

1
00:00:05,929 --> 00:00:13,699
welcome to the skeptic zone the podcast

2
00:00:09,089 --> 00:00:13,699
from Australia for science and reason

3
00:00:22,120 --> 00:00:29,330
hello and welcome to the skeptic zone

4
00:00:24,980 --> 00:00:32,090
episode number 411 for the fourth I've

5
00:00:29,329 --> 00:00:34,549
September 2016 Richard Saunders here

6
00:00:32,090 --> 00:00:38,600
with you from Sydney Australia and for

7
00:00:34,549 --> 00:00:40,909
those people who care it's a nice sort

8
00:00:38,600 --> 00:00:45,050
of pleasant day the sun is out it's a

9
00:00:40,909 --> 00:00:47,988
little bit warm but that's okay and lots

10
00:00:45,049 --> 00:00:50,808
of people out day in the city enjoying

11
00:00:47,988 --> 00:00:52,820
the warm weather coming up on this

12
00:00:50,808 --> 00:00:55,939
week's episode we chat to an old friend

13
00:00:52,820 --> 00:00:58,820
of a skeptic zone doctor Angie matki she

14
00:00:55,939 --> 00:01:00,920
is an emergency physician in the United

15
00:00:58,820 --> 00:01:03,588
States she sort of gets posted around

16
00:01:00,920 --> 00:01:08,420
and does night shifts around the place

17
00:01:03,588 --> 00:01:10,879
she is currently at dragoncon the

18
00:01:08,420 --> 00:01:14,390
wonderful dragoncon in a bland to

19
00:01:10,879 --> 00:01:17,239
georgia the place in 2008 where the

20
00:01:14,390 --> 00:01:20,269
skeptical zone was launched now luckily

21
00:01:17,239 --> 00:01:22,399
for us Angie gave a talk at DragonCon at

22
00:01:20,269 --> 00:01:26,539
the skeptic track hello to Derek Colin

23
00:01:22,400 --> 00:01:30,530
dunno who runs that and even luckier she

24
00:01:26,540 --> 00:01:33,049
had it live streamed her talk was all

25
00:01:30,530 --> 00:01:35,118
about alternative medicine and it was

26
00:01:33,049 --> 00:01:37,969
quite a tour de force really because she

27
00:01:35,118 --> 00:01:39,890
managed to cover and I made a list all

28
00:01:37,968 --> 00:01:41,629
sorts of things from vitalism to

29

00:01:39,890 --> 00:01:44,810
acupuncture to naturopathy to

30
00:01:41,629 --> 00:01:47,239
chiropractic in her talk and then had

31
00:01:44,810 --> 00:01:48,829
Q&A from the audience anyway we'll be

32
00:01:47,239 --> 00:01:51,618
catching up with Angie in just a moment

33
00:01:48,828 --> 00:01:54,529
as she dashes around dragoncon it's very

34
00:01:51,618 --> 00:01:57,500
late at night and she's going to fill us

35
00:01:54,530 --> 00:02:00,858
in on her talk and the goings on at this

36
00:01:57,500 --> 00:02:03,890
wonderful science fiction and fantasy

37
00:02:00,858 --> 00:02:06,438
convention but importantly for skeptics

38
00:02:03,890 --> 00:02:08,060
there is a strong skeptical what they

39
00:02:06,438 --> 00:02:09,590
call the skeptic track there and a

40
00:02:08,060 --> 00:02:10,789
science track and I think an astronomy

41
00:02:09,590 --> 00:02:13,460
track all sorts of good science

42
00:02:10,788 --> 00:02:15,799
happening in Atlanta Georgia following

43
00:02:13,460 --> 00:02:18,020

that Maynard spooky action once again

44

00:02:15,800 --> 00:02:19,640

back at the Australian Museum Maynard's

45

00:02:18,020 --> 00:02:23,870

going to be chatting to Rachel Robinson

46

00:02:19,639 --> 00:02:27,079

who was involved in demonstrating robots

47

00:02:23,870 --> 00:02:29,689

little sort of running around the floor

48

00:02:27,080 --> 00:02:32,120

type robot sort of like bb-8 from star

49

00:02:29,689 --> 00:02:33,800

wars that we came across as we were

50

00:02:32,120 --> 00:02:35,000

there to perform the mystery

51

00:02:33,800 --> 00:02:37,070

investigators show

52

00:02:35,000 --> 00:02:40,520

a fun little interesting interview all

53

00:02:37,069 --> 00:02:43,009

about robots following that is the raw

54

00:02:40,520 --> 00:02:44,480

skeptic report with Heidi Robinson

55

00:02:43,009 --> 00:02:47,060

heidi's going to be talking to michelle

56

00:02:44,479 --> 00:02:50,509

franklin from darwin skeptics who came

57

00:02:47,060 --> 00:02:53,270

down to visit Brisbane recently to visit

58
00:02:50,509 --> 00:02:54,739
the or attend and speak at the Brisbane

59
00:02:53,270 --> 00:02:58,670
skeptical app now she's going to be

60
00:02:54,740 --> 00:03:01,990
talking all about weeds weeds and

61
00:02:58,669 --> 00:03:05,059
finding natural remedies to

62
00:03:01,990 --> 00:03:07,370
environmental predators interesting

63
00:03:05,060 --> 00:03:09,409
science going on with Michelle Franklin

64
00:03:07,370 --> 00:03:11,450
and around off the showroom may not

65
00:03:09,409 --> 00:03:14,959
heads back to skeptics in the pub here

66
00:03:11,449 --> 00:03:19,339
in Sydney and ask the big question what

67
00:03:14,959 --> 00:03:22,789
do pub goers think quantum is what does

68
00:03:19,340 --> 00:03:25,069
quantum mean how can it be used what's

69
00:03:22,789 --> 00:03:29,329
the science behind it how is it misused

70
00:03:25,069 --> 00:03:30,709
or used in advertising do you know if I

71
00:03:29,330 --> 00:03:32,360
was to come to you on the street and say

72
00:03:30,709 --> 00:03:34,370
hello Richard Saunders here from

73
00:03:32,360 --> 00:03:37,550
skeptics and podcast what do you think

74
00:03:34,370 --> 00:03:39,650
quantum means you might be struggling

75
00:03:37,550 --> 00:03:41,600
for an answer lots of people think it

76
00:03:39,650 --> 00:03:44,750
means one thing especially the woo crowd

77
00:03:41,599 --> 00:03:47,989
especially those flogging pseudoscience

78
00:03:44,750 --> 00:03:48,889
love to use the word quantum anyway

79
00:03:47,989 --> 00:03:50,629
we're going to find out what people

80
00:03:48,889 --> 00:03:53,000
going to skeptics in the pub think and

81
00:03:50,629 --> 00:03:54,439
then may not we'll chat to Ian Bryce the

82
00:03:53,000 --> 00:03:57,229
chief investigator of Australian

83
00:03:54,439 --> 00:04:00,409
skeptics who was there to give a talk

84
00:03:57,229 --> 00:04:03,048
about what quantum is and quantum

85
00:04:00,409 --> 00:04:04,549
energies and all this sort of thing now

86

00:04:03,049 --> 00:04:07,219
just before we get stuck into this

87
00:04:04,549 --> 00:04:09,459
episode here this nice music coming up

88
00:04:07,219 --> 00:04:09,459
now

89
00:04:13,318 --> 00:04:18,250
that's just delightful that is the theme

90
00:04:16,449 --> 00:04:20,650
to a new podcast I'd love to tell you

91
00:04:18,250 --> 00:04:24,759
about it's called the Blue Castle

92
00:04:20,649 --> 00:04:26,589
podcast and it's all about women in the

93
00:04:24,759 --> 00:04:28,990
inner west area of Sydney being

94
00:04:26,589 --> 00:04:32,439
interviewed about turning their artistic

95
00:04:28,990 --> 00:04:34,990
endeavors and their artistic skill into

96
00:04:32,439 --> 00:04:38,168
a business now you may not think that's

97
00:04:34,990 --> 00:04:40,840
a lot to do with skepticism well it

98
00:04:38,168 --> 00:04:43,899
hasn't but this podcast is produced by

99
00:04:40,839 --> 00:04:46,418
my sisters Elizabeth Saunders and

100
00:04:43,899 --> 00:04:47,769

Margaret Adam a very first podcast I'm

101

00:04:46,418 --> 00:04:50,259

very proud of them for putting this

102

00:04:47,769 --> 00:04:51,728

together I gave a little bit of help on

103

00:04:50,259 --> 00:04:55,300

the side but if you'd like to check it

104

00:04:51,728 --> 00:04:57,759

out just visit the Blue Castle dot lips

105

00:04:55,300 --> 00:05:00,579

in calm and i'll put a link in the show

106

00:04:57,759 --> 00:05:02,860

notes congratulations sisters Elizabeth

107

00:05:00,579 --> 00:05:05,800

and Margaret well done and I look

108

00:05:02,860 --> 00:05:07,569

forward to many more episodes it's a

109

00:05:05,800 --> 00:05:09,610

it's quite an interesting podcast it's

110

00:05:07,569 --> 00:05:11,978

all about women turning their artistic

111

00:05:09,610 --> 00:05:13,569

endeavors into a business well that's

112

00:05:11,978 --> 00:05:17,019

enough for me at the moment I'm going to

113

00:05:13,569 --> 00:05:21,360

run downstairs open the cupboard led to

114

00:05:17,019 --> 00:05:24,698

me see this week let me have a think ah

115
00:05:21,360 --> 00:05:26,770
crusty sourdough bread and I don't get

116
00:05:24,699 --> 00:05:28,270
any kickbacks from this the book street

117
00:05:26,769 --> 00:05:30,399
bakery and city they do make good

118
00:05:28,269 --> 00:05:32,500
sourdough bread just like the stuff you

119
00:05:30,399 --> 00:05:34,629
get in san francisco and i think i'll

120
00:05:32,500 --> 00:05:37,389
just have that lightly toasted and

121
00:05:34,629 --> 00:05:42,728
drizzle some honey on top nice and

122
00:05:37,389 --> 00:05:46,889
simple mmm YUM what will i do that i

123
00:05:42,728 --> 00:05:46,889
hope you enjoy the skeptic zone

124
00:06:06,110 --> 00:06:12,180
and joining me now on the line all the

125
00:06:09,870 --> 00:06:15,090
way from Atlanta Georgia where Dragon

126
00:06:12,180 --> 00:06:16,949
Con is underway as we speak it's an old

127
00:06:15,089 --> 00:06:21,089
friend of the skeptic zone dr. Angie

128
00:06:16,949 --> 00:06:22,650
mighty hello I'm Richard hi hi everybody

129
00:06:21,089 --> 00:06:25,258
you sound like you're having a great

130
00:06:22,649 --> 00:06:27,418
time and I know that you're still deeply

131
00:06:25,259 --> 00:06:29,908
entrenched right now in the festivities

132
00:06:27,418 --> 00:06:31,769
and the fun of dragoncon oh my goodness

133
00:06:29,908 --> 00:06:34,139
it's so much fun i really encourage

134
00:06:31,769 --> 00:06:35,848
anyone who can get to the states to come

135
00:06:34,139 --> 00:06:40,728
to dragoncon please please please come

136
00:06:35,848 --> 00:06:43,800
it is fantastic every possible

137
00:06:40,728 --> 00:06:46,019
permutation of pop culture science

138
00:06:43,800 --> 00:06:47,968
fiction fantasy everything you could

139
00:06:46,019 --> 00:06:52,019
possibly imagine is represented here it

140
00:06:47,968 --> 00:06:54,658
is so much fun it is and the skeptic

141
00:06:52,019 --> 00:06:57,389
zone actually was launched at dragoncon

142
00:06:54,658 --> 00:06:59,579
in 2008 the very first episode was

143

00:06:57,389 --> 00:07:01,860
launched from the skeptic track there

144
00:06:59,579 --> 00:07:03,348
and before we get on to what I'd like to

145
00:07:01,860 --> 00:07:06,330
talk to you about was your presentation

146
00:07:03,348 --> 00:07:08,959
about alternative medicine and so forth

147
00:07:06,329 --> 00:07:11,818
how is the skeptic track going this year

148
00:07:08,959 --> 00:07:15,628
it is going magnificently Richard we

149
00:07:11,819 --> 00:07:18,330
have had a very exciting set of

150
00:07:15,629 --> 00:07:21,509
presentations from New presenters we've

151
00:07:18,329 --> 00:07:24,300
had very good response from many

152
00:07:21,509 --> 00:07:26,370
different people it's much bigger it's

153
00:07:24,300 --> 00:07:29,399
taken over much more of the hotel than

154
00:07:26,370 --> 00:07:32,370
before and it's just been spectacular

155
00:07:29,399 --> 00:07:34,560
we've had the best time learned so much

156
00:07:32,370 --> 00:07:36,209
and can't wait for next year and I'm

157
00:07:34,560 --> 00:07:39,509

already only half way through this year

158

00:07:36,209 --> 00:07:41,938

so wow wow that's look I better start

159

00:07:39,509 --> 00:07:44,218

saving right now for 2017 I think well I

160

00:07:41,939 --> 00:07:47,278

noticed on the building it definitely

161

00:07:44,218 --> 00:07:48,658

better come I better there I noticed the

162

00:07:47,278 --> 00:07:51,088

skeptics guide to the universe were

163

00:07:48,658 --> 00:07:53,129

there they are they are here they're

164

00:07:51,088 --> 00:07:55,978

doing a special presentation tonight

165

00:07:53,129 --> 00:07:58,468

that's a paid service I'm not at that

166

00:07:55,978 --> 00:08:00,039

one not this time but tomorrow they'll

167

00:07:58,468 --> 00:08:01,870

be doing a live podcast

168

00:08:00,040 --> 00:08:03,819

I can't wait to see it it's so much fun

169

00:08:01,870 --> 00:08:06,459

to see them interact in person partly

170

00:08:03,819 --> 00:08:08,050

because you get to see their expansion

171

00:08:06,459 --> 00:08:11,529

