

Episode 720

THE
**SKEPTIC
ZONE**
PODCAST

24 July 2022

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The Skeptic Zone Podcast
Episode 720 - 24 July 2022



Melanie Trecek-King

Skeptic Zone Podcast
Episode 720 - 24 July



Tim Mendham

Skeptic Zone Podcast
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Richard Saunders



Science Outreach
with
Melanie Trecek-King

The Book of Tim
with Tim Mendham

TROVE
looks at
Alien Abductions



1
00:00:09,190 --> 00:00:06,550

[Music]

2
00:00:13,930 --> 00:00:09,200

welcome to the skeptic zone the podcast

3
00:00:16,840 --> 00:00:13,940

from australia for science and reason

4
00:00:23,429 --> 00:00:16,850

[Applause]

5
00:00:25,189 --> 00:00:23,439

[Music]

6
00:00:27,670 --> 00:00:25,199

yes it's the skeptic zone podcast

7
00:00:31,589 --> 00:00:27,680

episode number 720

8
00:00:33,830 --> 00:00:31,599

for the 24th of july 2022

9
00:00:35,830 --> 00:00:33,840

lots of twos in there richard saunders

10
00:00:37,830 --> 00:00:35,840

coming to you from wet soggy soggy wet

11
00:00:39,670 --> 00:00:37,840

wet soggy and soggy

12
00:00:41,270 --> 00:00:39,680

sydney australia coming up on this

13
00:00:43,990 --> 00:00:41,280

week's show we're going to kick off with

14

00:00:47,990 --> 00:00:44,000

an interview i did a few days ago with

15

00:00:50,069 --> 00:00:48,000

melanie theresa king in massachusetts

16

00:00:52,950 --> 00:00:50,079

and she's a woman after my own heart

17

00:00:54,790 --> 00:00:52,960

because she's a science educator who

18

00:00:57,029 --> 00:00:54,800

uses

19

00:00:59,110 --> 00:00:57,039

interesting notions like cold reading

20

00:01:01,189 --> 00:00:59,120

and so forth to help educate her

21

00:01:02,869 --> 00:01:01,199

students about science she wrote an

22

00:01:04,469 --> 00:01:02,879

article for the australian skeptics

23

00:01:06,630 --> 00:01:04,479

magazine or published in the australian

24

00:01:08,789 --> 00:01:06,640

skeptics magazine about science and

25

00:01:10,870 --> 00:01:08,799

pseudoscience and science denialism we

26

00:01:13,910 --> 00:01:10,880

talk about that but really i was quite

27

00:01:16,550 --> 00:01:13,920

amazed how much we have in common

28

00:01:18,870 --> 00:01:16,560

when it comes to science education and

29

00:01:20,710 --> 00:01:18,880

science outreach i'm sure you'll enjoy

30

00:01:22,950 --> 00:01:20,720

this interview coming up at the top of

31

00:01:25,910 --> 00:01:22,960

the show following that it's the return

32

00:01:28,950 --> 00:01:25,920

of the book of tim with tim mendom and

33

00:01:31,109 --> 00:01:28,960

this week tim will start the first part

34

00:01:32,789 --> 00:01:31,119

of a two-part series about

35

00:01:35,749 --> 00:01:32,799

perpetual motion

36

00:01:39,910 --> 00:01:35,759

and it's called never-ending story

37

00:01:41,429 --> 00:01:39,920

written by dr anthony garrett but it is

38

00:01:43,830 --> 00:01:41,439

originally

39

00:01:45,749 --> 00:01:43,840

from the skeptic magazine

40

00:01:47,590 --> 00:01:45,759

volume seven number four way back in

41

00:01:49,749 --> 00:01:47,600

1987

42

00:01:51,429 --> 00:01:49,759

but needless to say when it comes to

43

00:01:52,230 --> 00:01:51,439

perpetual motion

44

00:01:54,870 --> 00:01:52,240

well

45

00:01:57,830 --> 00:01:54,880

not much has changed but one this week

46

00:01:59,749 --> 00:01:57,840

part two next week or the week after

47

00:02:01,670 --> 00:01:59,759

then to round off the show it's back to

48

00:02:03,270 --> 00:02:01,680

the trove archives

49

00:02:05,190 --> 00:02:03,280

and this week we're going to be looking

50

00:02:08,550 --> 00:02:05,200

into alien abductions

51
00:02:11,990 --> 00:02:08,560
included is a song yes there's a song

52
00:02:20,390 --> 00:02:12,000
about alien abductions i discovered

53
00:02:23,510 --> 00:02:21,830
thank you to those people have written

54
00:02:25,110 --> 00:02:23,520
to me expressing their sadness at the

55
00:02:28,070 --> 00:02:25,120
passing of our voiceover man jim

56
00:02:29,750 --> 00:02:28,080
wilshire just last week

57
00:02:31,990 --> 00:02:29,760
there's been a week for me of lots of

58
00:02:34,550 --> 00:02:32,000
memories going through the archives and

59
00:02:37,030 --> 00:02:34,560
finding lots of work jim and i did

60
00:02:39,030 --> 00:02:37,040
together a great loss here at the

61
00:02:41,270 --> 00:02:39,040
skeptic zone and of course as i said

62
00:02:43,750 --> 00:02:41,280
last week a great loss to his family

63
00:02:46,790 --> 00:02:43,760

goes without saying his friends and his

64

00:02:47,910 --> 00:02:46,800

many many fans in radio land over the

65

00:02:50,550 --> 00:02:47,920

decades

66

00:02:53,430 --> 00:02:50,560

next week i hope to bring you a a bit of

67

00:02:57,110 --> 00:02:53,440

a better a better tribute to jim

68

00:02:58,869 --> 00:02:57,120

including some of his skeptical poetry

69

00:03:00,949 --> 00:02:58,879

so no matter where you're listening to

70

00:03:02,470 --> 00:03:00,959

this even if you're busy are you very

71

00:03:04,309 --> 00:03:02,480

busy at the moment do you listen to

72

00:03:06,710 --> 00:03:04,319

podcasts when you're rushing around

73

00:03:08,470 --> 00:03:06,720

trying to do one thing after another

74

00:03:10,550 --> 00:03:08,480

after another maybe you're in the car

75

00:03:13,509 --> 00:03:10,560

driving somewhere

76

00:03:15,910 --> 00:03:13,519

busily being busy and

77

00:03:19,190 --> 00:03:15,920

sparing a bit of time to be entertained

78

00:03:22,070 --> 00:03:19,200

i hope i hope by the skeptic zone

79

00:03:23,910 --> 00:03:22,080

but no matter where you are i'm glad

80

00:03:25,430 --> 00:03:23,920

you are listening

81

00:03:26,869 --> 00:03:25,440

now it's time for me to run downstairs

82

00:03:31,110 --> 00:03:26,879

where are those cats

83

00:03:35,430 --> 00:03:32,949

i think they're downstairs by the heater

84

00:03:38,390 --> 00:03:35,440

i'm going to run downstairs

85

00:03:39,910 --> 00:03:38,400

and why don't i have a nice cheese

86

00:03:40,949 --> 00:03:39,920

toasty

87

00:03:43,910 --> 00:03:40,959

mmm

88

00:03:46,229 --> 00:03:43,920

with a little bit of horseradish oh boy

89

00:03:57,090 --> 00:03:46,239

while i do that i hope you enjoy the

90

00:04:07,030 --> 00:04:05,190

[Music]

91

00:04:09,190 --> 00:04:07,040

now folks right in front of me i've got

92

00:04:10,789 --> 00:04:09,200

a copy of the very latest skeptic

93

00:04:13,910 --> 00:04:10,799

magazine the journal from australian

94

00:04:16,469 --> 00:04:13,920

skeptics i recommend you subscribe and i

95

00:04:18,150 --> 00:04:16,479

was flipping through and on

96

00:04:20,390 --> 00:04:18,160

early on in

97

00:04:21,590 --> 00:04:20,400

on page 14 in fact there's a very

98

00:04:22,629 --> 00:04:21,600

fascinating

99

00:04:25,030 --> 00:04:22,639

report

100

00:04:28,070 --> 00:04:25,040

science and its pretenders and this is

101

00:04:30,469 --> 00:04:28,080

an article by melanie trisik king and

102

00:04:33,749 --> 00:04:30,479

joining me on the line from just outside

103

00:04:34,790 --> 00:04:33,759

of boston massachusetts is melanie hello

104

00:04:36,550 --> 00:04:34,800

hello

105

00:04:38,070 --> 00:04:36,560

lovely to see you thank you for having

106

00:04:40,390 --> 00:04:38,080

me on thank you

107

00:04:42,790 --> 00:04:40,400

not a problem yes of course it's the

108

00:04:45,350 --> 00:04:42,800

days of video conferencing and we can

109

00:04:47,670 --> 00:04:45,360

see each other as we're having a chat i

110

00:04:49,350 --> 00:04:47,680

found this item very interesting but

111

00:04:51,590 --> 00:04:49,360

before we get to the item it's about

112

00:04:53,430 --> 00:04:51,600

science and pseudoscience can you tell

113

00:04:55,030 --> 00:04:53,440

us a little bit about you yourself your

114

00:04:57,590 --> 00:04:55,040

background

115

00:05:00,469 --> 00:04:57,600

yeah so um i'm actually a plant

116

00:05:02,710 --> 00:05:00,479

ecologist by training um and

117

00:05:04,950 --> 00:05:02,720

uh teach at a community college

118

00:05:06,230 --> 00:05:04,960

in massachusetts and our community

119

00:05:08,310 --> 00:05:06,240

college system i don't know if you're

120

00:05:10,310 --> 00:05:08,320

familiar with but um they're two-year

121

00:05:12,230 --> 00:05:10,320

colleges and so we have a lot of

122

00:05:13,909 --> 00:05:12,240

students who get their

123

00:05:15,270 --> 00:05:13,919

their credits and then transfer on to a

124

00:05:17,990 --> 00:05:15,280

four-year

125

00:05:20,870 --> 00:05:18,000

and i have for a long time taught the

126

00:05:24,070 --> 00:05:20,880

general biology course that most people

127

00:05:27,749 --> 00:05:24,080

take when they need to get a degree and

128

00:05:29,350 --> 00:05:27,759

uh it's intro bio for non-majors and um

129

00:05:30,870 --> 00:05:29,360

i grew really tired of teaching that

130

00:05:32,390 --> 00:05:30,880

course because i kind of felt like i was

131

00:05:33,909 --> 00:05:32,400

just getting them to memorize a bunch of

132

00:05:35,110 --> 00:05:33,919

stuff and then they were gonna forget it

133

00:05:37,110 --> 00:05:35,120

after the exam and they were really

134

00:05:39,670 --> 00:05:37,120

gonna hate science even more than they

135

00:05:41,270 --> 00:05:39,680

started when they took the course uh so

136

00:05:43,270 --> 00:05:41,280

um i actually

137

00:05:45,749 --> 00:05:43,280

completely came the course and started

138

00:05:47,350 --> 00:05:45,759

all over again from scratch with my idea

139

00:05:49,110 --> 00:05:47,360

of what i thought people needed to know

140

00:05:50,950 --> 00:05:49,120

about how science worked for the rest of

141

00:05:52,390 --> 00:05:50,960

their life like if i have four months

142

00:05:53,590 --> 00:05:52,400

for the average person what would that

143

00:05:55,110 --> 00:05:53,600

look like

144

00:05:57,909 --> 00:05:55,120

and the article you have in front of you

145

00:06:00,790 --> 00:05:57,919

is is part of that i use pseudoscience

146

00:06:02,390 --> 00:06:00,800

and science denial in the class to teach

147

00:06:04,550 --> 00:06:02,400

what science looks like well this is

148

00:06:06,629 --> 00:06:04,560

very interesting and i read this article

149

00:06:08,390 --> 00:06:06,639

with great interest because

150

00:06:10,550 --> 00:06:08,400

it does cover a lot of issues that we

151
00:06:11,510 --> 00:06:10,560
face in skepticism that is a lot of

152
00:06:13,430 --> 00:06:11,520
people

153
00:06:15,830 --> 00:06:13,440
well to be blunt and for lack of a

154
00:06:17,590 --> 00:06:15,840
better word maybe are ignorant as to the

155
00:06:20,070 --> 00:06:17,600
method of science and what

156
00:06:21,909 --> 00:06:20,080
science means and how it works exactly

157
00:06:24,070 --> 00:06:21,919
there's a handy little chart

158
00:06:25,990 --> 00:06:24,080
actually i think it was on as i crash

159
00:06:28,309 --> 00:06:26,000
about here i think it was on page 15.

