

1
00:00:05,960 --> 00:00:13,690
welcome to the skeptic zone the podcast

2
00:00:09,109 --> 00:00:13,689
from Australia for science and reason

3
00:00:23,510 --> 00:00:29,940
hello and welcome to the skeptic zone

4
00:00:26,160 --> 00:00:32,390
episode number 361 Richard Saunders with

5
00:00:29,940 --> 00:00:34,829
you once again from Sydney Australia

6
00:00:32,390 --> 00:00:37,020
coming up on this week's show let's go

7
00:00:34,829 --> 00:00:39,299
to Pluto yeah always wanted to go to

8
00:00:37,020 --> 00:00:41,220
Pluto no I haven't well well why not

9
00:00:39,299 --> 00:00:44,219
have you seen the latest pictures all

10
00:00:41,219 --> 00:00:46,738
goodness me on Mars you want to go to

11
00:00:44,219 --> 00:00:49,409
Mars and look at the dust or the dirt

12
00:00:46,738 --> 00:00:51,719
Devils on Mars fairing that we can think

13
00:00:49,409 --> 00:00:53,819
about the Blood Moon all these topics

14
00:00:51,719 --> 00:00:56,189
will be coming up when i chat to dr.

15
00:00:53,820 --> 00:00:58,799
Pamela gay I've known Pamela now for

16
00:00:56,189 --> 00:01:01,920
many years it's always a particular

17
00:00:58,799 --> 00:01:03,719
delight to catch up with Pamela gay what

18
00:01:01,920 --> 00:01:07,230
an interesting scientist she is

19
00:01:03,719 --> 00:01:09,209
certainly a leader in her field and I

20
00:01:07,230 --> 00:01:11,939
really enjoyed chatting to Pamela and

21
00:01:09,209 --> 00:01:14,189
gay about all these Spacey type things

22
00:01:11,939 --> 00:01:15,709
so I hope you'll enjoy that interview

23
00:01:14,189 --> 00:01:17,759
coming up at the top of the show

24
00:01:15,709 --> 00:01:19,739
following that it's a week in science

25
00:01:17,760 --> 00:01:23,189
from the Royal Institution of Australia

26
00:01:19,739 --> 00:01:27,179
who i'm sure i've been known to stargaze

27
00:01:23,189 --> 00:01:29,250
from time to time w WR IA us ova you

28
00:01:27,180 --> 00:01:31,079
hello to all the good people there then

29

00:01:29,250 --> 00:01:33,180
we have a special report courtesy of

30
00:01:31,078 --> 00:01:34,978
russ bolts from the Brisbane skeptics

31
00:01:33,180 --> 00:01:37,799
society don't forget they are hosting

32
00:01:34,978 --> 00:01:40,530
the Australian skeptics annual

33
00:01:37,799 --> 00:01:43,170
convention just next month that's very

34
00:01:40,530 --> 00:01:44,939
exciting but Ross is going to tell us or

35
00:01:43,170 --> 00:01:48,329
he's going to read to us he's open

36
00:01:44,938 --> 00:01:51,658
letter to the sunshine coast daily after

37
00:01:48,328 --> 00:01:54,779
it published a very uncritical report

38
00:01:51,659 --> 00:01:56,250
dealing with the cancer so will read out

39
00:01:54,780 --> 00:01:58,710
that report with the help of Joe

40
00:01:56,250 --> 00:02:01,280
alabaster then you'll hear Russ Bulger's

41
00:01:58,709 --> 00:02:04,408
reply his open letter to the editor

42
00:02:01,280 --> 00:02:06,478
sunshine coast daily paper up there in

43
00:02:04,409 --> 00:02:09,090

Queensland then to round off the show

44

00:02:06,478 --> 00:02:11,150

it's Maynard's spooky action with some

45

00:02:09,090 --> 00:02:13,800

reports that he did a few weeks ago at

46

00:02:11,150 --> 00:02:15,599

National Science Week may not will

47

00:02:13,800 --> 00:02:18,510

interview more people doing scientific

48

00:02:15,599 --> 00:02:20,389

outreach to school students now great

49

00:02:18,509 --> 00:02:22,949

news for those people in Sydney

50

00:02:20,389 --> 00:02:25,139

especially I mean all around Australia

51

00:02:22,949 --> 00:02:26,819

as you'll hear soon but especially in

52

00:02:25,139 --> 00:02:30,329

Sydney I'd like to tell you about

53

00:02:26,819 --> 00:02:33,969

lunchtime skeptics in the pub with Susan

54

00:02:30,330 --> 00:02:37,030

Kovac now this is Sunday the 11th of

55

00:02:33,969 --> 00:02:41,680

over from 1pm till 6pm it's a whole

56

00:02:37,030 --> 00:02:43,960

afternoon of skepticism nomming and well

57

00:02:41,680 --> 00:02:46,390

if you have to you might have a drink

58
00:02:43,960 --> 00:02:48,780
you know I won't force you to now first

59
00:02:46,389 --> 00:02:52,179
people in the sydney head to meetup com

60
00:02:48,780 --> 00:02:54,759
