430 --> 02:13:27,840

outside of the observable universe um

3194

02:13:31,830 --> 02:13:29,440

but that's as far as you can get we may

3195

02:13:34,550 --> 02:13:31,840

never we may never get that far that's

3196

02:13:37,109 --> 02:13:34,560

the universe does not guarantee that us

3197

02:13:40,229 --> 02:13:37,119

humans can know everything about it

3198

02:13:41,589 --> 02:13:40,239

it uh it does what it wants

3199

02:13:43,750 --> 02:13:41,599

the uh

3200

02:13:46,470 --> 02:13:43,760

let's get to these images i'm looking at

3201

02:13:48,229 --> 02:13:46,480

the clock and uh

3202

02:13:49,750 --> 02:13:48,239

let's go here we were talking about

3203

02:13:51,910 --> 02:13:49,760

before the break uh the difference

3204

02:13:56,149 --> 02:13:51,920

between infrared and full spectrum

3205

02:13:59,270 --> 02:13:56,159

um so this image here obviously infrared

3206

02:14:03,350 --> 02:13:59,280

uh if if we were looking at this image

3207

02:14:05,589 --> 02:14:03,360

with a ground base uh analog if you will

3208

02:14:08,709 --> 02:14:05,599

right uh telescope

3209

02:14:11,589 --> 02:14:08,719

this is this isn't what we would see

3210

02:14:13,750 --> 02:14:11,599

you would see something similar to it

3211

02:14:15,910 --> 02:14:13,760

but at lower resolution

3212

02:14:18,629 --> 02:14:15,920

and if you would you would see different

3213

02:14:21,270 --> 02:14:18,639

details in visible light but the

3214

02:14:24,229 --> 02:14:21,280

advantage to infrared is that

3215

02:14:26,149 --> 02:14:24,239

in visible light dust can block you know

3216

02:14:27,350 --> 02:14:26,159

block out light pretty efficiently

3217

02:14:28,870 --> 02:14:27,360

obviously

3218

02:14:31,910 --> 02:14:28,880

and in infrared

3219

02:14:33,669 --> 02:14:31,920

less so you know so you can see stuff uh

3220

02:14:34,629 --> 02:14:33,679

that dust would obscure you know what i

3221

02:14:36,709 --> 02:14:34,639

mean

3222

02:14:39,030 --> 02:14:36,719

and in the case of that that nebula

3223

02:14:41,990 --> 02:14:39,040

there the southern ring nebula

3224

02:14:44,709 --> 02:14:42,000

it has a lot of dust going on gas and

3225

02:14:46,069 --> 02:14:44,719

dust and by use looking at an infrared

3226

02:14:49,030 --> 02:14:46,079

you can see details that you would not

3227

02:14:50,709 --> 02:14:49,040

see in visible light and gain more and

3228

02:14:54,709 --> 02:14:50,719

the best example of that is one of the

3229

02:14:57,910 --> 02:14:54,719

images uh that that webb took of that

3230

02:14:59,430 --> 02:14:57,920

nebula actually showed the remnant star

3231

02:15:01,589 --> 02:14:59,440

in there then we'd never seen that

3232

02:15:03,910 --> 02:15:01,599

before so that was uh that was something

3233

02:15:05,270 --> 02:15:03,920

first imaged by jwst

3234

02:15:06,870 --> 02:15:05,280

um

3235

02:15:08,790 --> 02:15:06,880

and what happened here is if you look

3236

02:15:11,510 --> 02:15:08,800

carefully this is it looks like a bubble

3237

02:15:13,669 --> 02:15:11,520

around that you know around a point

3238

02:15:15,030 --> 02:15:13,679

which is not i don't think that's

3239

02:15:16,790 --> 02:15:15,040

actually the central star that you see

3240

02:15:18,790 --> 02:15:16,800

there but it's close enough

3241

02:15:20,870 --> 02:15:18,800

what happened was a star exploded it was

3242

02:15:23,510 --> 02:15:20,880

a supernova and it threw off this big

3243

02:15:25,750 --> 02:15:23,520

shell of gas and dust into space and

3244

02:15:28,069 --> 02:15:25,760

that's that's what you're seeing and if

3245

02:15:29,830 --> 02:15:28,079

you look carefully in in the actual

3246

02:15:31,830 --> 02:15:29,840

image itself you'll see weird stuff like

3247

02:15:33,270 --> 02:15:31,840

light echoes and all kinds of things you

3248

02:15:34,709 --> 02:15:33,280

know shock waves and all this stuff

3249

02:15:36,470 --> 02:15:34,719

moving through it

3250

02:15:37,910 --> 02:15:36,480

and that's what the scientists want to

3251

02:15:39,990 --> 02:15:37,920

do is they want to if you want to

3252

02:15:41,589 --> 02:15:40,000

understand the dynamics of a supernova

3253

02:15:43,430 --> 02:15:41,599

that's what you look at but it also

3254

02:15:45,030 --> 02:15:43,440

makes for a very pretty picture and this

3255

02:15:47,270 --> 02:15:45,040

was one of the first chosen because it

3256

02:15:49,350 --> 02:15:47,280

was it was pretty and and they wanted to

3257

02:15:51,030 --> 02:15:49,360

show the public the taxpayers of

3258

02:15:53,990 --> 02:15:51,040

multiple countries

3259

02:15:55,990 --> 02:15:54,000

that this telescope performs and

3260

02:15:57,270 --> 02:15:56,000

that that's what those images really

3261

02:15:59,510 --> 02:15:57,280

were for but

3262

02:16:00,629 --> 02:15:59,520

within days papers were already coming

3263

02:16:03,510 --> 02:16:00,639

out

3264

02:16:05,830 --> 02:16:03,520

on the in preprint form on

3265

02:16:07,830 --> 02:16:05,840

these images so scientists were noticing

3266

02:16:09,750 --> 02:16:07,840

things you know and writing papers on

3267

02:16:13,350 --> 02:16:09,760

them and just just from the first few

3268

02:16:20,229 --> 02:16:16,830

this um this was released

3269

02:16:22,709 --> 02:16:20,239

uh within the last week right

3270

02:16:25,189 --> 02:16:22,719

a couple days ago

3271

02:16:27,350 --> 02:16:25,199

um and that is the uh the cartwheel

3272

02:16:28,709 --> 02:16:27,360

galaxy and what i find interesting about

3273

02:16:31,189 --> 02:16:28,719

this is not necessarily the big

3274

02:16:33,589 --> 02:16:31,199

cartwheel galaxy itself but these two on

3275

02:16:35,910 --> 02:16:33,599

either side of it two white galaxies

3276

02:16:37,429 --> 02:16:35,920

little spirals and that just goes to

3277

02:16:39,190 --> 02:16:37,439

show you how how

3278

02:16:41,990 --> 02:16:39,200

how every galaxy is different they're

3279

02:16:43,110 --> 02:16:42,000

like fingerprints everyone is different

3280

02:16:45,190 --> 02:16:43,120

and

3281

02:16:48,709 --> 02:16:45,200

every speck of light that you're seeing

3282

02:16:50,469 --> 02:16:48,719

here is just another galaxy every single

3283

02:16:52,150 --> 02:16:50,479

one every single one and each one of

3284

02:16:55,509 --> 02:16:52,160

them contains

3285

02:16:59,030 --> 02:16:55,519

hundreds of billions of suns i love it i

3286

02:17:02,389 --> 02:16:59,040

absolutely love it now again um

3287

02:17:04,549 --> 02:17:02,399

uh because this is infrared um

3288

02:17:06,950 --> 02:17:04,559

with uh the conventional

3289

02:17:10,150 --> 02:17:06,960

uh ground-based telescopes

3290

02:17:11,349 --> 02:17:10,160

uh how how much is it is it just detail

3291

02:17:13,669 --> 02:17:11,359

or

3292

02:17:14,549 --> 02:17:13,679

would this look completely different to

3293

02:17:22,070 --> 02:17:14,559

us

3294

02:17:24,150 --> 02:17:22,080

it in a different spectrum and um

3295

02:17:24,950 --> 02:17:24,160

but new things are revealed when you do

3296

02:17:25,910 --> 02:17:24,960

that

3297

02:17:28,870 --> 02:17:25,920

um

3298

02:17:31,030 --> 02:17:28,880

obviously radio you know astronomy goes

3299

02:17:32,309 --> 02:17:31,040

back to visual observation you know it

3300

02:17:34,070 --> 02:17:32,319

started with the

3301

02:17:35,750 --> 02:17:34,080

people looking through telescopes at

3302

02:17:37,270 --> 02:17:35,760

these objects if they could even see

3303

02:17:39,110 --> 02:17:37,280

them um but

3304

02:17:41,429 --> 02:17:39,120

some galaxies you can't like andromeda

3305

02:17:42,709 --> 02:17:41,439

you can see uh with the telescope

3306

02:17:43,750 --> 02:17:42,719

readily

3307

02:17:45,429 --> 02:17:43,760

and they were seeing them as just

3308

02:17:47,349 --> 02:17:45,439

smudges but we relied on visual

3309

02:17:48,469 --> 02:17:47,359

astronomy for a very long time because

3310

02:17:50,709 --> 02:17:48,479

that's what we

3311

02:17:51,750 --> 02:17:50,719

we could do technologically you know we

3312

02:17:53,990 --> 02:17:51,760

could take

3313

02:17:55,830 --> 02:17:54,000

uh photographic plates and visible light

3314

02:17:57,589 --> 02:17:55,840

and all that but as our technology got

3315

02:17:59,190 --> 02:17:57,599

better we were able to just start doing

3316

02:18:01,349 --> 02:17:59,200

infrared and it's just like your

3317

02:18:04,230 --> 02:18:01,359

infrared camera at night your infrared

3318

02:18:06,469 --> 02:18:04,240

camera your night vision camera can see

3319

02:18:09,110 --> 02:18:06,479

things that you normally would not be

3320

02:18:10,389 --> 02:18:09,120

able to see with your own um eyes in the

3321

02:18:13,750 --> 02:18:10,399

visual spectrum

3322

02:18:15,190 --> 02:18:13,760

so it's the same thing and um

3323

02:18:17,429 --> 02:18:15,200

here it's more revealing for the

3324

02:18:19,509 --> 02:18:17,439

astronomers to be able to see an

3325

02:18:23,190 --> 02:18:19,519

infrared doesn't mean it can't take good

3326

02:18:27,030 --> 02:18:25,270

what are we looking at here

3327

02:18:29,030 --> 02:18:27,040

that one i have not seen

3328

02:18:30,870 --> 02:18:29,040

that's interesting

3329

02:18:33,110 --> 02:18:30,880

um i can tell you it's a type of spiral

3330

02:18:36,549 --> 02:18:33,120

galaxy of some sort it's just it's

3331

02:18:37,990 --> 02:18:36,559

stunningly beautiful yeah stunningly

3332

02:18:40,469 --> 02:18:38,000

beautiful

3333

02:18:42,709 --> 02:18:40,479

i have the names of these but uh let's

3334

02:18:45,270 --> 02:18:42,719

just continue now when this was this was

3335

02:18:46,950 --> 02:18:45,280

one of the first images released

3336

02:18:49,830 --> 02:18:46,960

and uh

3337

02:18:52,070 --> 02:18:49,840

i don't think uh

3338

02:18:53,429 --> 02:18:52,080

we were quite prepared for this kind of

3339

02:18:56,950 --> 02:18:53,439

majesty

3340

02:18:59,429 --> 02:18:56,960

that is the karina nebula and um

3341

02:19:01,110 --> 02:18:59,439

that is where stars are born right in in

3342

02:19:03,910 --> 02:19:01,120

an environment like that where you have

3343

02:19:05,990 --> 02:19:03,920

gas and dust and what what what web can

3344

02:19:07,190 --> 02:19:06,000

do and this is another thing that it can

3345

02:19:09,110 --> 02:19:07,200

do with uh

3346

02:19:11,750 --> 02:19:09,120

infrared is actually you can see the

3347

02:19:12,950 --> 02:19:11,760

voids that form inside that that nebula

3348

02:19:15,110 --> 02:19:12,960

and study them

3349

02:19:17,030 --> 02:19:15,120

that are where a star is forming and the

3350

02:19:20,230 --> 02:19:17,040

material is all falling into it forming

3351

02:19:22,549 --> 02:19:20,240

a void so this this will tell scientists

3352

02:19:23,830 --> 02:19:22,559

a ton about star formation and how that

3353

02:19:24,709 --> 02:19:23,840

occurs

3354

02:19:27,429 --> 02:19:24,719

but

3355

02:19:29,509 --> 02:19:27,439

very few things compete with nebulous as

3356

02:19:31,830 --> 02:19:29,519