160
00:06:29,830 --> 00:06:28,319
yes there it is

161
00:06:32,230 --> 00:06:29,840
contrasting

162
00:06:35,590 --> 00:06:32,240
science follows the evidence for example

163
00:06:38,070 --> 00:06:35,600

the conclusion against pseudoscience and

164

00:06:39,590 --> 00:06:38,080

science denial now what

165

00:06:41,270 --> 00:06:39,600

what is the difference there what you

166

00:06:43,510 --> 00:06:41,280

know we've heard of people

167

00:06:45,029 --> 00:06:43,520

practicing pseudoscience like homeopathy

168

00:06:47,029 --> 00:06:45,039

and whatever and then there's science

169

00:06:49,350 --> 00:06:47,039

denial but there is a big crossover

170

00:06:52,469 --> 00:06:49,360

there isn't there yeah i mean this was

171

00:06:54,629 --> 00:06:52,479

sort of my attempt to simplify

172

00:06:57,029 --> 00:06:54,639

um what i viewed as the two different

173

00:06:59,350 --> 00:06:57,039

ways of viewing the things that aren't

174

00:07:02,870 --> 00:06:59,360

science and for me they really come down

175

00:07:05,670 --> 00:07:02,880

to so if science is a system of uh

176

00:07:08,070 --> 00:07:05,680

objectively gathering and evaluating

177

00:07:10,230 --> 00:07:08,080

evidence as a community to try to come

178

00:07:13,430 --> 00:07:10,240

to the best

179

00:07:16,230 --> 00:07:13,440

representation of what reality is

180

00:07:18,070 --> 00:07:16,240

science is pretenders the pseudo-science

181

00:07:21,110 --> 00:07:18,080

and science denial

182

00:07:23,670 --> 00:07:21,120

are the misuse of science because of

183

00:07:26,309 --> 00:07:23,680

different motivated reasoning either a

184

00:07:28,790 --> 00:07:26,319

wanting to believe something or not

185

00:07:30,390 --> 00:07:28,800

wanting to believe it so i mean nobody's

186

00:07:31,990 --> 00:07:30,400

anti-science until it conflicts with

187

00:07:35,670 --> 00:07:32,000

their beliefs right the the old saying

188

00:07:38,629 --> 00:07:35,680

goes so when something is um what we

189

00:07:39,670 --> 00:07:38,639

want to believe then our standard of

190

00:07:41,670 --> 00:07:39,680

evidence

191

00:07:43,990 --> 00:07:41,680

drops

192

00:07:46,790 --> 00:07:44,000

and when we don't want to believe

193

00:07:48,629 --> 00:07:46,800

because of vested interests or identity

194

00:07:50,230 --> 00:07:48,639

issues whatever it is our standard of

195

00:07:51,830 --> 00:07:50,240

evidence shoots the roof and it gets

196

00:07:54,309 --> 00:07:51,840

impossibly high

197

00:07:55,350 --> 00:07:54,319

but all of that stems from the same

198

00:07:57,749 --> 00:07:55,360

basic

199

00:08:00,950 --> 00:07:57,759

psychological underpinning which is

200

00:08:03,350 --> 00:08:00,960

the motivation to

201
00:08:05,350 --> 00:08:03,360
not want to accept science in some way

202
00:08:07,189 --> 00:08:05,360
that's very interesting now

203
00:08:09,110 --> 00:08:07,199
one of the points that i've marked here

204
00:08:11,029 --> 00:08:09,120
in my notes when reading your article

205
00:08:13,350 --> 00:08:11,039
and i find it a fascinating thing when

206
00:08:15,350 --> 00:08:13,360
it comes to science denialism is what

207
00:08:17,670 --> 00:08:15,360
you just sort of said then

208
00:08:22,550 --> 00:08:17,680
in possibly high standards

209
00:08:25,430 --> 00:08:22,560
people who demand of

210
00:08:27,510 --> 00:08:25,440
a skeptical approach

211
00:08:29,189 --> 00:08:27,520
things that we can't possibly meet you

212
00:08:30,950 --> 00:08:29,199
know their expectations i'm just trying

213
00:08:33,829 --> 00:08:30,960

to find a good example of impossibly

214

00:08:35,509 --> 00:08:33,839

high standards yeah i mean so these days

215

00:08:39,029 --> 00:08:35,519

i spend an awful lot of time on social

216

00:08:41,509 --> 00:08:39,039

media where i kind of get to view um

217

00:08:43,269 --> 00:08:41,519

people's representation how people want

218

00:08:45,350 --> 00:08:43,279

to have discussions about these concepts

219

00:08:46,550 --> 00:08:45,360

and you can see it in practice and when

220

00:08:47,590 --> 00:08:46,560

somebody doesn't want to believe

221

00:08:49,190 --> 00:08:47,600

something they'll say something like

222

00:08:50,710 --> 00:08:49,200

well science hasn't proven it to be true

223

00:08:53,030 --> 00:08:50,720

right

224

00:08:56,230 --> 00:08:53,040

it's not a fact when science has proven

225

00:08:59,590 --> 00:08:56,240

this i'll accept it right um see it a

226

00:09:01,590 --> 00:08:59,600

lot around things like climate change um

227

00:09:04,949 --> 00:09:01,600

evolution vaccines

228

00:09:07,350 --> 00:09:04,959

so for me this comes back to um this old

229

00:09:08,630 --> 00:09:07,360

way of how we teach science

230

00:09:10,630 --> 00:09:08,640

it

231

00:09:13,269 --> 00:09:10,640

drives me bonkers at this point whenever

232

00:09:15,350 --> 00:09:13,279

you see a science textbook you open it

233

00:09:17,190 --> 00:09:15,360

up and the very first chapter is the

234

00:09:19,030 --> 00:09:17,200

scientific method right and the

235

00:09:20,870 --> 00:09:19,040

scientific method is right make an

236

00:09:23,350 --> 00:09:20,880

observation and then you develop a

237

00:09:25,670 --> 00:09:23,360

hypothesis and then you design an

238

00:09:28,550 --> 00:09:25,680

experiment and then you know at the end

239

00:09:30,870 --> 00:09:28,560

of this linear process you did a science

240

00:09:34,230 --> 00:09:30,880

and then you have your answer and

241

00:09:36,550 --> 00:09:34,240

science does not work that way right and

242

00:09:38,070 --> 00:09:36,560

the worst is for most of these textbooks

243

00:09:41,350 --> 00:09:38,080

they never come back to what that

244

00:09:43,829 --> 00:09:41,360

process looks like in all of the facts

245

00:09:46,870 --> 00:09:43,839

that are presented in the textbook so

246

00:09:49,829 --> 00:09:46,880

it's my idea that what happens is

247

00:09:51,829 --> 00:09:49,839

people learn that science is these

248

00:09:54,389 --> 00:09:51,839

things that we know these facts that

249

00:09:56,230 --> 00:09:54,399

science has found out when they don't

250

00:09:58,870 --> 00:09:56,240

understand that scientific explanations

251
00:10:00,870 --> 00:09:58,880
are always tentative yeah we don't prove

252
00:10:02,870 --> 00:10:00,880
these things so when you start to talk

253
00:10:05,910 --> 00:10:02,880
about uncertainties

254
00:10:07,430 --> 00:10:05,920
which is how scientists talk the public

255
00:10:09,509 --> 00:10:07,440
hears especially if they don't want to

256
00:10:11,110 --> 00:10:09,519
accept it well they don't know

257
00:10:12,389 --> 00:10:11,120
right they don't know they're always

258
00:10:14,150 --> 00:10:12,399
changing their mind right when they

259
00:10:16,310 --> 00:10:14,160
figure it out then i'll believe them but

260
00:10:19,030 --> 00:10:16,320
until then it's just a theory but you're

261
00:10:20,550 --> 00:10:19,040
absolutely right that you're and this

262
00:10:23,350 --> 00:10:20,560
the

263
00:10:26,310 --> 00:10:23,360

topic that crossed my mind is homeopathy

264

00:10:29,269 --> 00:10:26,320

where i've heard people say to me

265

00:10:31,430 --> 00:10:29,279

well we know homeopathy works

266

00:10:34,069 --> 00:10:31,440

we don't know how it works but science

267

00:10:35,750 --> 00:10:34,079

has yet to catch up with us

268

00:10:37,829 --> 00:10:35,760

which i think is a fascinating point of

269

00:10:40,230 --> 00:10:37,839

view yeah

270

00:10:42,710 --> 00:10:40,240

yeah homeopathy is its own special can

271

00:10:44,150 --> 00:10:42,720

of worms

272

00:10:45,590 --> 00:10:44,160

and it certainly qualifies as the

273

00:10:46,949 --> 00:10:45,600

pseudoscience what i think is

274

00:10:48,870 --> 00:10:46,959

interesting um

275

00:10:51,430 --> 00:10:48,880

is that pseudoscience and science denial

276

00:10:52,790 --> 00:10:51,440

often dovetail so like um

277

00:10:54,630 --> 00:10:52,800

the example i give in the article is

278

00:10:56,389 --> 00:10:54,640

evolution just because it's so perfect

279

00:10:58,550 --> 00:10:56,399

um if you don't want to accept the

280

00:11:00,710 --> 00:10:58,560

science of evolution

281

00:11:02,949 --> 00:11:00,720

then you get this whole field of science

282

00:11:05,350 --> 00:11:02,959

denial and it looks like you know with

283

00:11:07,509 --> 00:11:05,360

the fake experts uh john cook's um

284

00:11:09,670 --> 00:11:07,519

flicked taxonomy with uh mark hoofnickel

285

00:11:11,750 --> 00:11:09,680

the flick so fake experts logical

286

00:11:13,750 --> 00:11:11,760

fallacies and possible expectations

287

00:11:16,230 --> 00:11:13,760

cherry picking and uh conspiracy

288

00:11:17,829 --> 00:11:16,240

theories and you get all of that but you

289

00:11:20,389 --> 00:11:17,839

have to have a belief to replace it the

290

00:11:22,710 --> 00:11:20,399

science is wrong about this so the

291

00:11:25,110 --> 00:11:22,720

pseudo science of creationism pops up

292

00:11:27,990 --> 00:11:25,120

right and now instead of having possibly

293

00:11:30,710 --> 00:11:28,000

high expectat uh standards of evidence

294

00:11:32,389 --> 00:11:30,720

any thing that we can find that fits

295

00:11:36,630 --> 00:11:32,399

with this of what we want to believe is

296

00:11:38,710 --> 00:11:36,640

considered proof yes of creationism yes

297

00:11:40,389 --> 00:11:38,720

you're absolutely right i mean

298

00:11:41,750 --> 00:11:40,399

what can we say we're all human we're

299

00:11:43,670 --> 00:11:41,760

all going to look for the things that

300

00:11:45,430 --> 00:11:43,680

confirm our point of view

301
00:11:46,230 --> 00:11:45,440
to begin with and i guess when it comes

302
00:11:48,550 --> 00:11:46,240
to

303
00:11:49,590 --> 00:11:48,560
the points you make in your article

304
00:11:51,269 --> 00:11:49,600
it's it's

305
00:11:52,710 --> 00:11:51,279
and i get back to my original point

306
00:11:54,389 --> 00:11:52,720
there is a certain

307
00:11:56,150 --> 00:11:54,399
especially in the general population and

308
00:11:58,389 --> 00:11:56,160
maybe understandably so a certain

309
00:12:00,470 --> 00:11:58,399
ignorance about exactly what science is

310
00:12:01,350 --> 00:12:00,480
and how it works and again the point you

311
00:12:02,870 --> 00:12:01,360
make

312
00:12:03,829 --> 00:12:02,880
when science

313
00:12:07,190 --> 00:12:03,839

says

314

00:12:09,990 --> 00:12:07,200

no we can't prove this to the nth degree

315

00:12:11,910 --> 00:12:10,000

or this is our tentative conclusion the

316

00:12:13,910 --> 00:12:11,920

opponents of science

317

00:12:15,110 --> 00:12:13,920

will look at that as as oh well you

318

00:12:17,110 --> 00:12:15,120

don't know what you're talking about

319

00:12:18,870 --> 00:12:17,120

science is wrong it's always changing

320

00:12:20,389 --> 00:12:18,880

therefore

321

00:12:22,470 --> 00:12:20,399

my point of view

322

00:12:24,949 --> 00:12:22,480

is correct when we get back to

323

00:12:26,550 --> 00:12:24,959

creationism or homeopathy again

324

00:12:28,710 --> 00:12:26,560

yeah and homeopathy you said something

325

00:12:30,470 --> 00:12:28,720

really interesting in there so

326
00:12:33,670 --> 00:12:30,480
with pseudosciences again the standard

327
00:12:36,230 --> 00:12:33,680
of evidence is very low um and one of

328
00:12:38,949 --> 00:12:36,240
the especially in alternative medicine

329
00:12:42,310 --> 00:12:38,959
the anecdote or the personal experience

330
00:12:45,110 --> 00:12:42,320
is considered just uh airtight evidence

331
00:12:47,110 --> 00:12:45,120
so i tried it and it worked how do i

332
00:12:48,150 --> 00:12:47,120
know homeopathy worked well it worked

333
00:12:51,670 --> 00:12:48,160
for me

334
00:12:55,110 --> 00:12:51,680
um yes and so this understanding the of

335
00:12:57,030 --> 00:12:55,120
the limits of our perceptions to

336
00:13:00,470 --> 00:12:57,040
accurately inform us like how biased we

337
00:13:02,790 --> 00:13:00,480
are and then therefore why

338
00:13:06,470 --> 00:13:02,800

um if we want to figure out if homo

339

00:13:08,310 --> 00:13:06,480

homeopathy works well we have to not use

340

00:13:10,150 --> 00:13:08,320

personal experiences we designed

341

00:13:12,470 --> 00:13:10,160

randomized control trials with double

342

00:13:14,069 --> 00:13:12,480

blinding to reduce all those biases they

343

00:13:17,430 --> 00:13:14,079

can interfere

344

00:13:18,949 --> 00:13:17,440

with our conclusions but um it's very

345

00:13:21,110 --> 00:13:18,959

hard i've noticed to get people to

346

00:13:23,910 --> 00:13:21,120

understand that their experiences aren't

347

00:13:27,110 --> 00:13:23,920

necessarily airtight ways of knowing

348

00:13:28,710 --> 00:13:27,120

um with my class like um i

349

00:13:31,829 --> 00:13:28,720

i hope my students aren't listening but

350

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

um i on day one of my class i fooled my

351
00:13:37,590 --> 00:13:34,560
students so are you familiar with the uh

352
00:13:39,910 --> 00:13:37,600
bertrand four's experiment um so he's

353
00:13:42,470 --> 00:13:39,920
the forward effect or the farmer

354
00:13:44,310 --> 00:13:42,480
i'm very famous yeah so

355
00:13:46,389 --> 00:13:44,320
he has this great experiment with the

356
00:13:48,550 --> 00:13:46,399
psychology students he um gave them all

357
00:13:51,590 --> 00:13:48,560
personality assessments and

358
00:13:53,030 --> 00:13:51,600
um you know he asked them how accurate

359
00:13:55,670 --> 00:13:53,040
they were you know on a scale of one to

360
00:13:57,269 --> 00:13:55,680
five and most of them were about 4.3 to

361
00:13:59,590 --> 00:13:57,279
4.5 out of five

362
00:14:01,269 --> 00:13:59,600
and they all got the same one yes so i

363
00:14:03,350 --> 00:14:01,279

do that with my students i go through

364

00:14:05,350 --> 00:14:03,360

this whole ruse of like i have this

365

00:14:06,550 --> 00:14:05,360

friend who's an astrologer and she's

366

00:14:08,150 --> 00:14:06,560

very famous i'm not going to tell you

367

00:14:09,350 --> 00:14:08,160

who she is yet but she knows i'm

368

00:14:11,189 --> 00:14:09,360

skeptical

369

00:14:13,269 --> 00:14:11,199

like the whole thing it turns out i'm a

370

00:14:15,110 --> 00:14:13,279

really good liar when i want to so i

371

00:14:17,110 --> 00:14:15,120

then give my students this and then they

372

00:14:18,870 --> 00:14:17,120

oh this is so accurate how did she know

373

00:14:21,189 --> 00:14:18,880

me and then they realized they all got

374

00:14:23,430 --> 00:14:21,199

the same one and my point is like i

375

00:14:25,590 --> 00:14:23,440

could tell you i could fool you

376

00:14:27,189 --> 00:14:25,600