search Australian skeptics and that's

61
00:02:52,180 --> 00:02:56,740
where you'll find the list of events

62
00:02:54,759 --> 00:02:59,530
that Australian skeptics have yes this

63
00:02:56,740 --> 00:03:02,620
is all part of susan goreck australian

64
00:02:59,530 --> 00:03:04,360
tour on the thirtieth of sep tember not

65
00:03:02,620 --> 00:03:05,950
far away she's going to be speaking for

66
00:03:04,360 --> 00:03:08,560
the more d alex skeptics down there in

67
00:03:05,949 --> 00:03:10,799
victoria on the first of october it will

68
00:03:08,560 --> 00:03:13,689
be for the Victorian skeptics indeed

69
00:03:10,800 --> 00:03:16,060
October the third and fourth launceston

70
00:03:13,689 --> 00:03:17,979
and Tasmania doing a workshop on the 6th

71
00:03:16,060 --> 00:03:20,590
of October should be in Canberra at the

72
00:03:17,979 --> 00:03:23,379
Australian National University here in

73
00:03:20,590 --> 00:03:25,599
Sydney on October eleventh at Stratton's

74
00:03:23,379 --> 00:03:28,090
hotel then she's heading up for Brisbane

75
00:03:25,599 --> 00:03:31,599
for the National Convention and then

76
00:03:28,090 --> 00:03:35,530
Hong Kong goodness me she's going to

77
00:03:31,599 --> 00:03:36,789
need a long lie down after all this for

78
00:03:35,530 --> 00:03:38,739
more details check with your local

79
00:03:36,789 --> 00:03:40,929
skeptics or go to meetup.com and search

80
00:03:38,739 --> 00:03:42,189
for Australian skeptics now before we

81
00:03:40,930 --> 00:03:44,409
get stuck into the show an update on

82
00:03:42,189 --> 00:03:47,620
Fred the cat who went to the vet on

83
00:03:44,409 --> 00:03:50,319
Friday for a tooth clean or a teeth

84
00:03:47,620 --> 00:03:52,509
cleaned which meant he had to go into

85
00:03:50,319 --> 00:03:57,370
general anaesthetic and for a cat 15

86

00:03:52,509 --> 00:03:58,929
that's no small undertaking but he came

87
00:03:57,370 --> 00:04:01,239
through very well he's been a bit groggy

88
00:03:58,930 --> 00:04:02,860
the last few days sort of sleeping a lot

89
00:04:01,239 --> 00:04:05,530
and walking a bit funny around the house

90
00:04:02,860 --> 00:04:07,480
but he's on the mend and the vet said

91
00:04:05,530 --> 00:04:10,449
he's doing pretty well freak at his age

92
00:04:07,479 --> 00:04:11,979
spread the skeptic zone cat he's not

93
00:04:10,449 --> 00:04:13,750
here right now he's just in the next

94
00:04:11,979 --> 00:04:16,930
room having a bit of a sleep but now

95
00:04:13,750 --> 00:04:20,470
it's time for me to run downstairs open

96
00:04:16,930 --> 00:04:23,019
the key jar and have some of my mother's

97
00:04:20,470 --> 00:04:26,320
famous peanut butter cookies she's been

98
00:04:23,019 --> 00:04:29,699
making since the late 60s oh oh boy

99
00:04:26,319 --> 00:04:32,349
they're good they are particularly good

100
00:04:29,699 --> 00:04:34,990

mothers peanut butter cookies well I'm

101

00:04:32,350 --> 00:04:39,450

enjoying two or three or six of those I

102

00:04:34,990 --> 00:04:39,449

hope you enjoy the skeptic samples

103

00:04:40,980 --> 00:04:43,009

Oh

104

00:05:00,779 --> 00:05:06,668

and joining me now all the way from

105

00:05:04,050 --> 00:05:08,168

edwardsville which is sort of in the

106

00:05:06,668 --> 00:05:11,948

middle of the United States here in

107

00:05:08,168 --> 00:05:15,370

Illinois it's my dear friend dr. Pamela

108

00:05:11,949 --> 00:05:17,439

gay hello Pamela I Richard how are you

109

00:05:15,370 --> 00:05:19,660

doing today I'm doing really well apart

110

00:05:17,439 --> 00:05:22,449

from the old Tut of the Sydney hay fever

111

00:05:19,660 --> 00:05:24,960

which comes around somehow annually

112

00:05:22,449 --> 00:05:27,788

around springtime strangely enough ah

113

00:05:24,959 --> 00:05:29,680

well it could be worse here in Illinois

114

00:05:27,788 --> 00:05:32,379

we have hay fever in the spring and we

115
00:05:29,680 --> 00:05:35,500
have it in fall and right now we're into

116
00:05:32,379 --> 00:05:38,019
the tree and goldenrod pollen season so

117
00:05:35,500 --> 00:05:39,728
everything is yellow and red and it's

118
00:05:38,019 --> 00:05:43,538
not just leaves that are turning red

119
00:05:39,728 --> 00:05:46,508
it's also the eyes and the skin sounds