far as majesty and they just wanted to

3357

02:19:34,389 --> 02:19:31,840

um do something instead of just retaking

3358

02:19:36,070 --> 02:19:34,399

and redoing the pillars of creation a

3359

02:19:38,230 --> 02:19:36,080

photograph from hubble back in the day

3360

02:19:39,830 --> 02:19:38,240

that wowed everybody back in the 90s

3361

02:19:42,150 --> 02:19:39,840

they wanted to do it with the karina

3362

02:19:43,910 --> 02:19:42,160

nebula and it's just a

3363

02:19:46,950 --> 02:19:43,920

beautifully defined

3364

02:19:49,750 --> 02:19:46,960

reins reminds me of mountains you know

3365

02:19:51,429 --> 02:19:49,760

it does it's exactly what it does it it

3366

02:19:53,830 --> 02:19:51,439

i i think everybody thought the same

3367

02:19:54,790 --> 02:19:53,840

thing you know that looks like earth

3368

02:19:57,670 --> 02:19:54,800

right

3369

02:20:00,309 --> 02:19:57,680

it has a it has a strange familiarity to

3370

02:20:02,389 --> 02:20:00,319

it it does it absolutely does

3371

02:20:05,270 --> 02:20:02,399

and uh now

3372

02:20:07,349 --> 02:20:05,280

one thing uh

3373

02:20:10,150 --> 02:20:07,359

when when this image was brought out and

3374

02:20:13,349 --> 02:20:10,160

i was watching the different comments um

3375

02:20:15,349 --> 02:20:13,359

uh from uh different uh astrophysicists

3376

02:20:18,950 --> 02:20:15,359

and astronomers around the world about

3377

02:20:21,590 --> 02:20:18,960

this image and and what it implies

3378

02:20:25,190 --> 02:20:21,600

the one thing that we understand now and

3379

02:20:27,910 --> 02:20:25,200

i don't i don't get it uh john why

3380

02:20:31,590 --> 02:20:27,920

um it seems like this

3381

02:20:34,710 --> 02:20:31,600

recent revelation that now

3382

02:20:38,790 --> 02:20:34,720

it is generally accepted

3383

02:20:42,150 --> 02:20:38,800

that uh when a star is forming

3384

02:20:45,110 --> 02:20:42,160

it's going to have a ring of dust that

3385

02:20:47,349 --> 02:20:45,120

all of them have that gravity overtakes

3386

02:20:50,309 --> 02:20:47,359

the dust clumps together and then

3387

02:20:54,150 --> 02:20:50,319

planets are formed that this process

3388

02:20:55,510 --> 02:20:54,160

is what all stars go through therefore

3389

02:20:59,030 --> 02:20:55,520

every star

3390

02:21:01,670 --> 02:20:59,040

has at least one planetary body uh

3391

02:21:03,750 --> 02:21:01,680

orbiting around it if not many like our

3392

02:21:05,990 --> 02:21:03,760

own solar system and we thought we were

3393

02:21:07,910 --> 02:21:06,000

unique and now it turns out that

3394

02:21:09,910 --> 02:21:07,920

everything that we look at has gone

3395

02:21:14,469 --> 02:21:09,920

through the same process how come it

3396

02:21:16,389 --> 02:21:14,479

took us so long to come to such a basic

3397

02:21:18,630 --> 02:21:16,399

uh formulation for how things are

3398

02:21:21,190 --> 02:21:18,640

created well i think it's a

3399

02:21:23,510 --> 02:21:21,200

it's an unbelievably complex process

3400

02:21:25,349 --> 02:21:23,520

that's very very difficult to actually

3401

02:21:27,750 --> 02:21:25,359

observe because

3402

02:21:29,990 --> 02:21:27,760

you have to find a protoplanetary disk

3403

02:21:33,349 --> 02:21:30,000

and you have to be able to study it and

3404

02:21:35,349 --> 02:21:33,359

given that it is it's a disk of dust

3405

02:21:37,429 --> 02:21:35,359

very dense you know dust that's forming

3406

02:21:39,910 --> 02:21:37,439

the planets it's hard to see through it

3407

02:21:42,710 --> 02:21:39,920

but infrared gives you a chance and

3408

02:21:44,710 --> 02:21:42,720

we've seen something weird in infrared a

3409

02:21:46,230 --> 02:21:44,720

few years ago they were looking you know

3410

02:21:50,070 --> 02:21:46,240

a group of scientists were looking in

3411

02:21:52,309 --> 02:21:50,080

infrared at a uh a star system a baby

3412

02:21:55,349 --> 02:21:52,319

star system inside of a protoplanetary

3413

02:21:56,790 --> 02:21:55,359

disk and they saw a gigantic flash of

3414

02:21:59,349 --> 02:21:56,800

infrared light

3415

02:22:01,590 --> 02:21:59,359

and it actually the afterglow lasted

3416

02:22:03,590 --> 02:22:01,600

over a year what had to have happened is

3417

02:22:05,750 --> 02:22:03,600

two planets inside that cloud of dust

3418

02:22:07,429 --> 02:22:05,760

and gas collided

3419

02:22:09,110 --> 02:22:07,439

so we'd never seen anything like that

3420

02:22:11,349 --> 02:22:09,120

before we just happened to get lucky and

3421

02:22:13,670 --> 02:22:11,359

be observing it when it was happening

3422

02:22:15,910 --> 02:22:13,680

and expect that kind of stuff from webb

3423

02:22:18,630 --> 02:22:15,920

because infrared yields these kinds of

3424

02:22:20,550 --> 02:22:18,640

surprises because you're looking at heat

3425

02:22:21,910 --> 02:22:20,560

you know and you know what he tells you

3426

02:22:23,830 --> 02:22:21,920

you know he tells you something's

3427

02:22:26,150 --> 02:22:23,840

happening

3428

02:22:28,309 --> 02:22:26,160

and it's a process that happened many

3429

02:22:30,469 --> 02:22:28,319

times in our own solar system

3430

02:22:31,590 --> 02:22:30,479

yeah absolutely and and i mean we think

3431

02:22:33,590 --> 02:22:31,600

that the

3432

02:22:35,190 --> 02:22:33,600

well anyway the best explanation for the

3433

02:22:37,590 --> 02:22:35,200

formation of the moon was a glancing

3434

02:22:39,910 --> 02:22:37,600

blow with a with a mars-sized object

3435

02:22:42,230 --> 02:22:39,920

called thea early in earth's history

3436

02:22:43,110 --> 02:22:42,240

and we actually see evidence of thea

3437

02:22:46,230 --> 02:22:43,120

down

3438

02:22:48,950 --> 02:22:46,240

in you know maps of uh the lower mantle

3439

02:22:51,590 --> 02:22:48,960

of earth you see these globs that seem

3440

02:22:53,270 --> 02:22:51,600

to be the remnants of this this this you

3441

02:22:55,110 --> 02:22:53,280

know planetoid that hit us

3442

02:22:57,349 --> 02:22:55,120

and uh the moon was just the junk that

3443

02:22:59,110 --> 02:22:57,359

was thrown off and it you know went

3444

02:23:00,469 --> 02:22:59,120

through its uh

3445

02:23:02,309 --> 02:23:00,479

formation from there but the thing is

3446

02:23:04,710 --> 02:23:02,319

it's chemically when you look at

3447

02:23:07,670 --> 02:23:04,720

at the composition of the moon

3448

02:23:09,750 --> 02:23:07,680

and earth they're very closely related

3449

02:23:10,870 --> 02:23:09,760

like they were once part of the same

3450

02:23:11,670 --> 02:23:10,880

same thing

3451

02:23:16,389 --> 02:23:11,680

uh

3452

02:23:19,110 --> 02:23:16,399

planetary collisions and just not

3453

02:23:21,750 --> 02:23:19,120

exactly garbage i think it's just a

3454

02:23:24,790 --> 02:23:21,760

collection point of garbage because

3455

02:23:27,349 --> 02:23:24,800

it's just the the leftovers and things

3456

02:23:29,349 --> 02:23:27,359

like that the real material the real

3457

02:23:31,349 --> 02:23:29,359

pristine stuff are the comets coming in

3458

02:23:34,710 --> 02:23:31,359

from the outer solar system there just

3459

02:23:36,309 --> 02:23:34,720

wasn't enough material out there to form

3460

02:23:38,790 --> 02:23:36,319

well they i mean

3461

02:23:41,030 --> 02:23:38,800

maybe there was enough you know but

3462

02:23:42,950 --> 02:23:41,040

the point is it's it's material that's

3463

02:23:44,389 --> 02:23:42,960

untouched since the formation of the

3464

02:23:47,190 --> 02:23:44,399

solar system that's just been out there

3465

02:23:48,710 --> 02:23:47,200

and deep freeze and that's really

3466

02:23:50,710 --> 02:23:48,720

interesting material because it seems to

3467

02:23:52,550 --> 02:23:50,720

be related to the genesis of life

3468

02:23:54,150 --> 02:23:52,560

because it contains some of the amino

3469

02:23:55,590 --> 02:23:54,160

acids and things like that that were

3470

02:23:58,150 --> 02:23:55,600

involved

3471

02:24:01,190 --> 02:23:58,160

uh here's uh the deep field again oh

3472

02:24:04,389 --> 02:24:01,200

this is now um

3473

02:24:06,150 --> 02:24:04,399

uh arendelle and let me let me pull up

3474

02:24:10,389 --> 02:24:06,160

this let me pull this down

3475

02:24:14,389 --> 02:24:10,399

uh because at the same time uh

3476

02:24:15,990 --> 02:24:14,399

so this is aaron dale here

3477

02:24:19,990 --> 02:24:16,000

right yep

3478

02:24:24,070 --> 02:24:20,000

okay and so if i go back uh to this this

3479

02:24:28,389 --> 02:24:26,710

i my understanding is yes that's what

3480

02:24:29,429 --> 02:24:28,399

they seem to be suggesting

3481

02:24:30,950 --> 02:24:29,439

right

3482

02:24:32,150 --> 02:24:30,960

i don't know you know i don't i can't

3483

02:24:33,110 --> 02:24:32,160

say that for certain though that but

3484

02:24:35,110 --> 02:24:33,120

that seemed to be what they were

3485

02:24:37,910 --> 02:24:35,120

suggesting today that i saw the same

3486

02:24:41,030 --> 02:24:37,920

thing you did yeah and it it is the

3487

02:24:43,990 --> 02:24:41,040

farthest uh star that uh that we have

3488

02:24:47,190 --> 02:24:44,000

observed so far it right now

3489

02:24:48,790 --> 02:24:47,200

because uh we see it as it was 12.9

3490

02:24:49,990 --> 02:24:48,800

billion years ago

3491

02:24:52,469 --> 02:24:50,000

but now

3492

02:24:55,590 --> 02:24:52,479

if we could see that star that star is

3493

02:24:57,429 --> 02:24:55,600

28 billion light years from us because

3494

02:24:59,910 --> 02:24:57,439

of the expansion of the universe over

3495

02:25:02,469 --> 02:24:59,920

that time over the the 12.9 billion

3496

02:25:04,469 --> 02:25:02,479

years so that is we're looking at by far

3497

02:25:06,630 --> 02:25:04,479

the most distant single object we've

3498

02:25:09,590 --> 02:25:06,640

ever seen i'm just going to do this just

3499

02:25:11,750 --> 02:25:09,600

for grins i can't stop looking at this

3500

02:25:12,630 --> 02:25:11,760

and when um when

3501

02:25:15,990 --> 02:25:12,640

uh

3502

02:25:18,870 --> 02:25:16,000

and i i believe the bright blue galaxy

3503

02:25:19,910 --> 02:25:18,880

in the middle right just below the

3504

02:25:21,190 --> 02:25:19,920

center

3505

02:25:23,990 --> 02:25:21,200

so

3506

02:25:25,110 --> 02:25:24,000

they took the hubble images of that

3507

02:25:27,429 --> 02:25:25,120

section

3508

02:25:29,670 --> 02:25:27,439

and and looked at the same galaxy in the

3509

02:25:31,030 --> 02:25:29,680

hubble images you don't see anything

3510

02:25:32,950 --> 02:25:31,040

it's beautiful

3511

02:25:34,309 --> 02:25:32,960

right but in this image once it was

3512

02:25:36,710 --> 02:25:34,319

enlarged

3513

02:25:38,790 --> 02:25:36,720

there was like seven seven individual

3514

02:25:40,070 --> 02:25:38,800

stars that were observable inside of

3515

02:25:41,910 --> 02:25:40,080

that galaxy

3516

02:25:43,910 --> 02:25:41,920

yeah the gravitational lensing allows

3517

02:25:45,110 --> 02:25:43,920

just by look it allows it but the thing

3518