but you wouldn't necessarily believe me

377

00:14:28,949 --> 00:14:27,199

you wouldn't take that lesson to heart

378

00:14:30,790 --> 00:14:28,959

so i'm gonna fool you to show you that

379

00:14:31,829 --> 00:14:30,800

you can be fooled

380

00:14:33,750 --> 00:14:31,839

now

381

00:14:35,509 --> 00:14:33,760

you can't necessarily trust yourself or

382

00:14:37,670 --> 00:14:35,519

me apparently so

383

00:14:40,790 --> 00:14:37,680

how can we find a better way i'm glad

384

00:14:42,949 --> 00:14:40,800

you do that because just as a matter of

385

00:14:44,710 --> 00:14:42,959

maybe coincidence or well hardly a

386

00:14:46,790 --> 00:14:44,720

coincidence that i've been doing a

387

00:14:49,189 --> 00:14:46,800

science show for um for school groups

388

00:14:51,750 --> 00:14:49,199

now for or 16 years or something like

389

00:14:54,710 --> 00:14:51,760

that and one of the

390

00:14:56,870 --> 00:14:54,720

the items we do is the astrology test we

391

00:14:59,590 --> 00:14:56,880

hand out their astrology it's all the

392

00:15:01,829 --> 00:14:59,600

same and this was given to me by james

393

00:15:03,990 --> 00:15:01,839

randy this test because he did it on a

394

00:15:05,430 --> 00:15:04,000

tv show many many many years ago so i

395

00:15:06,790 --> 00:15:05,440

know exactly what you mean and it's a

396

00:15:10,870 --> 00:15:06,800

great lesson

397

00:15:13,189 --> 00:15:10,880

these sort of topics folks are covered

398

00:15:14,790 --> 00:15:13,199

in the article i i sincerely suggest you

399

00:15:16,829 --> 00:15:14,800

subscribe to the skeptic magazine you

400

00:15:19,030 --> 00:15:16,839

can read this article for yourself at

401
00:15:21,430 --> 00:15:19,040
skeptics.com there's a handy table there

402
00:15:23,509 --> 00:15:21,440
there's much more in it now melanie i i

403
00:15:25,030 --> 00:15:23,519
know i i happen to know you know from

404
00:15:26,629 --> 00:15:25,040
inside information that your great

405
00:15:29,110 --> 00:15:26,639
passion is not only science

406
00:15:30,550 --> 00:15:29,120
communication but education

407
00:15:33,189 --> 00:15:30,560
now can you

408
00:15:35,910 --> 00:15:33,199
flesh that out a bit more for me

409
00:15:37,990 --> 00:15:35,920
yeah so um like i said earlier one of

410
00:15:38,949 --> 00:15:38,000
the big things that i think is effective

411
00:15:40,949 --> 00:15:38,959
is

412
00:15:41,990 --> 00:15:40,959
using pseudoscience and science denial

413
00:15:44,470 --> 00:15:42,000

in class

414

00:15:46,310 --> 00:15:44,480

so um carl sagan has this great quote

415

00:15:48,629 --> 00:15:46,320

and i'm going to paraphrase but um if we

416

00:15:52,710 --> 00:15:48,639

teach people only the findings of

417

00:15:53,990 --> 00:15:52,720

science without the method of science

418

00:15:55,350 --> 00:15:54,000

then how are they going to know the

419

00:15:56,550 --> 00:15:55,360

difference between science and

420

00:15:57,509 --> 00:15:56,560

pseudoscience

421

00:16:00,389 --> 00:15:57,519

and so

422

00:16:01,910 --> 00:16:00,399

i literally took him literally and

423

00:16:05,430 --> 00:16:01,920

thought well what if i just use

424

00:16:07,509 --> 00:16:05,440

pseudoscience so we cover homeopathy and

425

00:16:08,389 --> 00:16:07,519

astrology and bigfoot and the loch ness

426
00:16:09,829 --> 00:16:08,399
monster

427
00:16:12,310 --> 00:16:09,839
and

428
00:16:13,910 --> 00:16:12,320
so many wonderful

429
00:16:15,430 --> 00:16:13,920
different forms of pseudoscience and

430
00:16:17,430 --> 00:16:15,440
science denial

431
00:16:19,670 --> 00:16:17,440
i think too many students leave the

432
00:16:22,470 --> 00:16:19,680
science class again with this idea that

433
00:16:24,790 --> 00:16:22,480
science is a bunch of facts but in the

434
00:16:26,949 --> 00:16:24,800
real world you know there's so many

435
00:16:28,870 --> 00:16:26,959
claims that they come face to face with

436
00:16:30,069 --> 00:16:28,880
and what i'm trying to do is get them to

437
00:16:31,269 --> 00:16:30,079
understand the world around them and the

438
00:16:33,430 --> 00:16:31,279

kinds of things that they're going to

439

00:16:34,550 --> 00:16:33,440

see and people believe in pseudoscience

440

00:16:36,389 --> 00:16:34,560

right people

441

00:16:38,949 --> 00:16:36,399

don't trust science sometimes

442

00:16:41,189 --> 00:16:38,959

and so i use that in class

443

00:16:43,509 --> 00:16:41,199

um and i think it's very effective you

444

00:16:45,269 --> 00:16:43,519

know what again this is quite remarkable

445

00:16:46,790 --> 00:16:45,279

because this is exactly the philosophy

446

00:16:48,870 --> 00:16:46,800

i've had with this show it's called it's

447

00:16:53,749 --> 00:16:48,880

called the mystery investigators and we

448

00:16:55,829 --> 00:16:53,759

use these wonderfully interesting claims

449

00:16:57,430 --> 00:16:55,839

for students we say here's the claim

450

00:16:59,990 --> 00:16:57,440

this is what it looks like let's see if

451

00:17:01,430 --> 00:17:00,000

we can investigate it and the classic

452

00:17:04,630 --> 00:17:01,440

experiment we've been doing for many

453

00:17:08,069 --> 00:17:04,640

years is water divining or water dowsing

454

00:17:10,390 --> 00:17:08,079

where we have a line of 10 tubs

455

00:17:12,390 --> 00:17:10,400

upside down plastic tubs at the front of

456

00:17:14,390 --> 00:17:12,400

the the lecture theatre or the classroom

457

00:17:16,230 --> 00:17:14,400

and one tub will have a little bottle of

458

00:17:18,069 --> 00:17:16,240

water hidden underneath

459

00:17:19,510 --> 00:17:18,079

and we give the students divining rods

460

00:17:20,949 --> 00:17:19,520

and they all walk along and they see if

461

00:17:23,029 --> 00:17:20,959

they can find the water then we talk

462

00:17:23,990 --> 00:17:23,039

about double blind tests and statistics

463

00:17:25,750 --> 00:17:24,000

and stuff

464

00:17:27,829 --> 00:17:25,760

and i found that being

465

00:17:29,990 --> 00:17:27,839

really effective because they're having

466

00:17:33,270 --> 00:17:30,000

a lot of fun and they're doing something

467

00:17:35,029 --> 00:17:33,280

really strange and at the same time

468

00:17:36,230 --> 00:17:35,039

learning about the scientific method and

469

00:17:37,590 --> 00:17:36,240

yes i use

470

00:17:40,390 --> 00:17:37,600

one of the great

471

00:17:44,230 --> 00:17:40,400

gifts of all is a ten-sided die for

472

00:17:47,590 --> 00:17:44,240

randomization because the kids love it

473

00:17:49,750 --> 00:17:47,600

of course they do so i see you and i

474

00:17:52,470 --> 00:17:49,760

share quite a similar passion when it

475

00:17:54,150 --> 00:17:52,480

comes to uh science education oh gosh

476

00:17:55,430 --> 00:17:54,160

yeah i think so i mean

477

00:17:57,990 --> 00:17:55,440

i think about all the students i had

478

00:18:00,470 --> 00:17:58,000

over the years um that i was teaching

479

00:18:02,230 --> 00:18:00,480

the old way and i i honestly feel like i

480

00:18:04,549 --> 00:18:02,240

failed him a little bit part of me feels

481

00:18:07,830 --> 00:18:04,559

really bad um i'm

482

00:18:09,110 --> 00:18:07,840

hoping that it led me to a better place

483

00:18:12,310 --> 00:18:09,120

you know one of the other things that i

484

00:18:14,950 --> 00:18:12,320

think is um really helpful uh is i use

485

00:18:16,870 --> 00:18:14,960

um what's called inoculation theory

486

00:18:19,029 --> 00:18:16,880

which is so it's the idea of like

487

00:18:21,990 --> 00:18:19,039

vaccines but for the mind and

488

00:18:23,990 --> 00:18:22,000

misinformation so if we expose people to

489

00:18:26,230 --> 00:18:24,000

bits of misinformation in a controlled

490

00:18:28,870 --> 00:18:26,240

environment then they learn to spot it

491

00:18:30,230 --> 00:18:28,880

in the real world i teach my students

492

00:18:33,669 --> 00:18:30,240

how to cold read

493

00:18:36,070 --> 00:18:33,679

like a psychic wow right yes so that

494

00:18:37,990 --> 00:18:36,080

when they see a psychic you know john

495

00:18:41,190 --> 00:18:38,000

edward standing in front of an audience

496

00:18:43,350 --> 00:18:41,200

going i'm getting a g girl father uncle

497

00:18:45,669 --> 00:18:43,360

grandfather right they can see that

498

00:18:47,669 --> 00:18:45,679

because i've taught them how to cold

499

00:18:50,310 --> 00:18:47,679

read um i teach them how to make

500

00:18:51,029 --> 00:18:50,320

conspiracy theories

501
00:18:52,630 --> 00:18:51,039

i

502
00:18:54,789 --> 00:18:52,640

teach them um

503
00:18:57,350 --> 00:18:54,799

they make advertisements for health

504
00:18:59,510 --> 00:18:57,360

pseudoscience products wow because once

505
00:19:01,990 --> 00:18:59,520

you make those and you see well it's all

506
00:19:03,990 --> 00:19:02,000

natural ancient you know

507
00:19:04,950 --> 00:19:04,000

um

508
00:19:07,590 --> 00:19:04,960

healing

509
00:19:09,669 --> 00:19:07,600

from nature's wisdom

510
00:19:11,510 --> 00:19:09,679

that i tried it and i liked it look at

511
00:19:13,110 --> 00:19:11,520

this person in a lab coat and they say

512
00:19:15,510 --> 00:19:13,120

it works you know i mean then you can

513
00:19:17,029 --> 00:19:15,520

see it because they're all the same

514

00:19:18,950 --> 00:19:17,039

i think you know what i think i'm gonna

515

00:19:20,710 --> 00:19:18,960

have to make a special trip to visit one

516

00:19:23,029 --> 00:19:20,720

of your classes because it's just

517

00:19:24,789 --> 00:19:23,039

ringing so many bells with me but let me

518

00:19:26,870 --> 00:19:24,799

let me just

519

00:19:28,549 --> 00:19:26,880

reach over to my

520

00:19:30,710 --> 00:19:28,559

bookcase here i don't know if you're

521

00:19:33,029 --> 00:19:30,720

familiar with this book it's called the

522

00:19:36,310 --> 00:19:33,039

full facts book of cold reading

523

00:19:39,270 --> 00:19:36,320

okay and it's you quickly write it down

524

00:19:41,430 --> 00:19:39,280

because it is the the reference for cold

525

00:19:43,750 --> 00:19:41,440

reading it's by a friend of mine called

526

00:19:45,909 --> 00:19:43,760

ian roland it's been out for some years

527

00:19:48,870 --> 00:19:45,919

but i learned so much from that you have

528

00:19:51,190 --> 00:19:48,880

no idea it's a marvelous book

529

00:19:53,830 --> 00:19:51,200

oh amazing i don't get that in depth

530

00:19:55,270 --> 00:19:53,840

with it

531

00:19:56,150 --> 00:19:55,280

but i'm definitely checking out that

532

00:19:57,909 --> 00:19:56,160

book

533

00:20:00,310 --> 00:19:57,919

and i'm in massachusetts you're welcome

534

00:20:02,789 --> 00:20:00,320

to come by my classroom anytime

535

00:20:04,870 --> 00:20:02,799

it's a long way to go but that's okay i

536

00:20:06,390 --> 00:20:04,880

i would i would dearly love to see it

537

00:20:08,549 --> 00:20:06,400

because it does sound like you and i

538

00:20:10,710 --> 00:20:08,559

have been doing very similar things

539

00:20:12,950 --> 00:20:10,720

very similar things and

540

00:20:15,110 --> 00:20:12,960

while while you're there and i hope it's

541

00:20:17,590 --> 00:20:15,120

still online you can see my water

542

00:20:19,430 --> 00:20:17,600

divining test if you google my name plus

543

00:20:21,430 --> 00:20:19,440

water divining it should come up i did a

544

00:20:23,669 --> 00:20:21,440

demonstration of the amazing meeting in

545

00:20:26,549 --> 00:20:23,679

las vegas many years ago which was

546

00:20:27,750 --> 00:20:26,559

videoed and it's specifically made for

547

00:20:30,630 --> 00:20:27,760

teachers

548

00:20:32,710 --> 00:20:30,640

well melanie we we we'll have to catch

549

00:20:35,110 --> 00:20:32,720

up one day in person we can swap notes

550

00:20:36,789 --> 00:20:35,120

and have a lot of fun but it's been a

551
00:20:40,149 --> 00:20:36,799
pleasure to talk with you

552
00:20:41,590 --> 00:20:40,159
and again folks melanie's item is report

553
00:20:43,830 --> 00:20:41,600
is in the latest issue of the skeptic

554
00:20:47,750 --> 00:20:43,840
magazine from australian skeptics and

555
00:20:51,029 --> 00:20:49,669
and do you have a website people can

556
00:20:53,430 --> 00:20:51,039
visit

557
00:20:55,430 --> 00:20:53,440
oh yes please uh the website is thinking

558
00:20:57,590 --> 00:20:55,440
is power so

559
00:21:00,470 --> 00:20:57,600
not necessarily just knowledge is power

560
00:21:02,789 --> 00:21:00,480
but thinking is power.com

561
00:21:04,710 --> 00:21:02,799
i put a lot of curriculum ideas there

562
00:21:06,630 --> 00:21:04,720
actually the um

563
00:21:09,909 --> 00:21:06,640

foundations of my course are on the

564

00:21:12,789 --> 00:21:09,919

website um and i'm also on uh facebook

565

00:21:15,510 --> 00:21:12,799

and twitter all right i think powers

566

00:21:17,590 --> 00:21:15,520

folks i will link to that url in this

567

00:21:19,350 --> 00:21:17,600

week's show notes but for now

568

00:21:23,900 --> 00:21:19,360

melanie trisick king

569

00:21:36,310 --> 00:21:23,910

thank you very much thank you very much

570

00:21:38,230 --> 00:21:36,320

[Music]

571

00:21:41,029 --> 00:21:38,240

hey everyone this is brian dunning

572

00:21:43,350 --> 00:21:41,039

executive producer of science friction

573

00:21:45,029 --> 00:21:43,360

now on streaming services i wanted to

574

00:21:47,830 --> 00:21:45,039

let you know about my next feature

575

00:21:50,950 --> 00:21:47,840

documentary film it's called the ufo

576

00:21:52,950 --> 00:21:50,960

movie they don't want you to see and

577

00:21:55,110 --> 00:21:52,960

it's a science-based look at this whole

578

00:21:57,990 --> 00:21:55,120

modern ufo phenomenon

579

00:21:59,990 --> 00:21:58,000

what don't we know what do we know and

580

00:22:02,950 --> 00:22:00,000

how do we know it we're going to speak

581

00:22:05,510 --> 00:22:02,960

with pilots physicists image analysts

582

00:22:07,669 --> 00:22:05,520

and uniquely experts in optical

583

00:22:09,750 --> 00:22:07,679

illusions and give the audience a good

584

00:22:12,549 --> 00:22:09,760

understanding of what's actually in all

585

00:22:14,870 --> 00:22:12,559

these ufo videos come and watch the

586

00:22:15,750 --> 00:22:14,880

trailer and if you like help produce the

587

00:22:17,149 --> 00:22:15,760

film

588

00:22:20,750 --> 00:22:17,159

visit the

589

00:22:22,470 --> 00:22:20,760

ufo.movie to see it that's the

590

00:22:24,390 --> 00:22:22,480

ufo.movie

591

00:22:26,470 --> 00:22:24,400

join me and let's make this film a real

592

00:22:27,750 --> 00:22:26,480

resource that does the world some good

593

00:22:30,310 --> 00:22:27,760

for a change

594

00:22:36,650 --> 00:22:30,320

the ufo.movie

595

00:22:41,270 --> 00:22:38,830

[Music]