expressions when someone says something

172
00:08:08,050 --> 00:08:13,870
flooding but also because you get to see

173
00:08:11,529 --> 00:08:17,169
the parts that get edited out which

174
00:08:13,870 --> 00:08:18,910
makes the podcast so much more fun yes

175
00:08:17,170 --> 00:08:21,310
I've been lucky enough to be a guest

176
00:08:18,910 --> 00:08:23,530
rogue from time to time and quite a lot

177
00:08:21,310 --> 00:08:26,290
gets chopped out look at it sounds like

178
00:08:23,529 --> 00:08:27,669
Dragon Con is every bit as wonderful as

179
00:08:26,290 --> 00:08:29,800
I remembered I haven't been there for

180
00:08:27,670 --> 00:08:31,629
some time I think 2010 was the last time

181
00:08:29,800 --> 00:08:33,820
I was there but what I wanted to have a

182
00:08:31,629 --> 00:08:36,039
little chat to you about was that you

183
00:08:33,820 --> 00:08:37,960
did a really a really good thing and I'm

184
00:08:36,039 --> 00:08:41,019
so pleased you did you gave a talk at

185
00:08:37,960 --> 00:08:43,360
DragonCon which is fantastic but you had

186
00:08:41,019 --> 00:08:46,659
somebody sitting in the audience live

187
00:08:43,360 --> 00:08:48,610
streaming your talk to Facebook which

188
00:08:46,659 --> 00:08:51,309
means it's captured there and it's up

189
00:08:48,610 --> 00:08:52,600
now for the world to see and are so

190
00:08:51,309 --> 00:08:54,159
impressed your talk was all about the

191
00:08:52,600 --> 00:08:57,790
different forms of alternative medicine

192
00:08:54,159 --> 00:09:01,629
and you squeezed so much into your talk

193
00:08:57,789 --> 00:09:05,620
so many modalities everything from I

194
00:09:01,629 --> 00:09:08,529
made a list vitalism humors energy

195
00:09:05,620 --> 00:09:11,649
medicine homeopathy chi acupuncture

196
00:09:08,529 --> 00:09:14,559
cupping applied kinesiology naturopathy

197
00:09:11,649 --> 00:09:17,319
Reiki chiropractic and you even

198
00:09:14,559 --> 00:09:20,049
mentioned a quote by carl sagan in there

199
00:09:17,320 --> 00:09:22,870
it was just incredible what I'd like to

200

00:09:20,049 --> 00:09:25,269
argue about the very one of the very

201
00:09:22,870 --> 00:09:28,529
first things you mentioned was vitalism

202
00:09:25,269 --> 00:09:32,529
can you tell me what exactly that means

203
00:09:28,529 --> 00:09:36,929
well um vitalism is sort of a belief

204
00:09:32,529 --> 00:09:41,649
that there is some magical quantity that

205
00:09:36,929 --> 00:09:45,609
separates us from nonliving things so

206
00:09:41,649 --> 00:09:47,889
there is some magical energy that imbues

207
00:09:45,610 --> 00:09:51,970
all of us that's sort of the idea behind

208
00:09:47,889 --> 00:09:54,789
that and it's not a unfortunately it

209
00:09:51,970 --> 00:09:58,029
actually means that people draw false

210
00:09:54,789 --> 00:10:00,189
conclusions when it comes to how to

211
00:09:58,029 --> 00:10:02,199
treat illnesses and what this actual

212
00:10:00,190 --> 00:10:04,570
source of illnesses are it was developed

213
00:10:02,200 --> 00:10:07,150
at a time before there was a true

214
00:10:04,570 --> 00:10:08,590

understanding of germ theory a very good

215

00:10:07,149 --> 00:10:12,490

understanding of biology physics

216

00:10:08,590 --> 00:10:13,570

chemistry and many other of the sciences

217

00:10:12,490 --> 00:10:15,730

that we find

218

00:10:13,570 --> 00:10:18,940

that we need now to practice good

219

00:10:15,730 --> 00:10:21,940

medicine and so a lot of these things

220

00:10:18,940 --> 00:10:24,580

that use the term energy are using it

221

00:10:21,940 --> 00:10:26,740

the term in an erroneous fashion so if

222

00:10:24,580 --> 00:10:30,430

you use the term energy and you can

223

00:10:26,740 --> 00:10:32,860

substitute the capacity to do work then

224

00:10:30,429 --> 00:10:35,709

the term energy actually makes sense but

225

00:10:32,860 --> 00:10:38,259

if you find that people are referring to

226

00:10:35,710 --> 00:10:41,440

energy and sort of this vague nebulous

227

00:10:38,259 --> 00:10:43,500

cloud sense then they don't really

228

00:10:41,440 --> 00:10:45,970

understand what the word means

229
00:10:43,500 --> 00:10:49,049
absolutely right and I think our friend

230
00:10:45,970 --> 00:10:52,060
Brian Dunning makes that point in his

231
00:10:49,049 --> 00:10:54,219
documentary here be dragons absolutely I

232
00:10:52,059 --> 00:10:57,729
stole it from him one hundred percent I

233
00:10:54,220 --> 00:10:59,379
loved his crazy his phrasing of it so

234
00:10:57,730 --> 00:11:00,970
much that I completely stole it from him

235
00:10:59,379 --> 00:11:03,129
and I did give him credit of the lecture

236
00:11:00,970 --> 00:11:04,930
now what else you were talking about

237
00:11:03,129 --> 00:11:07,299
talking about energy you were talking

238
00:11:04,929 --> 00:11:08,889
about various forms of energy medicine

239
00:11:07,299 --> 00:11:10,929
which sort of brings us on to homeopathy

240
00:11:08,889 --> 00:11:14,470
and what I loved about your talk about

241
00:11:10,929 --> 00:11:16,269
homeopathy is that it kept laughter from

242
00:11:14,470 --> 00:11:20,200
the audience which I think was just

243
00:11:16,269 --> 00:11:24,720
pretty apt well it is so laughable um

244
00:11:20,200 --> 00:11:28,629
it's sad to me that that the

245
00:11:24,720 --> 00:11:31,240
misunderstanding of this of this I can't

246
00:11:28,629 --> 00:11:33,490
even characterize it it's it's um I

247
00:11:31,240 --> 00:11:36,879
can't characterize it as anything other

248
00:11:33,490 --> 00:11:42,100
than magical thinking um because it

249
00:11:36,879 --> 00:11:46,000
relies on such unscientific statements

250
00:11:42,100 --> 00:11:48,759
and an understanding of how medicine

251
00:11:46,000 --> 00:11:50,830
actually works it completely violates

252
00:11:48,759 --> 00:11:52,210
physics it completely violates

253
00:11:50,830 --> 00:11:54,850
everything we know about organic

254
00:11:52,210 --> 00:11:58,000
chemistry about chemistry and there is

255
00:11:54,850 --> 00:11:59,740
no possible way to work yeah that

256
00:11:58,000 --> 00:12:01,779
something skeptics have been certainly

257

00:11:59,740 --> 00:12:03,730
saying for a very long time absolutely

258
00:12:01,779 --> 00:12:06,819
it was pleasing and I guess in a way to

259
00:12:03,730 --> 00:12:08,800
see or hear you're getting giggles and

260
00:12:06,820 --> 00:12:11,050
laughter from the audience let me talk

261
00:12:08,799 --> 00:12:14,349
let me take you now to something that it

262
00:12:11,049 --> 00:12:18,120
is a bit of a quandary and has been for

263
00:12:14,350 --> 00:12:21,190
many years why is acupuncture so

264
00:12:18,120 --> 00:12:24,070
accepted in our society is something

265
00:12:21,190 --> 00:12:25,750
that's real um that's a really good

266
00:12:24,070 --> 00:12:28,240
question I wish I knew the answer to

267
00:12:25,750 --> 00:12:31,929
that I think that part of it has to do

268
00:12:28,240 --> 00:12:36,399
with the appeal to this sort of ancient

269
00:12:31,929 --> 00:12:38,229
wisdom there is a sort of a trope in

270
00:12:36,399 --> 00:12:40,600
society where things that are ancient

271
00:12:38,230 --> 00:12:42,550

are necessarily better and unfortunately

272

00:12:40,600 --> 00:12:43,960

that means that things that were

273

00:12:42,549 --> 00:12:45,579

developed before and a good

274

00:12:43,960 --> 00:12:46,750

understanding of biology and chemistry

275

00:12:45,580 --> 00:12:54,060

and physics and all the things I just

276

00:12:46,750 --> 00:12:58,389

mentioned they are venerated as as

277

00:12:54,059 --> 00:13:01,419

ancient wisdom when unfortunately it's

278

00:12:58,389 --> 00:13:03,009

often magical thinking again yeah

279

00:13:01,419 --> 00:13:04,299

there's an old expression how can you

280

00:13:03,009 --> 00:13:07,210

tell ancient wisdom from ancient

281

00:13:04,299 --> 00:13:10,750

stupidity and quite like them hahaha

282

00:13:07,210 --> 00:13:12,759

that's a good friday so i like that you

283

00:13:10,750 --> 00:13:14,710

can use it using it use it in your next

284

00:13:12,759 --> 00:13:17,799

talk peace i'll totally steal that from

285

00:13:14,710 --> 00:13:19,240

you now it was a really good talk and

286

00:13:17,799 --> 00:13:23,219

i'm pleased that you put it put it up

287

00:13:19,240 --> 00:13:25,750

online and it was good too because I

288

00:13:23,220 --> 00:13:27,940

after the talk and which was recorded

289

00:13:25,750 --> 00:13:29,799

was a QA and you had various questions

290

00:13:27,940 --> 00:13:32,050

from the audience and it was interesting

291

00:13:29,799 --> 00:13:35,349

that one of the the people who were was

292

00:13:32,049 --> 00:13:39,429

questioning you was speaking from what

293

00:13:35,350 --> 00:13:41,019

she considers to be her success in when

294

00:13:39,429 --> 00:13:42,370

she had acupuncture done to herself so

295

00:13:41,019 --> 00:13:45,970

she was coming from the point of view of

296

00:13:42,370 --> 00:13:48,310

oh it worked for me so how can you up

297

00:13:45,970 --> 00:13:50,620

there on the stage knock something when

298

00:13:48,309 --> 00:13:52,509

I know it worked for me but I think we

299

00:13:50,620 --> 00:13:56,409

get that quite a lot don't we well we

300
00:13:52,509 --> 00:13:59,230
certainly do and what I started my talk

301
00:13:56,409 --> 00:14:01,889
with was a discussion of the natural

302
00:13:59,230 --> 00:14:05,620
disease process and that means that

303
00:14:01,889 --> 00:14:07,899
problems have waxing and waning course

304
00:14:05,620 --> 00:14:09,789
and many times when we use an

305
00:14:07,899 --> 00:14:11,230
intervention at when the pain is that

306
00:14:09,789 --> 00:14:14,319
it's worse or when the problem is that

307
00:14:11,230 --> 00:14:17,320
it's worse and we see an improvement we

308
00:14:14,320 --> 00:14:19,270
falsely credit the intervention with the

309
00:14:17,320 --> 00:14:21,730
improvement when we either would have

310
00:14:19,269 --> 00:14:23,769
improved already anyway regardless of

311
00:14:21,730 --> 00:14:24,970
the intervention it could be that the

312
00:14:23,769 --> 00:14:26,829
intervention did it or it could have

313
00:14:24,970 --> 00:14:29,920
been something that that happened even

314

00:14:26,830 --> 00:14:31,839
days before you know you know any of the

315
00:14:29,919 --> 00:14:34,149
other treatments they had tried and so

316
00:14:31,839 --> 00:14:35,709
there is a natural course you know

317
00:14:34,149 --> 00:14:36,319
people have good days and bad days and

318
00:14:35,708 --> 00:14:39,169
if you interview

319
00:14:36,320 --> 00:14:40,730
on a bad day that doesn't mean that the

320
00:14:39,169 --> 00:14:42,709
next good day was because of your

321
00:14:40,730 --> 00:14:44,509
intervention and we lose sight of that

322
00:14:42,710 --> 00:14:46,639
because we just aren't programmed to

323
00:14:44,509 --> 00:14:48,289
look for that unfortunately so keeping a

324
00:14:46,639 --> 00:14:49,970
symptom diary is going to be critically

325
00:14:48,289 --> 00:14:55,730
important to help tease out what was a

326
00:14:49,970 --> 00:14:58,220
true response from what was coincidence

327
00:14:55,730 --> 00:15:00,379
or our poor faulty memory because we do

328
00:14:58,220 --> 00:15:01,759

have bad memories about things we think

329

00:15:00,379 --> 00:15:03,980

that there was a relationship and there

330

00:15:01,759 --> 00:15:05,509

wasn't really so she kept saying I don't

331

00:15:03,980 --> 00:15:07,159

remember I don't remember and she

332

00:15:05,509 --> 00:15:09,139

doesn't remember and it's not that she's

333

00:15:07,159 --> 00:15:11,149

lying I don't believe that she's lying

334

00:15:09,139 --> 00:15:14,240

at all I think she may be mistaken about

335

00:15:11,149 --> 00:15:16,220

the timing but if she had kept a symptom

336

00:15:14,240 --> 00:15:18,110

diary it may have been that she noticed

337

00:15:16,220 --> 00:15:20,899

that there was some correlation that she

338

00:15:18,110 --> 00:15:22,310

hadn't noticed before your most probably

339

00:15:20,899 --> 00:15:24,860