02:25:47,429 --> 02:25:45,120

is is that you can also use

3519

02:25:49,190 --> 02:25:47,439

gravitational lensing artificially so if

3520

02:25:50,550 --> 02:25:49,200

you were to put a

3521

02:25:51,429 --> 02:25:50,560

telescope

3522

02:25:53,190 --> 02:25:51,439

at

3523

02:25:56,070 --> 02:25:53,200

in the far outer solar system you'd have

3524

02:25:57,830 --> 02:25:56,080

to do this pointing at the sun using the

3525

02:26:01,030 --> 02:25:57,840

sun as a gravitational lens you

3526

02:26:03,990 --> 02:26:01,040

automatically get a gigantic

3527

02:26:06,070 --> 02:26:04,000

boost a gigantic telescope and you can

3528

02:26:07,750 --> 02:26:06,080

also do it uh from earth there's a

3529

02:26:10,309 --> 02:26:07,760

concept called the pteroscope by david

3530

02:26:12,469 --> 02:26:10,319

kiping where you use earth as a

3531

02:26:14,070 --> 02:26:12,479

gravitational lens so you can actually

3532

02:26:16,309 --> 02:26:14,080

make your telescopes

3533

02:26:19,030 --> 02:26:16,319

way way more powerful than you can just

3534

02:26:20,389 --> 02:26:19,040

as they are we're just not quite to the

3535

02:26:22,550 --> 02:26:20,399

stage we need to be able to take

3536

02:26:25,750 --> 02:26:22,560

advantage of the photo yeah that you

3537

02:26:27,349 --> 02:26:25,760

know and that's right and when

3538

02:26:29,349 --> 02:26:27,359

i think a lot of people

3539

02:26:31,349 --> 02:26:29,359

and because i go through this it has to

3540

02:26:33,990 --> 02:26:31,359

be the same for everybody when we

3541

02:26:36,389 --> 02:26:34,000

discuss the fabric of the universe right

3542

02:26:40,630 --> 02:26:36,399

and when we talk about this

3543

02:26:43,510 --> 02:26:40,640

well that that does apply to us too

3544

02:26:46,230 --> 02:26:43,520

it applies to the sun it applies to mars

3545

02:26:48,469 --> 02:26:46,240

yeah gravity yeah that's it that the

3546

02:26:50,070 --> 02:26:48,479

fabric of the universe isn't just

3547

02:26:52,469 --> 02:26:50,080

everything else

3548

02:26:54,950 --> 02:26:52,479

all of these concepts and gravitational

3549

02:26:57,270 --> 02:26:54,960

lensing uh apply to us

3550

02:26:58,389 --> 02:26:57,280

uh right here in our own star system

3551
02:27:01,030 --> 02:26:58,399
absolutely

3552
02:27:02,550 --> 02:27:01,040
no nothing's immune and um

3553
02:27:04,550 --> 02:27:02,560
the the

3554
02:27:06,950 --> 02:27:04,560
the reality is that

3555
02:27:08,550 --> 02:27:06,960
when you look at these galaxies

3556
02:27:11,270 --> 02:27:08,560
well we live in one of these so these

3557
02:27:13,830 --> 02:27:11,280
very very distant galaxies though

3558
02:27:15,590 --> 02:27:13,840
they are they are obeying the same rules

3559
02:27:16,950 --> 02:27:15,600
as the milky way is

3560
02:27:18,469 --> 02:27:16,960
you know the milky way is a barred

3561
02:27:20,389 --> 02:27:18,479
spiral and you see you look out there

3562
02:27:21,590 --> 02:27:20,399
you see little spiral galaxies you know

3563
02:27:23,830 --> 02:27:21,600

and things like that

3564

02:27:25,270 --> 02:27:23,840

it's because the laws of physics

3565

02:27:27,030 --> 02:27:25,280

because we can see this stuff we know

3566

02:27:28,870 --> 02:27:27,040

that the laws of physics are the same

3567

02:27:31,670 --> 02:27:28,880

everywhere

3568

02:27:35,270 --> 02:27:31,680

back in i think it was i don't know the

3569

02:27:38,389 --> 02:27:35,280

exact year um but i think it was 1936

3570

02:27:41,670 --> 02:27:38,399

um after uh

3571

02:27:44,870 --> 02:27:41,680

a lot of heavy analysis was going on uh

3572

02:27:47,830 --> 02:27:44,880

with general and special and the the

3573

02:27:49,590 --> 02:27:47,840

concepts behind this well there was a

3574

02:27:52,550 --> 02:27:49,600

full eclipse

3575

02:27:54,389 --> 02:27:52,560

um that went across and that's uh

3576

02:27:55,349 --> 02:27:54,399

everybody set up

3577

02:27:58,950 --> 02:27:55,359

their

3578

02:28:00,550 --> 02:27:58,960

sun to see if we could photograph

3579

02:28:03,190 --> 02:28:00,560

objects behind it

3580

02:28:04,790 --> 02:28:03,200

and and we did and that

3581

02:28:09,110 --> 02:28:04,800

those

3582

02:28:11,590 --> 02:28:09,120

theories were proven uh from albert

3583

02:28:13,349 --> 02:28:11,600

einstein from 1915. absolutely that that

3584

02:28:15,990 --> 02:28:13,359

was a the first i think it was eddington

3585

02:28:16,790 --> 02:28:16,000

that yeah eddington that was a big deal

3586

02:28:18,950 --> 02:28:16,800

now

3587

02:28:21,590 --> 02:28:18,960

this looks like a cave painting from

3588

02:28:24,070 --> 02:28:21,600

spain from 40 000 years ago it really

3589

02:28:27,510 --> 02:28:24,080

does um

3590

02:28:29,110 --> 02:28:27,520

i i cave paintings are

3591

02:28:31,429 --> 02:28:29,120

definitely one of my most favorite

3592

02:28:34,070 --> 02:28:31,439

things because it's a it's a telescope

3593

02:28:36,389 --> 02:28:34,080

of human thought through time 40 000

3594

02:28:39,270 --> 02:28:36,399

years you know and that was what that

3595

02:28:40,710 --> 02:28:39,280

person thought that long ago and that

3596

02:28:42,550 --> 02:28:40,720

that just that's another one of the

3597

02:28:44,070 --> 02:28:42,560

things that fires my imagination is cave

3598

02:28:46,309 --> 02:28:44,080

paintings

3599

02:28:48,790 --> 02:28:46,319

somebody just commented and give it up

3600

02:28:50,389 --> 02:28:48,800

dude i don't date what are you guys

3601
02:28:53,110 --> 02:28:50,399
chatting about we're talking about the

3602
02:28:56,790 --> 02:28:53,120
james webb telescope and i've got a

3603
02:29:00,150 --> 02:28:56,800
singles bar going on in the chat room so

3604
02:29:01,670 --> 02:29:00,160
but isn't this incredible now um again i

3605
02:29:04,230 --> 02:29:01,680
have to ask

3606
02:29:06,150 --> 02:29:04,240
uh the basic question because i don't

3607
02:29:08,950 --> 02:29:06,160
fully understand this

3608
02:29:11,510 --> 02:29:08,960
um we've seen images similar to this in

3609
02:29:12,950 --> 02:29:11,520
the past similar not even close to being

3610
02:29:14,870 --> 02:29:12,960
as cool of course

3611
02:29:15,830 --> 02:29:14,880
but

3612
02:29:19,030 --> 02:29:15,840
why

3613
02:29:20,550 --> 02:29:19,040

does infrared give us this image and if

3614

02:29:22,389 --> 02:29:20,560

we looked at this with a conventional

3615

02:29:24,630 --> 02:29:22,399

telescope or a radio telescope

3616

02:29:26,389 --> 02:29:24,640

we wouldn't see the same thing right

3617

02:29:27,670 --> 02:29:26,399

you know you see i mean you see similar

3618

02:29:30,469 --> 02:29:27,680

the you know

3619

02:29:31,990 --> 02:29:30,479

they correlate but at the same time

3620

02:29:33,190 --> 02:29:32,000

it's just because you can see through

3621

02:29:35,110 --> 02:29:33,200

different you know when you're looking

3622

02:29:38,070 --> 02:29:35,120

at something dusty in gas you have gas

3623

02:29:40,790 --> 02:29:38,080

like that infrared can see details

3624

02:29:43,429 --> 02:29:40,800

through it more than than visible light

3625

02:29:44,870 --> 02:29:43,439

it's hopeless um so you just get a

3626

02:29:46,469 --> 02:29:44,880

different perspective

3627

02:29:47,990 --> 02:29:46,479

that's not to say you don't need visible

3628

02:29:49,349 --> 02:29:48,000

light you do because you can do

3629

02:29:51,349 --> 02:29:49,359

observations like the hubble space

3630

02:29:53,429 --> 02:29:51,359

telescope does

3631

02:29:55,110 --> 02:29:53,439

invisible light but

3632

02:29:57,190 --> 02:29:55,120

webb gives you a little bit different of

3633

02:29:58,389 --> 02:29:57,200

a perspective again it's it's like

3634

02:30:00,469 --> 02:29:58,399

having

3635

02:30:01,270 --> 02:30:00,479

night vision goggles you know as opposed

3636

02:30:02,870 --> 02:30:01,280

to

3637

02:30:05,750 --> 02:30:02,880

your eyes when walking around in the

3638

02:30:07,590 --> 02:30:05,760

backyard at night yeah okay

3639

02:30:09,750 --> 02:30:07,600

and running into a brown recluse yeah

3640

02:30:11,349 --> 02:30:09,760

running into a brown recluse or a

3641

02:30:14,630 --> 02:30:11,359

scorpion but

3642

02:30:16,389 --> 02:30:14,640

here's the thing if you and i again were

3643

02:30:18,710 --> 02:30:16,399

in our starship

3644

02:30:21,270 --> 02:30:18,720

and we're just looking out the windows

3645

02:30:23,190 --> 02:30:21,280

flying through this section of space

3646

02:30:25,590 --> 02:30:23,200

we're not going to see this we're going

3647

02:30:27,110 --> 02:30:25,600

to just see black right we're just going

3648

02:30:29,990 --> 02:30:27,120

to see normal space

3649

02:30:33,510 --> 02:30:30,000

you know that's a good question um

3650

02:30:36,550 --> 02:30:33,520

with just our eyes what would we see

3651

02:30:38,790 --> 02:30:36,560

there are some nebulas uh like the orion

3652

02:30:42,150 --> 02:30:38,800

nebula that people with really good eyes

3653

02:30:43,510 --> 02:30:42,160

can see without you know the unaided eye

3654

02:30:45,670 --> 02:30:43,520

so

3655

02:30:48,389 --> 02:30:45,680

you would see that you would see that

3656

02:30:49,830 --> 02:30:48,399

because it's illuminated by stars

3657

02:30:53,990 --> 02:30:49,840

so

3658

02:30:56,309 --> 02:30:54,000

infrared we can't see that

3659

02:30:58,710 --> 02:30:56,319

so we would see

3660

02:31:02,790 --> 02:30:58,720

a nebula like this probably as a big

3661

02:31:05,270 --> 02:31:02,800

blue blob right but we wouldn't see this

3662

02:31:07,510 --> 02:31:05,280

we wouldn't be losing through this no

3663

02:31:09,110 --> 02:31:07,520

you would not uh it's the instrument you

3664

02:31:11,270 --> 02:31:09,120

need an instrument to see you need an

3665

02:31:12,630 --> 02:31:11,280

instrument that's the mind-blowing part

3666

02:31:14,469 --> 02:31:12,640

let's take our break and we're going to

3667

02:31:17,429 --> 02:31:14,479

head straight into overtime everybody

3668

02:31:18,870 --> 02:31:17,439

relax we're not done yet and i feel like

3669

02:31:22,309 --> 02:31:18,880

we're just getting started this should

3670

02:31:25,270 --> 02:31:22,319

have been like a six-hour show john

3671

02:31:27,750 --> 02:31:25,280

hey i i can do six hour shows

3672

02:31:29,670 --> 02:31:27,760

okay i can do it i got the stamina

3673

02:31:31,750 --> 02:31:29,680

don't don't tempt me and don't tempt me

3674

02:31:33,110 --> 02:31:31,760

i've got lots of good coffee let's take

3675

02:31:35,990 --> 02:31:33,120

our break right here we're gonna do

3676
02:31:37,510 --> 02:31:36,000
overtime with john michael gautier you

3677
02:31:39,990 --> 02:31:37,520
just stay right there you know what

3678
02:31:42,389 --> 02:31:40,000
don't panic it's all good this is fade

3679
02:31:45,590 --> 02:31:42,399
to black i am your host jimmy church

3680
02:31:47,110 --> 02:31:45,600
more with the host of event horizon john

3681
02:31:52,760 --> 02:31:47,120
michael gautier when we come back after

3682
02:32:02,270 --> 02:32:01,080
[Music]