596

00:22:43,450 --> 00:22:41,280

you and now

597

00:22:46,149 --> 00:22:43,460

a reading from the book of tim

598

00:22:48,960 --> 00:22:46,159

[Music]

599

00:22:55,270 --> 00:22:48,970

with tim menden

600

00:22:57,510 --> 00:22:55,280

[Music]

601
00:22:59,510 --> 00:22:57,520
hi my name is tim menden i'm executive

602
00:23:02,470 --> 00:22:59,520
officer of australian skeptics inc and

603
00:23:04,710 --> 00:23:02,480
editor of our magazine the skeptic

604
00:23:08,149 --> 00:23:04,720
and today's article comes from the

605
00:23:10,230 --> 00:23:08,159
september 2016 issue of the magazine

606
00:23:12,789 --> 00:23:10,240
which is volume 36

607
00:23:15,510 --> 00:23:12,799
number three but more importantly it is

608
00:23:17,990 --> 00:23:15,520
a reprint of one that goes back to the

609
00:23:19,430 --> 00:23:18,000
dim dark distant age of the skeptic's

610
00:23:23,350 --> 00:23:19,440
first decade

611
00:23:25,510 --> 00:23:23,360
it was published in september 1987

612
00:23:27,510 --> 00:23:25,520
volume 7 number four

613
00:23:29,029 --> 00:23:27,520

this is an article called neverending

614

00:23:30,710 --> 00:23:29,039

story

615

00:23:32,630 --> 00:23:30,720

and it's written by anthony garrett who

616

00:23:34,870 --> 00:23:32,640

used to be a member of australian

617

00:23:36,310 --> 00:23:34,880

skeptics committee in sydney and he was

618

00:23:38,710 --> 00:23:36,320

a researcher

619

00:23:41,269 --> 00:23:38,720

in physics at sydney university and it's

620

00:23:42,950 --> 00:23:41,279

about perpetual mobility better known as

621

00:23:44,950 --> 00:23:42,960

perpetual motion

622

00:23:46,070 --> 00:23:44,960

and what i'm reading now is part one

623

00:23:47,669 --> 00:23:46,080

which will look at the nature of

624

00:23:49,269 --> 00:23:47,679

perpetual motion and what people claimed

625

00:23:51,190 --> 00:23:49,279

it to be etc

626
00:23:52,630 --> 00:23:51,200
and next week i'll be reading part two

627
00:23:54,789 --> 00:23:52,640
which is the history

628
00:23:57,269 --> 00:23:54,799
of perpetual motion

629
00:23:59,430 --> 00:23:57,279
now let's look in part one

630
00:24:02,230 --> 00:23:59,440
there is a considerable gray area

631
00:24:04,470 --> 00:24:02,240
between science and pseudoscience

632
00:24:06,789 --> 00:24:04,480
skeptical organizations exist to combat

633
00:24:09,750 --> 00:24:06,799
the latter and to encourage the critical

634
00:24:11,430 --> 00:24:09,760
mode of thought employed by the former

635
00:24:13,430 --> 00:24:11,440
often the distinction is clear-cut

636
00:24:15,269 --> 00:24:13,440
astronomy is clearly a science for

637
00:24:16,789 --> 00:24:15,279
example and astrology clearly a

638
00:24:18,310 --> 00:24:16,799

pseudoscience

639

00:24:20,549 --> 00:24:18,320

internal consistency is the most

640

00:24:21,990 --> 00:24:20,559

valuable criterion for distinguishing

641

00:24:24,710 --> 00:24:22,000

between the two

642

00:24:26,390 --> 00:24:24,720

a new idea in astronomy if it conflicts

643

00:24:27,750 --> 00:24:26,400

with the old ideas must either be

644

00:24:29,830 --> 00:24:27,760

rejected or

645

00:24:32,549 --> 00:24:29,840

less often must cause sufficient

646

00:24:35,590 --> 00:24:32,559

revision to the old ideas to permit its

647

00:24:37,669 --> 00:24:35,600

incorporation without contradiction

648

00:24:39,990 --> 00:24:37,679

astrology by contrast is a mess of

649

00:24:42,230 --> 00:24:40,000

ad-hoc ideas which are often in mutual

650

00:24:44,950 --> 00:24:42,240

contradiction predictions of tropical

651
00:24:47,110 --> 00:24:44,960
and sidereal astrology stand in open

652
00:24:48,950 --> 00:24:47,120
conflict and one system cannot even

653
00:24:51,190 --> 00:24:48,960
predict anything at all for those people

654
00:24:52,870 --> 00:24:51,200
born north of the arctic circle

655
00:24:55,430 --> 00:24:52,880
nobody thought to warn the eskimos of

656
00:24:56,789 --> 00:24:55,440
this peril and no harm has befallen them

657
00:24:58,149 --> 00:24:56,799
as a result

658
00:25:00,310 --> 00:24:58,159
astrology though was once in the

659
00:25:02,230 --> 00:25:00,320
mainstream of science even though

660
00:25:03,669 --> 00:25:02,240
scientists today would not use that word

661
00:25:04,950 --> 00:25:03,679
to describe the efforts of their

662
00:25:07,430 --> 00:25:04,960
forebears

663
00:25:09,430 --> 00:25:07,440

to paraphrase the poet william blake

664

00:25:11,590 --> 00:25:09,440

knowledge itself will not be the same

665

00:25:12,950 --> 00:25:11,600

when we know more

666

00:25:15,269 --> 00:25:12,960

perhaps the birth of what we call the

667

00:25:17,190 --> 00:25:15,279

scientific mode of thought was a one-off

668

00:25:18,950 --> 00:25:17,200

revolution for all time

669

00:25:21,430 --> 00:25:18,960

perhaps today's science will not merely

670

00:25:23,350 --> 00:25:21,440

be outdated but transcended

671

00:25:26,470 --> 00:25:23,360

there are no signs of this yet

672

00:25:29,430 --> 00:25:26,480

new age ideals notwithstanding

673

00:25:31,350 --> 00:25:29,440

in this article anthony shall examine

674

00:25:32,950 --> 00:25:31,360

another endeavor which was once

675

00:25:35,269 --> 00:25:32,960

mainstream science

676
00:25:36,470 --> 00:25:35,279
and moreover science in today's sense of

677
00:25:38,310 --> 00:25:36,480
the word

678
00:25:40,070 --> 00:25:38,320
perpetual motion

679
00:25:42,549 --> 00:25:40,080
the appeal is immediate to anyone who

680
00:25:44,310 --> 00:25:42,559
has seen ash's marvelous visual pun

681
00:25:46,549 --> 00:25:44,320
arising from the projection of three

682
00:25:48,950 --> 00:25:46,559
dimensions onto two in which water

683
00:25:51,269 --> 00:25:48,960
cascades down over a water wheel and

684
00:25:52,230 --> 00:25:51,279
then returns by gravity to its starting

685
00:25:54,070 --> 00:25:52,240
point

686
00:25:56,230 --> 00:25:54,080
perpetual motion was a hot topic in the

687
00:25:57,190 --> 00:25:56,240
19th century both for theoretical

688
00:25:59,750 --> 00:25:57,200

reasons

689

00:26:01,830 --> 00:25:59,760

could energy be created from nowhere and

690

00:26:04,230 --> 00:26:01,840

for practical reasons because the age of

691

00:26:06,789 --> 00:26:04,240

the engineer was at its height

692

00:26:09,190 --> 00:26:06,799

since the idea is analyzable from the

693

00:26:10,789 --> 00:26:09,200

standpoint of modern science it is in

694

00:26:11,830 --> 00:26:10,799

this realm that the answers should be

695

00:26:14,789 --> 00:26:11,840

sought

696

00:26:16,549 --> 00:26:14,799

the criterion of internal consistency

697

00:26:18,630 --> 00:26:16,559

which serves as a weapon against more

698

00:26:21,350 --> 00:26:18,640

complicated schools of thought external

699

00:26:23,590 --> 00:26:21,360

to science is not needed

700

00:26:24,950 --> 00:26:23,600

yet perpetual motion still stands as a

701
00:26:26,710 --> 00:26:24,960
gray area

702
00:26:27,909 --> 00:26:26,720
some of its proponents are clear-cut

703
00:26:29,830 --> 00:26:27,919
cranks

704
00:26:31,350 --> 00:26:29,840
some simply lacking in scientific

705
00:26:33,110 --> 00:26:31,360
education

706
00:26:35,510 --> 00:26:33,120
i have personally encountered both types

707
00:26:37,750 --> 00:26:35,520
anthony says for the first type it is

708
00:26:39,909 --> 00:26:37,760
all a crazy hobby but for the second a

709
00:26:41,990 --> 00:26:39,919
good deal of time money and even lives

710
00:26:43,909 --> 00:26:42,000
are needlessly wasted

711
00:26:45,510 --> 00:26:43,919
let this serve as a warning

712
00:26:48,390 --> 00:26:45,520
to those who doubt that scientific

713
00:26:50,390 --> 00:26:48,400

literacy is the currency of our age

714

00:26:52,470 --> 00:26:50,400

even a hundred years ago the u.s navy

715

00:26:54,549 --> 00:26:52,480

came close to espousing the cause of one

716

00:26:56,149 --> 00:26:54,559

particular machine

717

00:26:58,149 --> 00:26:56,159

and the reason why perpetual motion

718

00:27:00,390 --> 00:26:58,159

still remains popular over a century

719

00:27:01,269 --> 00:27:00,400

after the idea was definitively laid to

720

00:27:03,029 --> 00:27:01,279

rest

721

00:27:05,750 --> 00:27:03,039

is of course the dream of conjuring

722

00:27:08,789 --> 00:27:05,760

energy out of nothing which is

723

00:27:12,390 --> 00:27:08,799

just as pertinent if more so today than

724

00:27:14,470 --> 00:27:12,400

it was in 1987.