right of course and when it comes a

340

00:15:22,309 --> 00:15:27,139

thing like something like acupuncture

341

00:15:24,860 --> 00:15:29,750

then we get to the reasoning so-called

342

00:15:27,139 --> 00:15:32,299

reasoning behind it and which revolves

343
00:15:29,750 --> 00:15:34,669
around these mystical energies and lines

344
00:15:32,299 --> 00:15:36,559
or channels in the body which simply

345
00:15:34,669 --> 00:15:38,769
don't exist it's sort of it falls apart

346
00:15:36,559 --> 00:15:43,189
but yet people who have undergone it and

347
00:15:38,769 --> 00:15:45,590
consider it helped them are there almost

348
00:15:43,190 --> 00:15:47,630
in a different state of mind to the rest

349
00:15:45,590 --> 00:15:50,570
of us I think but in a way it's

350
00:15:47,629 --> 00:15:53,210
understandable I agree and there isn't

351
00:15:50,570 --> 00:15:55,520
any evidence for meridians and as a

352
00:15:53,210 --> 00:15:57,950
physician I would love to have different

353
00:15:55,519 --> 00:16:00,620
or additional treatment options for my

354
00:15:57,950 --> 00:16:04,100
patients but unfortunately using these

355
00:16:00,620 --> 00:16:07,039
treatments may cause additional harm for

356
00:16:04,100 --> 00:16:09,050
many reasons not the least of which that

357
00:16:07,039 --> 00:16:10,459
sticking needles in someone's body when

358
00:16:09,049 --> 00:16:14,419
they don't need to have needles there

359
00:16:10,460 --> 00:16:15,769
can introduce all sorts of trouble you

360
00:16:14,419 --> 00:16:17,719
could collapse a lung you can cause

361
00:16:15,769 --> 00:16:19,909
bleeding you can cause infection it's

362
00:16:17,720 --> 00:16:21,200
you can cause heart infection it's it's

363
00:16:19,909 --> 00:16:22,809
a terrible thing you don't want to

364
00:16:21,200 --> 00:16:26,150
introduce a needle and you don't have to

365
00:16:22,809 --> 00:16:28,279
like I couldn't agree more I think

366
00:16:26,149 --> 00:16:31,189
that's a good movie to have in life I

367
00:16:28,279 --> 00:16:32,779
think very well said we'll look Angie I

368
00:16:31,190 --> 00:16:34,490
won't keep you any more i know that you

369
00:16:32,779 --> 00:16:36,259
sort of dash out of one room and you're

370
00:16:34,490 --> 00:16:39,169
in another to give me a quick interview

371

00:16:36,259 --> 00:16:41,750
i wish i could be a dragon con i miss it

372
00:16:39,169 --> 00:16:44,209
very much partly because of the fun and

373
00:16:41,750 --> 00:16:46,639
it's just wonderful silly fun with

374
00:16:44,210 --> 00:16:49,269
costumes and all sorts of characters and

375
00:16:46,639 --> 00:16:52,569
stars from science fiction and fantasy

376
00:16:49,269 --> 00:16:54,909
it is also a wonderful outreach

377
00:16:52,570 --> 00:16:57,340
opportunity and please please give my

378
00:16:54,909 --> 00:16:59,409
best to Derek Colin dunno who once again

379
00:16:57,340 --> 00:17:01,509
is doing a fantastic job this year oh I

380
00:16:59,409 --> 00:17:03,250
will let him know that you said so and

381
00:17:01,509 --> 00:17:06,910
we miss you desperately so please make

382
00:17:03,250 --> 00:17:09,039
arrangements to come in 2017 I do we

383
00:17:06,910 --> 00:17:10,600
need you to be here and continue the

384
00:17:09,039 --> 00:17:13,269
outreach it really is a wonderful

385
00:17:10,599 --> 00:17:15,159

opportunity I mean just because we have

386

00:17:13,269 --> 00:17:17,470

signs out where people who wouldn't

387

00:17:15,160 --> 00:17:20,110

ordinarily become involved with

388

00:17:17,470 --> 00:17:22,299

skepticism can see them that's how I

389

00:17:20,109 --> 00:17:26,469

became involved in skepticism is by

390

00:17:22,299 --> 00:17:30,000

walking paths kept records the first

391

00:17:26,470 --> 00:17:35,620

time I met you and believe it or not I

392

00:17:30,000 --> 00:17:38,170

from way back from either 2008 or 2009 I

393

00:17:35,619 --> 00:17:40,329

have a photograph I took of the general

394

00:17:38,170 --> 00:17:45,340

audience and skip track and there you

395

00:17:40,329 --> 00:17:48,990

are oh my goodness well we're not going

396

00:17:45,339 --> 00:17:48,990

to show that one to anybody all right

397

00:17:49,650 --> 00:17:54,820

but thank you so much for having me

398

00:17:52,480 --> 00:17:57,759

again and I can't wait to see y'all in

399

00:17:54,819 --> 00:18:00,250

Australia I'm coming to the Australian

400
00:17:57,759 --> 00:18:02,529
skeptics with my daughter oh well I

401
00:18:00,250 --> 00:18:04,029
can't wait to come to Melbourne the

402
00:18:02,529 --> 00:18:06,069
convention coming up well that'll be a

403
00:18:04,029 --> 00:18:07,779
real treat but Angie look you better get

404
00:18:06,069 --> 00:18:10,000
back to the front of fun and festivities

405
00:18:07,779 --> 00:18:12,009
and thank you for sparing some time to

406
00:18:10,000 --> 00:18:14,849
talk to the scare people thanks so much

407
00:18:12,009 --> 00:18:14,849
Richard bye bye

408
00:18:28,099 --> 00:18:33,899
hi this is Carrie papi i am ross

409
00:18:31,440 --> 00:18:37,259
Fletcher okay Ross hey we're from a

410
00:18:33,900 --> 00:18:39,090
podcast called oh no roster kerry we

411
00:18:37,259 --> 00:18:40,829
find out what happens when you show up

412
00:18:39,089 --> 00:18:43,169
and ask questions we've hung out with

413
00:18:40,829 --> 00:18:45,750
the Cabalists the Mormons we've gone and

414
00:18:43,170 --> 00:18:48,180
gotten ear candle gone to the Sikhs we

415
00:18:45,750 --> 00:18:49,799
show up so you don't have to so find out

416
00:18:48,180 --> 00:18:51,900
where we're going next we'll even have

417
00:18:49,799 --> 00:18:54,329
special episodes where we have famous

418
00:18:51,900 --> 00:18:56,310
guests like Brian Dalton from mr. deity

419
00:18:54,329 --> 00:18:58,349
you heard that awesome theme music he

420
00:18:56,309 --> 00:19:02,700
wrote that you should come visit us at

421
00:18:58,349 --> 00:19:05,309
oh no podcast calm or facebook.com slash

422
00:19:02,700 --> 00:19:09,420
on rack what the hell's honor a cross Oh

423
00:19:05,309 --> 00:19:13,339
in RAC Oh Oh No Ross and Carrie that's

424
00:19:09,420 --> 00:19:13,340
our show that's a smart come join us

425
00:19:15,509 --> 00:19:23,039
here's may not spooky action at the

426
00:19:20,710 --> 00:19:26,250
distance

427
00:19:23,039 --> 00:19:27,720
oh look I've got some robots happening

428

00:19:26,250 --> 00:19:31,109
here these are freestanding sort of

429
00:19:27,720 --> 00:19:33,059
rolling block but steroid type Robox and

430
00:19:31,109 --> 00:19:35,519
I know you're not from this company but

431
00:19:33,059 --> 00:19:36,960
what are you doing here today I'm Rachel

432
00:19:35,519 --> 00:19:40,200
robertson from Sphero you've got a

433
00:19:36,960 --> 00:19:42,299
degree yes I have well I didn't ask that

434
00:19:40,200 --> 00:19:44,309
an accusatory way yeah I was just asking

435
00:19:42,299 --> 00:19:46,049
but not from this country oh really I

436
00:19:44,309 --> 00:19:49,559
got one from England can you tell the

437
00:19:46,049 --> 00:19:51,240
dodgy axon Oh Rab so I'm an English one

438
00:19:49,559 --> 00:19:53,909
right so do you ever stay there as long

439
00:19:51,240 --> 00:19:55,140
to study or not although just come in

440
00:19:53,910 --> 00:19:57,090
for the weekend they go I look you're

441
00:19:55,140 --> 00:19:59,040
good to go yeah but if this ride on it

442
00:19:57,089 --> 00:20:00,419

whatever you want to be virology Jill so

443

00:19:59,039 --> 00:20:02,700

what did you get it in by the way I did

444

00:20:00,420 --> 00:20:04,890

I did what incomes and communications so

445

00:20:02,700 --> 00:20:06,900

not science I'm afraid to say but yeah

446

00:20:04,890 --> 00:20:08,490

communications okay well I mean we need

447

00:20:06,900 --> 00:20:09,840

science communicators and I guess that's

448

00:20:08,490 --> 00:20:12,029

a good degree to have that's what you're

449

00:20:09,839 --> 00:20:13,139

gonna do that's it we can join we can

450

00:20:12,029 --> 00:20:16,170

join them together you need

451

00:20:13,140 --> 00:20:17,850

communicators and scientists that unlike

452

00:20:16,170 --> 00:20:19,500

most public relations science is not a

453

00:20:17,849 --> 00:20:22,859

field words often a good idea to make

454

00:20:19,500 --> 00:20:25,440

stuff up in the entertainment field oh

455

00:20:22,859 --> 00:20:28,139

yeah that's a fence it's a massive

456

00:20:25,440 --> 00:20:31,259

advantage in our area well I did I work

457
00:20:28,140 --> 00:20:33,720
for spiro spero produce connected toys

458
00:20:31,259 --> 00:20:38,789
so and they're basically little robots

459
00:20:33,720 --> 00:20:40,860
in balls and cylinders and you can code

460
00:20:38,789 --> 00:20:43,829
and learn you can learn to code and

461
00:20:40,859 --> 00:20:46,439
program using these little balls so

462
00:20:43,829 --> 00:20:47,939
basically you can either drive them but

463
00:20:46,440 --> 00:20:49,980
then you can learn to code and program

464
00:20:47,940 --> 00:20:52,410
them so they've got lots of sensors in

465
00:20:49,980 --> 00:20:54,269
them so they got temperature sensors and

466
00:20:52,410 --> 00:20:57,090
collision sensors you can change the

467
00:20:54,269 --> 00:20:59,250
color and what sort of coding language

468
00:20:57,089 --> 00:21:01,230
do they use they use oval okay

469
00:20:59,250 --> 00:21:02,430
yeah and use that one it's pretty new

470
00:21:01,230 --> 00:21:05,370
because it was actually created by

471
00:21:02,430 --> 00:21:08,700
sparrow so it was created by them in I

472
00:21:05,369 --> 00:21:10,079
think 2012 and then they've used they've

473
00:21:08,700 --> 00:21:12,750
used that to develop all of that product

474
00:21:10,079 --> 00:21:14,519
and how complicated can the code go can

475
00:21:12,750 --> 00:21:16,619
you do really complicated things was it

476
00:21:14,519 --> 00:21:18,359
based for someone that start out with it

477
00:21:16,619 --> 00:21:20,129
goes all the way through so right from

478
00:21:18,359 --> 00:21:22,679
the very beginning so you can do drag

479
00:21:20,130 --> 00:21:24,510
and drop coding for little kids that are

480
00:21:22,680 --> 00:21:26,310
just learning the basics right the way

481
00:21:24,509 --> 00:21:27,569
through to actual full kind of hacking

482
00:21:26,309 --> 00:21:29,429
where you can actually hack into the

483
00:21:27,569 --> 00:21:31,439
software and make it do different things

484
00:21:29,430 --> 00:21:33,150
and you can actually use the oval coated

485

00:21:31,440 --> 00:21:36,690
what's the most complicated thing you've

486
00:21:33,150 --> 00:21:37,920
seen an oval code used for you'd have to

487
00:21:36,690 --> 00:21:39,900
I think you'd probably have to ask the

488
00:21:37,920 --> 00:21:42,980
guys in Boulder that alligator we've

489
00:21:39,900 --> 00:21:45,870
seen we've seen people do things like

490
00:21:42,980 --> 00:21:48,120
planetary so we see them code like full

491
00:21:45,869 --> 00:21:50,939
dance routines so they'll have a like a

492
00:21:48,119 --> 00:21:52,229
hundred different sphero's all operating

493
00:21:50,940 --> 00:21:54,720
at the same time and then all

494
00:21:52,230 --> 00:21:57,029
synchronized to music and things like

495
00:21:54,720 --> 00:22:00,600
that we've seen people build the solar

496
00:21:57,029 --> 00:22:02,220
system using sphero's so they program

497
00:22:00,599 --> 00:22:06,179
them to go at the same at the right

498
00:22:02,220 --> 00:22:08,970
speed around the Sun and so rather than

499
00:22:06,180 --> 00:22:10,769

using a kind of boring styrofoam look

500

00:22:08,970 --> 00:22:13,289

like they can actually show model of it

501

00:22:10,769 --> 00:22:14,940

so we used in lots of different ways

502

00:22:13,289 --> 00:22:16,319

because as we're talking here the robots

503

00:22:14,940 --> 00:22:17,549

are running around our feet and all that

504

00:22:16,319 --> 00:22:18,960

sort of thing what do the kids seem to

505

00:22:17,549 --> 00:22:21,029

be getting most excited about with these

506

00:22:18,960 --> 00:22:22,680

robots that that you know and they're

507

00:22:21,029 --> 00:22:24,420