3683
02:32:08,550 --> 02:32:02,280
[Applause]

3684
02:32:14,370 --> 02:32:09,900
yes

3685
02:32:15,650 --> 02:32:14,380
[Music]

3686
02:32:23,670 --> 02:32:15,660
[Applause]

3687
02:32:27,349 --> 02:32:25,830
you're listening to jimmy church and

3688
02:32:32,309 --> 02:32:27,359

fade to black

3689

02:32:36,550 --> 02:32:34,150

hey what up y'all should go biblical fox

3690

02:32:37,510 --> 02:32:36,560

here and you are listening to my boy

3691

02:32:41,830 --> 02:32:37,520

jimmy

3692

02:32:52,469 --> 02:32:44,309

despite popular opinion

3693

02:32:57,670 --> 02:32:54,550

hello fader knots jimmy church here

3694

02:32:59,910 --> 02:32:57,680

you've seen me with my thunderstorm now

3695

02:33:02,150 --> 02:32:59,920

you can purify the air in your home and

3696

02:33:04,469 --> 02:33:02,160

get healthy clean fresh smelling air and

3697

02:33:06,469 --> 02:33:04,479

eliminate odors just like i do right

3698

02:33:08,950 --> 02:33:06,479

here in the bunker the eden pier

3699

02:33:11,510 --> 02:33:08,960

thunderstorm uses oxy technology that

3700

02:33:13,830 --> 02:33:11,520

naturally sends out o3 molecules into

3701

02:33:16,150 --> 02:33:13,840

the air which seek out odors and air

3702

02:33:18,710 --> 02:33:16,160

pollutants in your home and destroys

3703

02:33:21,190 --> 02:33:18,720

them it's called a thunderstorm because

3704

02:33:23,670 --> 02:33:21,200

it purifies the air just like after a

3705

02:33:25,429 --> 02:33:23,680

thunderstorm and right now you can save

3706

02:33:28,309 --> 02:33:25,439

two hundred dollars on an eden pier

3707

02:33:30,469 --> 02:33:28,319

thunderstorm three pack for whole home

3708

02:33:32,550 --> 02:33:30,479

protection with this special offer

3709

02:33:35,190 --> 02:33:32,560

you're getting three units for under two

3710

02:33:36,190 --> 02:33:35,200

hundred dollars seriously

3711

02:33:39,910 --> 02:33:36,200

go to

3712

02:33:42,469 --> 02:33:39,920

edenpuredeals.com and use fader 3.

3713

02:33:45,190 --> 02:33:42,479

shipping is free and it's easy just

3714

02:33:45,990 --> 02:33:45,200

scroll down you'll see my name right

3715

02:33:49,110 --> 02:33:46,000

there

3716

02:33:50,550 --> 02:33:49,120

jimmy church click on it and get your

3717

02:33:55,429 --> 02:33:50,560

deal today

3718

02:33:59,670 --> 02:33:57,590

this is billy carson founder and ceo of

3719

02:34:01,910 --> 02:33:59,680

forbidden knowledge.tv forbidden

3720

02:34:03,670 --> 02:34:01,920

knowledge dot tv is the fastest growing

3721

02:34:05,510 --> 02:34:03,680

and one of the most watched networks in

3722

02:34:07,270 --> 02:34:05,520

the world and i would like to personally

3723

02:34:09,990 --> 02:34:07,280

invite you to check out our expanding

3724

02:34:12,309 --> 02:34:10,000

library of tv film lectures and special

3725

02:34:14,550 --> 02:34:12,319

presentations forbidden knowledge dot tv

3726
02:34:17,190 --> 02:34:14,560
has over six thousand videos covering

3727
02:34:18,950 --> 02:34:17,200
lost history health ufos spirituality

3728
02:34:20,309 --> 02:34:18,960
and our future we are committed to our

3729
02:34:22,870 --> 02:34:20,319
community and with my personal

3730
02:34:25,270 --> 02:34:22,880
invitation you can right now get your

3731
02:34:28,150 --> 02:34:25,280
own free 30-day membership at forbidden

3732
02:34:30,070 --> 02:34:28,160
knowledge dot tv your own library of

3733
02:34:32,340 --> 02:34:30,080
information starts today at forbidden

3734
02:34:33,830 --> 02:34:32,350
knowledge dot tv

3735
02:34:36,309 --> 02:34:33,840
[Music]

3736
02:34:39,750 --> 02:34:36,319
your 1 million gigawatt paranormal

3737
02:34:41,510 --> 02:34:39,760
powerhouse kumx db

3738
02:34:43,270 --> 02:34:41,520

the x

3739

02:34:45,830 --> 02:34:43,280

are you ready to read about true

3740

02:34:48,630 --> 02:34:45,840

paranormal events unex media publishes

3741

02:34:51,030 --> 02:34:48,640

non-fiction books about ufos ghosts and

3742

02:34:54,309 --> 02:34:51,040

haunted places time anomalies cryptid

3743

02:34:56,469 --> 02:34:54,319

creatures and more just like kunx db

3744

02:34:59,469 --> 02:34:56,479

radio it's all about unexplained

3745

02:35:01,510 --> 02:34:59,479

phenomena visit

3746

02:35:03,670 --> 02:35:01,520

www.unexmedia.com to see our list of

3747

02:35:06,309 --> 02:35:03,680

great book titles by debbie zigglemeyer

3748

02:35:08,870 --> 02:35:06,319

gene walker devin listrom wayne lawrence

3749

02:35:12,870 --> 02:35:08,880

bill spicer and yours truly margie k

3750

02:35:17,030 --> 02:35:15,110

introducing the game changer blend from

3751

02:35:19,590 --> 02:35:17,040

river moon coffee that delivers a

3752

02:35:22,630 --> 02:35:19,600

customized blend made specifically for

3753

02:35:25,590 --> 02:35:22,640

the fader knots if the game is rigged

3754

02:35:28,469 --> 02:35:25,600

change the game it's a boulder cup with

3755

02:35:30,630 --> 02:35:28,479

some bite game changer is the coffee of

3756

02:35:33,030 --> 02:35:30,640

choice for those that prefer an organic

3757

02:35:36,550 --> 02:35:33,040

dark roast that is slightly lighter and

3758

02:35:38,870 --> 02:35:36,560

milder but it's still dark with wild

3759

02:35:41,510 --> 02:35:38,880

notes of pecans and chocolate with a

3760

02:35:43,830 --> 02:35:41,520

rich balanced full-bodied cup that is

3761

02:35:46,469 --> 02:35:43,840

roasted to perfection for a great coffee

3762

02:35:49,750 --> 02:35:46,479

to start your day as an after dinner

3763

02:35:52,630 --> 02:35:49,760

coffee or anywhere in between artisan

3764

02:35:55,190 --> 02:35:52,640

small batch roasted to perfection usda

3765

02:35:57,510 --> 02:35:55,200

certified organic all river moon coffee

3766

02:36:00,389 --> 02:35:57,520

is freshly roasted and packaged in the

3767

02:36:02,550 --> 02:36:00,399

usa just go to rivermooncoffee.com or

3768

02:36:06,389 --> 02:36:02,560

click on the banners over on our site

3769

02:36:08,550 --> 02:36:06,399

and use the promo code f2b blend for 15

3770

02:36:11,590 --> 02:36:08,560

off of your order today

3771

02:36:16,150 --> 02:36:13,750

are you intrigued by paranormal talk

3772

02:36:19,349 --> 02:36:16,160

radio you'll love the new paranormal

3773

02:36:21,030 --> 02:36:19,359

radio app from talk stream live

3774

02:36:23,910 --> 02:36:21,040

you'll find a great selection of talk

3775

02:36:26,550 --> 02:36:23,920

shows covering ufos ghosts strange

3776

02:36:28,790 --> 02:36:26,560

phenomena and much more download the

3777

02:36:30,790 --> 02:36:28,800

paranormal radio app now and start

3778

02:36:33,110 --> 02:36:30,800

listening to the very best in paranormal

3779

02:36:34,790 --> 02:36:33,120

talk entertainment including the network

3780

02:36:38,070 --> 02:36:34,800

you're listening to right now the

3781

02:36:46,540 --> 02:36:38,080

paranormal radio app free in google play

3782

02:36:52,469 --> 02:36:49,030

[Music]

3783

02:36:59,380 --> 02:36:52,479

not a store we chose we were born this

3784

02:37:13,830 --> 02:37:10,190

[Music]

3785

02:37:16,550 --> 02:37:13,840

welcome back fade to blackout murals

3786

02:37:22,070 --> 02:37:18,630

great great great

3787

02:37:25,429 --> 02:37:22,080

great conversation tonight

3788

02:37:28,790 --> 02:37:25,439

john michael gautier i just got uh

3789

02:37:31,270 --> 02:37:28,800

i just got the breaking news uh in uh

3790

02:37:32,710 --> 02:37:31,280

vin scully has passed away at the age of

3791

02:37:33,670 --> 02:37:32,720

94.