120
00:05:43,538 --> 00:05:47,800
delightful it sounds delightful Pamela

121
00:05:46,509 --> 00:05:49,300
it's been a little while since you've

122
00:05:47,800 --> 00:05:52,000
been on the skeptic zone it's always a

123
00:05:49,300 --> 00:05:53,710
pleasure to catch up with you so much to

124
00:05:52,000 --> 00:05:55,779
talk about in the world of science and

125
00:05:53,709 --> 00:05:58,810
astronomy at the moment let's kick off

126
00:05:55,779 --> 00:06:01,689
with the the not so big elephant in the

127
00:05:58,810 --> 00:06:04,180
room the little Pluto little Pluto how

128
00:06:01,689 --> 00:06:06,098
exciting was that and I noticed over the

129

00:06:04,180 --> 00:06:08,228

last week there are new images and

130

00:06:06,098 --> 00:06:11,110

animations coming back from Pluto you

131

00:06:08,228 --> 00:06:14,439

must have been beside yourself well it's

132

00:06:11,110 --> 00:06:16,750

so yeah we are recording this on sep

133

00:06:14,439 --> 00:06:19,418

tember 19th which is a saturday and just

134

00:06:16,750 --> 00:06:23,500

yesterday September 18th we had a

135

00:06:19,418 --> 00:06:25,299

release of a new set of images on the

136

00:06:23,500 --> 00:06:26,978

public site now these aren't science

137

00:06:25,300 --> 00:06:30,848

quality images they are giving the

138

00:06:26,978 --> 00:06:33,339

science team nine months to a year to go

139

00:06:30,848 --> 00:06:35,469

through process the data really science

140

00:06:33,339 --> 00:06:38,379

before they release the raw images but

141

00:06:35,470 --> 00:06:42,789

they released a bunch of JPEGs yesterday

142

00:06:38,379 --> 00:06:45,459

allowing us to flip through and look at

143

00:06:42,788 --> 00:06:48,848
the edge of Pluto is the Sun shone

144
00:06:45,459 --> 00:06:50,829
through the atmosphere and basically it

145
00:06:48,848 --> 00:06:54,129
convinced me this is a world that defies

146
00:06:50,829 --> 00:06:56,740
everything I ever learned about planets

147
00:06:54,129 --> 00:06:58,478
it's it's not so much that we sent a

148
00:06:56,740 --> 00:07:01,269
ship out to explore it which is awesome

149
00:06:58,478 --> 00:07:04,240
so we sent a ship out to explore it and

150
00:07:01,269 --> 00:07:06,129
what we found makes no sense and this is

151
00:07:04,240 --> 00:07:08,439
true not just a Pluto but also if the

152
00:07:06,129 --> 00:07:10,750
little asteroid ceres a another

153
00:07:08,439 --> 00:07:12,670
dwarf planet in our solar system it's

154
00:07:10,750 --> 00:07:16,569
the old expression and it really hit

155
00:07:12,670 --> 00:07:19,150
home lately with space you expect the

156
00:07:16,569 --> 00:07:21,129
unexpected and it doesn't mean you

157
00:07:19,149 --> 00:07:23,019

expect to see something that you've seen

158

00:07:21,129 --> 00:07:24,850

before and link oh that's odd it should

159

00:07:23,019 --> 00:07:27,609

be on that planet you see you you get

160

00:07:24,850 --> 00:07:29,470

things that you you have to look twice

161

00:07:27,610 --> 00:07:33,670

and then take a cold shower and have

162

00:07:29,470 --> 00:07:36,610

another coffee and think what what this

163

00:07:33,670 --> 00:07:39,069

whole idea of the different geology on

164

00:07:36,610 --> 00:07:41,410

Pluto and the atmosphere itself that

165

00:07:39,069 --> 00:07:43,180

took me by surprise now I'm not over an

166

00:07:41,410 --> 00:07:44,830

astronomer of course but still I have a

167

00:07:43,180 --> 00:07:47,350

basic understanding of these how these

168

00:07:44,829 --> 00:07:49,359

things work and I seriously expected

169

00:07:47,350 --> 00:07:50,590

something more or less like our moon to

170

00:07:49,360 --> 00:07:53,889

be up there but it's not like that at

171

00:07:50,589 --> 00:07:56,439

all well I was I wasn't so much

172
00:07:53,889 --> 00:07:59,649
expecting the moon because we knew it

173
00:07:56,439 --> 00:08:02,680
was ice we did have indications that it

174
00:07:59,649 --> 00:08:04,989
has an atmosphere that is basically

175
00:08:02,680 --> 00:08:07,449
created from when it's closer to the Sun

176
00:08:04,990 --> 00:08:10,930
it heats up a little bit more as things

177
00:08:07,449 --> 00:08:13,629
freeze things sublimate out when it's