using the Wi-Fi the bluetooth on the

508

00:22:22,680 --> 00:22:26,130

phone to control its bluetooth so it's

509

00:22:24,420 --> 00:22:28,230

all Bluetooth connected so you just tap

510

00:22:26,130 --> 00:22:29,430

and connect and they're really excited I

511

00:22:28,230 --> 00:22:31,019

think they're just really excited about

512

00:22:29,430 --> 00:22:32,970

the fact that you can drive them and

513

00:22:31,019 --> 00:22:34,349

that they're little robots so we're

514
00:22:32,970 --> 00:22:35,610
getting some kids that are actually

515
00:22:34,349 --> 00:22:37,619
learning to actually do the coding

516
00:22:35,609 --> 00:22:39,359
aspect and then some that are just

517
00:22:37,619 --> 00:22:40,849
really enjoying kind of controlling and

518
00:22:39,359 --> 00:22:42,619
changing the colors and

519
00:22:40,849 --> 00:22:45,619
how the robot move that were you know

520
00:22:42,619 --> 00:22:46,909
works inside so and of course how much

521
00:22:45,619 --> 00:22:49,369
of these little robots they're quite an

522
00:22:46,910 --> 00:22:50,960
expensive or not well so you've got all

523
00:22:49,369 --> 00:22:53,059
the way from their alley which is the

524
00:22:50,960 --> 00:22:56,480
black still under one that tumbles so

525
00:22:53,059 --> 00:22:58,819
that one's 169 99 and then you go

526
00:22:56,480 --> 00:23:00,680
through to the BBA which is to 49 99

527
00:22:58,819 --> 00:23:02,329
which is the Star Wars one but that's

528
00:23:00,680 --> 00:23:05,539
got lots of Star Wars stuff and it goes

529
00:23:02,329 --> 00:23:06,980
with kids how indestructible are there

530
00:23:05,539 --> 00:23:08,180
because kids like to put this sort of

531
00:23:06,980 --> 00:23:09,680
thing through a lot you know they like

532
00:23:08,180 --> 00:23:12,170
to give to the dog and run around here

533
00:23:09,680 --> 00:23:14,960
yeah it's a very good question and lots

534
00:23:12,170 --> 00:23:15,950
of testing has been done there really

535
00:23:14,960 --> 00:23:17,870
indestructible so you could actually

536
00:23:15,950 --> 00:23:19,160
stand your whole body weight on them and

537
00:23:17,869 --> 00:23:21,349
they would break they're made of

538
00:23:19,160 --> 00:23:23,480
polycarbonate and then they've put a UV

539
00:23:21,349 --> 00:23:24,919
coating around them so that they're

540
00:23:23,480 --> 00:23:26,509
really we've actually done tests where

541
00:23:24,920 --> 00:23:28,220
we've stood at the top of a building and

542

00:23:26,509 --> 00:23:29,809
drop them from the top of a building and

543
00:23:28,220 --> 00:23:30,850
they haven't broken the deliberate test

544
00:23:29,809 --> 00:23:33,109
or someone just made a mistake

545
00:23:30,849 --> 00:23:35,000
something's true throughout the window

546
00:23:33,109 --> 00:23:36,829
Manolo yeah i'm looking at them on

547
00:23:35,000 --> 00:23:40,069
thinking is there an aqua version of

548
00:23:36,829 --> 00:23:42,199
these is it this spark the spark sorry

549
00:23:40,069 --> 00:23:44,359
is completely waterproof and actually

550
00:23:42,200 --> 00:23:46,370
floats in water so you can drive it in

551
00:23:44,359 --> 00:23:51,369
water so we've had kids that have

552
00:23:46,369 --> 00:23:53,779
created rafts using you know straws and

553
00:23:51,369 --> 00:23:55,699
bubble pop and things like that and then

554
00:23:53,779 --> 00:23:58,309
they create raft and then they motorized

555
00:23:55,700 --> 00:23:59,569
the raft using the spark okay and what

556
00:23:58,309 --> 00:24:00,740

would be the difference between coding

557

00:23:59,569 --> 00:24:02,599

this kind of thing in using something

558

00:24:00,740 --> 00:24:04,250

like a raspberry pi kind of situation

559

00:24:02,599 --> 00:24:06,589

which is more open source yeah i think

560

00:24:04,250 --> 00:24:08,690

that the nice thing about this this is a

561

00:24:06,589 --> 00:24:11,480

completely sort of shared platform and

562

00:24:08,690 --> 00:24:14,269

it's a really simple straightforward

563

00:24:11,480 --> 00:24:16,819

drag-and-drop I don't know that's

564

00:24:14,269 --> 00:24:18,049

probably its advantages yeah sure well

565

00:24:16,819 --> 00:24:19,399

I'll leave utility because all these

566

00:24:18,049 --> 00:24:20,720

kids are going to play and have a great

567

00:24:19,400 --> 00:24:21,950

afternoon what's been the reaction from

568

00:24:20,720 --> 00:24:23,329

the kids they're pretty keen to get

569

00:24:21,950 --> 00:24:25,370

their hands on this aren't they it's

570

00:24:23,329 --> 00:24:26,509

been absolutely overwhelming we were

571
00:24:25,369 --> 00:24:29,000
just saying we need to come back with

572
00:24:26,509 --> 00:24:30,859
more mMmmm so we've learnt that we need

573
00:24:29,000 --> 00:24:32,779
more to everybody's loved it is that

574
00:24:30,859 --> 00:24:34,309
like four or five and they're right I

575
00:24:32,779 --> 00:24:35,839
know and they've run out of it they've

576
00:24:34,309 --> 00:24:36,859
run out of seemed a bit so you know

577
00:24:35,839 --> 00:24:38,929
we're going to come back with more but

578
00:24:36,859 --> 00:24:40,399
no amazing reactions so really

579
00:24:38,930 --> 00:24:42,019
overwhelming really I have a good time

580
00:24:40,400 --> 00:24:44,980
here this room is enjoy science week

581
00:24:42,019 --> 00:24:44,980
yeah thank you very much

582
00:24:55,700 --> 00:25:00,450
we've just opened the quad ecology

583
00:24:58,230 --> 00:25:04,049
exhibition at Edinburgh Smew ziam of

584
00:25:00,450 --> 00:25:06,450
childhood you can shrink in size see the

585
00:25:04,049 --> 00:25:09,480
amazing cylinders two squares illusion

586
00:25:06,450 --> 00:25:14,640
live watch all your favorite college

587
00:25:09,480 --> 00:25:16,980
Eclipse create your own illusions be

588
00:25:14,640 --> 00:25:19,830
levitated by magician David Copperfield

589
00:25:16,980 --> 00:25:22,230
and lots more we can take the exhibition

590
00:25:19,829 --> 00:25:24,389
anywhere so if you're a museum science

591
00:25:22,230 --> 00:25:29,549
center shopping mall or school get in

592
00:25:24,390 --> 00:25:43,800
touch for more information visit www.a

593
00:25:29,549 --> 00:25:53,549
um it's the raw skeptic report with

594
00:25:43,799 --> 00:25:56,519
Heidi Robinson I'm here with Michelle

595
00:25:53,549 --> 00:25:59,879
Franklin who has been on the skeptic

596
00:25:56,519 --> 00:26:01,529
zone previously in case listeners don't

597
00:25:59,880 --> 00:26:04,410
remember you who are you and why you

598
00:26:01,529 --> 00:26:06,210
here at skeptic at I'm Michelle Franklin

599

00:26:04,410 --> 00:26:08,970
I'm here because they didn't tell me I

600
00:26:06,210 --> 00:26:11,549
couldn't be so I came I live in Darwin

601
00:26:08,970 --> 00:26:13,920
and one of the two regular members of

602
00:26:11,549 --> 00:26:15,389
the Darwin skeptics and I've come down

603
00:26:13,920 --> 00:26:17,880
to visit family and hang out with

604
00:26:15,390 --> 00:26:20,220
skeptics and you just gave a very

605
00:26:17,880 --> 00:26:23,220
interesting talk on your area of

606
00:26:20,220 --> 00:26:25,440
expertise which is biocontrol you're

607
00:26:23,220 --> 00:26:29,190
telling me before that the your actual

608
00:26:25,440 --> 00:26:32,660
job title is weed scientists I just love

609
00:26:29,190 --> 00:26:35,039
that weed scientist it's fabulous so

610
00:26:32,660 --> 00:26:37,110
tell us what what's involved in your

611
00:26:35,039 --> 00:26:40,529
day-to-day work up in the Northern

612
00:26:37,109 --> 00:26:42,959
Territory I can be anything from sitting

613
00:26:40,529 --> 00:26:45,599

at a computer running risk assessments

614

00:26:42,960 --> 00:26:47,789

on potential new weeds trolling the

615

00:26:45,599 --> 00:26:51,299

internet for information and reading

616

00:26:47,789 --> 00:26:53,730

papers to the next day driving out to

617

00:26:51,299 --> 00:26:55,829

remote Billabong's and dropping weevils

618

00:26:53,730 --> 00:26:57,480

in the water and counting caterpillars

619

00:26:55,829 --> 00:26:59,369

that fall out of trees I've actually

620

00:26:57,480 --> 00:27:01,170

spent quite a lot of time just bashing

621

00:26:59,369 --> 00:27:05,250

trees with big sticks and counting what

622

00:27:01,170 --> 00:27:06,900

falls out of them that sounds like a

623

00:27:05,250 --> 00:27:09,150

diverse kind of

624

00:27:06,900 --> 00:27:11,190

and you're also saying that a lot of

625

00:27:09,150 --> 00:27:12,930

your job is knowing how to not get

626

00:27:11,190 --> 00:27:14,610

yourself bogged and if you do get bogged

627

00:27:12,930 --> 00:27:16,410

knowing how to get out of it yeah

628
00:27:14,609 --> 00:27:19,469
there's a few of our locations are a

629
00:27:16,410 --> 00:27:22,880
little bit remote so some of them

630
00:27:19,470 --> 00:27:25,829
involve a few tricks to get to them

631
00:27:22,880 --> 00:27:27,780
there's also quite a few animals that

632
00:27:25,829 --> 00:27:29,789
will eat you on routes so so a big part

633
00:27:27,779 --> 00:27:33,539
of it is learning how not to be eaten in

634
00:27:29,789 --> 00:27:36,899
your general workday yes that would be a

635
00:27:33,539 --> 00:27:39,420
good skill to have now tell us when when

636
00:27:36,900 --> 00:27:41,940
does a weed become a weed when is a weed

637
00:27:39,420 --> 00:27:45,480
classified as a weed and for what reason

638
00:27:41,940 --> 00:27:48,600
so a weed is basically a plant in the

639
00:27:45,480 --> 00:27:51,390
wrong place that is causing a problem so

640
00:27:48,599 --> 00:27:53,369
if there's an exotic plant brought into

641
00:27:51,390 --> 00:27:54,600
Australia plant it in a garden and it

642
00:27:53,369 --> 00:27:56,759
looks pretty and doesn't hurt anybody

643
00:27:54,599 --> 00:27:58,769
that's just an introduced plant where it

644
00:27:56,759 --> 00:28:01,500
becomes a weed is if it causes problems

645
00:27:58,769 --> 00:28:05,220
so the ones that become problems are the

646
00:28:01,500 --> 00:28:07,319
ones that that breed fast the ones that

647
00:28:05,220 --> 00:28:09,299
invade the ones that spread or the ones

648
00:28:07,319 --> 00:28:11,819
that are just difficult to kill so if

649
00:28:09,299 --> 00:28:14,519
they spread fast and are difficult to

650
00:28:11,819 --> 00:28:17,220
get rid of we classify them as weeds and

651
00:28:14,519 --> 00:28:18,900
we set up you know laws that they have

652
00:28:17,220 --> 00:28:21,299
to be controlled and we work on

653
00:28:18,900 --> 00:28:23,519
different ways to control them okay and

654
00:28:21,299 --> 00:28:26,430
in your talk you you talked specifically

655
00:28:23,519 --> 00:28:29,220
about a weed is this the right

656

00:28:26,430 --> 00:28:31,830
pronunciation salvinia so tell us about

657
00:28:29,220 --> 00:28:33,720
your work with salvinia so it's a water

658
00:28:31,829 --> 00:28:36,149
weeds so it grows on the surface of

659
00:28:33,720 --> 00:28:38,610
billabong's it's been managed through

660
00:28:36,150 --> 00:28:40,860
biocontrol for about 30 years now and

661
00:28:38,609 --> 00:28:43,439
there's a bit of a delicate balance

662
00:28:40,859 --> 00:28:45,329
between the number of salvinia plants

663
00:28:43,440 --> 00:28:47,759
and the number of weevils and if you get

664
00:28:45,329 --> 00:28:49,289
too many weevils the salvinia dies off

665
00:28:47,759 --> 00:28:50,609
and then the weevils die off because

666
00:28:49,289 --> 00:28:52,289
they can't live without the cell veneer

667
00:28:50,609 --> 00:28:54,269
so there's there's been a long-term

668
00:28:52,289 --> 00:28:56,579
effort by the Rangers who manage the

669
00:28:54,269 --> 00:28:59,460
Billabong's to reintroduce the weevils

670
00:28:56,579 --> 00:29:01,169

when they disappear and to just keep an

671

00:28:59,460 --> 00:29:03,029

eye on the sylvania levels and make sure

672

00:29:01,170 --> 00:29:05,690

that it's being kept in check by these

673

00:29:03,029 --> 00:29:07,680

weevils so the weevils are the

674

00:29:05,690 --> 00:29:09,990

biocontrol that you're working on at the

675

00:29:07,680 --> 00:29:12,000

moment a lot of your talk was focusing

676