3792

02:37:34,710 --> 02:37:33,680

um

3793

02:37:37,190 --> 02:37:34,720

uh

3794

02:37:39,510 --> 02:37:37,200

you know this is live radio but i will

3795

02:37:41,590 --> 02:37:39,520

just say this uh really quick

3796

02:37:44,150 --> 02:37:41,600

uh i knew uh

3797

02:37:47,670 --> 02:37:44,160

vin very very well i've talked about

3798

02:37:51,030 --> 02:37:47,680

that many times on the show and uh

3799

02:37:53,750 --> 02:37:51,040

pretty close with the guy and uh

3800

02:37:57,429 --> 02:37:53,760

he really helped me uh in my career and

3801

02:37:59,349 --> 02:37:57,439

gave me a lot of advice early on and

3802

02:38:02,469 --> 02:37:59,359

i spent a lot of days and nights with

3803

02:38:05,510 --> 02:38:02,479

him and uh i'm

3804

02:38:08,230 --> 02:38:05,520

i'm a little bit moved at the moment

3805

02:38:09,830 --> 02:38:08,240

and uh so there you go uh thoughts and

3806

02:38:12,630 --> 02:38:09,840

prayers with uh

3807

02:38:15,349 --> 02:38:12,640

with his uh family and there you go 94

3808

02:38:17,510 --> 02:38:15,359

years old though you lived in 94

3809

02:38:18,870 --> 02:38:17,520

and you have the career that he has you

3810

02:38:21,590 --> 02:38:18,880

know what

3811

02:38:22,710 --> 02:38:21,600

right on that's all you can say

3812

02:38:27,429 --> 02:38:22,720

uh

3813

02:38:30,309 --> 02:38:27,439

a life like that and and cruise through

3814

02:38:32,710 --> 02:38:30,319

uh to the to the age of 94. you know the

3815

02:38:34,950 --> 02:38:32,720

crazy thing i i don't do sports anymore

3816

02:38:35,750 --> 02:38:34,960

uh john but um

3817

02:38:39,590 --> 02:38:35,760

uh

3818

02:38:42,710 --> 02:38:39,600

the thing is is that guy

3819

02:38:44,309 --> 02:38:42,720

uh mr scully was a professionals

3820

02:38:47,830 --> 02:38:44,319

professional

3821

02:38:48,950 --> 02:38:47,840

that's it he was exactly

3822

02:38:51,910 --> 02:38:48,960

who you

3823

02:38:53,670 --> 02:38:51,920

think he was you know and

3824

02:38:56,070 --> 02:38:53,680

and you go and you meet somebody like

3825

02:38:57,830 --> 02:38:56,080

that with uh such you know such a

3826

02:38:59,270 --> 02:38:57,840

reputation and a history we all grew up

3827

02:39:01,590 --> 02:38:59,280

with him and everything and then he just

3828

02:39:03,990 --> 02:39:01,600

found out what dude

3829

02:39:05,030 --> 02:39:04,000

you're exactly like you're supposed to

3830

02:39:06,550 --> 02:39:05,040

be

3831

02:39:09,750 --> 02:39:06,560

and uh

3832

02:39:11,429 --> 02:39:09,760

uh you know and and and and he was just

3833

02:39:12,309 --> 02:39:11,439

that he was a very nice guy he's very

3834

02:39:14,469 --> 02:39:12,319

cool

3835

02:39:16,150 --> 02:39:14,479

and uh there you go so rest in peace uh

3836

02:39:18,710 --> 02:39:16,160

vin scully all right you changed the

3837

02:39:22,389 --> 02:39:18,720

world and very few people can say that

3838

02:39:25,590 --> 02:39:22,399

but uh but he did um so okay let's let's

3839

02:39:27,830 --> 02:39:25,600

move on let's move on and uh were you a

3840

02:39:31,270 --> 02:39:27,840

sports guy are you a sports guy

3841

02:39:33,510 --> 02:39:31,280

no jimmy but um if i have an analog

3842

02:39:36,230 --> 02:39:33,520

of uh of that

3843

02:39:37,270 --> 02:39:36,240

what will get me is is when dick cavett

3844

02:39:40,230 --> 02:39:37,280

dies

3845

02:39:42,710 --> 02:39:40,240

because that's where i went to

3846

02:39:44,309 --> 02:39:42,720

you know learn how to do interviews and

3847

02:39:45,670 --> 02:39:44,319

he was a big influence

3848

02:39:47,910 --> 02:39:45,680

um

3849

02:39:50,150 --> 02:39:47,920

so it's it's these guys are getting up

3850

02:39:52,309 --> 02:39:50,160

there you know these great

3851
02:39:55,830 --> 02:39:52,319
interviewers from radio and television

3852
02:39:57,670 --> 02:39:55,840
are uh are getting up there and and we

3853
02:39:58,950 --> 02:39:57,680
we're a different breed you know the

3854
02:40:01,349 --> 02:39:58,960
younger generation we're a different

3855
02:40:03,990 --> 02:40:01,359
breed um but this has happened before i

3856
02:40:07,190 --> 02:40:04,000
mean man you ever go back and listen to

3857
02:40:09,349 --> 02:40:07,200
some old radio you know in our our sort

3858
02:40:10,230 --> 02:40:09,359
of grain of listening like long john

3859
02:40:12,309 --> 02:40:10,240
neville

3860
02:40:14,870 --> 02:40:12,319
he's my favorite you know

3861
02:40:17,510 --> 02:40:14,880
long john nibbles my um

3862
02:40:18,630 --> 02:40:17,520
he's in my bio long john nibbles in my

3863
02:40:19,670 --> 02:40:18,640

bio

3864

02:40:21,990 --> 02:40:19,680

and

3865

02:40:23,510 --> 02:40:22,000

um you're you're right about that

3866

02:40:24,870 --> 02:40:23,520

because

3867

02:40:29,110 --> 02:40:24,880

um

3868

02:40:30,950 --> 02:40:29,120

john neville and i and i got tapes of

3869

02:40:34,710 --> 02:40:30,960

you know cassettes

3870

02:40:35,510 --> 02:40:34,720

you know he died in 74 i think 74.