725

00:27:16,149 --> 00:27:14,480

were this feasible all the coal-fired

726

00:27:18,470 --> 00:27:16,159

power stations with their sulfurous

727

00:27:20,710 --> 00:27:18,480

emissions could be closed

728

00:27:22,950 --> 00:27:20,720

likewise nuclear efficient power plants

729

00:27:25,190 --> 00:27:22,960

with their radioactive waste

730

00:27:26,710 --> 00:27:25,200

natural power sources with a supposed

731

00:27:28,470 --> 00:27:26,720

threat of covering the world's deserts

732

00:27:30,710 --> 00:27:28,480

and mountains with solar cells and

733

00:27:32,830 --> 00:27:30,720

windmills could be dropped the huge

734

00:27:35,830 --> 00:27:32,840

funds expended on energy research

735

00:27:38,149 --> 00:27:35,840

redeployed and cheap energy made readily

736

00:27:40,230 --> 00:27:38,159

available to developing countries not a

737

00:27:42,389 --> 00:27:40,240

bad list of achievements for a humble

738

00:27:43,990 --> 00:27:42,399

machine

739

00:27:46,710 --> 00:27:44,000

now let's look at the types of perpetual

740

00:27:50,230 --> 00:27:46,720

motion perpetual motion proposals are of

741

00:27:52,230 --> 00:27:50,240

two types and the distinction is crucial

742

00:27:54,950 --> 00:27:52,240

a perpetual motion machine of the first

743

00:27:56,950 --> 00:27:54,960

kind actually creates energy

744

00:27:58,630 --> 00:27:56,960

some of this is inevitably rendered

745

00:28:01,190 --> 00:27:58,640

inaccessible through losses due to

746

00:28:03,190 --> 00:28:01,200

friction in the bearings of the machine

747

00:28:04,389 --> 00:28:03,200

or air drag against the moving parts or

748

00:28:06,230 --> 00:28:04,399

whatever

749

00:28:07,909 --> 00:28:06,240

the rest is available to the world as

750

00:28:09,750 --> 00:28:07,919

free energy

751
00:28:12,070 --> 00:28:09,760
a perpetual motion machine of the second

752
00:28:14,950 --> 00:28:12,080
kind by contrast does not create or

753
00:28:16,950 --> 00:28:14,960
destroy energy it runs forever by

754
00:28:20,389 --> 00:28:16,960
completely eliminating friction in the

755
00:28:22,789 --> 00:28:20,399
bearings air resistance and such however

756
00:28:25,510 --> 00:28:22,799
any attempt to extract energy from it

757
00:28:27,350 --> 00:28:25,520
causes it to slow down

758
00:28:28,630 --> 00:28:27,360
these two types of machine run counter

759
00:28:31,590 --> 00:28:28,640
to the first and second laws of

760
00:28:34,389 --> 00:28:31,600
thermodynamics respectively first law

761
00:28:36,149 --> 00:28:34,399
energy is conserved second law entropy

762
00:28:38,070 --> 00:28:36,159
increases

763
00:28:41,510 --> 00:28:38,080

most perpetual motion machines proposed

764

00:28:43,269 --> 00:28:41,520

nowadays are of the first glory kind

765

00:28:45,190 --> 00:28:43,279

their proponents invariably agree with

766

00:28:47,750 --> 00:28:45,200

scientists as to the laws of force and

767

00:28:49,510 --> 00:28:47,760

torque operating within their machines

768

00:28:52,070 --> 00:28:49,520

these laws were first elucidated by

769

00:28:54,230 --> 00:28:52,080

isaac newton three centuries ago

770

00:28:55,510 --> 00:28:54,240

and state that force equals mass times

771

00:28:58,230 --> 00:28:55,520

acceleration

772

00:29:00,549 --> 00:28:58,240

torque equals moment of inertia times

773

00:29:01,750 --> 00:29:00,559

angular acceleration

774

00:29:04,149 --> 00:29:01,760

the reason for the law is already

775

00:29:06,230 --> 00:29:04,159

acceptance is that one's intuition is

776

00:29:08,549 --> 00:29:06,240

schooled in them once it is accepted

777

00:29:10,149 --> 00:29:08,559

that undisturbed motion is a body's

778

00:29:12,470 --> 00:29:10,159

natural state

779

00:29:14,789 --> 00:29:12,480

that it alters its velocity only when a

780

00:29:16,470 --> 00:29:14,799

force is acting upon it and that slowing

781

00:29:18,470 --> 00:29:16,480

down is not the natural state but the

782

00:29:21,190 --> 00:29:18,480

result of frictional forces

783

00:29:22,710 --> 00:29:21,200

the path to newton's law is easy

784

00:29:24,950 --> 00:29:22,720

it nevertheless took a genius of

785

00:29:26,470 --> 00:29:24,960

newton's stature to comprehend this for

786

00:29:28,549 --> 00:29:26,480

the first time

787

00:29:30,789 --> 00:29:28,559

but crucially the same people do not

788

00:29:33,190 --> 00:29:30,799

accept that the force laws also imply

789

00:29:35,350 --> 00:29:33,200

conservation of energy this consequence

790

00:29:37,830 --> 00:29:35,360

is a fact scientists call it a first

791

00:29:39,669 --> 00:29:37,840

integral of newton's laws

792

00:29:41,830 --> 00:29:39,679

but it is one step further removed from

793

00:29:42,710 --> 00:29:41,840

the forces and talks which people can

794

00:29:44,789 --> 00:29:42,720

feel

795

00:29:45,990 --> 00:29:44,799

and so is often beyond untutored

796

00:29:48,549 --> 00:29:46,000

intuition

797

00:29:51,269 --> 00:29:48,559

i'm invariably told with a don't blind

798

00:29:54,470 --> 00:29:51,279

me with science look that's as may be

799

00:29:56,230 --> 00:29:54,480

but what is wrong with my machine as a

800

00:29:58,789 --> 00:29:56,240

working scientist with a responsibility

801
00:30:00,549 --> 00:29:58,799
to my employer i am placed in a quandary

802
00:30:02,950 --> 00:30:00,559
when asked by a well-meaning perpetual

803
00:30:05,190 --> 00:30:02,960
motion advocate to examine the design

804
00:30:06,870 --> 00:30:05,200
for a particular machine

805
00:30:08,470 --> 00:30:06,880
together with the inevitable discussion

806
00:30:10,389 --> 00:30:08,480
it can take many hours

807
00:30:12,389 --> 00:30:10,399
because it is an easy matter to produce

808
00:30:14,470 --> 00:30:12,399
a machine with an obvious acceleration

809
00:30:17,830 --> 00:30:14,480
mechanism but a subtle deceleration

810
00:30:19,590 --> 00:30:17,840
process the permutations are endless

811
00:30:21,510 --> 00:30:19,600
even more subtle are those machines

812
00:30:24,149 --> 00:30:21,520
which interchange energy between its

813
00:30:26,549 --> 00:30:24,159

various manifestations motion work

814

00:30:29,950 --> 00:30:26,559

against gravity hate latent energy of

815

00:30:32,149 --> 00:30:29,960

evaporation the drinking bird

816

00:30:33,669 --> 00:30:32,159

electromagnetism and so on

817

00:30:34,789 --> 00:30:33,679

some of the subtleties are quite

818

00:30:36,630 --> 00:30:34,799

ingenious

819

00:30:38,230 --> 00:30:36,640

but if newton's laws are operating as

820

00:30:40,789 --> 00:30:38,240

they have been understood for three

821

00:30:42,310 --> 00:30:40,799

centuries the catch is inevitably there

822

00:30:44,070 --> 00:30:42,320

somewhere

823

00:30:46,070 --> 00:30:44,080

one particular catch occurs so

824

00:30:47,590 --> 00:30:46,080

frequently that it is worth special

825

00:30:49,430 --> 00:30:47,600

mention

826

00:30:53,350 --> 00:30:49,440

perpetual motion machines in common with

827

00:30:55,269 --> 00:30:53,360

many others are almost invariably cyclic

828

00:30:57,669 --> 00:30:55,279

after sufficient operation referred to

829

00:30:59,750 --> 00:30:57,679

as a cycle the machine has returned to

830

00:31:02,310 --> 00:30:59,760

its initial configuration

831

00:31:04,870 --> 00:31:02,320

a wheel making one complete turn and an

832

00:31:06,950 --> 00:31:04,880

internal combustion engine are examples

833

00:31:09,269 --> 00:31:06,960

of cyclic machines

834

00:31:11,110 --> 00:31:09,279

cyclicality is a matter of convenience

835

00:31:13,269 --> 00:31:11,120

since a non-cyclic machine will be

836

00:31:15,750 --> 00:31:13,279

difficult to exploit

837

00:31:17,750 --> 00:31:15,760

often proposed perpetual motion machines

838

00:31:19,590 --> 00:31:17,760

have an obvious acceleration mechanism

839

00:31:21,430 --> 00:31:19,600

in one part of the cycle

840

00:31:22,710 --> 00:31:21,440

while the deceleration occurs in a

841

00:31:25,190 --> 00:31:22,720

separate part

842

00:31:28,230 --> 00:31:25,200

it is essential to consider the energy

843

00:31:29,909 --> 00:31:28,240

balance over a complete cycle

844

00:31:31,909 --> 00:31:29,919

perpetual motion machines are the second

845

00:31:33,990 --> 00:31:31,919

kind though less commercially attractive

846

00:31:35,110 --> 00:31:34,000

and no less interesting moreover they

847

00:31:36,870 --> 00:31:35,120

exist

848

00:31:39,190 --> 00:31:36,880

the circumstances for their observation

849

00:31:41,669 --> 00:31:39,200

are very special however and cannot be

850

00:31:44,149 --> 00:31:41,679

duplicated in the household as we shall

851
00:31:46,950 --> 00:31:44,159
see unless one has a very exceptional

852
00:31:49,509 --> 00:31:46,960
fridge indeed it will not have escaped

853
00:31:51,909 --> 00:31:49,519
the alert listeners notice that from

854
00:31:54,230 --> 00:31:51,919
newton's laws an isolated body with no

855
00:31:56,389 --> 00:31:54,240
forces or torque acting upon it exhibits

856
00:31:58,950 --> 00:31:56,399
precisely perpetual motion of the second

857
00:32:00,789 --> 00:31:58,960
type the problem is to reduce the force

858
00:32:03,110 --> 00:32:00,799
and torque to zero

859
00:32:06,230 --> 00:32:03,120
a top may spin for five minutes until

860
00:32:07,830 --> 00:32:06,240
friction at the point and air resistance

861
00:32:09,830 --> 00:32:07,840
cause it to fail

862
00:32:12,149 --> 00:32:09,840
place it in an evacuated container to

863
00:32:15,350 --> 00:32:12,159

eliminate air resistance and it will run

864

00:32:17,750 --> 00:32:15,360

for longer sharpen the point of contact

865

00:32:20,549 --> 00:32:17,760

and it will run for longer still

866

00:32:22,710 --> 00:32:20,559

but eventually it will still run down in

867

00:32:23,909 --> 00:32:22,720

the absence of any external energy

868

00:32:25,430 --> 00:32:23,919

source

869

00:32:27,750 --> 00:32:25,440

the starting energy has not been

870

00:32:29,990 --> 00:32:27,760

destroyed for the system is isolated but

871

00:32:32,470 --> 00:32:30,000

converted into heat in the surrounding

872

00:32:34,870 --> 00:32:32,480

area and the point of contact

873

00:32:37,190 --> 00:32:34,880

since heat is kinetic or motional energy

874

00:32:39,029 --> 00:32:37,200

of the air molecules we could still see

875

00:32:40,070 --> 00:32:39,039

motion if only our eyesight were good

876

00:32:42,149 --> 00:32:40,080

enough

877

00:32:44,230 --> 00:32:42,159

the motion is therefore perpetual

878

00:32:46,870 --> 00:32:44,240

although in a microscopic rather than an

879

00:32:47,909 --> 00:32:46,880

easily observable everyday macroscopic

880

00:32:49,909 --> 00:32:47,919

scale

881

00:32:52,470 --> 00:32:49,919

the energy of the top has been degraded

882

00:32:54,630 --> 00:32:52,480

into heat this degradation process

883

00:32:56,710 --> 00:32:54,640

translates into physics as the second

884

00:32:59,029 --> 00:32:56,720

law of thermodynamics

885

00:33:01,029 --> 00:32:59,039

it is a consequence of our inability to

886

00:33:02,710 --> 00:33:01,039

see on the atomic scale

887

00:33:04,870 --> 00:33:02,720

rather than a law relating to the

888

00:33:06,789 --> 00:33:04,880

fundamental dynamics of the system and

889

00:33:09,029 --> 00:33:06,799

is therefore a law of an altogether

890

00:33:11,509 --> 00:33:09,039

different kind from the first

891

00:33:13,509 --> 00:33:11,519

heat is inaccessible as an energy source

892

00:33:15,909 --> 00:33:13,519

although energy can be extracted from

893

00:33:17,669 --> 00:33:15,919

bodies of differing temperatures

894

00:33:19,909 --> 00:33:17,679

since one would have to know the

895

00:33:22,870 --> 00:33:19,919

differing directions of motion of all

896

00:33:25,110 --> 00:33:22,880

those million million million molecules

897

00:33:26,710 --> 00:33:25,120

in order to extract the energy

898

00:33:29,029 --> 00:33:26,720

it's not surprising that there is an

899

00:33:31,590 --> 00:33:29,039

intimate relation between information

900

00:33:34,230 --> 00:33:31,600

and entropy the quantity relating to the

901
00:33:35,830 --> 00:33:34,240
second law of thermodynamics

902
00:33:37,669 --> 00:33:35,840
now other perpetual motion machines are

903
00:33:39,029 --> 00:33:37,679
the second kind are their explanation to

904
00:33:41,190 --> 00:33:39,039
quantum theory

905
00:33:44,230 --> 00:33:41,200
the revolutionary post-newtonian picture

906
00:33:45,830 --> 00:33:44,240
of nature on the subatomic scale worked

907
00:33:47,509 --> 00:33:45,840
out in the first three decades of the

908
00:33:49,669 --> 00:33:47,519
20th century

909
00:33:52,630 --> 00:33:49,679
one example is the humble electron

910
00:33:54,789 --> 00:33:52,640
peacefully orbiting an atomic nucleus

911
00:33:56,630 --> 00:33:54,799
obviously there's no air resistance air

912
00:33:58,470 --> 00:33:56,640
itself consists of atoms and we are now

913
00:34:00,389 --> 00:33:58,480

looking within the atom

914

00:34:02,070 --> 00:34:00,399

because of the peculiarities of quantum

915

00:34:04,630 --> 00:34:02,080