00:29:09,990 --> 00:29:14,579

on the fear that the general public has

677

00:29:12,000 --> 00:29:16,769

around bio control measures can you tell

678

00:29:14,579 --> 00:29:19,129

us a bit more about that so basically

679

00:29:16,769 --> 00:29:20,920

the fear comes from people not knowing

680

00:29:19,130 --> 00:29:22,810

what biocontrol

681

00:29:20,920 --> 00:29:24,279

is and the immediate response when you

682

00:29:22,809 --> 00:29:27,099

hear biocontrol is to think of cane

683

00:29:24,279 --> 00:29:28,930

toads and assume that scientists are

684

00:29:27,099 --> 00:29:31,629

going to introduce something bad and

685
00:29:28,930 --> 00:29:34,060
it's going to destroy the world so most

686
00:29:31,630 --> 00:29:36,130
of our publicity is damage control

687
00:29:34,059 --> 00:29:38,230
explain to people that we're not going

688
00:29:36,130 --> 00:29:40,060
to ruin everything by introducing this

689
00:29:38,230 --> 00:29:42,220
weevil and that we have actually done

690
00:29:40,059 --> 00:29:44,529
the research and it's a safe weevil to

691
00:29:42,220 --> 00:29:48,700
introduce what are some of the

692
00:29:44,529 --> 00:29:50,619
considerations by you and other people

693
00:29:48,700 --> 00:29:53,799
in the field when you are looking at

694
00:29:50,619 --> 00:29:55,929
introducing a form of biocontrol so

695
00:29:53,799 --> 00:29:59,109
there's two basic tests that you need to

696
00:29:55,930 --> 00:30:02,170
run the first one is finding out whether

697
00:29:59,109 --> 00:30:04,899
there the agent is dependent on its host

698
00:30:02,170 --> 00:30:10,000
so you you put it in a cage with that

699
00:30:04,900 --> 00:30:11,650
host and see if it can reproduce do a

700
00:30:10,000 --> 00:30:13,509
full life cycle on it and then you put

701
00:30:11,650 --> 00:30:15,880
it in a cage with other plants that are

702
00:30:13,509 --> 00:30:18,039
similar to that host and see if it dies

703
00:30:15,880 --> 00:30:20,290
on those plants and basically if there's

704
00:30:18,039 --> 00:30:23,139
anything else in Australia that can host

705
00:30:20,289 --> 00:30:25,210
this species then it can't be used

706
00:30:23,140 --> 00:30:27,640
because it's capable of surviving

707
00:30:25,210 --> 00:30:28,930
without the weed and then the second

708
00:30:27,640 --> 00:30:31,240
thing that you want to test is the

709
00:30:28,930 --> 00:30:33,670
effect that it might have if it's

710
00:30:31,240 --> 00:30:35,410
already surviving on one host can it

711
00:30:33,670 --> 00:30:37,360
also impact on other things so you'll

712
00:30:35,410 --> 00:30:40,360
put it in a cage with two different

713

00:30:37,359 --> 00:30:42,759
species and see if it will move over and

714
00:30:40,359 --> 00:30:44,979
harm other things so there's a lot of

715
00:30:42,759 --> 00:30:47,799
preparation that goes into these things

716
00:30:44,980 --> 00:30:50,110
before something is just released out

717
00:30:47,799 --> 00:30:52,240
into the wild so to speak yeah there's

718
00:30:50,109 --> 00:30:54,549
many years oh that's all done here in

719
00:30:52,240 --> 00:30:55,930
Brisbane just down the road at the eco

720
00:30:54,549 --> 00:30:57,700
Sciences precinct they've got a big

721
00:30:55,930 --> 00:31:00,970
biocontrol facility there where the

722
00:30:57,700 --> 00:31:03,430
CSIRO does most of that work and they

723
00:31:00,970 --> 00:31:06,039
spend years researching each potential

724
00:31:03,430 --> 00:31:07,990
agent before it's given the go-ahead to

725
00:31:06,039 --> 00:31:11,139
be released and then they send it up to

726
00:31:07,990 --> 00:31:13,599
us and we start distributing and you

727
00:31:11,140 --> 00:31:17,200

were saying that a lot was learned by

728

00:31:13,599 --> 00:31:19,779

the whole cane toad experience and that

729

00:31:17,200 --> 00:31:22,779

that people really shouldn't have have

730

00:31:19,779 --> 00:31:25,660

the fear based on that cane toad

731

00:31:22,779 --> 00:31:27,339

experience yeah so the the fear comes

732

00:31:25,660 --> 00:31:29,650

from the fact that we haven't spoken

733

00:31:27,339 --> 00:31:32,109

enough about biocontrol and it's

734

00:31:29,650 --> 00:31:33,960

basically that the flagship species that

735

00:31:32,109 --> 00:31:35,908

everybody goes to when

736

00:31:33,960 --> 00:31:37,440

I control you think cane toad if you're

737

00:31:35,909 --> 00:31:39,720

lucky maybe you'll think about rabbits

738

00:31:37,440 --> 00:31:42,000

and cactuses but that's pretty much all

739

00:31:39,720 --> 00:31:43,200

that people know about and I mean I'm

740

00:31:42,000 --> 00:31:44,609

working on about seven or eight

741

00:31:43,200 --> 00:31:47,460

different species right now and I've

742
00:31:44,609 --> 00:31:51,148
only been doing this for a year and it's

743
00:31:47,460 --> 00:31:52,620
been going for decades and there's every

744
00:31:51,148 --> 00:31:55,109
couple of years and new species is

745
00:31:52,619 --> 00:31:56,788
introduced and some of them fail which

746
00:31:55,109 --> 00:31:59,099
means that they just die off and nothing

747
00:31:56,788 --> 00:32:01,528
happens and some of them succeed and are

748
00:31:59,099 --> 00:32:03,629
being used like the the weevil in the

749
00:32:01,528 --> 00:32:05,759
sylvania is being used successfully for

750
00:32:03,630 --> 00:32:08,549
the last 30 years and I didn't know

751
00:32:05,759 --> 00:32:11,099
about it until I started this job so we

752
00:32:08,548 --> 00:32:13,139
need to discuss these things publicly

753
00:32:11,099 --> 00:32:15,058
and make it known that biocontrol is is

754
00:32:13,140 --> 00:32:18,630
a common thing that we do and we do it

755
00:32:15,058 --> 00:32:22,798
safely and what were you saying regards

756
00:32:18,630 --> 00:32:25,980
the failure of a biocontrol that the

757
00:32:22,798 --> 00:32:27,720
definition you now use as a failure so a

758
00:32:25,980 --> 00:32:29,069
good example of a failure is a

759
00:32:27,720 --> 00:32:30,839
particular little beetle that was

760
00:32:29,069 --> 00:32:33,990
released a few years ago to control

761
00:32:30,839 --> 00:32:36,750
bellyache bush they did all the research

762
00:32:33,990 --> 00:32:38,429
the the beetle did everything we needed

763
00:32:36,750 --> 00:32:39,929
it to do it would greed on the bellyache

764
00:32:38,429 --> 00:32:42,059
couldn't survive on anything

765
00:32:39,929 --> 00:32:43,320
else it didn't impact anything else we

766
00:32:42,058 --> 00:32:44,788
took the beetle out into the wild

767
00:32:43,319 --> 00:32:46,408
released it every beetle flew in a

768
00:32:44,788 --> 00:32:48,690
different direction and they never bred

769
00:32:46,409 --> 00:32:50,909
in the wild so that's what a biocontrol

770

00:32:48,690 --> 00:32:52,380
failure is and there's just no chance of

771
00:32:50,909 --> 00:32:54,840
it breeding on anything else because all

772
00:32:52,380 --> 00:32:57,270
of those safety protocols were were kept

773
00:32:54,839 --> 00:33:00,019
in check at the beginning to make sure

774
00:32:57,269 --> 00:33:03,210
that there was no risk so there were no

775
00:33:00,019 --> 00:33:05,369
negative impacts it was a failure but

776
00:33:03,210 --> 00:33:07,169
with no negative impacts yeah so the

777
00:33:05,369 --> 00:33:09,719
only negative outcome there is the

778
00:33:07,169 --> 00:33:11,220
wasted time so that's that's the only

779
00:33:09,720 --> 00:33:13,048
drawback is that you've put some

780
00:33:11,220 --> 00:33:15,450
resources into something that didn't

781
00:33:13,048 --> 00:33:19,079
work and finally and this was an

782
00:33:15,450 --> 00:33:22,140
audience question as well will we ever

783
00:33:19,079 --> 00:33:24,949
get rid of the cane toad never going to

784
00:33:22,140 --> 00:33:29,520

happen it's just not not feasible

785

00:33:24,950 --> 00:33:31,679
there's no biocontrol that will ever

786

00:33:29,519 --> 00:33:33,089
wipe anything out so it's possible that

787

00:33:31,679 --> 00:33:35,940
something will come along in the future

788

00:33:33,089 --> 00:33:37,949
that will drastically reduce numbers but

789

00:33:35,940 --> 00:33:40,919
it won't wipe them out it'll just reduce

790

00:33:37,950 --> 00:33:44,069
numbers they're just way too successful

791

00:33:40,919 --> 00:33:46,169
to feasibly think about eradication so

792

00:33:44,069 --> 00:33:47,490
what we need to look at with the cane

793

00:33:46,169 --> 00:33:49,980
toad is

794

00:33:47,490 --> 00:33:51,710
are there any specific impacts that we

795

00:33:49,980 --> 00:33:54,269
can mitigate so is there a particular

796

00:33:51,710 --> 00:33:57,029
area we can protect we can actually

797

00:33:54,269 --> 00:33:58,470
remove tadpoles from one pound or remove

798

00:33:57,029 --> 00:34:00,960
adults from one area and protect

799

00:33:58,470 --> 00:34:03,299

specific areas and we can manage them

800

00:34:00,960 --> 00:34:04,890

and keep their numbers low maybe in the

801

00:34:03,299 --> 00:34:06,990

future we will get some wonderful

802

00:34:04,890 --> 00:34:09,329

biocontrol that will seriously reduce

803

00:34:06,990 --> 00:34:12,530

their numbers but it's not it's not

804

00:34:09,329 --> 00:34:15,210

feasible to think about eradicating them

805

00:34:12,530 --> 00:34:17,760

okay well thank you Michelle it was a

806

00:34:15,210 --> 00:34:20,369

very interesting talk and if people want

807

00:34:17,760 --> 00:34:21,570

to get in touch with you or see more of

808

00:34:20,369 --> 00:34:25,320

what you're doing where can they find

809

00:34:21,570 --> 00:34:26,429

you Darwin skeptics why my little plug

810

00:34:25,320 --> 00:34:28,409

that I like to put at the end of

811

00:34:26,429 --> 00:34:30,628

everything we have a Facebook group it's

812

00:34:28,409 --> 00:34:33,360

just the Darwin skeptics and in the

813
00:34:30,628 --> 00:34:35,368
facebook group sections join we take

814
00:34:33,360 --> 00:34:36,929
anybody as long as you're nice to us and

815
00:34:35,369 --> 00:34:39,629
we take the ones who I mean to us as

816
00:34:36,929 --> 00:34:41,099
well join in the conversation and say

817
00:34:39,628 --> 00:34:43,799
hello we also have an email address

818
00:34:41,099 --> 00:34:46,230
which is just darling skeptics at gmail

819
00:34:43,800 --> 00:34:49,679
com but you're nobody uses email anymore

820
00:34:46,230 --> 00:34:52,230
Facebook's the way that we interact so

821
00:34:49,679 --> 00:34:54,059
if you've got any questions about bio

822
00:34:52,230 --> 00:34:56,878
control measures you know where to get

823
00:34:54,059 --> 00:34:58,858
in touch with Michelle thank you we've

824
00:34:56,878 --> 00:35:02,750
got better go back in and hear the rest

825
00:34:58,858 --> 00:35:02,750
of the speakers thank you

826
00:35:15,460 --> 00:35:19,670
the Australian skeptics national

827

00:35:18,019 --> 00:35:23,019
convention will be held in melbourne

828
00:35:19,670 --> 00:35:27,409
from the 25th to the 27th of november

829
00:35:23,019 --> 00:35:30,650
2016 speakers will include Lawrence

830
00:35:27,409 --> 00:35:34,129
Krauss and sod Ernst Harriet hall

831
00:35:30,650 --> 00:35:37,369
Michael Marshall Mel Thompson Lynn Kelly

832
00:35:34,130 --> 00:35:40,700
ken harvey Lara wood and Deanne Carson

833
00:35:37,369 --> 00:35:44,179
Joe alabaster peterb outage Ross mulch

834
00:35:40,699 --> 00:35:47,000
Emma Miley mouth Vickers and more to be

835
00:35:44,179 --> 00:35:50,599
announced be theme of this year's

836
00:35:47,000 --> 00:35:52,400
conferences good thinking for more

837
00:35:50,599 --> 00:35:55,849
information and to get your tickets and

838
00:35:52,400 --> 00:36:22,280
tickets for the annual dinner visit www

839
00:35:55,849 --> 00:36:24,319
convention skeptics calm got a you let's

840
00:36:22,280 --> 00:36:27,290
take you into a journey into these small

841
00:36:24,320 --> 00:36:29,450

the very small the smallest realms of

842

00:36:27,289 --> 00:36:31,550

the imagination where things don't

843

00:36:29,449 --> 00:36:33,739

happen as they seemingly logically

844

00:36:31,550 --> 00:36:35,390

should that's right we're investigating

845

00:36:33,739 --> 00:36:36,889