3871

02:40:37,269 --> 02:40:35,520

so

3872

02:40:40,230 --> 02:40:37,279

but uh

3873

02:40:41,990 --> 02:40:40,240

i i had a friend that had long john

3874

02:40:44,230 --> 02:40:42,000

nebel tapes

3875

02:40:47,110 --> 02:40:44,240

and now i'm listening this is 10 years

3876

02:40:48,790 --> 02:40:47,120

before art bell you know this is yeah

3877

02:40:50,710 --> 02:40:48,800

there was there were some other things

3878

02:40:52,790 --> 02:40:50,720

that were going on

3879

02:40:55,190 --> 02:40:52,800

um at that time but i started listening

3880

02:40:58,710 --> 02:40:55,200

to the long john neville and

3881

02:41:01,190 --> 02:40:58,720

and i realized very early

3882

02:41:02,950 --> 02:41:01,200

how to do it

3883

02:41:05,110 --> 02:41:02,960

right and that that's what he brought to

3884

02:41:06,630 --> 02:41:05,120

the table how to just have a

3885

02:41:08,790 --> 02:41:06,640

conversation

3886

02:41:10,389 --> 02:41:08,800

yeah and he was he was very good at that

3887

02:41:13,190 --> 02:41:10,399

because he hit the shows i've listened

3888

02:41:15,670 --> 02:41:13,200

to is a very informal it's a true

3889

02:41:17,670 --> 02:41:15,680

conversation yeah and he's a lot of

3890

02:41:20,790 --> 02:41:17,680

times he had multiple people in on the

3891

02:41:25,590 --> 02:41:23,510

and it was back in the days of you know

3892

02:41:27,670 --> 02:41:25,600

the people that are very very much long

3893

02:41:30,550 --> 02:41:27,680

gone like donald kehoe you know people

3894

02:41:32,630 --> 02:41:30,560

like that that no real other

3895

02:41:35,269 --> 02:41:32,640

information or material exists uh

3896

02:41:37,830 --> 02:41:35,279

regarding them so it was it was yeah

3897

02:41:39,750 --> 02:41:37,840

that type of broadcasting

3898

02:41:43,590 --> 02:41:39,760

was was absolutely amazing and it was it

3899

02:41:45,110 --> 02:41:43,600

was so early but i also go back to orson

3900

02:41:46,790 --> 02:41:45,120

welles and things like that for the 30s

3901
02:41:49,670 --> 02:41:46,800
you know mercury theater and things like

3902
02:41:53,110 --> 02:41:49,680
that are also influences i i love old

3903
02:41:55,670 --> 02:41:53,120
radio that's it i studied it i mean i i

3904
02:41:58,309 --> 02:41:55,680
studied it i studied it from i'm talking

3905
02:42:00,870 --> 02:41:58,319
you know i'm 58. i mean i was taking a

3906
02:42:03,349 --> 02:42:00,880
crack at this stuff when i was

3907
02:42:06,550 --> 02:42:03,359
eight nine ten

3908
02:42:08,950 --> 02:42:06,560
and listening to talk radio uh

3909
02:42:12,070 --> 02:42:08,960
yeah listen to music but there was

3910
02:42:14,389 --> 02:42:12,080
something about the theater of the mind

3911
02:42:16,550 --> 02:42:14,399
and and having two people engage in a

3912
02:42:18,950 --> 02:42:16,560
conversation or more long john neville's

3913
02:42:21,349 --> 02:42:18,960

show was called the party line yeah and

3914

02:42:23,750 --> 02:42:21,359

it was called the party line because it

3915

02:42:25,910 --> 02:42:23,760

was a friggin party and he had a big

3916

02:42:27,429 --> 02:42:25,920

table he had all those microphones set

3917

02:42:29,510 --> 02:42:27,439

up they were in there drinking scotch

3918

02:42:33,349 --> 02:42:29,520

and chain smoking cigarettes for six

3919

02:42:37,590 --> 02:42:33,359

hours a night in manhattan right

3920

02:42:38,830 --> 02:42:37,600

50 million people listening at a time 15

3921

02:42:43,429 --> 02:42:38,840

million

3922

02:42:46,790 --> 02:42:43,439

man yeah did you ever see uh

3923

02:42:50,150 --> 02:42:46,800

uh photographs of his studio do you ever

3924

02:42:52,469 --> 02:42:50,160

did you see the the phone switchboard

3925

02:42:53,590 --> 02:42:52,479

no i've never seen any of that okay so

3926

02:42:55,750 --> 02:42:53,600

so

3927

02:42:58,230 --> 02:42:55,760

obviously they took phone calls right

3928

02:43:00,710 --> 02:42:58,240

but this was back in

3929

02:43:03,429 --> 02:43:00,720

this one you didn't have a computer

3930

02:43:05,990 --> 02:43:03,439

right you didn't have a multi-phone line

3931

02:43:09,750 --> 02:43:06,000

you had 20 operators

3932

02:43:12,309 --> 02:43:09,760

in a row with their headsets plugging in

3933

02:43:14,389 --> 02:43:12,319

and connecting in and then so his desk

3934

02:43:16,550 --> 02:43:14,399

had all those telephones on it and they

3935

02:43:19,030 --> 02:43:16,560

would hardwire these in and they are

3936

02:43:21,349 --> 02:43:19,040

doing the one ringy dinghy two ringing

3937

02:43:24,469 --> 02:43:21,359

in in the studio they had all of these

3938

02:43:27,110 --> 02:43:24,479

operators running it was it was crazy

3939

02:43:29,750 --> 02:43:27,120

and he had the vision he was the first

3940

02:43:30,870 --> 02:43:29,760

he had the vision to do all of this live

3941

02:43:33,990 --> 02:43:30,880

calls

3942

02:43:35,030 --> 02:43:34,000

uh new york city uh interesting guests

3943

02:43:37,269 --> 02:43:35,040

that

3944

02:43:39,990 --> 02:43:37,279

covered the paranormal the supernatural

3945

02:43:42,630 --> 02:43:40,000

and ufos and ghosts life after death the

3946

02:43:46,070 --> 02:43:42,640

inner earth he did all that stuff man

3947

02:43:47,670 --> 02:43:46,080

nazi flying saucers tonight right

3948

02:43:50,950 --> 02:43:47,680

tonight

3949

02:43:53,190 --> 02:43:50,960

and uh i loved it i listened to all of

3950

02:43:57,030 --> 02:43:53,200

the long john neville that is uh pretty

3951

02:44:00,790 --> 02:43:57,040

much available and he did it from

3952

02:44:02,630 --> 02:44:00,800

he did it from the early 50s until 1974

3953

02:44:05,429 --> 02:44:02,640

until he died and then his wife took

3954

02:44:07,590 --> 02:44:05,439

over the show and uh and she was

3955

02:44:09,590 --> 02:44:07,600

interesting too because

3956

02:44:11,590 --> 02:44:09,600

there were stories about that she was

3957

02:44:14,790 --> 02:44:11,600

she was cia

3958

02:44:16,630 --> 02:44:14,800

right that's a whole nother

3959

02:44:19,670 --> 02:44:16,640

oh there's a there's an elephant in the

3960

02:44:20,630 --> 02:44:19,680

room on that um there was one talk show

3961

02:44:23,269 --> 02:44:20,640

host

3962

02:44:25,190 --> 02:44:23,279

um back from the in the day william f

3963

02:44:27,349 --> 02:44:25,200

buckley who was definitely an agent in

3964

02:44:29,269 --> 02:44:27,359

the cia and admitted it

3965

02:44:32,630 --> 02:44:29,279

so that there was that sort of thing

3966

02:44:34,950 --> 02:44:32,640

going on in those days 100 100 okay

3967

02:44:42,870 --> 02:44:34,960

let's get back to uh let's see what we

3968

02:44:48,309 --> 02:44:45,030

that's a closer in view

3969

02:44:51,190 --> 02:44:48,319

of the uh the karina nebula

3970

02:44:54,550 --> 02:44:51,200

and it shows more that you know james

3971

02:44:55,990 --> 02:44:54,560

webb's images can be uh blown up you

3972

02:44:57,429 --> 02:44:56,000

know the high resolution very high

3973

02:44:59,429 --> 02:44:57,439

resolution images

3974

02:45:00,950 --> 02:44:59,439

and you can take closer looks but this i

3975

02:45:02,469 --> 02:45:00,960

think i think was actually done by one

3976

02:45:05,269 --> 02:45:02,479
of the other cameras

3977

02:45:08,309 --> 02:45:05,279
uh which jwst has several

3978

02:45:10,230 --> 02:45:08,319
so there's three clusters of lenses of

3979

02:45:12,950 --> 02:45:10,240
cameras on it yeah

3980

02:45:15,030 --> 02:45:12,960
and i think this was this was uh

3981

02:45:16,710 --> 02:45:15,040
it might even say

3982

02:45:18,309 --> 02:45:16,720
no i don't think it does

3983

02:45:20,630 --> 02:45:18,319
which instrument it was but it has three

3984

02:45:22,389 --> 02:45:20,640
ins you know these groups of instruments

3985

02:45:23,830 --> 02:45:22,399
that give different views of the same

3986

02:45:25,910 --> 02:45:23,840
thing and

3987

02:45:27,670 --> 02:45:25,920
a lot of times it's you know it's all

3988

02:45:29,590 --> 02:45:27,680

three instruments you know make an

3989

02:45:31,349 --> 02:45:29,600

observation of something for comparison

3990

02:45:33,429 --> 02:45:31,359

and all kinds of things like that that

3991

02:45:34,950 --> 02:45:33,439

um allow for a clear picture of what

3992

02:45:37,510 --> 02:45:34,960

you're looking at

3993

02:45:41,269 --> 02:45:37,520

do you um

3994

02:45:44,870 --> 02:45:41,279

there is a big chunk of this community

3995

02:45:46,550 --> 02:45:44,880

that is expecting our government

3996

02:45:49,429 --> 02:45:46,560

uh to

3997

02:45:51,030 --> 02:45:49,439

to cross the the line the rubicon of

3998

02:45:53,030 --> 02:45:51,040

disclosure and start

3999

02:45:54,950 --> 02:45:53,040

uh talking about this in a different

4000

02:45:56,870 --> 02:45:54,960

context even more so than what they are

4001

02:45:59,750 --> 02:45:56,880

today which is

4002

02:46:02,630 --> 02:45:59,760

uh it's pretty nuts what's going on

4003

02:46:04,150 --> 02:46:02,640

um but then there's another contingent

4004

02:46:06,389 --> 02:46:04,160

of of

4005

02:46:09,030 --> 02:46:06,399

of which i'm part of that the

4006

02:46:10,550 --> 02:46:09,040

announcement is going to end up coming

4007

02:46:12,790 --> 02:46:10,560

from science

4008

02:46:16,150 --> 02:46:12,800

and now

4009

02:46:17,510 --> 02:46:16,160

that that breaks down into

4010

02:46:19,750 --> 02:46:17,520

james webb

4011

02:46:22,630 --> 02:46:19,760

may force this announcement

4012

02:46:25,830 --> 02:46:22,640

um and it could come very soon

4013

02:46:28,550 --> 02:46:25,840

uh which which side of things are you on

4014

02:46:30,469 --> 02:46:28,560

okay in regards to to the announcement

4015

02:46:32,790 --> 02:46:30,479

of alien life if it comes from science

4016

02:46:34,710 --> 02:46:32,800

no one will be able to keep it quiet

4017

02:46:37,269 --> 02:46:34,720

and the reason is number one science is

4018

02:46:40,309 --> 02:46:37,279

international and these teams like james

4019

02:46:41,830 --> 02:46:40,319

webb these are spread across all nations

4020

02:46:44,469 --> 02:46:41,840

you know that we're participating and

4021

02:46:47,190 --> 02:46:44,479

any scientist can get time on that so

4022

02:46:48,950 --> 02:46:47,200

the discovery of some

4023

02:46:51,910 --> 02:46:48,960

technical signature with james webb

4024

02:46:53,990 --> 02:46:51,920

could come from a scientist in denmark

4025

02:46:55,990 --> 02:46:54,000

well good luck if if you want to keep

4026
02:46:56,790 --> 02:46:56,000
that quiet and you're a government good

4027
02:46:58,870 --> 02:46:56,800
luck

4028
02:47:00,150 --> 02:46:58,880
doing that in another country you know

4029
02:47:02,630 --> 02:47:00,160
and but it won't even happen that way

4030
02:47:04,870 --> 02:47:02,640
it'll just go public um

4031
02:47:06,630 --> 02:47:04,880
there's all kinds of things interactions

4032
02:47:07,830 --> 02:47:06,640
between astronomers and they can't keep

4033
02:47:09,190 --> 02:47:07,840
their mouth shut so if they see

4034
02:47:12,070 --> 02:47:09,200
something we're all going to know about

4035
02:47:14,710 --> 02:47:12,080
it but if if it gets closer to home

4036
02:47:17,269 --> 02:47:14,720
with the galileo project

4037
02:47:19,110 --> 02:47:17,279
trust me ivy loeb will

4038
02:47:21,349 --> 02:47:19,120

he will tell he will scream from the

4039

02:47:23,590 --> 02:47:21,359

rooftops if there's something odd

4040

02:47:24,309 --> 02:47:23,600

that's caught which i'm sure there will

4041

02:47:26,550 --> 02:47:24,319

be

4042

02:47:29,110 --> 02:47:26,560

um and they've actually got their first

4043

02:47:30,070 --> 02:47:29,120

camera operating on top of harvard now

4044

02:47:30,870 --> 02:47:30,080

so

4045

02:47:33,269 --> 02:47:30,880

hey

4046

02:47:35,349 --> 02:47:33,279

you know show us what you find

4047

02:47:37,910 --> 02:47:35,359

uh and what if it

4048

02:47:40,230 --> 02:47:37,920

okay so we have uh the possibility of

4049

02:47:42,469 --> 02:47:40,240

perseverance and there are some you know

4050

02:47:45,190 --> 02:47:42,479

that are saying that the announcement of

4051
02:47:46,550 --> 02:47:45,200
of you know life you know off planet

4052
02:47:49,429 --> 02:47:46,560
would uh

4053
02:47:50,870 --> 02:47:49,439
would come from mars first

4054
02:47:55,349 --> 02:47:50,880
um

4055
02:47:57,030 --> 02:47:55,359
do you equate the announcement of life

4056
02:47:59,349 --> 02:47:57,040
uh the same

4057
02:48:02,070 --> 02:47:59,359
does that hold the same weight right

4058
02:48:04,070 --> 02:48:02,080
that happened twice and we we were wrong

4059
02:48:05,910 --> 02:48:04,080
both times and it both came from mars uh

4060
02:48:08,790 --> 02:48:05,920
first was the labeled release experiment

4061
02:48:10,550 --> 02:48:08,800
with viking which gave a positive result

4062
02:48:12,469 --> 02:48:10,560
and that wasn't suppressed it went out

4063
02:48:13,910 --> 02:48:12,479

there and the second one was the one

4064

02:48:16,230 --> 02:48:13,920

that bill clinton himself actually

4065

02:48:17,670 --> 02:48:16,240

talked about was the uh the announcement

4066

02:48:20,309 --> 02:48:17,680

of potential

4067

02:48:21,990 --> 02:48:20,319

fossil life in a martian meteorite

4068

02:48:23,510 --> 02:48:22,000

turned out that's in question we don't

4069

02:48:25,269 --> 02:48:23,520

know what that is um and the same with

4070

02:48:27,110 --> 02:48:25,279

the label released we've nev we've never

4071

02:48:30,070 --> 02:48:27,120