178
00:08:10,930 --> 00:08:15,939
further from the Sun things freeze and

179
00:08:13,629 --> 00:08:19,180
they settle back down to the surface so

180
00:08:15,939 --> 00:08:21,910
we knew that that was going on but the

181
00:08:19,180 --> 00:08:24,730
other thing that has thrown is it was

182
00:08:21,910 --> 00:08:27,790
back at the end of the 1990s when Pluto

183
00:08:24,730 --> 00:08:30,879
was closest to the Sun and it's a few

184
00:08:27,790 --> 00:08:33,310
years past then and we were expecting

185
00:08:30,879 --> 00:08:36,909
its atmosphere to be a whole lot less

186
00:08:33,309 --> 00:08:40,149
thick and one of the other really

187
00:08:36,909 --> 00:08:43,209
baffling things is when you look at the

188
00:08:40,149 --> 00:08:45,789
photos of Pluto it has this feature that

189
00:08:43,210 --> 00:08:50,500
clearly looks like a giant white hard on

190
00:08:45,789 --> 00:08:53,139
a beautiful body surface and that big

191
00:08:50,500 --> 00:08:55,839
White Hart is also where a lot of the

192
00:08:53,139 --> 00:08:58,629
carbon-based gases are coming from so we

193
00:08:55,839 --> 00:09:02,050
see carbon dioxide coming out of the

194
00:08:58,629 --> 00:09:03,850
heart of Pluto which I we have no idea

195
00:09:02,049 --> 00:09:05,469
how to explain that one no idea at all

196
00:09:03,850 --> 00:09:07,060
it sounds like it's going to be a song

197
00:09:05,470 --> 00:09:09,310
in the future you know the kids are the

198
00:09:07,059 --> 00:09:10,989
next century you'll be singing about the

199
00:09:09,309 --> 00:09:14,139
great heart of Pluto maybe in this

200

00:09:10,990 --> 00:09:16,060
century I I wouldn't be surprised if

201
00:09:14,139 --> 00:09:18,669
someone's already written a poem haiku

202
00:09:16,059 --> 00:09:21,519
or meme about it yes we might have

203
00:09:18,669 --> 00:09:23,919
inspired someone to do it today yes that

204
00:09:21,519 --> 00:09:28,809
sending your song now the great heart of

205
00:09:23,919 --> 00:09:30,279
Pluto the thing that gets me about all

206
00:09:28,809 --> 00:09:32,769
this coverages you keep hearing

207
00:09:30,279 --> 00:09:36,309
journalists say things like science our

208
00:09:32,769 --> 00:09:39,669
scientists are baffled by Pluto and they

209
00:09:36,309 --> 00:09:43,149
imply that we don't understand things

210
00:09:39,669 --> 00:09:44,919
because we're dumb and no it's not that

211
00:09:43,149 --> 00:09:48,429
weird ahmud that we're seeing something

212
00:09:44,919 --> 00:09:50,829
for the very first time and our limited

213
00:09:48,429 --> 00:09:52,750
human imaginations didn't prepare us for

214
00:09:50,830 --> 00:09:55,690

the full diversity of what the solar

215

00:09:52,750 --> 00:09:57,669
system has to offer and so it's not that

216

00:09:55,690 --> 00:10:01,510
weird um it's that apparently our

217

00:09:57,669 --> 00:10:04,479
imaginings failed us and now we're

218

00:10:01,509 --> 00:10:06,519
this exciting time of well the solar

219

00:10:04,480 --> 00:10:08,680
system gave us something unexpected and

220

00:10:06,519 --> 00:10:10,929
now we have the privilege of trying to

221

00:10:08,679 --> 00:10:12,879
understand it yes scientists a baffled

222

00:10:10,929 --> 00:10:14,979
indeed well its scientists be baffled it

223

00:10:12,879 --> 00:10:17,289
means there's another mystery for them

224

00:10:14,980 --> 00:10:19,659
all to explore an unwrapped and uncover

225

00:10:17,289 --> 00:10:22,299
and bring us more wonders I do like

226

00:10:19,659 --> 00:10:24,850
those shots though that I saw it I guess

227

00:10:22,299 --> 00:10:26,469
he saw it to an animation of the the

228

00:10:24,850 --> 00:10:28,659
probe passing by and you can see the

229
00:10:26,470 --> 00:10:33,009
planet sort of moving through space

230
00:10:28,659 --> 00:10:36,100
that's quite stunning it's not something

231
00:10:33,009 --> 00:10:38,970
that we're used to being able to see the

232
00:10:36,100 --> 00:10:42,790
the whole concept of the earth rotating

233
00:10:38,970 --> 00:10:45,550
we experience that every single day we

234
00:10:42,789 --> 00:10:47,620
sometimes we'll see snapshots of Mars

235
00:10:45,549 --> 00:10:49,659
rotating and Mars is similar enough to

236