theory one can no longer view the

916

00:34:07,350 --> 00:34:04,640

electron as a tiny cricket ball going

917

00:34:09,030 --> 00:34:07,360

around a larger one but the criterion

918

00:34:11,270 --> 00:34:09,040

for a perpetual motion machine of the

919

00:34:13,349 --> 00:34:11,280

second type is still satisfied

920

00:34:15,750 --> 00:34:13,359

namely the description of the system

921

00:34:17,669 --> 00:34:15,760

does not also with time unless it is

922

00:34:20,710 --> 00:34:17,679

perturbed from the outside

923

00:34:22,230 --> 00:34:20,720

the system does not run down

924

00:34:24,310 --> 00:34:22,240

it might be argued that this is cheating

925

00:34:26,869 --> 00:34:24,320

we can't see this electron and even if

926

00:34:28,790 --> 00:34:26,879

we could the act of seeing it involving

927

00:34:29,829 --> 00:34:28,800

bombarding it with photons would alter

928

00:34:31,589 --> 00:34:29,839

its state

929

00:34:34,470 --> 00:34:31,599

however we have now learned how to set

930

00:34:36,869 --> 00:34:34,480

up an easily determined quantum state of

931

00:34:38,310 --> 00:34:36,879

arbitrary extent

932

00:34:41,030 --> 00:34:38,320

the secret is to cool the system

933

00:34:43,829 --> 00:34:41,040

sufficiently close to absolute zero

934

00:34:45,669 --> 00:34:43,839

the phenomenon of superconductivity

935

00:34:48,869 --> 00:34:45,679

in which an electric current circulates

936

00:34:50,550 --> 00:34:48,879

in a chilled wire with zero resistance

937

00:34:53,430 --> 00:34:50,560

not just a very small resistance but

938

00:34:55,270 --> 00:34:53,440

truly zero is an example

939

00:34:57,430 --> 00:34:55,280

superconducting materials have been

940

00:34:59,670 --> 00:34:57,440

found which lose all their electrical

941

00:35:01,589 --> 00:34:59,680

resistance at far higher temperatures

942

00:35:03,430 --> 00:35:01,599

than any known before

943

00:35:04,470 --> 00:35:03,440

though still colder than the coldest

944

00:35:06,069 --> 00:35:04,480

fridge

945

00:35:08,069 --> 00:35:06,079

and indeed at higher temperatures than

946

00:35:09,670 --> 00:35:08,079

was thought possible

947

00:35:11,430 --> 00:35:09,680

admittedly you can't see an electric

948

00:35:13,589 --> 00:35:11,440

current but its associated magnetic

949

00:35:15,829 --> 00:35:13,599

field is directly observable

950

00:35:17,670 --> 00:35:15,839

then there is superfluidity in which a

951
00:35:19,990 --> 00:35:17,680
super cool liquid will flow up the

952
00:35:22,710 --> 00:35:20,000
inside of a tube immersed in it and back

953
00:35:24,790 --> 00:35:22,720
down the outside indefinitely

954
00:35:27,750 --> 00:35:24,800
these examples undeniably constitute

955
00:35:29,109 --> 00:35:27,760
perpetual motion of the second kind

956
00:35:31,510 --> 00:35:29,119
they violate the second law of

957
00:35:34,390 --> 00:35:31,520
thermodynamics because ultimately that

958
00:35:36,550 --> 00:35:34,400
is not a law at all but a heuristic

959
00:35:38,310 --> 00:35:36,560
as was stated one needs to possess

960
00:35:40,710 --> 00:35:38,320
complete information pertaining to a

961
00:35:42,470 --> 00:35:40,720
system in order to extract all the

962
00:35:44,710 --> 00:35:42,480
thermal energy

963
00:35:46,950 --> 00:35:44,720

the second law merely states in effect

964

00:35:49,109 --> 00:35:46,960

that it is impossible in practice to

965

00:35:50,950 --> 00:35:49,119

obtain information on those millions of

966

00:35:52,950 --> 00:35:50,960

millions of particles

967

00:35:55,510 --> 00:35:52,960

it's not impossible in principle and if

968

00:35:57,349 --> 00:35:55,520

the system consists of a single electron

969

00:36:00,390 --> 00:35:57,359

or a single superconducting quantum

970

00:36:02,470 --> 00:36:00,400

state if it is an easy matter

971

00:36:04,870 --> 00:36:02,480

and finally as far as the theory of

972

00:36:07,109 --> 00:36:04,880

perpetual motion is concerned energy

973

00:36:10,390 --> 00:36:07,119

conservation still holds in einstein's

974

00:36:13,109 --> 00:36:10,400

relativity theory provided that mass m

975

00:36:15,349 --> 00:36:13,119

is seen as a further form of energy e

976
00:36:17,270 --> 00:36:15,359
related in theory by the famous equation

977
00:36:20,550 --> 00:36:17,280
a equals m c squared

978
00:36:22,550 --> 00:36:20,560
and in practice in nuclear reactors

979
00:36:25,030 --> 00:36:22,560
that in spite of the statistical nature

980
00:36:27,109 --> 00:36:25,040
of quantum mechanics energy conservation

981
00:36:28,470 --> 00:36:27,119
still holds exactly in the quantum

982
00:36:30,470 --> 00:36:28,480
picture

983
00:36:32,470 --> 00:36:30,480
and that's the end of part one of this

984
00:36:33,750 --> 00:36:32,480
presentation and it's pretty heavy i

985
00:36:35,670 --> 00:36:33,760
know there's a lot of physics involved

986
00:36:38,790 --> 00:36:35,680
there but it's important background for

987
00:36:40,630 --> 00:36:38,800
part two which we'll look at next week

988
00:36:42,470 --> 00:36:40,640

in this article on perpetual emotion

989

00:36:46,710 --> 00:36:42,480

appeared in the skeptic magazine

990

00:36:48,310 --> 00:36:46,720

september 2016 which is volume 36

991

00:36:50,310 --> 00:36:48,320

number three and as i said it's a

992

00:36:53,190 --> 00:36:50,320

reprint of an article that originally

993

00:36:54,870 --> 00:36:53,200

appeared in the 1980s

994

00:36:56,470 --> 00:36:54,880

and you can download it you can download

995

00:36:58,950 --> 00:36:56,480

both versions if you like

996

00:37:02,230 --> 00:36:58,960

um and from for free from our website

997

00:37:06,240 --> 00:37:03,750

and i look forward to talking to you and

998

00:37:26,150 --> 00:37:06,250

continuing the story next week

999

00:37:30,069 --> 00:37:27,990

so nice to be back at skeptics in the

1000

00:37:32,150 --> 00:37:30,079

pub yes richard it's great that covert

1001
00:37:34,150 --> 00:37:32,160
19 is a thing of the past and we can

1002
00:37:35,589 --> 00:37:34,160
gather together and not wear masks

1003
00:37:37,510 --> 00:37:35,599
although i will occasionally you know

1004
00:37:39,349 --> 00:37:37,520
like you know in special situations you

1005
00:37:41,349 --> 00:37:39,359
know what i mean

1006
00:37:42,390 --> 00:37:41,359
this this beer tastes better than i

1007
00:37:43,510 --> 00:37:42,400
remember

1008
00:37:45,670 --> 00:37:43,520
and

1009
00:37:47,430 --> 00:37:45,680
this beer glass is much bigger than i

1010
00:37:49,109 --> 00:37:47,440
remember hmm

1011
00:37:51,510 --> 00:37:49,119
oh thanks for this i'll get the next

1012
00:37:53,750 --> 00:37:51,520
round ah no need all the beer is free

1013
00:37:55,510 --> 00:37:53,760

tonight free

1014

00:37:57,109 --> 00:37:55,520

wow did you hear that all the

1015

00:37:59,349 --> 00:37:57,119

anti-vaxxers and flat earthers have

1016

00:38:01,990 --> 00:37:59,359

changed their minds what

1017

00:38:03,589 --> 00:38:02,000

really yeah yeah yeah they're now busy

1018

00:38:05,349 --> 00:38:03,599

writing apology letters to the whole

1019

00:38:06,630 --> 00:38:05,359

world they're really busy they're gonna

1020

00:38:09,829 --> 00:38:06,640

have to sharpen their pencil if you know

1021

00:38:13,190 --> 00:38:09,839

what i mean ah look it's lara coming

1022

00:38:15,270 --> 00:38:13,200

over here with a plate full of food hi

1023

00:38:17,670 --> 00:38:15,280

youtube did you know that the food at

1024

00:38:20,470 --> 00:38:17,680

the bar is free tonight anything you

1025

00:38:23,670 --> 00:38:20,480

want really you have to try the lobster

1026

00:38:26,150 --> 00:38:23,680

chips lobster and chips oh wow this is

1027

00:38:28,310 --> 00:38:26,160

like a dream and this pub now has

1028

00:38:30,829 --> 00:38:28,320

recliner chairs a free foot massage for

1029

00:38:32,790 --> 00:38:30,839

everyone and vouchers for uber rides

1030

00:38:34,790 --> 00:38:32,800

home wow

1031

00:38:36,150 --> 00:38:34,800

hang on this seems too good to be true

1032

00:38:39,190 --> 00:38:36,160

who's the guest speaker it's not bloody

1033

00:38:40,230 --> 00:38:39,200

brian dunning is it let me see

1034

00:38:43,190 --> 00:38:40,240

uh

1035

00:38:45,910 --> 00:38:43,200

this is odd it says here it's the

1036

00:38:49,750 --> 00:38:45,920

skeptical fairy godmother angel from the

1037

00:38:50,470 --> 00:38:49,760

internet the skeptical godmother fairy

1038

00:38:56,290 --> 00:38:50,480

in

1039

00:39:03,750 --> 00:39:01,190

[Laughter]

1040

00:39:06,150 --> 00:39:03,760

hello everyone who are you what you're

1041

00:39:08,630 --> 00:39:06,160

only 10 centimetres tall that's about

1042

00:39:11,270 --> 00:39:08,640

four inches for those of you using the

1043

00:39:13,910 --> 00:39:11,280

darth vader imperial system and floating

1044

00:39:14,710 --> 00:39:13,920

in the air that can't be right as lara

1045

00:39:18,069 --> 00:39:14,720

said

1046

00:39:21,190 --> 00:39:18,079

i'm the skeptical fairy godmother angel

1047

00:39:23,910 --> 00:39:21,200

from the internet ask a silly question

1048

00:39:25,430 --> 00:39:23,920

and you're tonight's guest speaker well

1049

00:39:28,390 --> 00:39:25,440

not really

1050

00:39:32,310 --> 00:39:28,400

i have come to tell you that yes

1051

00:39:37,589 --> 00:39:34,710

i thought this was too good to be true i

1052

00:39:39,430 --> 00:39:37,599

know we can't meet in pubs at the moment

1053

00:39:42,630 --> 00:39:39,440

but that shouldn't stop you from

1054

00:39:45,670 --> 00:39:42,640

enjoying skeptical talks online

1055

00:39:47,109 --> 00:39:45,680

the fixed skeptics have skeptics cafe

1056

00:39:49,910 --> 00:39:47,119

each month

1057

00:39:52,470 --> 00:39:49,920

sydney has skeptics in the park

1058

00:39:54,790 --> 00:39:52,480

there are online events from the gold

1059

00:39:58,150 --> 00:39:54,800

coast and yes yes

1060

00:40:01,190 --> 00:39:58,160

this all sounds eerily familiar

1061

00:40:02,390 --> 00:40:01,200

have we met before somewhere maybe we

1062

00:40:03,430 --> 00:40:02,400

have

1063

00:40:05,670 --> 00:40:03,440

maybe

1064

00:40:08,150 --> 00:40:05,680

it was as we watched a live and

1065

00:40:10,309 --> 00:40:08,160

interactive skeptical talk

1066

00:40:11,430 --> 00:40:10,319

all you need do is search for them

1067

00:40:13,670 --> 00:40:11,440

online

1068

00:40:15,349 --> 00:40:13,680

no matter where you are in the world

1069

00:40:17,750 --> 00:40:15,359

she's right i've been watching skeptical

1070

00:40:19,589 --> 00:40:17,760

talks from the uk the us and even one

1071

00:40:21,109 --> 00:40:19,599

from my own living room although that

1072

00:40:22,950 --> 00:40:21,119

one wasn't very interesting i fell

1073

00:40:25,589 --> 00:40:22,960

asleep and i was the speaker hang on

1074

00:40:28,390 --> 00:40:25,599

hang on weren't you once

1075

00:40:31,270 --> 00:40:28,400

the tooth fairy

1076

00:40:34,630 --> 00:40:31,280

i'll never live that down

1077

00:40:46,870 --> 00:40:34,640

one last question yes

1078

00:40:50,829 --> 00:40:49,589

she disappeared but um we're still here

1079

00:40:52,630 --> 00:40:50,839

huh

1080

00:40:54,630 --> 00:40:52,640

right so

1081

00:40:56,710 --> 00:40:54,640

um

1082

00:40:58,630 --> 00:40:56,720

lobster and chips anyone

1083

00:41:07,690 --> 00:40:58,640

all right now it's a dream you want to

1084

00:41:07,700 --> 00:41:17,670

[Music]

1085

00:41:21,990 --> 00:41:19,430

now it's time once again to dive back

1086

00:41:24,230 --> 00:41:22,000

into those wonderful archives

1087

00:41:26,630 --> 00:41:24,240

those digital archives from around the

1088

00:41:28,150 --> 00:41:26,640

world in the segment we call

1089

00:41:38,309 --> 00:41:28,160

trove

1090

00:41:39,990 --> 00:41:38,319

digitized newspapers gazettes and so on

1091

00:41:42,790 --> 00:41:40,000

journals magazines from australian

1092

00:41:44,790 --> 00:41:42,800

history but quite frequently we look

1093

00:41:46,870 --> 00:41:44,800

further afield often to the united

1094

00:41:48,309 --> 00:41:46,880

states

1095

00:41:50,870 --> 00:41:48,319

and this week we're going to look at a

1096

00:41:52,230 --> 00:41:50,880

subject that i covered oh over a year

1097

00:41:54,630 --> 00:41:52,240

ago now

1098

00:41:57,910 --> 00:41:54,640

but it's certainly akin to ufos which i

1099

00:42:03,880 --> 00:41:57,920

cover frequently anyway this is

1100

00:42:07,990 --> 00:42:05,589

[Music]

1101
00:42:09,190 --> 00:42:08,000
have you ever been abducted by an alien

1102
00:42:12,870 --> 00:42:09,200
have you

1103
00:42:15,030 --> 00:42:12,880
abducted an alien i wonder

1104
00:42:17,190 --> 00:42:15,040
we'll hear a couple of stories

1105
00:42:18,630 --> 00:42:17,200
of people who claimed that they were

1106
00:42:20,870 --> 00:42:18,640
indeed

1107
00:42:23,349 --> 00:42:20,880
abducted by aliens and we're talking

1108
00:42:26,750 --> 00:42:23,359
about the aliens in flying sources

1109
00:42:29,030 --> 00:42:26,760
spaceships ufos

1110
00:42:30,710 --> 00:42:29,040
[Music]