actually resolved what that experiment

4072

02:48:31,510 --> 02:48:30,080

detected it's just in question

4073

02:48:33,670 --> 02:48:31,520

but both of those were taken by the

4074

02:48:36,150 --> 02:48:33,680

public as announcements of the discovery

4075

02:48:37,990 --> 02:48:36,160

of microbial alien life

4076

02:48:39,990 --> 02:48:38,000

nothing happened

4077

02:48:41,990 --> 02:48:40,000

nobody cared well they cared but nobody

4078

02:48:43,349 --> 02:48:42,000

was surprised

4079

02:48:44,389 --> 02:48:43,359

and i think that that's going to be the

4080

02:48:51,670 --> 02:48:44,399

case with

4081

02:48:56,550 --> 02:48:54,950

seti detection or whatever

4082

02:48:59,590 --> 02:48:56,560

we all it's not going to surprise

4083

02:49:01,910 --> 02:48:59,600

anybody i mean half of all you know u.s

4084

02:49:03,190 --> 02:49:01,920

citizens that are more than half

4085

02:49:05,030 --> 02:49:03,200

just

4086

02:49:06,550 --> 02:49:05,040

no biggie you know let's find out more

4087

02:49:07,670 --> 02:49:06,560

about them you know let's learn

4088

02:49:10,550 --> 02:49:07,680

something

4089

02:49:13,590 --> 02:49:10,560

now when we talk about uh and we hear

4090

02:49:14,950 --> 02:49:13,600

this a lot now right techno signatures

4091

02:49:16,469 --> 02:49:14,960

um

4092

02:49:21,590 --> 02:49:16,479

uh

4093

02:49:24,150 --> 02:49:21,600

it stirs the science fiction aspect of

4094

02:49:26,469 --> 02:49:24,160

this and in the imagination that a

4095

02:49:27,910 --> 02:49:26,479

techno signature uh

4096

02:49:30,790 --> 02:49:27,920

to one person

4097

02:49:33,510 --> 02:49:30,800

isn't the same as another um so when

4098

02:49:36,469 --> 02:49:33,520

we're talking about techno signatures is

4099

02:49:38,469 --> 02:49:36,479

it going to be something boring like

4100

02:49:40,710 --> 02:49:38,479

a crazy amount of methane

4101

02:49:43,910 --> 02:49:40,720

which would indicate some type of

4102

02:49:45,830 --> 02:49:43,920

biological you know uh occurrence

4103

02:49:48,710 --> 02:49:45,840

uh no i don't think that that would

4104

02:49:50,150 --> 02:49:48,720

excite people or is it something else

4105

02:49:54,150 --> 02:49:50,160

uh ships

4106

02:49:56,790 --> 02:49:54,160

uh uh uh doing galactic star trading

4107

02:49:58,790 --> 02:49:56,800

right on trade routes you know what what

4108

02:50:01,030 --> 02:49:58,800

is a techno signature

4109

02:50:03,030 --> 02:50:01,040

well it runs a gamut so a techno

4110

02:50:04,630 --> 02:50:03,040

signature is a signature of technology

4111

02:50:06,950 --> 02:50:04,640

meaning intelligence

4112

02:50:08,870 --> 02:50:06,960

and a biosignature that's gases in an

4113

02:50:10,550 --> 02:50:08,880

atmosphere that indicate a biosphere

4114

02:50:12,309 --> 02:50:10,560

whereas a techno signature indicates a

4115

02:50:15,510 --> 02:50:12,319

technological civilization doing

4116

02:50:17,510 --> 02:50:15,520

something and that can go from um

4117

02:50:18,870 --> 02:50:17,520

the relatively mundane you know you

4118

02:50:20,469 --> 02:50:18,880

accidentally catch one of their

4119

02:50:21,830 --> 02:50:20,479

communications one of their internal

4120

02:50:24,230 --> 02:50:21,840

communications and you see there's a

4121

02:50:26,309 --> 02:50:24,240

narrow band radio signal and it must be

4122

02:50:29,110 --> 02:50:26,319

artificial

4123

02:50:32,070 --> 02:50:29,120

that's the boring side um

4124

02:50:33,349 --> 02:50:32,080

but the the non-boring side is

4125

02:50:35,269 --> 02:50:33,359

a giant

4126
02:50:37,190 --> 02:50:35,279
space laser shows up and starts firing

4127
02:50:39,510 --> 02:50:37,200
at you you know that's a techno

4128
02:50:42,070 --> 02:50:39,520
signature too

4129
02:50:44,150 --> 02:50:42,080
the uh

4130
02:50:46,950 --> 02:50:44,160
the identifiers

4131
02:50:49,110 --> 02:50:46,960
seem pretty simple on this planet

4132
02:50:50,790 --> 02:50:49,120
we've got pollution we've got radio and

4133
02:50:53,349 --> 02:50:50,800
television signals

4134
02:50:55,349 --> 02:50:53,359
uh we've got satellites uh we've got

4135
02:50:56,710 --> 02:50:55,359
communications that's happening we've

4136
02:50:57,670 --> 02:50:56,720
got uh

4137
02:51:00,309 --> 02:50:57,680
uh

4138
02:51:02,389 --> 02:51:00,319

stuff that is very lights and cities and

4139

02:51:06,550 --> 02:51:02,399

stuff like that so all of that is very

4140

02:51:08,469 --> 02:51:06,560

very visible but we are very quickly

4141

02:51:11,750 --> 02:51:08,479

closing down on radio and television

4142

02:51:12,790 --> 02:51:11,760

signals right and and you know a cable

4143

02:51:15,670 --> 02:51:12,800

driven

4144

02:51:18,230 --> 02:51:15,680

fiber optic world where this stuff isn't

4145

02:51:20,710 --> 02:51:18,240

being broadcast certainly at 75 100

4146

02:51:23,590 --> 02:51:20,720

years ago we didn't have any regulations

4147

02:51:25,510 --> 02:51:23,600

on the strength of uh our radio antennas

4148

02:51:26,550 --> 02:51:25,520

all right we were blasting out millions

4149

02:51:29,349 --> 02:51:26,560

of watts

4150

02:51:31,830 --> 02:51:29,359

yeah that was that was in the days uh i

4151

02:51:34,070 --> 02:51:31,840

just 700 000 watts

4152

02:51:35,910 --> 02:51:34,080

and things like that whereas now

4153

02:51:38,389 --> 02:51:35,920

i think what is the federal level it's

4154

02:51:40,389 --> 02:51:38,399

it's for 50 000. yeah clear channel

4155

02:51:41,990 --> 02:51:40,399

station might be able to go to 100 or

4156

02:51:44,710 --> 02:51:42,000

something it if like in the middle of

4157

02:51:47,349 --> 02:51:44,720

the night but that's it you know

4158

02:51:48,630 --> 02:51:47,359

and then 50 000 for anything fm

4159

02:51:50,630 --> 02:51:48,640

um

4160

02:51:52,230 --> 02:51:50,640

that is not visible to an alien

4161

02:51:53,030 --> 02:51:52,240

civilization but there is one thing that

4162

02:51:54,389 --> 02:51:53,040

is

4163

02:51:57,190 --> 02:51:54,399

and it's probably going to be with us

4164

02:51:58,870 --> 02:51:57,200

for a very long time and it's the radar

4165

02:52:01,429 --> 02:51:58,880

the radar is

4166

02:52:03,750 --> 02:52:01,439

still very very powerful

4167

02:52:05,830 --> 02:52:03,760

and that they can see um if they're

4168

02:52:09,830 --> 02:52:05,840

within 100 light years

4169

02:52:12,710 --> 02:52:09,840

and now so if we flip that over okay

4170

02:52:15,750 --> 02:52:12,720

we're looking at a very narrow window

4171

02:52:17,670 --> 02:52:15,760

for an opportunity to observe us

4172

02:52:19,190 --> 02:52:17,680

but they must be doing the same thing

4173

02:52:20,630 --> 02:52:19,200

right if we're out there looking for

4174

02:52:23,429 --> 02:52:20,640

exoplanets and they're looking for

4175

02:52:25,269 --> 02:52:23,439

exoplanets anyone in the milky way

4176
02:52:26,950 --> 02:52:25,279
that's looking for exoplanets knows

4177
02:52:30,150 --> 02:52:26,960
about earth because it's been screaming

4178
02:52:33,750 --> 02:52:30,160
its biosphere its biosignature for

4179
02:52:38,309 --> 02:52:36,469
correct and now um

4180
02:52:40,790 --> 02:52:38,319
okay so

4181
02:52:42,230 --> 02:52:40,800
40 light years away let's say there's

4182
02:52:44,550 --> 02:52:42,240
intelligent life on trappists and

4183
02:52:47,269 --> 02:52:44,560
they're looking at us right now well

4184
02:52:50,070 --> 02:52:47,279
that's only 40 years ago so if they're

4185
02:52:53,269 --> 02:52:50,080
checking us out 40 years ago dude they

4186
02:52:55,190 --> 02:52:53,279
were looking at the us festival happen

4187
02:52:57,750 --> 02:52:55,200
okay that's pretty cool

4188
02:52:59,990 --> 02:52:57,760

that's uh that's intelligent life they

4189

02:53:02,469 --> 02:53:00,000

could be watching van halen uh they're

4190

02:53:05,910 --> 02:53:02,479

not looking at the dinosaurs but if you

4191

02:53:08,230 --> 02:53:05,920

stretch out past that and you're going

4192

02:53:10,070 --> 02:53:08,240

uh you know you're 5 000 light years

4193

02:53:12,630 --> 02:53:10,080

away and you're looking back at earth

4194

02:53:15,110 --> 02:53:12,640

you're looking at you know stone age man

4195

02:53:17,590 --> 02:53:15,120

or or worse if you're out

4196

02:53:19,349 --> 02:53:17,600

uh uh ten thousand fifteen twenty

4197

02:53:22,230 --> 02:53:19,359

thousand light years away

4198

02:53:24,389 --> 02:53:22,240

uh no idea that we were here

4199

02:53:26,950 --> 02:53:24,399

what what they would see was the all of

4200

02:53:28,950 --> 02:53:26,960

them all of the all of the scientists of

4201
02:53:30,230 --> 02:53:28,960
the milky way will see the oxygen and

4202
02:53:31,750 --> 02:53:30,240
they'll be like

4203
02:53:34,550 --> 02:53:31,760
there's plants there

4204
02:53:37,510 --> 02:53:34,560
you know there's a photosynthesizing um

4205
02:53:39,110 --> 02:53:37,520
biosphere there but as far as detecting

4206
02:53:42,630 --> 02:53:39,120
something like the roman empire they

4207
02:53:44,469 --> 02:53:42,640
would never see that you know um

4208
02:53:45,590 --> 02:53:44,479
there are some

4209
02:53:47,750 --> 02:53:45,600
thoughts that you might be able to

4210
02:53:49,349 --> 02:53:47,760
detect agriculture on a very large scale

4211
02:53:50,630 --> 02:53:49,359
but it needs to be on a really really

4212
02:53:52,790 --> 02:53:50,640
large scale

4213
02:53:55,910 --> 02:53:52,800

and we were just undetectable and we're

4214

02:53:56,950 --> 02:53:55,920

only barely detectable even now um the

4215

02:53:59,910 --> 02:53:56,960

radar

4216

02:54:04,150 --> 02:53:59,920

gives us away uh but only if that alien

4217

02:54:05,750 --> 02:54:04,160

civilization is looking right at us um

4218

02:54:07,990 --> 02:54:05,760

but they would know to do that for the

4219

02:54:10,389 --> 02:54:08,000

for the biosphere but even then passed

4220

02:54:12,870 --> 02:54:10,399

out 100 light years past that bubble

4221

02:54:14,550 --> 02:54:12,880

nobody has any way of knowing about us

4222

02:54:15,830 --> 02:54:14,560

and it shouldn't be surprising that we

4223

02:54:16,710 --> 02:54:15,840

don't see

4224

02:54:18,469 --> 02:54:16,720

you know

4225

02:54:20,870 --> 02:54:18,479

contact signals because it's just that

4226

02:54:22,790 --> 02:54:20,880

little tiny bubble it's not even

4227

02:54:25,110 --> 02:54:22,800

not even anything close to a single

4228

02:54:27,910 --> 02:54:25,120

percent of the galaxy itself

4229

02:54:29,670 --> 02:54:27,920

well okay so now we have an issue though

4230

02:54:34,150 --> 02:54:29,680

uh today

4231

02:54:35,670 --> 02:54:34,160

with uh uaps and the military and ufos

4232

02:54:37,910 --> 02:54:35,680

and things that are going on that they

4233

02:54:39,349 --> 02:54:37,920

are having a hard time explaining

4234

02:54:41,750 --> 02:54:39,359

whether they know

4235

02:54:43,830 --> 02:54:41,760

what is going on or not

4236

02:54:46,230 --> 02:54:43,840

they are saying that it's a phenomenon

4237

02:54:50,550 --> 02:54:46,240

that they don't understand

4238

02:54:53,429 --> 02:54:50,560

is this an example of things out there

4239

02:54:55,670 --> 02:54:53,439

that could be by the billion

4240

02:54:57,750 --> 02:54:55,680

uh different civilizations that are just

4241

02:54:59,910 --> 02:54:57,760

doing what we're doing we're sending

4242

02:55:03,510 --> 02:54:59,920

probes to saturn you know every single

4243

02:55:06,230 --> 02:55:03,520

day and this is this is our plan

4244

02:55:07,190 --> 02:55:06,240

well wouldn't et be doing the same thing

4245

02:55:09,269 --> 02:55:07,200

and

4246

02:55:12,230 --> 02:55:09,279

is that possible that what we are seeing

4247

02:55:14,309 --> 02:55:12,240

here isn't necessarily an alien invasion

4248

02:55:17,429 --> 02:55:14,319

but stuff that is just propagating

4249

02:55:19,349 --> 02:55:17,439

throughout the milky way yeah that it's

4250

02:55:21,510 --> 02:55:19,359

it it's plausible and the way that it

4251

02:55:23,510 --> 02:55:21,520

happens is that

4252

02:55:25,349 --> 02:55:23,520

way back 50 years ago john von neumann a

4253

02:55:27,429 --> 02:55:25,359

very famous mathematician came up with

4254

02:55:29,190 --> 02:55:27,439

the idea of self-replicating probes

4255

02:55:31,269 --> 02:55:29,200

doing essentially what viruses and

4256

02:55:33,910 --> 02:55:31,279

nature do they they create copies of

4257

02:55:36,070 --> 02:55:33,920

themselves and if you do that you can

4258

02:55:38,070 --> 02:55:36,080

have a probe in

4259

02:55:40,070 --> 02:55:38,080

every star system in the in the galaxy

4260

02:55:41,670 --> 02:55:40,080

at sublight speeds not violating any

4261

02:55:43,030 --> 02:55:41,680

physics but and you can do within a few

4262

02:55:44,309 --> 02:55:43,040

million years

4263

02:55:46,630 --> 02:55:44,319

and if you're an automated

4264

02:55:48,389 --> 02:55:46,640

civilizationist a machine civilization

4265

02:55:49,670 --> 02:55:48,399

you don't care about time so you you

4266

02:55:52,150 --> 02:55:49,680

would you would probably do something

4267

02:55:53,429 --> 02:55:52,160

like that so that led enrico fermi to

4268

02:55:54,630 --> 02:55:53,439

say

4269

02:55:56,710 --> 02:55:54,640

well look

4270

02:55:59,190 --> 02:55:56,720

where are they they should be here you

4271

02:56:01,110 --> 02:55:59,200

know this galaxy is 13.8 billion years

4272

02:56:03,429 --> 02:56:01,120

old it's well old enough for somebody

4273