00:10:47,620 --> 00:10:53,710
earth that were used to thinking of that

237
00:10:49,659 --> 00:10:56,620
but here is the planet got flown past by

238
00:10:53,710 --> 00:10:58,870
our space probe we saw it rotating we

239
00:10:56,620 --> 00:11:02,259
saw the Sun coming into view we saw all

240
00:10:58,870 --> 00:11:06,220
of these angles change and it was like a

241
00:11:02,259 --> 00:11:12,370
Star Trek JJ Abrams has reduced it but

242
00:11:06,220 --> 00:11:15,550
there was less lens flare it's it was

243
00:11:12,370 --> 00:11:18,159
one of those truly amazing the science

244
00:11:15,549 --> 00:11:20,079
was maximized by that opportunity that

245
00:11:18,159 --> 00:11:22,659
the sunlight just passing through that

246
00:11:20,080 --> 00:11:24,879
atmosphere and it gave us these fabulous

247
00:11:22,659 --> 00:11:27,459
images and this completely new

248
00:11:24,879 --> 00:11:30,309
perspective on our solar system one of

249
00:11:27,460 --> 00:11:32,230
the things that it's hard to judge

250
00:11:30,309 --> 00:11:35,359
because I don't know enough about these

251
00:11:32,230 --> 00:11:38,269
things to judge properly of course

252
00:11:35,360 --> 00:11:40,579
but how well-lit Pluto is is that

253
00:11:38,269 --> 00:11:42,259
because it is reasonably well lit all

254
00:11:40,578 --> 00:11:43,750
the way out there or is that because

255
00:11:42,259 --> 00:11:46,759
that's what the cameras were

256
00:11:43,750 --> 00:11:48,980
compensating for it's a little bit of

257

00:11:46,759 --> 00:11:50,689
both there's actually this thing called

258
00:11:48,980 --> 00:11:52,940
Pluto time and there's a website that

259
00:11:50,690 --> 00:11:55,760
you can go to just Google Pluto time and

260
00:11:52,940 --> 00:12:00,620
it will tell you for your location at

261
00:11:55,759 --> 00:12:03,409
that day in time of the year a what time

262
00:12:00,620 --> 00:12:07,610
the brightness outside at your location

263
00:12:03,409 --> 00:12:10,519
is the same brightness as Pluto and its

264
00:12:07,610 --> 00:12:14,899
actually remarkably bright so you can go

265
00:12:10,519 --> 00:12:16,850
outside often just a few minutes to a

266
00:12:14,899 --> 00:12:21,708
few tens of minutes depending on where

267
00:12:16,850 --> 00:12:24,290
you are after sunset and in that gray

268
00:12:21,708 --> 00:12:27,018
darkness after the golden moment has

269
00:12:24,289 --> 00:12:30,078
ended in that gray darkness when you can

270
00:12:27,019 --> 00:12:32,299
still look around and see things you're

271
00:12:30,078 --> 00:12:33,919

having a moment not unlike what it's

272

00:12:32,299 --> 00:12:36,609
like at Pluto and that's just an

273

00:12:33,919 --> 00:12:39,229
effective the Sun is that bright and

274

00:12:36,610 --> 00:12:41,480
even though the brightness drops off as

275

00:12:39,230 --> 00:12:43,820
the square of the distance which is a

276

00:12:41,480 --> 00:12:45,980
fancy way of saying that when you're two

277

00:12:43,820 --> 00:12:50,480
times further away it's four times

278

00:12:45,980 --> 00:12:53,690
fainter three times nine times um even

279

00:12:50,480 --> 00:12:56,930
though you have that going on you can

280

00:12:53,690 --> 00:12:58,490
still see quite nicely that's great it's

281

00:12:56,929 --> 00:13:00,439
good to know for the future people off

282

00:12:58,490 --> 00:13:02,480
to Pluto if you're listening to the

283

00:13:00,440 --> 00:13:03,860
skeptic zone on the ancient archives and

284

00:13:02,480 --> 00:13:06,709
you're on your way to Prudhoe be rest

285

00:13:03,860 --> 00:13:08,930
assured Pamela gay said way back in 2015

286
00:13:06,708 --> 00:13:11,778
that you should be able to see see your

287
00:13:08,929 --> 00:13:15,439
way around well it is only about four

288
00:13:11,778 --> 00:13:17,720
and a half light-hours away when we're

289
00:13:15,440 --> 00:13:22,040
on average when we're roughly on the

290
00:13:17,720 --> 00:13:23,899
same side is the son of the Sun four and

291
00:13:22,039 --> 00:13:27,379
a half to five and a half hours way so

292
00:13:23,899 --> 00:13:30,129
it will have heard this podcast if

293
00:13:27,379 --> 00:13:32,570
someone sends it out over the radio

294
00:13:30,129 --> 00:13:34,730
that's good to know Pam roads it's good