1111
00:42:33,109 --> 00:42:30,720
and our first report comes from the

1112
00:42:34,870 --> 00:42:33,119
nashua telegraph dated the

1113
00:42:37,910 --> 00:42:34,880

18th of november

1114

00:42:42,069 --> 00:42:40,710

so almost 30 years ago

1115

00:42:44,470 --> 00:42:42,079

united

1116

00:42:46,870 --> 00:42:44,480

by the unusual

1117

00:42:49,430 --> 00:42:46,880

milford man leads network for people who

1118

00:42:52,950 --> 00:42:49,440

say they have seen ufos

1119

00:42:55,589 --> 00:42:52,960

or been abducted by aliens by paul

1120

00:42:57,670 --> 00:42:55,599

danuki telegraph staff to most

1121

00:43:00,390 --> 00:42:57,680

middle-aged folks the people who seek

1122

00:43:02,470 --> 00:43:00,400

out walter friesendorf's group might

1123

00:43:04,710 --> 00:43:02,480

seem pretty odd

1124

00:43:07,990 --> 00:43:04,720

like those who claim to have been

1125

00:43:10,550 --> 00:43:08,000

abducted by aliens and subjected to

1126

00:43:14,950 --> 00:43:10,560

strange experiments they turned to

1127

00:43:16,950 --> 00:43:14,960

friesendorf because he is one of the few

1128

00:43:20,230 --> 00:43:16,960

who will listen

1129

00:43:22,950 --> 00:43:20,240

friesendorff a milford resident is the

1130

00:43:24,390 --> 00:43:22,960

assistant state director of mutual ufo

1131

00:43:26,150 --> 00:43:24,400

network inc

1132

00:43:28,630 --> 00:43:26,160

a national group that investigates

1133

00:43:29,670 --> 00:43:28,640

alleged sightings of unidentified flying

1134

00:43:33,030 --> 00:43:29,680

objects

1135

00:43:36,550 --> 00:43:33,040

and purported cases of alien abductions

1136

00:43:38,630 --> 00:43:36,560

friesendorf 50 says he has investigated

1137

00:43:41,510 --> 00:43:38,640

about a dozen alleged abductions in the

1138

00:43:43,510 --> 00:43:41,520

state including some in nashua

1139

00:43:46,950 --> 00:43:43,520

londonderry and

1140

00:43:48,230 --> 00:43:46,960

petersburg most of them friesendorf says

1141

00:43:50,069 --> 00:43:48,240

are valid

1142

00:43:52,230 --> 00:43:50,079

there are some people who will tell you

1143

00:43:54,950 --> 00:43:52,240

about what happened to them and then

1144

00:43:57,589 --> 00:43:54,960

they don't want to talk to you anymore

1145

00:44:00,230 --> 00:43:57,599

friesendorf recalls they just want to

1146

00:44:02,550 --> 00:44:00,240

unburden themselves one nashua woman

1147

00:44:05,190 --> 00:44:02,560

kept a diary of her alleged alien

1148

00:44:07,349 --> 00:44:05,200

encounters friesendorf says she went

1149

00:44:10,230 --> 00:44:07,359

through this for years

1150

00:44:12,550 --> 00:44:10,240

even since he was a little girl he tries

1151

00:44:15,190 --> 00:44:12,560

to get the people help including

1152

00:44:17,670 --> 00:44:15,200

channeling them to support groups in

1153

00:44:18,470 --> 00:44:17,680

which there are others who claim to have

1154

00:44:20,870 --> 00:44:18,480

been

1155

00:44:22,710 --> 00:44:20,880

abducted by aliens

1156

00:44:24,710 --> 00:44:22,720

friesendorf acknowledges there are

1157

00:44:27,430 --> 00:44:24,720

plenty of skeptics out there

1158

00:44:29,510 --> 00:44:27,440

one such doubter is philip j class a

1159

00:44:32,390 --> 00:44:29,520

contributing editor of aviation week

1160

00:44:35,670 --> 00:44:32,400

magazine who also publishes a newsletter

1161

00:44:38,630 --> 00:44:35,680

discounting ufo phenomenon class goes

1162

00:44:41,109 --> 00:44:38,640

further than just debunking ufos saying

1163

00:44:42,390 --> 00:44:41,119

that belief in alien abductions has

1164

00:44:44,710 --> 00:44:42,400

become a

1165

00:44:45,910 --> 00:44:44,720

dangerous cult and suggests that

1166

00:44:49,270 --> 00:44:45,920

believers

1167

00:44:50,550 --> 00:44:49,280

seem to walk a line bordering on

1168

00:44:53,349 --> 00:44:50,560

obsession

1169

00:44:56,069 --> 00:44:53,359

class said that they have developed

1170

00:44:58,710 --> 00:44:56,079

their own dogma regarding abductions

1171

00:45:01,510 --> 00:44:58,720

if you believe it they have chosen you

1172

00:45:02,550 --> 00:45:01,520

for experiments and they will come back

1173

00:45:04,950 --> 00:45:02,560

for you

1174

00:45:05,910 --> 00:45:04,960

they will get you no matter where you

1175

00:45:08,390 --> 00:45:05,920

are

1176
00:45:11,829 --> 00:45:08,400
the dogma is that they have selected you

1177
00:45:13,670 --> 00:45:11,839
for genetic experiments they will even

1178
00:45:15,829 --> 00:45:13,680
abduct your children

1179
00:45:19,109 --> 00:45:15,839
if you have a daughter they will

1180
00:45:22,230 --> 00:45:19,119
impregnate her with alien sperm

1181
00:45:25,030 --> 00:45:22,240
class says he knows of mufon and has

1182
00:45:27,349 --> 00:45:25,040
attended its annual conferences people

1183
00:45:29,910 --> 00:45:27,359
who are members of mufon

1184
00:45:33,510 --> 00:45:29,920
are generally well intentioned they are

1185
00:45:36,710 --> 00:45:33,520
sincere in their hearts but there are

1186
00:45:40,790 --> 00:45:36,720
alien spacecraft out there class says

1187
00:45:43,750 --> 00:45:40,800
i have spent 26 years investigating ufos

1188
00:45:47,190 --> 00:45:43,760

and have yet to find one friesendorf

1189

00:45:50,790 --> 00:45:47,200

said he doesn't listen to the debunkers

1190

00:45:54,069 --> 00:45:50,800

he's a debunker and that's his job it's

1191

00:45:57,270 --> 00:45:54,079

not a cult and i don't understand how he

1192

00:46:00,309 --> 00:45:57,280

says it is dangerous friesendorf says

1193

00:46:02,950 --> 00:46:00,319

that class ought to talk to dr john mack

1194

00:46:05,190 --> 00:46:02,960

a harvard university psychiatrist who

1195

00:46:06,870 --> 00:46:05,200

has studied people who claim to have

1196

00:46:10,390 --> 00:46:06,880

been abducted

1197

00:46:11,510 --> 00:46:10,400

matt concluded that the abductees he

1198

00:46:14,069 --> 00:46:11,520

studied

1199

00:46:16,470 --> 00:46:14,079

are not mentally ill we are not saying

1200

00:46:18,790 --> 00:46:16,480

the experiments are real or not

1201
00:46:21,270 --> 00:46:18,800
we're just saying these people are not

1202
00:46:23,829 --> 00:46:21,280
crazy said pam casey a research

1203
00:46:25,990 --> 00:46:23,839
assistant for dr mack we have been

1204
00:46:28,790 --> 00:46:26,000
studying them for two and a half years

1205
00:46:31,349 --> 00:46:28,800
friesendorf says mentally unstable

1206
00:46:34,430 --> 00:46:31,359
people have phoned him and claimed to

1207
00:46:37,670 --> 00:46:34,440
have encountered ufos they are typically

1208
00:46:40,550 --> 00:46:37,680
schizophrenics and are obsessed that

1209
00:46:42,950 --> 00:46:40,560
they are being followed friesendorf says

1210
00:46:45,589 --> 00:46:42,960
adding that they can easily be detected

1211
00:46:47,349 --> 00:46:45,599
but those cases from mentally ill people

1212
00:46:49,910 --> 00:46:47,359
are rare compared to the ones that

1213
00:46:52,790 --> 00:46:49,920

appear legitimate he says

1214

00:46:55,750 --> 00:46:52,800

what particularly fascinates friesendorf

1215

00:46:58,550 --> 00:46:55,760

is the consistency in their stories

1216

00:47:01,109 --> 00:46:58,560

alleged abductees describe encountering

1217

00:47:03,030 --> 00:47:01,119

similar little grey people and

1218

00:47:06,470 --> 00:47:03,040

undergoing similar experiments that

1219

00:47:07,990 --> 00:47:06,480

leave the same types of physical scars

1220

00:47:10,790 --> 00:47:08,000

friesendorf says

1221

00:47:13,030 --> 00:47:10,800

friesendorf an unemployed photographer

1222

00:47:17,510 --> 00:47:13,040

has held a fascination for the topic of

1223

00:47:20,150 --> 00:47:17,520

ufos since he was a teenager he says he

1224

00:47:22,390 --> 00:47:20,160

even has encountered a few unidentified

1225

00:47:25,190 --> 00:47:22,400

flying objects himself one such

1226
00:47:29,190 --> 00:47:25,200
encounter occurred in hollis along route

1227
00:47:33,270 --> 00:47:29,200
122 in the early 1980s at the time

1228
00:47:35,829 --> 00:47:33,280
friesendorf and a friend were in a car

1229
00:47:39,190 --> 00:47:35,839
when they saw an object with strobe

1230
00:47:41,670 --> 00:47:39,200
lights floating noiselessly at treetop

1231
00:47:43,990 --> 00:47:41,680
level friesendorf recounts

1232
00:47:45,349 --> 00:47:44,000
they watched it for a brief time before

1233
00:47:47,829 --> 00:47:45,359
it disappeared

1234
00:47:50,950 --> 00:47:47,839
they never discovered the origin of the

1235
00:47:53,349 --> 00:47:50,960
strange lights in 1982 soon after that

1236
00:47:55,829 --> 00:47:53,359
sighting friesendorf attended a state

1237
00:47:57,990 --> 00:47:55,839
conference of mufon inc

1238
00:48:00,549 --> 00:47:58,000

and discovered there were others like

1239

00:48:03,270 --> 00:48:00,559

him who had similar experiences the

1240

00:48:05,430 --> 00:48:03,280

director offered him a position of

1241

00:48:08,069 --> 00:48:05,440

assistant director and friesendorf

1242

00:48:09,990 --> 00:48:08,079

gladly accepted since then he has

1243

00:48:12,630 --> 00:48:10,000

investigated countless cases of

1244

00:48:15,190 --> 00:48:12,640

sightings and alleged abductions

1245

00:48:18,150 --> 00:48:15,200

he is now investigating a wilton case

1246

00:48:19,910 --> 00:48:18,160

that allegedly occurred in august two

1247

00:48:23,190 --> 00:48:19,920

families claim that while in the

1248

00:48:25,270 --> 00:48:23,200

backyard they saw strange lights and one

1249

00:48:28,549 --> 00:48:25,280

young boy in the family even claims to

1250

00:48:30,470 --> 00:48:28,559

have seen an alien eyeing them

1251
00:48:33,510 --> 00:48:30,480
from the bushes

1252
00:48:36,150 --> 00:48:33,520
but even friesendorf says i have my

1253
00:48:37,430 --> 00:48:36,160
suspicions about the boy's alleged

1254
00:48:39,589 --> 00:48:37,440
observation

1255
00:48:40,950 --> 00:48:39,599
friesendorf declined to name the family

1256
00:48:44,309 --> 00:48:40,960
because he says

1257
00:48:46,870 --> 00:48:44,319
he wants to maintain confidentiality

1258
00:48:49,270 --> 00:48:46,880
on december the 1st at milford's wetley

1259
00:48:51,430 --> 00:48:49,280
library friesendorf plans to have a

1260
00:48:54,950 --> 00:48:51,440
slide presentation about ufos and

1261
00:48:56,470 --> 00:48:54,960
abductions from that he says he expects

1262
00:48:59,589 --> 00:48:56,480
others will come forward with

1263
00:49:01,190 --> 00:48:59,599

information about ufo sightings and even

1264

00:49:03,270 --> 00:49:01,200

abductions

1265

00:49:05,430 --> 00:49:03,280

and the accompanying photograph is of

1266

00:49:07,349 --> 00:49:05,440

walter friesendorf himself

1267

00:49:09,430 --> 00:49:07,359

gazing towards the heavens

1268

00:49:11,510 --> 00:49:09,440

and the caption reads walter friesendorf

1269

00:49:13,750 --> 00:49:11,520

keeps an eye on the sky for reports of

1270

00:49:16,549 --> 00:49:13,760

unidentified flying objects

1271

00:49:19,349 --> 00:49:16,559

now again this story comes from 1992

1272

00:49:21,030 --> 00:49:19,359

so walter fizendorf would be if he's

1273

00:49:23,670 --> 00:49:21,040

still with us he'd be

1274

00:49:25,750 --> 00:49:23,680

about 80 years old now

1275

00:49:26,630 --> 00:49:25,760

and it's interesting the accounts

1276

00:49:28,549 --> 00:49:26,640

of

1277

00:49:30,950 --> 00:49:28,559

people agreeing that they're little grey

1278

00:49:33,670 --> 00:49:30,960

aliens and having similar experiences

1279

00:49:35,829 --> 00:49:33,680

and of course we later found out

1280

00:49:36,950 --> 00:49:35,839

that was largely due to them talking to

1281

00:49:39,109 --> 00:49:36,960

each other and

1282

00:49:41,109 --> 00:49:39,119

feeding off each other's stories and

1283

00:49:43,589 --> 00:49:41,119

embellishing each other

1284

00:49:44,710 --> 00:49:43,599

and falling back on the stereotypical

1285

00:49:46,870 --> 00:49:44,720

little

1286

00:49:48,630 --> 00:49:46,880

green or gray alien with the large head

1287

00:49:53,030 --> 00:49:48,640

and the big eyes from

1288

00:49:54,390 --> 00:49:53,040

um fiction from movies and so on

1289

00:49:57,430 --> 00:49:54,400

and our next

1290

00:49:59,829 --> 00:49:57,440

item comes from the chronicle telegram

1291

00:50:02,230 --> 00:49:59,839

and this seems to be from the great

1292

00:50:06,390 --> 00:50:02,240

state of ohio

1293

00:50:07,670 --> 00:50:06,400

from the 27th of june 2019 so not so

1294

00:50:09,910 --> 00:50:07,680

long ago

1295

00:50:13,910 --> 00:50:09,920

and this is a story by

1296

00:50:16,230 --> 00:50:13,920

jillian brockwell the washington post so

1297

00:50:17,829 --> 00:50:16,240

it's a syndicated piece

1298

00:50:20,150 --> 00:50:17,839

and the headline is

1299

00:50:23,589 --> 00:50:20,160

site of ufo abduction

1300

00:50:27,589 --> 00:50:23,599

gets historical marker and the word

1301
00:50:29,430 --> 00:50:27,599
abduction is in inverted commas

1302
00:50:32,870 --> 00:50:29,440
what is certain about the night of

1303
00:50:35,430 --> 00:50:32,880
october 11 1973 is this

1304
00:50:37,670 --> 00:50:35,440
when charles hickson and calvin parker

1305
00:50:40,549 --> 00:50:37,680
jr arrived at the sheriff's department

1306
00:50:41,589 --> 00:50:40,559
in pascagoula mississippi they were

1307
00:50:44,390 --> 00:50:41,599
frantic

1308
00:50:46,390 --> 00:50:44,400
they told authorities they had just been

1309
00:50:50,150 --> 00:50:46,400
abducted by aliens

1310
00:50:53,430 --> 00:50:50,160
each and a puncture wound in one arm

1311
00:50:55,829 --> 00:50:53,440
police tried to catch them in a lie but

1312
00:50:59,030 --> 00:50:55,839
it didn't work both men later passed

1313
00:51:03,829 --> 00:51:01,270

well there you go

1314

00:51:06,790 --> 00:51:03,839

on saturday the riverbank where the men

1315

00:51:07,589 --> 00:51:06,800

said the close encounter happened

1316

00:51:08,390 --> 00:51:07,599

got

1317

00:51:43,829 --> 00:51:08,400

a

1318

00:51:47,670 --> 00:51:43,839

in 1975

1319

00:51:49,589 --> 00:51:47,680

when i heard a kind of zipping sound

1320

00:51:50,470 --> 00:51:49,599

i looked up and saw a blue flashing

1321

00:51:52,710 --> 00:51:50,480

light

1322

00:51:56,309 --> 00:51:52,720

calvin turned around too

1323

00:51:59,430 --> 00:51:56,319

we saw a 30 foot long object with a

1324

00:52:01,829 --> 00:51:59,440

little dome on top as it hovered just

1325

00:52:05,430 --> 00:52:01,839

above the ground three small creatures

1326
00:52:07,430 --> 00:52:05,440
emerged also hovering he said the men

1327
00:52:10,150 --> 00:52:07,440
were suddenly paralyzed

1328
00:52:12,710 --> 00:52:10,160
the creatures grabbed them with pincer

1329
00:52:14,309 --> 00:52:12,720
type claws and pulled them towards the

1330
00:52:17,349 --> 00:52:14,319
object he says

1331
00:52:19,589 --> 00:52:17,359
i floated inside parker told the bloxy

1332
00:52:21,990 --> 00:52:19,599
sun herald in 2018

1333
00:52:24,069 --> 00:52:22,000
hickson said they were subjected to a

1334
00:52:26,470 --> 00:52:24,079
physical examination by something that

1335
00:52:27,750 --> 00:52:26,480
looked like a quote

1336
00:52:30,230 --> 00:52:27,760
big eye

1337
00:52:33,030 --> 00:52:30,240
in quote a constant mechanical sound

1338
00:52:35,910 --> 00:52:33,040

buzzing the whole time and then they

1339

00:52:38,549 --> 00:52:35,920

were dropped off right back in the dark

1340

00:52:41,109 --> 00:52:38,559

delta where they started hixson found

1341

00:52:42,069 --> 00:52:41,119

parker standing up arms raised to the

1342

00:52:44,870 --> 00:52:42,079

sky

1343

00:52:47,109 --> 00:52:44,880

and screaming he told the post they ran

1344

00:52:50,470 --> 00:52:47,119

for help at first sheriff's

1345

00:52:51,829 --> 00:52:50,480

investigators thought the men had just

1346

00:52:53,109 --> 00:52:51,839

been drunk

1347

00:52:55,430 --> 00:52:53,119

more lying

1348

00:52:57,510 --> 00:52:55,440

after interviewing the men they left a

1349

00:52:59,750 --> 00:52:57,520

room with a recorder secretly taping

1350

00:53:02,230 --> 00:52:59,760

hoping to catch the pair

1351
00:53:04,309 --> 00:53:02,240
dropping the act once they left

1352
00:53:06,630 --> 00:53:04,319
but they didn't they kept on talking

1353
00:53:08,870 --> 00:53:06,640
about what they had seen

1354
00:53:10,870 --> 00:53:08,880
and how scared they were

1355
00:53:13,589 --> 00:53:10,880
we did everything we knew to try and

1356
00:53:15,270 --> 00:53:13,599
break their stories jackson county

1357
00:53:18,230 --> 00:53:15,280
sheriff's captain

1358
00:53:20,230 --> 00:53:18,240
glenn wright told the post in 1975 if

1359
00:53:22,630 --> 00:53:20,240
they were lying to me

1360
00:53:24,309 --> 00:53:22,640
they should be in hollywood overnight it

1361
00:53:26,309 --> 00:53:24,319
was national news

1362
00:53:29,990 --> 00:53:26,319
there were news conferences and cameras

1363
00:53:31,030 --> 00:53:30,000

thrust in their still stunned faces

1364

00:53:55,030 --> 00:53:31,040

a

1365

00:53:56,790 --> 00:53:55,040

quote highly suggestible then quote

1366

00:53:58,950 --> 00:53:56,800

now i'll stop here quickly to say some

1367

00:54:00,870 --> 00:53:58,960

of that makes sense

1368

00:54:02,870 --> 00:54:00,880

now the line here that says skeptics

1369

00:54:05,750 --> 00:54:02,880

called them liars will who who which

1370

00:54:07,190 --> 00:54:05,760

skeptics we'd like to know exactly who

1371

00:54:08,630 --> 00:54:07,200

just people in the street who didn't

1372

00:54:11,270 --> 00:54:08,640

think their story checked out or

1373

00:54:12,390 --> 00:54:11,280

official skeptics or

1374

00:54:13,589 --> 00:54:12,400

someone like

1375

00:54:15,510 --> 00:54:13,599

joe nickel

1376

00:54:17,670 --> 00:54:15,520

it's very easy to just say skeptics say

1377

00:54:19,510 --> 00:54:17,680

this or skeptics say that

1378

00:54:22,829 --> 00:54:19,520

we read on

1379

00:54:26,069 --> 00:54:22,839

believers flooded into pascagoula by the

1380

00:54:28,150 --> 00:54:26,079

thousands wrapped in aluminium foil and

1381

00:54:29,270 --> 00:54:28,160

sitting all night on the hoods of their

1382

00:54:31,750 --> 00:54:29,280

cars

1383

00:54:33,589 --> 00:54:31,760

waiting for visitors from

1384

00:54:36,309 --> 00:54:33,599

another world

1385

00:54:38,710 --> 00:54:36,319

hixon was 42 at the time and was well

1386

00:54:42,230 --> 00:54:38,720

known in the community so perhaps he

1387

00:54:44,549 --> 00:54:42,240

felt more able to handle the media crush

1388

00:54:45,750 --> 00:54:44,559

he recounted the experience to anyone

1389

00:54:48,630 --> 00:54:45,760

who would listen

1390

00:54:51,270 --> 00:54:48,640

he went on johnny carson and dick cavett

1391

00:54:53,990 --> 00:54:51,280

he published a book in 1983.