the quantum world here at skeptics in

846

00:36:35,389 --> 00:36:38,420

the pub where things get smaller and

847

00:36:36,889 --> 00:36:40,099

smaller and smaller as the night gets

848

00:36:38,420 --> 00:36:41,210

longer and longer or longer and someone

849

00:36:40,099 --> 00:36:43,699

is getting taller and taller and taller

850

00:36:41,210 --> 00:36:45,880

is Richard Saunders I'm glad to hear

851

00:36:43,699 --> 00:36:48,889

that what about this expression we hear

852

00:36:45,880 --> 00:36:51,170

quantum leap is used all the time when

853

00:36:48,889 --> 00:36:52,579

people say so-and-so has made a quantum

854

00:36:51,170 --> 00:36:54,079

leap or this company's about to make a

855

00:36:52,579 --> 00:36:56,179

quantum leap all scientists have made a

856
00:36:54,079 --> 00:36:59,989
quantum leap and what they mean of

857
00:36:56,179 --> 00:37:02,089
course is a gigantic stride forward but

858
00:36:59,989 --> 00:37:04,369
the nitpickers will say well wait a

859
00:37:02,090 --> 00:37:06,579
minute quantum's tiny well i thought

860
00:37:04,369 --> 00:37:09,559
though quantum leap would mean an

861
00:37:06,579 --> 00:37:11,989
unexpectedly so it might have gone in a

862
00:37:09,559 --> 00:37:14,489
direction that wasn't expected and gone

863
00:37:11,989 --> 00:37:15,750
dead that way you see I haven't I

864
00:37:14,489 --> 00:37:18,509
never heard it used like that people

865
00:37:15,750 --> 00:37:22,489
it's always used in press releases or

866
00:37:18,510 --> 00:37:25,110
something like that mean to me a huge

867
00:37:22,489 --> 00:37:27,149
leap and then the nitpickers say well

868
00:37:25,110 --> 00:37:29,460
now it's very tiny but I think in in

869
00:37:27,150 --> 00:37:32,460
common usage when people say a quantum

870
00:37:29,460 --> 00:37:33,960
leap everybody knows what they mean hmm

871
00:37:32,460 --> 00:37:36,000
yeah think about the guy who went on to

872
00:37:33,960 --> 00:37:38,760
play the captain and enterprise that's

873
00:37:36,000 --> 00:37:41,550
right Scott Bakula he made a few quantum

874
00:37:38,760 --> 00:37:43,020
leaps hmm I'm look and I still was not

875
00:37:41,550 --> 00:37:44,490
happy with the final episode of quantum

876
00:37:43,019 --> 00:37:47,820
leap I was not happy with the way

877
00:37:44,489 --> 00:37:49,289
they're finished I know right mmm look

878
00:37:47,820 --> 00:37:51,059
I'm people out there you know you know

879
00:37:49,289 --> 00:37:52,380
if you don't you don't yeah if you don't

880
00:37:51,059 --> 00:37:54,299
if you happen if you haven't seen

881
00:37:52,380 --> 00:37:56,369
quantum leap the whole series it's quite

882
00:37:54,300 --> 00:38:01,140
fun we enjoyed it but the last episode

883
00:37:56,369 --> 00:38:04,289
was sort of like what well it was sort

884

00:38:01,139 --> 00:38:05,730
of a bit like blank 7 you know yeah but

885
00:38:04,289 --> 00:38:08,099
we're here because sir there's going to

886
00:38:05,730 --> 00:38:11,070
be some chatting about quantum in all

887
00:38:08,099 --> 00:38:13,679
aspects from Ian Bryce our guy who is

888
00:38:11,070 --> 00:38:15,059
our resident rocket scientist yeah the

889
00:38:13,679 --> 00:38:16,440
chief investigator of Australian

890
00:38:15,059 --> 00:38:17,670
skeptics he'll be here soon he's giving

891
00:38:16,440 --> 00:38:21,030
a talk tonight here at skeptics in the

892
00:38:17,670 --> 00:38:23,130
pub about quantum energies and what is

893
00:38:21,030 --> 00:38:26,340
quantum and things like that which I'll

894
00:38:23,130 --> 00:38:28,380
enjoy listening to nux some years ago in

895
00:38:26,340 --> 00:38:31,500
fact I was doing some research for dr. H

896
00:38:28,380 --> 00:38:33,900
II a story dr. H he was following up and

897
00:38:31,500 --> 00:38:36,539
she wanted to know all about quantum and

898
00:38:33,900 --> 00:38:38,130

I remembers cramming one afternoon to

899

00:38:36,539 --> 00:38:40,769
training to try to find out as much

900

00:38:38,130 --> 00:38:43,050
about quantum on what it means as I as I

901

00:38:40,769 --> 00:38:44,820
could I don't think he can learn much in

902

00:38:43,050 --> 00:38:47,010
one afternoon but that's the question

903

00:38:44,820 --> 00:38:49,109
we're going to be posing tonight what do

904

00:38:47,010 --> 00:38:50,460
people think quantum is because you hit

905

00:38:49,108 --> 00:38:51,869
being used in all sorts of things of

906

00:38:50,460 --> 00:38:54,240
course you will often hear it used as

907

00:38:51,869 --> 00:38:56,309
part of advertising for something I

908

00:38:54,239 --> 00:38:58,319
think I think even won the race is now

909

00:38:56,309 --> 00:39:00,570
is a quantum razor would you really

910

00:38:58,320 --> 00:39:01,980
thought what so when you shave it shaves

911

00:39:00,570 --> 00:39:06,000
your face and maybe other parts of your

912

00:39:01,980 --> 00:39:08,400
body unexpectedly it's it shaves you

913
00:39:06,000 --> 00:39:11,869
over your face and your counterparts

914
00:39:08,400 --> 00:39:15,389
face another universe at the same time

915
00:39:11,869 --> 00:39:18,329
now that I would pay money for that so

916
00:39:15,389 --> 00:39:19,949
if you wake up clean shaven it means you

917
00:39:18,329 --> 00:39:22,380
in another universe has got their very

918
00:39:19,949 --> 00:39:24,539
own quantum razor and we must remind

919
00:39:22,380 --> 00:39:27,480
people that that's where a part of the

920
00:39:24,539 --> 00:39:29,460
quantum action is watch Einstein

921
00:39:27,480 --> 00:39:31,380
called spooky action at a distance yes

922
00:39:29,460 --> 00:39:35,220
now you and I came up with that name

923
00:39:31,380 --> 00:39:36,329
years ago at over lunch and a pub oh I

924
00:39:35,219 --> 00:39:37,799
just heard it in something and I knew

925
00:39:36,329 --> 00:39:39,900
nothing about it i thought that sounds

926
00:39:37,800 --> 00:39:41,340
good Maynard's spooky action at a

927
00:39:39,900 --> 00:39:44,910
distance that's where we came up with

928
00:39:41,340 --> 00:39:46,500
him we were having lunch with Stephen

929
00:39:44,909 --> 00:39:47,789
Casey the wonder dog oh that's much

930
00:39:46,500 --> 00:39:49,289
Stephen Casey lund dog and we came up

931
00:39:47,789 --> 00:39:50,880
with that but we actually gonna be

932
00:39:49,289 --> 00:39:52,409
asking a few people what they think when

933
00:39:50,880 --> 00:39:54,090
they hear it tonight and in fact perhaps

934
00:39:52,409 --> 00:39:55,349
even when I talk to Ian Bryce he will

935
00:39:54,090 --> 00:39:58,019
actually explain it to the satisfaction

936
00:39:55,349 --> 00:40:00,118
of the listener well he should and if

937
00:39:58,019 --> 00:40:01,440
you folks if you don't come or you

938
00:40:00,119 --> 00:40:03,180
haven't been to a skeptics in the pub

939
00:40:01,440 --> 00:40:04,858
this is that it was just the place you

940
00:40:03,179 --> 00:40:08,159
can ask these sort of questions now it's

941

00:40:04,858 --> 00:40:09,690
it's a early yet people are self just

942
00:40:08,159 --> 00:40:12,210
making their way into the room we have

943
00:40:09,690 --> 00:40:14,639
here and the crown hotel in Sydney and

944
00:40:12,210 --> 00:40:16,260
the tables are ready but we might be

945
00:40:14,639 --> 00:40:20,389
able to ask some people before the talk

946
00:40:16,260 --> 00:40:24,810
what they think quantum means and maybe

947
00:40:20,389 --> 00:40:26,699
we can shed some light on this and I

948
00:40:24,809 --> 00:40:28,679
know Annie and Bryce hook gets here

949
00:40:26,699 --> 00:40:30,509
he'll be after tell us something and a

950
00:40:28,679 --> 00:40:32,399
reminder that next skeptic in the pub

951
00:40:30,510 --> 00:40:35,280
there's going to be a live performance

952
00:40:32,400 --> 00:40:36,960
we're going to do this show live yeah

953
00:40:35,280 --> 00:40:40,530
the skeptics own life that'll be the

954
00:40:36,960 --> 00:40:42,000
first thursday of october october the

955
00:40:40,530 --> 00:40:44,100

sixth here in sydney there'll be a

956

00:40:42,000 --> 00:40:45,570

skeptics in life it won't be as big a do

957

00:40:44,099 --> 00:40:48,690

as last year because last year we had

958

00:40:45,570 --> 00:40:50,400

the whole team and this year no women

959

00:40:48,690 --> 00:40:51,840

are turning up none of the female

960

00:40:50,400 --> 00:40:53,369

members of the cast are turning out

961

00:40:51,840 --> 00:40:56,430

we've asked them all and there are they

962

00:40:53,369 --> 00:40:58,559

interstate or indisposed yes sadly it

963

00:40:56,429 --> 00:40:59,940

looks like that because we've got most

964

00:40:58,559 --> 00:41:03,420

of the people who work on the show in

965

00:40:59,940 --> 00:41:06,329

fact women as it happens but I think

966

00:41:03,420 --> 00:41:09,380

just by bad circumstance and luck and

967

00:41:06,329 --> 00:41:11,549

things they they will be indisposed or

968

00:41:09,380 --> 00:41:13,170

overseas or something crazy like that

969

00:41:11,550 --> 00:41:15,690

boo so we've still got a month maybe we

970
00:41:13,170 --> 00:41:17,849
could we can we can do something but no

971
00:41:15,690 --> 00:41:19,530
they'll be alive skeptic zone I you and

972
00:41:17,849 --> 00:41:23,190
I and I hope Stefan and Iran will be

973
00:41:19,530 --> 00:41:25,470
here will read our pieces but we'll have

974
00:41:23,190 --> 00:41:27,179
not phone in what are they call the pre

975
00:41:25,469 --> 00:41:29,219
records from some some of our other

976
00:41:27,179 --> 00:41:30,598
reporters 0 yeah right now let's see

977
00:41:29,219 --> 00:41:33,299
what's happening tonight it's skeptics

978
00:41:30,599 --> 00:41:34,920
in the pub but a lot some people that

979
00:41:33,300 --> 00:41:36,390
have turned up here fairly early here in

980
00:41:34,920 --> 00:41:38,940
fact she started answering the question

981
00:41:36,389 --> 00:41:40,318
before I variants asked it when you hear

982
00:41:38,940 --> 00:41:42,358
the word quantum what do you mean when

983
00:41:40,318 --> 00:41:43,980
you might hear it in some advertising or

984
00:41:42,358 --> 00:41:47,068
even when it's used generally what do

985
00:41:43,980 --> 00:41:49,858
you think it's assumed to mean something

986
00:41:47,068 --> 00:41:52,710
you really don't understand that's a

987
00:41:49,858 --> 00:41:53,909
very concise and to the point answer how

988
00:41:52,710 --> 00:41:55,920
do you think it's normally used in

989
00:41:53,909 --> 00:41:58,608
normal conversation or in advertising I

990
00:41:55,920 --> 00:42:01,588
would use it as meaning the total of

991
00:41:58,608 --> 00:42:03,000
okay so would use that in a sentence for

992
00:42:01,588 --> 00:42:08,429
the listener to explain to the listener

993
00:42:03,000 --> 00:42:10,318
as in 02 quite the quantum of the number

994
00:42:08,429 --> 00:42:13,409
of cars on the road might be or the

995
00:42:10,318 --> 00:42:14,940
total of the number of cars and and that

996
00:42:13,409 --> 00:42:21,690
is grammatically accurate isn't it

997
00:42:14,940 --> 00:42:23,280
mm-hmm it is yes I think just in time

998

00:42:21,690 --> 00:42:24,869
you but I'm just a man with a beer in

999
00:42:23,280 --> 00:42:26,609
his hand always turns up a skeptics in

1000
00:42:24,869 --> 00:42:28,260
the pub it's always a good thing for the

1001
00:42:26,608 --> 00:42:30,239
skeptics out and run with Israel it is

1002
00:42:28,260 --> 00:42:31,380
bro at all is about priorities you never

1003
00:42:30,239 --> 00:42:33,598
know if you don't know what's going on

1004
00:42:31,380 --> 00:42:35,190
have a drink now we're asking tonight

1005
00:42:33,599 --> 00:42:36,359
when you hear the word quantum which

1006
00:42:35,190 --> 00:42:38,369
we're going to be having a chat about

1007
00:42:36,358 --> 00:42:40,230
later here it's used in so many ways and

1008
00:42:38,369 --> 00:42:42,420
advertising people kind of sling it

1009
00:42:40,230 --> 00:42:43,740
around like any old word what does it

1010
00:42:42,420 --> 00:42:44,818
mean to you in you or what do you think

1011
00:42:43,739 --> 00:42:49,858
they're trying to get across when they

1012
00:42:44,818 --> 00:42:53,929