295
00:13:32,570 --> 00:13:36,470
to know well let's think about something

296
00:13:34,730 --> 00:13:38,180
a little closer to home and they've

297
00:13:36,470 --> 00:13:40,430
pluto's down the end of the block let's

298
00:13:38,179 --> 00:13:42,198
go halfway or less than half way of

299
00:13:40,429 --> 00:13:44,479
course let's visit Mars for a moment

300
00:13:42,198 --> 00:13:46,818
what's happening on Mars Pamela what's

301
00:13:44,480 --> 00:13:49,100
happening there at the moment well Mars

302
00:13:46,818 --> 00:13:54,079
is this happy little were

303
00:13:49,100 --> 00:13:56,570
old that we keep sending robots to so

304
00:13:54,080 --> 00:13:57,970
someday in the future explorers are

305
00:13:56,570 --> 00:14:02,300
actually going to be able to do

306
00:13:57,970 --> 00:14:05,870
archaeological digs and recover mars

307
00:14:02,299 --> 00:14:09,229
phoenix from the ice and find spirits

308
00:14:05,870 --> 00:14:12,169
stuck in the sand and currently we have

309
00:14:09,230 --> 00:14:15,889
curiosity out well getting curious about

310
00:14:12,169 --> 00:14:20,599
the rocks and doing all sorts of samples

311
00:14:15,889 --> 00:14:24,289
and where it is is a beautiful carved

312
00:14:20,600 --> 00:14:26,659
out preserved landscape in Gale Crater

313
00:14:24,289 --> 00:14:30,860
that once upon a time probably had water

314

00:14:26,659 --> 00:14:34,819
and what's interesting is as we look

315
00:14:30,860 --> 00:14:37,730
toward the future and the 2020 rover we

316
00:14:34,820 --> 00:14:41,510
are looking to find someplace that's the

317
00:14:37,730 --> 00:14:43,490
opposite of that to go exploring next so

318
00:14:41,509 --> 00:14:47,090
with the Mars 2020 rover what we're

319
00:14:43,490 --> 00:14:49,700
looking to do is find someplace that is

320
00:14:47,090 --> 00:14:52,280
constantly having what's exposed to the

321
00:14:49,700 --> 00:14:54,950
surface renewed so just like when you go

322
00:14:52,279 --> 00:14:57,889
to the chalk cliffs of Dover you can

323
00:14:54,950 --> 00:14:59,840
find dinosaur bones as the cliff decays

324
00:14:57,889 --> 00:15:03,169
away revealing layer upon layer of

325
00:14:59,840 --> 00:15:06,139
fossils if there are fossils to be found

326
00:15:03,169 --> 00:15:08,929
on Mars perhaps the place to go looking

327
00:15:06,139 --> 00:15:12,620
is someplace that has the study erosion

328
00:15:08,929 --> 00:15:16,009

so we're working over at cosmic West to

329

00:15:12,620 --> 00:15:18,440

look through images to find the most

330

00:15:16,009 --> 00:15:20,509

weathered surfaces the places with the

331

00:15:18,440 --> 00:15:23,900

moving sand dunes the places that are

332

00:15:20,509 --> 00:15:25,700

well changing so rapidly but not a

333

00:15:23,899 --> 00:15:27,769

crater is left standing because

334

00:15:25,700 --> 00:15:30,379

everything has literally been blown away

335

00:15:27,769 --> 00:15:33,350

that's that's amazing because that's one

336

00:15:30,379 --> 00:15:35,899

thing that struck me over the last 10 or

337

00:15:33,350 --> 00:15:38,149

so years about Mars when I've been

338

00:15:35,899 --> 00:15:42,139

looking at the images and hearing about

339

00:15:38,149 --> 00:15:44,809

it is the dramatic weather Mars has in

340

00:15:42,139 --> 00:15:46,220

regards to wind storms and dust devils

341

00:15:44,809 --> 00:15:48,589

and things like that it's it's quite

342

00:15:46,220 --> 00:15:49,930

something isn't it yeah there is

343
00:15:48,590 --> 00:15:53,680
actually photos that came out just

344
00:15:49,929 --> 00:15:56,839
yesterday of dirt Devils on Mars and

345
00:15:53,679 --> 00:15:58,309
it's amazing how much they look like the

346
00:15:56,840 --> 00:16:00,379
dirt Devils that we see out in the

347
00:15:58,309 --> 00:16:02,459
Painted Desert in the American Southwest

348
00:16:00,379 --> 00:16:06,570
where you have this

349
00:16:02,460 --> 00:16:08,790
red and orange sandstone surfaces and as

350
00:16:06,570 --> 00:16:11,640
the fine particulate get carried up into

351
00:16:08,789 --> 00:16:13,349
the admittedly much thinner on Mars but

352
00:16:11,639 --> 00:16:17,639
it carried up into the atmosphere they

353
00:16:13,350 --> 00:16:20,310