1392

00:54:56,630 --> 00:54:54,000

parker on the other hand was 18 or 19

1393

00:55:00,069 --> 00:54:56,640

when it happened he had just arrived in

1394

00:55:01,829 --> 00:55:00,079

pascagoula from an even smaller town and

1395

00:55:04,950 --> 00:55:01,839

had planned to earn some extra money

1396

00:55:07,190 --> 00:55:04,960

before returning home to get married

1397

00:55:10,069 --> 00:55:07,200

he told the media he had passed out at

1398

00:55:12,390 --> 00:55:10,079

the beginning of the whole affair and

1399

00:55:14,870 --> 00:55:12,400

couldn't remember what happened

1400

00:55:18,309 --> 00:55:14,880

that was the only lie he told he said to

1401

00:55:20,789 --> 00:55:18,319

the son herald in 2018 in fact he did

1402

00:55:22,470 --> 00:55:20,799

remember what happened and was so afraid

1403

00:55:25,270 --> 00:55:22,480

that aliens had infected him with

1404

00:55:27,750 --> 00:55:25,280

something that when he got home from the

1405

00:55:29,030 --> 00:55:27,760

sheriff's department he took a bath in

1406

00:55:31,510 --> 00:55:29,040

bleach

1407

00:55:33,990 --> 00:55:31,520

within a few weeks he skipped town he

1408

00:55:35,430 --> 00:55:34,000

got married and picked up some work in

1409

00:55:38,230 --> 00:55:35,440

oil fields

1410

00:55:40,630 --> 00:55:38,240

if someone at a job recognized him he

1411

00:55:44,150 --> 00:55:40,640

would quit if hixon was trying to get

1412

00:55:45,990 --> 00:55:44,160

rich from the story it didn't work

1413

00:55:48,710 --> 00:55:46,000

parker told the sun herald that before

1414

00:55:50,710 --> 00:55:48,720

hixon's death in 2011 he occasionally

1415

00:55:53,030 --> 00:55:50,720

paid the older man's electric bill

1416

00:55:55,829 --> 00:55:53,040

parker now in his 60s slowly came out of

1417

00:55:58,630 --> 00:55:55,839

hiding in recent years and in 2018

1418

00:56:00,309 --> 00:55:58,640

published a book of his own in march as

1419

00:56:01,349 --> 00:56:00,319

the city was discussing plans for the

1420

00:56:03,589 --> 00:56:01,359

marker

1421

00:56:06,710 --> 00:56:03,599

new witnesses emerged telling the

1422

00:56:08,710 --> 00:56:06,720

mississippi clarion ledger that on the

1423

00:56:11,030 --> 00:56:08,720

night in question they saw an

1424

00:56:13,190 --> 00:56:11,040

unidentified flying object with flashing

1425

00:56:15,510 --> 00:56:13,200

blue lights going up and down the

1426

00:56:17,750 --> 00:56:15,520

pascagoula river

1427

00:56:19,510 --> 00:56:17,760

they said they kept it a secret all

1428

00:56:21,190 --> 00:56:19,520

these years because they were afraid of

1429

00:56:24,069 --> 00:56:21,200

people's reactions

1430

00:56:27,510 --> 00:56:24,079

one of them maria blair told the clarion

1431

00:56:30,470 --> 00:56:27,520

ledger the story is very true that's

1432

00:56:34,390 --> 00:56:30,480

what has bothered me for 45 years

1433

00:56:36,309 --> 00:56:34,400

it's been on my mind for 45 years

1434

00:56:38,630 --> 00:56:36,319

and believe it or not a quick search

1435

00:56:40,309 --> 00:56:38,640

around the internet and i found quite a

1436

00:56:41,510 --> 00:56:40,319

lot to do with calvin parker and the

1437

00:56:43,670 --> 00:56:41,520

ufos

1438

00:56:46,870 --> 00:56:43,680

and mr hixson

1439

00:56:51,750 --> 00:56:46,880

and so we have a part of a news report

1440

00:56:59,750 --> 00:56:55,190

something happened october of 73 that

1441

00:57:07,510 --> 00:57:02,789

the spaceship came with many blue lights

1442

00:57:13,190 --> 00:57:09,589

three little men came out and took him

1443

00:57:13,200 --> 00:57:21,430

[Music]

1444

00:57:25,750 --> 00:57:23,270

last october in the quiet mississippi

1445

00:57:27,349 --> 00:57:25,760

town of pascagoula two local men

1446

00:57:30,069 --> 00:57:27,359

confronted authorities with a rather

1447

00:57:32,309 --> 00:57:30,079

bizarre story charles hickson and calvin

1448

00:57:34,470 --> 00:57:32,319

parker told of a strange craft landing

1449

00:57:36,549 --> 00:57:34,480

near their fishing site and of being

1450

00:57:38,870 --> 00:57:36,559

taken aboard by three unearthly

1451
00:57:40,789 --> 00:57:38,880
creatures the two men were questioned

1452
00:57:43,430 --> 00:57:40,799
under hypnosis and lie detectors but

1453
00:57:45,270 --> 00:57:43,440
their story remained intact one of the

1454
00:57:46,570 --> 00:57:45,280
men suffered a nervous breakdown and is

1455
00:57:48,069 --> 00:57:46,580
still under treatment

1456
00:57:49,990 --> 00:57:48,079
[Music]

1457
00:57:51,750 --> 00:57:50,000
i guess that's when i heard it was some

1458
00:57:54,549 --> 00:57:51,760
kind of zipping sound

1459
00:57:55,829 --> 00:57:54,559
and when i turned around in this area

1460
00:57:58,150 --> 00:57:55,839
out here about

1461
00:57:59,589 --> 00:57:58,160
40 or 50 feet out there

1462
00:58:01,430 --> 00:57:59,599
uh

1463
00:58:03,109 --> 00:58:01,440

there was some some kind of crap you

1464

00:58:04,950 --> 00:58:03,119

know it was looked like it's gonna come

1465

00:58:07,349 --> 00:58:04,960

out onto the ground

1466

00:58:09,510 --> 00:58:07,359

but it came on down and hovered about

1467

00:58:10,870 --> 00:58:09,520

about a foot and a half or two feet off

1468

00:58:13,109 --> 00:58:10,880

of the ground

1469

00:58:15,910 --> 00:58:13,119

we didn't know what to do you know

1470

00:58:18,230 --> 00:58:15,920

the river behind us and and uh that out

1471

00:58:18,950 --> 00:58:18,240

there not knowing what it was

1472

00:58:21,109 --> 00:58:18,960

so

1473

00:58:22,870 --> 00:58:21,119

and then before we had time to really do

1474

00:58:24,549 --> 00:58:22,880

anything and it seemed like an open

1475

00:58:26,630 --> 00:58:24,559

appearance and

1476

00:58:28,470 --> 00:58:26,640

toward the end it was you know

1477

00:58:30,549 --> 00:58:28,480

us

1478

00:58:32,390 --> 00:58:30,559

and

1479

00:58:33,990 --> 00:58:32,400

the blue light it had blue flashing

1480

00:58:35,910 --> 00:58:34,000

lights as it was you know approaching

1481

00:58:37,829 --> 00:58:35,920

the ground but then they went out and

1482

00:58:40,230 --> 00:58:37,839

when the opening appeared some source of

1483

00:58:41,750 --> 00:58:40,240

light came from the inside it was just

1484

00:58:43,430 --> 00:58:41,760

almost blinding

1485

00:58:46,470 --> 00:58:43,440

sheriff diamond can you tell me just

1486

00:58:47,990 --> 00:58:46,480

what happened that night no sir i came

1487

00:58:49,190 --> 00:58:48,000

all i can tell you there was two men

1488

00:58:51,430 --> 00:58:49,200

came in the sheriff's department

1489

00:58:54,230 --> 00:58:51,440

approximately 8 30 at nine o'clock

1490

00:58:56,150 --> 00:58:54,240

they were all excited and upset

1491

00:58:59,030 --> 00:58:56,160

i want to climb the walls

1492

00:59:00,549 --> 00:58:59,040

hysterical crying

1493

00:59:02,390 --> 00:59:00,559

that's actually all i know is what

1494

00:59:08,610 --> 00:59:02,400

happened as far as me seeing what

1495

00:59:08,620 --> 00:59:14,789

[Music]

1496

00:59:20,230 --> 00:59:16,870

well there you are stories from the past

1497

00:59:22,230 --> 00:59:20,240

about alien abductions you don't hear

1498

00:59:24,390 --> 00:59:22,240

about it much anymore i must say i think

1499

00:59:26,150 --> 00:59:24,400

the fat has come and gone

1500

00:59:27,910 --> 00:59:26,160

well maybe i don't move in the right

1501
00:59:30,710 --> 00:59:27,920
circles maybe there are still people who

1502
00:59:33,190 --> 00:59:30,720
meet regularly and discuss their um

1503
00:59:35,109 --> 00:59:33,200
experiences flying around in ufos or

1504
00:59:37,430 --> 00:59:35,119
being experimented upon or something

1505
00:59:40,950 --> 00:59:37,440
like that but it does seem to me

1506
00:59:46,870 --> 00:59:40,960
that it is a bit of a um artifact from

1507
00:59:51,910 --> 00:59:48,710
whatever the case it does make for

1508
00:59:54,150 --> 00:59:51,920
interesting reading and research

1509
00:59:56,069 --> 00:59:54,160
and you too can find lots of interesting

1510
01:00:00,069 --> 00:59:56,079
reading and research to your heart's

1511
01:00:02,870 --> 01:00:00,079
content by visiting [trove trove.nla.gov](http://trove.nla.gov)

1512
01:00:04,470 --> 01:00:02,880
you or your local online resource for

1513
01:00:05,670 --> 01:00:04,480

newspapers in your part of the world

1514

01:00:10,230 --> 01:00:05,680

because

1515

01:00:13,270 --> 01:00:10,240

you never know

1516

01:00:13,280 --> 01:00:16,069

the find

1517

01:00:21,109 --> 01:00:18,150

three little men came out and took them

1518

01:00:32,150 --> 01:00:21,119

inside they locked him over with one big

1519

01:00:35,990 --> 01:00:33,750

thank you for listening to the skeptic

1520

01:00:37,750 --> 01:00:36,000

zone podcast and thank you as ever to

1521

01:00:40,470 --> 01:00:37,760

those wonderful people who contribute to

1522

01:00:42,390 --> 01:00:40,480

the skeptic zone via paypal or patreon

1523

01:00:44,870 --> 01:00:42,400

at skepticzone.tv

1524

01:00:45,829 --> 01:00:44,880

your contributions mean the show keeps

1525

01:00:48,630 --> 01:00:45,839

going

1526

01:00:50,390 --> 01:00:48,640

and as i think i mentioned last week or

1527

01:00:52,789 --> 01:00:50,400

the week before i'm using a new bit of

1528

01:00:55,510 --> 01:00:52,799

gear a new bit of kit which was

1529

01:00:57,510 --> 01:00:55,520

generously donated by one of my

1530

01:01:00,390 --> 01:00:57,520

listeners thank you very much

1531

01:01:02,549 --> 01:01:00,400

coming up on next week's show apart from

1532

01:01:04,549 --> 01:01:02,559

i think a tribute to my friend jim with

1533

01:01:06,470 --> 01:01:04,559

some skeptical poetry

1534

01:01:08,710 --> 01:01:06,480

the trope segment is going to be looking

1535

01:01:11,510 --> 01:01:08,720

at pyramid power

1536

01:01:14,150 --> 01:01:11,520

so if you have any uh dull razor blades

1537

01:01:15,190 --> 01:01:14,160

or you want your food dehydrated

1538

01:01:17,990 --> 01:01:15,200

tune in

1539

01:01:20,069 --> 01:01:18,000

to the show next week

1540

01:01:22,069 --> 01:01:20,079

also coming up on next week's episode we

1541

01:01:24,150 --> 01:01:22,079

have an interview with my old mate ben

1542

01:01:25,349 --> 01:01:24,160

radford he's going to be talking about

1543

01:01:27,260 --> 01:01:25,359

his new book

1544

01:01:28,390 --> 01:01:27,270

america the fearful

1545

01:01:32,230 --> 01:01:28,400

[Music]

1546

01:01:34,230 --> 01:01:32,240

and part two i think part two of the

1547

01:01:37,349 --> 01:01:34,240

book of tim segment about perpetual

1548

01:01:39,670 --> 01:01:37,359

motion but for this week this is richard

1549

01:01:44,870 --> 01:01:39,680

saunders signing off from sydney

1550

01:01:48,069 --> 01:01:46,630

you've been listening to the skeptic

1551
01:01:49,510 --> 01:01:48,079
zone podcast

1552
01:01:52,710 --> 01:01:49,520
please visit our website at

1553
01:01:58,309 --> 01:01:55,750
for show notes contacts and to access

1554
01:02:00,470 --> 01:01:58,319
the back catalog of episodes going back

1555
01:02:02,470 --> 01:02:00,480
to 2008.

1556
01:02:05,190 --> 01:02:02,480
you can follow the skeptic zone podcast

1557
01:02:07,349 --> 01:02:05,200
on twitter at skepticzone

1558
01:02:09,670 --> 01:02:07,359
visit our facebook page or leave a

1559
01:02:11,750 --> 01:02:09,680
review on itunes

1560
01:02:14,950 --> 01:02:11,760
you can also support the skeptic zone

1561
01:02:18,069 --> 01:02:14,960
via patreon or paypal the skeptic zone

1562
01:02:19,910 --> 01:02:18,079
podcast is an independent production

1563
01:02:22,230 --> 01:02:19,920

the views and opinions expressed on the

1564

01:02:24,710 --> 01:02:22,240

skeptic zone are not necessarily those

1565

01:02:26,350 --> 01:02:24,720

of australian skeptics or any other

1566

01:02:38,390 --> 01:02:26,360

skeptical organization

1567

01:02:41,990 --> 01:02:40,950

hi my name used to be team menden what

1568

01:02:45,190 --> 01:02:42,000

is it now

1569

01:02:49,670 --> 01:02:47,270

hi my name is tim menden

1570

01:02:51,820 --> 01:02:49,680

i'm william