use it it's a discrete units of material

1013

00:42:49,858 --> 00:42:57,960

okay it by discrete you mean very small

1014

00:42:53,929 --> 00:42:59,399

both well I think it's a by discreet I

1015

00:42:57,960 --> 00:43:01,889

mean it's not connected to anything else

1016

00:42:59,400 --> 00:43:05,608

okay right yeah so they said it's a

1017

00:43:01,889 --> 00:43:07,460

quantum break through in hair care what

1018

00:43:05,608 --> 00:43:11,329

do they mean what do they mean there

1019

00:43:07,460 --> 00:43:13,099

because I have heard that not God what

1020

00:43:11,329 --> 00:43:15,019

yeah I couldn't really answer like that

1021

00:43:13,099 --> 00:43:16,849

I don't think anyone can I think that's

1022

00:43:15,019 --> 00:43:19,429

exactly why they say it I probably

1023

00:43:16,849 --> 00:43:21,380

reference the quantum physics hmm and

1024

00:43:19,429 --> 00:43:23,569

even they don't understand yeah but the

1025

00:43:21,380 --> 00:43:24,980

probability way it's probably more to do

1026

00:43:23,570 --> 00:43:28,220

with the success that they've had with

1027
00:43:24,980 --> 00:43:30,530
quantum physics in understanding the

1028
00:43:28,219 --> 00:43:32,359
world around us and making quite large

1029
00:43:30,530 --> 00:43:35,090
breakthroughs in science so I would

1030
00:43:32,360 --> 00:43:36,289
argue that probably by quantum break

1031
00:43:35,090 --> 00:43:37,760
through they're actually referring to

1032
00:43:36,289 --> 00:43:41,480
the type of breakthroughs that quantum

1033
00:43:37,760 --> 00:43:47,240
physics has had in the here in their

1034
00:43:41,480 --> 00:43:49,460
research okay thank you when people in

1035
00:43:47,239 --> 00:43:51,139
advertising or anywhere generally invoke

1036
00:43:49,460 --> 00:43:52,490
the word quantum what do you think

1037
00:43:51,139 --> 00:43:56,000
they're trying to get across what do you

1038
00:43:52,489 --> 00:43:58,789
think they mean something trendy

1039
00:43:56,000 --> 00:44:02,420
something it's got Authority it must be

1040
00:43:58,789 --> 00:44:04,070
really good it's it's a step up yeah I

1041
00:44:02,420 --> 00:44:05,240
go that's what they're trying to do what

1042
00:44:04,070 --> 00:44:06,860
do you think they're trying to save you

1043
00:44:05,239 --> 00:44:08,509
and they invoke the word quantum as in a

1044
00:44:06,860 --> 00:44:10,840
great breakthrough in quantum

1045
00:44:08,510 --> 00:44:14,540
hairdressing for example

1046
00:44:10,840 --> 00:44:18,230
quasi-scientific background with latest

1047
00:44:14,539 --> 00:44:20,929
research technology claiming expertise

1048
00:44:18,230 --> 00:44:22,579
that doesn't exist wow are you a

1049
00:44:20,929 --> 00:44:25,699
copywriter in your spare time that's

1050
00:44:22,579 --> 00:44:27,380
good that after that fits in well that's

1051
00:44:25,699 --> 00:44:28,759
a good one now what are you hearing your

1052
00:44:27,380 --> 00:44:31,309
brain when they go hey it's a quantum

1053
00:44:28,760 --> 00:44:32,780
leap my understanding is that that they

1054
00:44:31,309 --> 00:44:35,509
think the quantum means something big

1055

00:44:32,780 --> 00:44:37,610
betting on my understanding is that it

1056
00:44:35,510 --> 00:44:41,930
actually is something not so big at all

1057
00:44:37,610 --> 00:44:43,460
yes and that's that's you know so they

1058
00:44:41,929 --> 00:44:46,099
say something is a quantum leap in this

1059
00:44:43,460 --> 00:44:47,500
thinking it's a it's a big big change or

1060
00:44:46,099 --> 00:44:49,599
a big improvement or

1061
00:44:47,500 --> 00:44:51,099
if you can dance or what everyone is put

1062
00:44:49,599 --> 00:44:53,799
into might be that they're trying to

1063
00:44:51,099 --> 00:44:55,029
promote I've heard michio kaku I think

1064
00:44:53,800 --> 00:44:56,860
your haiku his name is from the

1065
00:44:55,030 --> 00:44:58,390
University in New York this is whenever

1066
00:44:56,860 --> 00:44:59,860
people invoke the word quantum it

1067
00:44:58,389 --> 00:45:01,449
normally means that they have no idea

1068
00:44:59,860 --> 00:45:03,309
what they're invoking I think you had to

1069
00:45:01,449 --> 00:45:04,329

be pretty right and I've just used the

1070

00:45:03,309 --> 00:45:06,460

word quantum and I think that just

1071

00:45:04,329 --> 00:45:08,380

applies to move in an ad so that's okay

1072

00:45:06,460 --> 00:45:11,650

you're making no claim you're making no

1073

00:45:08,380 --> 00:45:15,460

testable claims no no no testable claim

1074

00:45:11,650 --> 00:45:16,900

at all thank you look you gotta say if

1075

00:45:15,460 --> 00:45:18,400

you want if you want to know about

1076

00:45:16,900 --> 00:45:19,710

something you should ask someone who'd

1077

00:45:18,400 --> 00:45:22,090

spend a bit of time at University

1078

00:45:19,710 --> 00:45:24,250

looking at it and we've gotta register

1079

00:45:22,090 --> 00:45:26,019

rocket science here in Bryce how are you

1080

00:45:24,250 --> 00:45:27,909

in oh good evening may not I think

1081

00:45:26,019 --> 00:45:29,920

you've got the scientists crazy here

1082

00:45:27,909 --> 00:45:31,809

tonight to it looks good right yeah look

1083

00:45:29,920 --> 00:45:34,300

it's okay how's your hand there you hurt

1084
00:45:31,809 --> 00:45:37,269
your hand sir yes putting it repairing

1085
00:45:34,300 --> 00:45:39,460
my roof oh so something that scientists

1086
00:45:37,269 --> 00:45:40,780
usually do no no it was it was there an

1087
00:45:39,460 --> 00:45:41,949
issue with tetanus with that did they

1088
00:45:40,780 --> 00:45:44,170
have to give you a shot after that and

1089
00:45:41,949 --> 00:45:46,480
now I didn't worry about that I just got

1090
00:45:44,170 --> 00:45:48,159
on with the job okay now you're talking

1091
00:45:46,480 --> 00:45:49,990
about quantum tonight I've been asking

1092
00:45:48,159 --> 00:45:52,719
people hear what they think when they

1093
00:45:49,989 --> 00:45:54,639
hear the word quantum invoked in just it

1094
00:45:52,719 --> 00:45:56,049
usually to my journalist or in

1095
00:45:54,639 --> 00:45:57,940
advertising and that sort of thing I've

1096
00:45:56,050 --> 00:45:59,440
got a range of answers so what do you

1097
00:45:57,940 --> 00:46:02,710
think they should be saying when they

1098
00:45:59,440 --> 00:46:05,980
say we've got a quantum leap in hair

1099
00:46:02,710 --> 00:46:08,769
care products or dash hounds or cats and

1100
00:46:05,980 --> 00:46:11,019
what what do they mean okay well when my

1101
00:46:08,769 --> 00:46:14,199
lawyer says to me I want to talk about

1102
00:46:11,019 --> 00:46:17,309
the quantum of my fees okay I get very

1103
00:46:14,199 --> 00:46:20,429
worried okay so it means something big

1104
00:46:17,309 --> 00:46:21,929
but if the if someone says something's

1105
00:46:20,429 --> 00:46:24,899
our quantum leap they usually mean a big

1106
00:46:21,929 --> 00:46:27,329
leap but actually a quantum leap in

1107
00:46:24,900 --> 00:46:29,010
physics is rather tiny it's based on

1108
00:46:27,329 --> 00:46:32,389
Planck's constant which is about 10 to

1109
00:46:29,010 --> 00:46:34,860
the minus 34 which is unbelievably tiny

1110
00:46:32,389 --> 00:46:37,799
and as you know I'm a huge fan of the

1111
00:46:34,860 --> 00:46:39,809
concept of Planck time which I think use

1112

00:46:37,800 --> 00:46:40,980
scientists just invented because you

1113
00:46:39,809 --> 00:46:42,900
couldn't figure out how the universe

1114
00:46:40,980 --> 00:46:44,940
came out so quickly because it had to go

1115
00:46:42,900 --> 00:46:47,340
faster than light so we thought Planck

1116
00:46:44,940 --> 00:46:49,110
time that'll get them yes in well that

1117
00:46:47,340 --> 00:46:52,410
there might be something in that too yes

1118
00:46:49,110 --> 00:46:55,079
but this is something unmeasurable about

1119
00:46:52,409 --> 00:46:57,449
events shorter than playing time yes so

1120
00:46:55,079 --> 00:46:59,849
that may be back in the days of the Big

1121
00:46:57,449 --> 00:47:01,710
Bang or the picoseconds of the Big Bang

1122
00:46:59,849 --> 00:47:03,389
that was what rained and so you're

1123
00:47:01,710 --> 00:47:05,940
literally talking to us about quantum

1124
00:47:03,389 --> 00:47:08,309
tonight and but I I actually it's often

1125
00:47:05,940 --> 00:47:10,740
invoked spiritually do we mention Deepak

1126
00:47:08,309 --> 00:47:12,210

Chopra earlier there because i can't

1127

00:47:10,739 --> 00:47:14,789

imagine that all these things going on

1128

00:47:12,210 --> 00:47:17,670

in an unusual way on the micro level

1129

00:47:14,789 --> 00:47:19,920

can't occasionally influence something

1130

00:47:17,670 --> 00:47:24,090

here on the macro level why can't that

1131

00:47:19,920 --> 00:47:26,190

happen well it can happen as we'll see

1132

00:47:24,090 --> 00:47:29,730

tonight lots lots and lots of effects at

1133

00:47:26,190 --> 00:47:31,710

the macro level well at least at the at

1134

00:47:29,730 --> 00:47:34,380

least at the photons of light level

1135

00:47:31,710 --> 00:47:35,849

which are visible to our eyes so we can

1136

00:47:34,380 --> 00:47:37,380

actually see the quantum effects in

1137

00:47:35,849 --> 00:47:39,569

action but it's true that they're very

1138

00:47:37,380 --> 00:47:42,930

small however the energy of a photon is

1139

00:47:39,570 --> 00:47:44,100

very small now could to most people

1140

00:47:42,929 --> 00:47:46,049

probably heard about two photons

1141
00:47:44,099 --> 00:47:48,539
interfering as they go through a Jewess

1142
00:47:46,050 --> 00:47:51,210
lead experiment or two electrons or two

1143
00:47:48,539 --> 00:47:52,529
protons but could to sign us to sing

1144
00:47:51,210 --> 00:47:55,679
whether they could perhaps get two

1145
00:47:52,530 --> 00:47:58,970
viruses to to interfere as they go

1146
00:47:55,679 --> 00:48:01,859
through the slit and maybe then two

1147
00:47:58,969 --> 00:48:04,109
bacteria maybe two fleas and maybe too

1148
00:48:01,860 --> 00:48:07,410
answered maybe two people the problem is

1149
00:48:04,110 --> 00:48:09,300
that you get decoherence quantum effects

1150
00:48:07,409 --> 00:48:10,949
only occur when things are coherent when

1151
00:48:09,300 --> 00:48:12,900
they're all in the same frequency in the

1152
00:48:10,949 --> 00:48:14,279
same phase and once you get up to

1153
00:48:12,900 --> 00:48:16,380
something as big as a virus it's

1154
00:48:14,280 --> 00:48:19,110
impossible to keep them in phase because

1155
00:48:16,380 --> 00:48:20,760
there's too many atoms involved yes yes

1156
00:48:19,110 --> 00:48:23,789
that's right and the wavelength gets too

1157
00:48:20,760 --> 00:48:25,710
short and you can't specify their

1158
00:48:23,789 --> 00:48:27,820
position accurately enough so no one's

1159
00:48:25,710 --> 00:48:30,159
observed anything

1160
00:48:27,820 --> 00:48:33,010
bigger than elementary particles or

1161
00:48:30,159 --> 00:48:36,279
rather composite particles like nuclei I

1162
00:48:33,010 --> 00:48:38,260
believe Justin in a similar physics

1163
00:48:36,280 --> 00:48:40,540
question so since we're talking about

1164
00:48:38,260 --> 00:48:42,700
particles a lot of a light being being

1165
00:48:40,539 --> 00:48:43,900
aligned so so their vibrations are going

1166
00:48:42,699 --> 00:48:45,939
the same through the slit at the same

1167
00:48:43,900 --> 00:48:48,940
time is this any sort of hint at maybe

1168
00:48:45,940 --> 00:48:51,429
string theory maybe businesses that this

1169

00:48:48,940 --> 00:48:53,980
may be given string theory another leg

1170
00:48:51,429 --> 00:48:57,879
of the three stool to be proved string

1171
00:48:53,980 --> 00:48:58,780
theory okay there's a thought I just

1172
00:48:57,880 --> 00:49:00,700
thought we know it's all about

1173
00:48:58,780 --> 00:49:03,310
vibrations they're vibrating at the same

1174
00:49:00,699 --> 00:49:05,589
frequency so they can do it maybe if we

1175
00:49:03,309 --> 00:49:07,029
are vibrating on an even more micro

1176
00:49:05,590 --> 00:49:09,519
level that there's something in that or

1177
00:49:07,030 --> 00:49:11,290
am I just have my serve on well that's

1178