appears these white columns and looking

354
00:16:17,639 --> 00:16:22,439
down from the spacecraft at even the

355
00:16:20,309 --> 00:16:26,669
slightest angle you'll see these very

356
00:16:22,440 --> 00:16:28,860
thin wispy white columns that it might

357
00:16:26,669 --> 00:16:31,799
have been drawn by a child that hasn't

358
00:16:28,860 --> 00:16:33,870
actually seen a real tornado just

359
00:16:31,799 --> 00:16:35,969
tracking their way across the surface

360
00:16:33,870 --> 00:16:37,710
and often leaving these dark streaks

361
00:16:35,970 --> 00:16:40,350
where they've revealed slightly deeper

362
00:16:37,710 --> 00:16:43,110
down dirt well if that's been going on

363
00:16:40,350 --> 00:16:46,200
for presumably millions of years that's

364
00:16:43,110 --> 00:16:48,950
really um really shaped the surface of

365
00:16:46,200 --> 00:16:52,020
Mars and a dramatic sense hasn't it it

366
00:16:48,950 --> 00:16:54,350
has and what's interesting is just like

367
00:16:52,019 --> 00:16:57,299
here here on earth we don't see

368
00:16:54,350 --> 00:17:00,029
tornadoes on a regular basis everywhere

369
00:16:57,299 --> 00:17:02,549
on the planet where you are in Australia

370
00:17:00,029 --> 00:17:05,490
I I doubt Sydney's these very many

371

00:17:02,549 --> 00:17:08,159
tornadoes if any not many as it turns

372
00:17:05,490 --> 00:17:10,440
out that what once in a while in fact

373
00:17:08,160 --> 00:17:12,690
and I'll say it'll make the news a mini

374
00:17:10,440 --> 00:17:14,549
tornado hit the suburb of so-and-so and

375
00:17:12,690 --> 00:17:16,019
so-and-so but that's that's a once in a

376
00:17:14,549 --> 00:17:20,009
ten-year event or something like that

377
00:17:16,019 --> 00:17:22,470
right where is where I am we test our

378
00:17:20,009 --> 00:17:24,869
tornado signals once a month because we

379
00:17:22,470 --> 00:17:27,569
know there's going to be tornado season

380
00:17:24,869 --> 00:17:31,939
where those alarms go off pretty every

381
00:17:27,569 --> 00:17:34,439
day and so the shape of the geology

382
00:17:31,940 --> 00:17:36,840
literally shapes the atmosphere and

383
00:17:34,440 --> 00:17:39,930
shapes the thermal properties that

384
00:17:36,839 --> 00:17:42,569
create these conditions that are perfect

385
00:17:39,930 --> 00:17:44,940

for dust devils perfect for tornadoes

386

00:17:42,569 --> 00:17:48,659

perfect for all of these cyclical storms

387

00:17:44,940 --> 00:17:51,720

and not all of Mars has these dirt

388

00:17:48,660 --> 00:17:53,400

devils so as we look at different areas

389

00:17:51,720 --> 00:17:56,309

it's like here is the region of the

390

00:17:53,400 --> 00:17:58,290

black squiggly things on the surface and

391

00:17:56,309 --> 00:18:01,019

that's the area we're refining these

392

00:17:58,289 --> 00:18:04,470

these dirt devils and this is the region

393

00:18:01,019 --> 00:18:07,559

where things are filled with craters and

394

00:18:04,470 --> 00:18:09,930

it still looks like this ancient surface

395

00:18:07,559 --> 00:18:12,779

more like the moon and so different

396

00:18:09,930 --> 00:18:14,789

parts of Mars look dramatically

397

00:18:12,779 --> 00:18:16,450

different and this is one of those

398

00:18:14,789 --> 00:18:19,389

reasons why

399

00:18:16,450 --> 00:18:22,809

we need help mapping out Mars and and so

400
00:18:19,390 --> 00:18:27,250
if you go to cosmic west org I'm doing

401
00:18:22,809 --> 00:18:29,919
moon mappers we've gathered highly

402
00:18:27,250 --> 00:18:31,569
detailed images of this large region

403
00:18:29,920 --> 00:18:34,320
where we know there is a lot of erosion

404
00:18:31,569 --> 00:18:37,750
going on but some parts of the region

405
00:18:34,319 --> 00:18:40,899
have much more erosion much more wind

406
00:18:37,750 --> 00:18:43,299
much more weather and going on than

407
00:18:40,900 --> 00:18:44,580
other regions some of them you do get

408
00:18:43,299 --> 00:18:46,930
this image where it's like well

409
00:18:44,579 --> 00:18:50,470
expletive there are a bunch of craters

410
00:18:46,930 --> 00:18:53,200
here this area is well sheltered well

411
00:18:50,470 --> 00:18:55,360
preserved and that's not where we want

412
00:18:53,200 --> 00:18:57,279