02:56:06,150 --> 02:56:03,439

somebody to have you know a right you

4274

02:56:08,150 --> 02:56:06,160

know evolved and then spread out to the

4275

02:56:09,990 --> 02:56:08,160

galaxy so where is everyone and the

4276

02:56:13,670 --> 02:56:10,000

thing is is that

4277

02:56:15,510 --> 02:56:13,680

that's predicated on the assumption

4278

02:56:18,070 --> 02:56:15,520

that we should

4279

02:56:19,750 --> 02:56:18,080

see evidence of an alien civilization in

4280

02:56:22,070 --> 02:56:19,760

this star system and if there's a von

4281

02:56:24,070 --> 02:56:22,080

neumann probe out there printing out uh

4282

02:56:25,110 --> 02:56:24,080

atmospheric probes we'll call them tic

4283

02:56:26,710 --> 02:56:25,120

tacs

4284

02:56:28,550 --> 02:56:26,720

and sending them into the atmosphere and

4285

02:56:31,030 --> 02:56:28,560

someone sees them then someone just saw

4286

02:56:34,150 --> 02:56:31,040

an uh ufo of alien origin so we need to

4287

02:56:37,110 --> 02:56:34,160

remember that there is a plausible way

4288

02:56:39,590 --> 02:56:37,120

for the ufo phenomenon to be of alien

4289

02:56:42,389 --> 02:56:39,600

origin it could happen

4290

02:56:44,469 --> 02:56:42,399

the second thing though is that

4291

02:56:47,190 --> 02:56:44,479

the other problem is that statistically

4292

02:56:49,349 --> 02:56:47,200

speaking close aliens are a bad thing

4293

02:56:51,910 --> 02:56:49,359

because the closer it is to you it means

4294

02:56:54,389 --> 02:56:51,920

that there are a lot of aliens out there

4295

02:56:56,230 --> 02:56:54,399

if if you see an alien civilization in

4296

02:56:58,150 --> 02:56:56,240

the star system next to you

4297

02:56:59,750 --> 02:56:58,160

it suggests that there there's an

4298

02:57:01,269 --> 02:56:59,760

enormous population of alien

4299

02:57:02,790 --> 02:57:01,279

civilizations in the galaxy we just

4300

02:57:04,870 --> 02:57:02,800

don't see evidence of that

4301
02:57:06,070 --> 02:57:04,880
so when a civilization is close to you

4302
02:57:07,510 --> 02:57:06,080
and you see it

4303
02:57:09,990 --> 02:57:07,520
you run up against something called the

4304
02:57:13,110 --> 02:57:10,000
solarian hypothesis and this learning

4305
02:57:15,830 --> 02:57:13,120
hypothesis is that

4306
02:57:17,830 --> 02:57:15,840
earth you can't rule out that earth

4307
02:57:19,590 --> 02:57:17,840
didn't produce a prior technological

4308
02:57:21,510 --> 02:57:19,600
civilization

4309
02:57:23,110 --> 02:57:21,520
and that evidence of it is simply erased

4310
02:57:25,030 --> 02:57:23,120
from the geological record from

4311
02:57:26,950 --> 02:57:25,040
weathering you know this planet is very

4312
02:57:29,190 --> 02:57:26,960
good at renewing itself

4313
02:57:30,790 --> 02:57:29,200

so with the solarian hypothesis in place

4314

02:57:33,269 --> 02:57:30,800

that kind of throws a wrench into it

4315

02:57:34,710 --> 02:57:33,279

because it opens up the fact

4316

02:57:37,269 --> 02:57:34,720

you know the possibility not the fact

4317

02:57:39,269 --> 02:57:37,279

the possibility that

4318

02:57:40,950 --> 02:57:39,279

you're seeing a prior civilization on

4319

02:57:43,510 --> 02:57:40,960

earth that had you know went off into

4320

02:57:45,750 --> 02:57:43,520

space and is just checking back in

4321

02:57:48,710 --> 02:57:45,760

and seeing how the home world's doing

4322

02:57:51,750 --> 02:57:48,720

um and that means it's earth life though

4323

02:57:52,710 --> 02:57:51,760

it's not alien um it's earth life so

4324

02:57:55,590 --> 02:57:52,720

there are

4325

02:57:58,070 --> 02:57:55,600

unexplored possibilities for you know

4326
02:58:00,389 --> 02:57:58,080
coming up with the the explanations for

4327
02:58:02,710 --> 02:58:00,399
uap that we haven't really talked about

4328
02:58:05,030 --> 02:58:02,720
yet that that are there

4329
02:58:06,230 --> 02:58:05,040
that are not alien but just as weird you

4330
02:58:07,990 --> 02:58:06,240
know

4331
02:58:10,150 --> 02:58:08,000
and that this was hinted at by jacques

4332
02:58:12,950 --> 02:58:10,160
valley and and jail and heineken years

4333
02:58:14,630 --> 02:58:12,960
ago that the phenomenon is too broad

4334
02:58:15,510 --> 02:58:14,640
for an alien origin

4335
02:58:18,309 --> 02:58:15,520
um

4336
02:58:20,630 --> 02:58:18,319
so my my thinking is

4337
02:58:23,030 --> 02:58:20,640
we have enough now enough weird stuff we

4338
02:58:26,469 --> 02:58:23,040

have the government you know the navy

4339

02:58:28,469 --> 02:58:26,479

testifying in front of congress

4340

02:58:30,070 --> 02:58:28,479

they're saying that the phenomenon is

4341

02:58:31,910 --> 02:58:30,080

there it's real okay

4342

02:58:34,230 --> 02:58:31,920

let's find out what it is let's let's

4343

02:58:36,150 --> 02:58:34,240

study it let's let's put the research in

4344

02:58:38,790 --> 02:58:36,160

and see if we can resolve it finally

4345

02:58:40,630 --> 02:58:38,800

after 70 years of talking about it

4346

02:58:42,230 --> 02:58:40,640

let's let's let's hope i think it's

4347

02:58:43,750 --> 02:58:42,240

tangible

4348

02:58:47,590 --> 02:58:43,760

i think that the

4349

02:58:49,269 --> 02:58:47,600

the idea of this is now tangible you

4350

02:58:51,349 --> 02:58:49,279

know it's almost like

4351
02:58:53,110 --> 02:58:51,359
we can feel

4352
02:58:56,550 --> 02:58:53,120
that there is something going on when it

4353
02:58:59,190 --> 02:58:56,560
comes to this discussion and

4354
02:59:01,990 --> 02:58:59,200
i think we can but to be honest with you

4355
02:59:03,429 --> 02:59:02,000
i felt that 35 years ago that there

4356
02:59:04,950 --> 02:59:03,439
maybe there's something to this you know

4357
02:59:06,870 --> 02:59:04,960
we should pay attention to it not

4358
02:59:09,590 --> 02:59:06,880
ridicule it

4359
02:59:12,630 --> 02:59:09,600
and uh while there's a whole lot of

4360
02:59:14,070 --> 02:59:12,640
fluff involved with the the field

4361
02:59:15,910 --> 02:59:14,080
there's always been these these

4362
02:59:18,710 --> 02:59:15,920
questions of cases that are really

4363
02:59:20,550 --> 02:59:18,720

really perplexing and you know

4364

02:59:22,790 --> 02:59:20,560

completely legitimate science scientists

4365

02:59:24,309 --> 02:59:22,800

like james us you know james mcdonald

4366

02:59:25,990 --> 02:59:24,319

back in the day

4367

02:59:27,830 --> 02:59:26,000

looked into it and concluded hey there's

4368

02:59:29,670 --> 02:59:27,840

something weird going on here and he was

4369

02:59:31,269 --> 02:59:29,680

basically uh drummed out of his

4370

02:59:33,349 --> 02:59:31,279

profession over and it was terrible it's

4371

02:59:35,429 --> 02:59:33,359

awful so we had really aggressive

4372

02:59:37,429 --> 02:59:35,439

skeptics that were actually going after

4373

02:59:39,190 --> 02:59:37,439

people's personal lives over their

4374

02:59:41,190 --> 02:59:39,200

interest in ufos and i think that's

4375

02:59:43,510 --> 02:59:41,200

highly dishonest and i don't want that

4376
02:59:46,150 --> 02:59:43,520
to happen again no i think we've moved

4377
02:59:48,550 --> 02:59:46,160
past that john we've moved past that um

4378
02:59:50,389 --> 02:59:48,560
although we're out of time uh i'll leave

4379
02:59:52,550 --> 02:59:50,399
you with this note

4380
02:59:54,389 --> 02:59:52,560
um i was with a group of friends up in

4381
02:59:56,710 --> 02:59:54,399
washington state and we were at mount

4382
02:59:57,830 --> 02:59:56,720
adams we were 14 miles away from mount

4383
03:00:00,550 --> 02:59:57,840
adams

4384
03:00:02,150 --> 03:00:00,560
when we all observed i saw through my

4385
03:00:04,550 --> 03:00:02,160
binoculars three o'clock in the

4386
03:00:08,230 --> 03:00:04,560
afternoon

4387
03:00:10,950 --> 03:00:08,240
i'm guessing 500 feet tall i don't know

4388
03:00:13,590 --> 03:00:10,960

how else to describe it to you but it

4389

03:00:14,469 --> 03:00:13,600

looked like a beer can

4390

03:00:17,590 --> 03:00:14,479

and

4391

03:00:19,830 --> 03:00:17,600

imagine 500 feet maybe 200 300 feet

4392

03:00:23,269 --> 03:00:19,840

across and it's going like this across

4393

03:00:24,710 --> 03:00:23,279

the sky at a silver circle on it we saw

4394

03:00:28,230 --> 03:00:24,720

from it came out from behind the

4395

03:00:31,830 --> 03:00:28,240

mountain so it's at least 14 miles away

4396

03:00:35,030 --> 03:00:31,840

and and it's doing this right

4397

03:00:38,630 --> 03:00:35,040

and you see that not not this isn't a

4398

03:00:40,790 --> 03:00:38,640

light in the sky at midnight it says

4399

03:00:42,790 --> 03:00:40,800

three o'clock in the afternoon it's

4400

03:00:43,830 --> 03:00:42,800

black it's chrome on the top and the

4401
03:00:46,630 --> 03:00:43,840
bottom

4402
03:00:48,710 --> 03:00:46,640
and then it disappeared lasted for about

4403
03:00:51,349 --> 03:00:48,720
15 seconds

4404
03:00:53,030 --> 03:00:51,359
is this simply vanish poof yeah yeah i

4405
03:00:55,990 --> 03:00:53,040
didn't see it disappear everybody else

4406
03:00:57,750 --> 03:00:56,000
did i was going between the binoculars

4407
03:00:59,510 --> 03:00:57,760
and looking at it with the naked eye and

4408
03:01:01,830 --> 03:00:59,520
when i came back to the binoculars they

4409
03:01:03,670 --> 03:01:01,840
said it just disappeared and i was

4410
03:01:05,269 --> 03:01:03,680
pretty upset because we had a clear blue

4411
03:01:07,590 --> 03:01:05,279
sky above us i thought we were going to

4412
03:01:08,950 --> 03:01:07,600
see this for quite a while but the point

4413
03:01:11,429 --> 03:01:08,960

is

4414

03:01:14,550 --> 03:01:11,439

that wasn't us

4415

03:01:16,710 --> 03:01:14,560

i saw it i can tell you right now that

4416

03:01:18,550 --> 03:01:16,720

had nothing to do

4417

03:01:21,269 --> 03:01:18,560

with

4418

03:01:23,750 --> 03:01:21,279

i mean if you look at an incident like

4419

03:01:25,429 --> 03:01:23,760

the nimitz incident i i can't sit there

4420

03:01:27,030 --> 03:01:25,439

and say that that was

4421

03:01:29,910 --> 03:01:27,040

what was described by fravor in the

4422

03:01:31,030 --> 03:01:29,920

pilots i i can't say that was anything

4423

03:01:32,630 --> 03:01:31,040

positive

4424

03:01:34,309 --> 03:01:32,640

you're right

4425

03:01:36,790 --> 03:01:34,319

i'm interested i'm interested i just

4426

03:01:38,790 --> 03:01:36,800

want what i want is real digestible

4427

03:01:41,110 --> 03:01:38,800

scientific data and i'm hoping that dr

4428

03:01:43,590 --> 03:01:41,120

loeb gives that to us with uh project

4429

03:01:45,990 --> 03:01:43,600

galileo so that we can all chew on it

4430

03:01:47,750 --> 03:01:46,000

and and uh have a discussion you know

4431

03:01:49,349 --> 03:01:47,760

without without the stigma and the

4432

03:01:51,750 --> 03:01:49,359

ridicule and all that just have an

4433

03:01:53,910 --> 03:01:51,760

honest discussion and ask ourselves what

4434

03:01:55,910 --> 03:01:53,920

the hell is this well we're about to get

4435

03:01:57,590 --> 03:01:55,920

kicked off the network so give me 10

4436

03:01:59,030 --> 03:01:57,600

seconds when do you put out the new

4437

03:02:01,750 --> 03:01:59,040

event horizon

4438

03:02:04,230 --> 03:02:01,760

every thursday afternoon they come out

4439

03:02:06,070 --> 03:02:04,240

the links for everything are right here

4440

03:02:08,070 --> 03:02:06,080

at jimmychurchradio.com we have on

4441

03:02:10,469 --> 03:02:08,080

social media it's over on the website

4442

03:02:11,990 --> 03:02:10,479

it's on the description box below

4443

03:02:13,990 --> 03:02:12,000

john michael gautier you are the

4444

03:02:15,990 --> 03:02:14,000

absolute very best at the end of this

4445

03:02:17,110 --> 03:02:16,000

month we'll make a big announcement to

4446

03:02:18,950 --> 03:02:17,120

the world

4447

03:02:20,550 --> 03:02:18,960

everybody stay tuned for that john

4448

03:02:23,670 --> 03:02:20,560

behave and be well man i'll talk to you

4449

03:02:27,030 --> 03:02:25,510

this is fade to black i'm your host

4450

03:02:30,070 --> 03:02:27,040

jimmy church john stay right there we'll

4451

03:02:32,950 --> 03:02:30,080

say good night after the show

4452

03:02:36,550 --> 03:02:32,960

what a great great conversation tonight

4453

03:02:39,269 --> 03:02:36,560

it was perfect tomorrow night right here

4454

03:02:41,030 --> 03:02:39,279

isaac arthur fade to black is produced

4455

03:02:43,110 --> 03:02:41,040

by hill j palmer renee dennis and kevin

4456

03:02:47,190 --> 03:02:43,120

announces our steve harder g patel marty

4457

03:02:51,750 --> 03:02:49,950

music doug aldrige intro spaceboy

4458

03:02:53,590 --> 03:02:51,760

spaceboymusic.com daytona black is

4459

03:02:55,110 --> 03:02:53,600

produced by kjcf for the game changer

4460

03:02:58,070 --> 03:02:55,120

network and this broadcast is owned and

4461

03:03:00,309 --> 03:02:58,080

copyrighted 2022 by fade to black and

4462

03:03:02,870 --> 03:03:00,319

the game changer network inc it cannot

4463

03:03:04,950 --> 03:03:02,880

be used anywhere downloaded rebroadcast

4464

03:03:06,630 --> 03:03:04,960

or copied anywhere in the known universe

4465

03:03:08,070 --> 03:03:06,640

without written permission from fade to

4466

03:03:10,070 --> 03:03:08,080

black for the game changer network i'm

4467

03:03:12,870 --> 03:03:10,080

your host jimmy church again tomorrow

4468

03:03:13,830 --> 03:03:12,880

night isaac arthur and time travel until

4469

03:03:15,750 --> 03:03:13,840

then

4470

03:03:20,920 --> 03:03:15,760

be safe