00:49:09,519 --> 00:49:13,389
interesting but I think that's at

1179
00:49:11,289 --> 00:49:15,969
another level because a photon is an

1180
00:49:13,389 --> 00:49:18,279
elementary particle as far as we know

1181
00:49:15,969 --> 00:49:21,429
elementary meaning can't be subdivided

1182
00:49:18,280 --> 00:49:23,350
and all the characteristics of a photo

1183
00:49:21,429 --> 00:49:27,690

on are quite clearly set down by physics

1184

00:49:23,349 --> 00:49:31,089

as it is so string theory is not needed

1185

00:49:27,690 --> 00:49:32,289

to define the photon but but however it

1186

00:49:31,090 --> 00:49:34,390

could well be that there's a deeper

1187

00:49:32,289 --> 00:49:36,820

level to these things and in that case

1188

00:49:34,389 --> 00:49:39,429

it could be strings or it could be super

1189

00:49:36,820 --> 00:49:42,130

symmetry the several things because and

1190

00:49:39,429 --> 00:49:43,809

we can't actually in any way think of

1191

00:49:42,130 --> 00:49:46,900

how it could possibly test string theory

1192

00:49:43,809 --> 00:49:48,099

in any current way the moment going yes

1193

00:49:46,900 --> 00:49:51,130

it doesn't seem to make any predictions

1194

00:49:48,099 --> 00:49:53,139

that would show up in this world and as

1195

00:49:51,130 --> 00:49:54,880

you know scientists works very much

1196

00:49:53,139 --> 00:49:56,769

science works very much by predictions

1197

00:49:54,880 --> 00:49:59,619

personally the theory has to make it

1198
00:49:56,769 --> 00:50:02,980
make predictions and then they have to

1199
00:49:59,619 --> 00:50:05,380
be tested and and succeed or as Papa put

1200
00:50:02,980 --> 00:50:08,079
it it's the lack of failure that makes a

1201
00:50:05,380 --> 00:50:11,680
theory stronger so it has to be testable

1202
00:50:08,079 --> 00:50:13,929
and falsifiable and then if its people

1203
00:50:11,679 --> 00:50:15,099
attempt to falsify it many times and

1204
00:50:13,929 --> 00:50:17,799
they fail to do so that always

1205
00:50:15,099 --> 00:50:19,119
strengthens the theory but so far string

1206
00:50:17,800 --> 00:50:22,450
theory hasn't made any of those

1207
00:50:19,119 --> 00:50:24,670
predictions you've got your talk here

1208
00:50:22,449 --> 00:50:26,139
about quantum for skeptics in the pub

1209
00:50:24,670 --> 00:50:28,389
here what do you think is the one point

1210
00:50:26,139 --> 00:50:30,039
the one slide the one graphic that's

1211
00:50:28,389 --> 00:50:31,309
going to blow this room of people away

1212
00:50:30,039 --> 00:50:34,009
they're going to be walking out

1213
00:50:31,309 --> 00:50:36,289
you go walk in blue my tiny eight brain

1214
00:50:34,010 --> 00:50:37,730
because of what well I think they're

1215
00:50:36,289 --> 00:50:39,789
going to walk down the street after its

1216
00:50:37,730 --> 00:50:43,789
seeing quantum effects all around them

1217
00:50:39,789 --> 00:50:47,809
wow you so you'll become the deepak

1218
00:50:43,789 --> 00:50:49,369
chopra blurry hills not know I deal with

1219
00:50:47,809 --> 00:50:51,650
the real world unfortunately there is a

1220
00:50:49,369 --> 00:50:53,210
difference and if people want to study

1221
00:50:51,650 --> 00:50:54,800
up on this or maybe go to a good website

1222
00:50:53,210 --> 00:50:55,849
that might have some sort of things that

1223
00:50:54,800 --> 00:50:57,830
you're going to talk about in your talk

1224
00:50:55,849 --> 00:51:01,099
any idea where people bun together oh

1225
00:50:57,829 --> 00:51:02,659
well Wikipedia is always good or they

1226

00:51:01,099 --> 00:51:04,099
can come along to one of my talks and

1227
00:51:02,659 --> 00:51:06,079
i'll be happy to entertain them for an

1228
00:51:04,099 --> 00:51:08,599
hour and what phrase should they google

1229
00:51:06,079 --> 00:51:09,559
and what what phrase should they Google

1230
00:51:08,599 --> 00:51:13,269
to find out what you're going to be

1231
00:51:09,559 --> 00:51:15,829
talking about here tonight well it's

1232
00:51:13,269 --> 00:51:17,420
quantum optics would be a good start and

1233
00:51:15,829 --> 00:51:19,059
the quantum world made visible is the

1234
00:51:17,420 --> 00:51:21,110
title of my talk because as I'll show

1235
00:51:19,059 --> 00:51:22,579
with us something as simple as a

1236
00:51:21,110 --> 00:51:24,110
diffraction grating you can see the

1237
00:51:22,579 --> 00:51:26,869
quantum characteristics of many

1238
00:51:24,110 --> 00:51:29,840
different light sources and and what's

1239
00:51:26,869 --> 00:51:32,599
more classical mechanics that's non

1240
00:51:29,840 --> 00:51:34,070

quantum is it a complete loss to explain

1241

00:51:32,599 --> 00:51:36,619
any of these sources that I'll

1242

00:51:34,070 --> 00:51:40,010
demonstrate tonight that's coming from

1243

00:51:36,619 --> 00:51:42,589
man wearing a purple paisley shirt in

1244

00:51:40,010 --> 00:51:44,030
the classic 60s are so well done bro I'd

1245

00:51:42,590 --> 00:51:46,420
say that shirts a quantum leap in

1246

00:51:44,030 --> 00:51:46,420
fashion

1247

00:52:00,548 --> 00:52:05,389
did you see that UFO sighting that made

1248

00:52:03,139 --> 00:52:07,098
the news what did that latest study

1249

00:52:05,389 --> 00:52:09,528
about alternative treatments really say

1250

00:52:07,099 --> 00:52:12,470
is this photo making the rounds real or

1251

00:52:09,528 --> 00:52:14,358
hoax doubtful news is a unique website

1252

00:52:12,469 --> 00:52:16,518
featuring news about pseudoscience the

1253

00:52:14,358 --> 00:52:18,219
paranormal anomalies and questionable

1254

00:52:16,518 --> 00:52:21,469
claims framed with the skeptical view

1255
00:52:18,219 --> 00:52:23,929
come visit doleful newscom every day for

1256
00:52:21,469 --> 00:52:27,078
news about cryptozoology conspiracies

1257
00:52:23,929 --> 00:52:29,568
shams scams and more follow us on

1258
00:52:27,079 --> 00:52:31,130
twitter at doubtful news critical

1259
00:52:29,568 --> 00:52:33,409
thinking is essential in assessing

1260
00:52:31,130 --> 00:52:37,240
today's news duffel news helps you

1261
00:52:33,409 --> 00:52:37,239
decide can you really believe this stuff

1262
00:52:47,789 --> 00:52:52,179
thank you for listening to the skeptic

1263
00:52:50,289 --> 00:52:53,769
zone and thank you to Angie matki all

1264
00:52:52,179 --> 00:52:58,239
the way over there in Atlanta Georgia

1265
00:52:53,769 --> 00:52:59,980
who ran from one room to another to do

1266
00:52:58,239 --> 00:53:01,868
that interview with me a little earlier

1267
00:52:59,980 --> 00:53:05,079
on and I'm sure right now she's running

1268
00:53:01,869 --> 00:53:07,329
around having a great time at dragoncon

1269
00:53:05,079 --> 00:53:09,098
and yes I hope I can be back there next

1270
00:53:07,329 --> 00:53:12,069
year why not it's been a long time since

1271
00:53:09,099 --> 00:53:14,109
I've been there six years in fact that's

1272
00:53:12,070 --> 00:53:16,599
too long it's such it's such a lot of

1273
00:53:14,108 --> 00:53:20,019
fun thank you to Heidi and thank you to

1274
00:53:16,599 --> 00:53:21,820
a maenad of course for your reports this

1275
00:53:20,019 --> 00:53:26,949
week now here's something that might

1276
00:53:21,820 --> 00:53:29,859
interest are fans of Pegasus origami

1277
00:53:26,949 --> 00:53:32,338
Pegasus the flying pig a model I

1278
00:53:29,858 --> 00:53:34,750
invented for James Randi way back in

1279
00:53:32,338 --> 00:53:37,509
2007 goodness me little piggies almost

1280
00:53:34,750 --> 00:53:42,010
10 years old well coming up in October

1281
00:53:37,510 --> 00:53:45,520
on saturday and sunday the 29th and 30th

1282
00:53:42,010 --> 00:53:48,130
of october folding australia 2016

1283

00:53:45,519 --> 00:53:51,130
origami convention and their special

1284
00:53:48,130 --> 00:53:53,530
guests will be a well-known folder from

1285
00:53:51,130 --> 00:53:55,570
melbourne Stephen Casey but I'm

1286
00:53:53,530 --> 00:53:57,820
delighted to say I'll be there and my

1287
00:53:55,570 --> 00:54:00,160
friend Gary Clark we did a video

1288
00:53:57,820 --> 00:54:03,490
together some years ago on origami a DVD

1289
00:54:00,159 --> 00:54:06,549
I'll be there to demonstrate how to fold

1290
00:54:03,489 --> 00:54:08,829
origami Pegasus and make lots of origami

1291
00:54:06,550 --> 00:54:11,109
for everybody I'll have copies of the

1292
00:54:08,829 --> 00:54:12,848
DVD for sale as well as my origami

1293
00:54:11,108 --> 00:54:16,269
jewelry and my friend Gary will be

1294
00:54:12,849 --> 00:54:19,869
demonstrating modular origami so if

1295
00:54:16,269 --> 00:54:22,239
you're a fan of origami and skepticism

1296
00:54:19,869 --> 00:54:24,730
and the flying pig why not check out

1297
00:54:22,239 --> 00:54:27,759

folding Australia 2016 origami

1298

00:54:24,730 --> 00:54:29,199

convention I can google that and I'll

1299

00:54:27,760 --> 00:54:31,450

certainly put a link in the show notes

1300

00:54:29,199 --> 00:54:35,108

for this week's episode hope to see you

1301

00:54:31,449 --> 00:54:37,750

there and if you do drop by um say hello

1302

00:54:35,108 --> 00:54:39,730

and i will fold you an origami pig why

1303

00:54:37,750 --> 00:54:43,420

not and for those people who have been

1304

00:54:39,730 --> 00:54:46,150

writing in asking yes Henry Edward more

1305

00:54:43,420 --> 00:54:48,700

to find in fact they're lying in the in

1306

00:54:46,150 --> 00:54:50,380

a sunbeam right now where are the other

1307

00:54:48,699 --> 00:54:52,539

day on the other side of the office a

1308

00:54:50,380 --> 00:54:54,869

little window and crack of Sun comes in

1309

00:54:52,539 --> 00:54:58,130

sunbeam comes in across the floor and of

1310

00:54:54,869 --> 00:55:00,619

course they live migrate to it

1311

00:54:58,130 --> 00:55:03,349

the Sun moves around all the earth moves

1312
00:55:00,619 --> 00:55:07,190
around you know what I mean the stream

1313
00:55:03,349 --> 00:55:09,259
of the beam of light moves so do they so

1314
00:55:07,190 --> 00:55:11,509
do they they're very smart little cats I

1315
00:55:09,259 --> 00:55:15,048
think but they've yet to really develop

1316
00:55:11,509 --> 00:55:17,539
their meowing sometimes you'll hear

1317
00:55:15,048 --> 00:55:19,608
little now from them but they've yet to

1318
00:55:17,539 --> 00:55:23,269
develop the really strong where's my

1319
00:55:19,608 --> 00:55:25,219
food meow meow I'm sure that's going and

1320
00:55:23,268 --> 00:55:27,258
just before I go don't forget the next

1321
00:55:25,219 --> 00:55:30,439
skeptics in the pub here in Sydney will

1322
00:55:27,259 --> 00:55:31,818
be a special skeptic zone live anyway

1323
00:55:30,440 --> 00:55:34,039
that's next Sydney skeptics in the pub

1324
00:55:31,818 --> 00:55:37,509
the sixth of October here in Sydney at

1325
00:55:34,039 --> 00:55:40,490
the crown hotel more information ww

1326
00:55:37,509 --> 00:55:42,409
skeptics calm today you but for this

1327
00:55:40,489 --> 00:55:48,949
week this is Richard Saunders signing

1328
00:55:42,409 --> 00:55:50,538
off from Sydney Australia you've been

1329
00:55:48,949 --> 00:55:54,078
listening to the skeptics own podcast

1330
00:55:50,539 --> 00:55:57,200
because of our website at wwc a petting

1331
00:55:54,079 --> 00:56:01,039
zoo TV for contacts an archive of all

1332
00:55:57,199 --> 00:56:03,348
episodes since 2008 and our online store

1333
00:56:01,039 --> 00:56:06,069
please support the skeptic zone by

1334
00:56:03,349 --> 00:56:09,079
following us on twitter at skeptic zone

1335
00:56:06,068 --> 00:56:12,139
liking us on facebook and leaving a

1336
00:56:09,079 --> 00:56:14,990
review on iTunes you can also show your

1337
00:56:12,139 --> 00:56:18,469
support by subscribing via paypal for as

1338
00:56:14,989 --> 00:56:20,808
little as 99 cents a week the skeptic

1339
00:56:18,469 --> 00:56:22,518
zone is an independent production the

1340

00:56:20,809 --> 00:56:24,619
views and opinions expressed on the

1341
00:56:22,518 --> 00:56:27,278
skeptic zone and not necessarily those

1342
00:56:24,619 --> 00:56:30,940
of Australian skeptically or any other

1343
00:56:27,278 --> 00:56:33,000
skeptical organization

1344
00:56:30,940 --> 00:56:33,000
you