to go fossil hunting it fossil hunting

413
00:18:55,359 --> 00:18:58,750
is far too strong of a word it's not

414
00:18:57,279 --> 00:19:00,460
where we want to go looking for the

415
00:18:58,750 --> 00:19:05,079
organic signatures of potential

416
00:19:00,460 --> 00:19:06,789
historical life so but what's cool is we

417
00:19:05,079 --> 00:19:09,369
are finally starting to talk about

418
00:19:06,789 --> 00:19:11,619
looking for biological signatures oh

419
00:19:09,369 --> 00:19:14,049
it's too good to be true Pamela fossil

420
00:19:11,619 --> 00:19:17,649
hunting on Mars get your tickets here I

421
00:19:14,049 --> 00:19:19,599
would I've been fossil hunting on this

422
00:19:17,650 --> 00:19:22,690
planet the prospect of doing it on

423
00:19:19,599 --> 00:19:25,179
another planet is thrilling let's just

424
00:19:22,690 --> 00:19:30,539
leave it let's leave it there pellet and

425
00:19:25,180 --> 00:19:33,730
Ozzie I want a t-shirt I want to t-shirt

426
00:19:30,539 --> 00:19:36,659
it would be so much harder because here

427
00:19:33,730 --> 00:19:39,009
on earth you can go fossil hunting and

428

00:19:36,660 --> 00:19:42,940
there are places like sunspot

429
00:19:39,009 --> 00:19:46,690
Observatory out in New Mexico it's the

430
00:19:42,940 --> 00:19:47,920
same mountain that patchy that started

431
00:19:46,690 --> 00:19:50,529
the saloon general sky surveys

432
00:19:47,920 --> 00:19:52,990
telescopes on its Apache point out and

433
00:19:50,529 --> 00:19:56,049
you can just walk along and pick up a

434
00:19:52,990 --> 00:20:01,450
rock and there's like oh I found a leaf

435
00:19:56,049 --> 00:20:03,730
from a long time ago on Mars that will

436
00:20:01,450 --> 00:20:06,840
never be the case it's me tell but

437
00:20:03,730 --> 00:20:10,329
there's the possibility of

438
00:20:06,839 --> 00:20:12,099
microorganisms of bacteria um it isn't

439
00:20:10,329 --> 00:20:14,769
to say that it's a definite it's just

440
00:20:12,099 --> 00:20:18,759
say there could have been a time in the

441
00:20:14,769 --> 00:20:20,710
past when Mars was wet that life could

442
00:20:18,759 --> 00:20:23,589

have existed and there are those who

443

00:20:20,710 --> 00:20:26,950

believe that if you dig down deep we may

444

00:20:23,589 --> 00:20:30,490

still find small microbes that leave

445

00:20:26,950 --> 00:20:33,880

very pathetic fossils there may

446

00:20:30,490 --> 00:20:38,470

still be pathetic life living a pathetic

447

00:20:33,880 --> 00:20:41,410

existence in the salty briny liquid deep

448

00:20:38,470 --> 00:20:43,450

down on Mars now speaking of Cosmo quiz

449

00:20:41,410 --> 00:20:46,360

Pamela can you for our listeners who

450

00:20:43,450 --> 00:20:48,910

don't who may not know can you give us a

451

00:20:46,359 --> 00:20:51,159

brief overview of that are about exactly

452

00:20:48,910 --> 00:20:56,110

what is Cosmo quest what is it all about

453

00:20:51,160 --> 00:20:59,279

our core mission is to invite the public

454

00:20:56,109 --> 00:21:02,619

to come and be researchers with us and

455

00:20:59,279 --> 00:21:04,329

not just ask them to do stuff there

456

00:21:02,619 --> 00:21:07,629

there's lots of sites that do that

457
00:21:04,329 --> 00:21:10,389
crowdsourcing work but we want to treat

458
00:21:07,630 --> 00:21:11,920
art our citizen science colleagues the

459
00:21:10,390 --> 00:21:14,650
same way we treat our students and our

460
00:21:11,920 --> 00:21:16,600
peers so we work to provide online

461
00:21:14,650 --> 00:21:19,269
seminars we work to provide online

462
00:21:16,599 --> 00:21:22,269
classes and activities and forums and

463
00:21:19,269 --> 00:21:23,950
ways that you can do all the things you

464
00:21:22,269 --> 00:21:26,859
would do in a research center in a

465
00:21:23,950 --> 00:21:29,710
university from watching planetarium

466
00:21:26,859 --> 00:21:32,979
shows admittedly on YouTube but we do

467
00:21:29,710 --> 00:21:35,470
produce planetarium shows to being able

468
00:21:32,980 --> 00:21:38,679
to vicariously attend conferences

469
00:21:35,470 --> 00:21:41,110
through all of our live coverage so we

470
00:21:38,679 --> 00:21:44,500
have a variety of projects and invite

471
00:21:41,109 --> 00:21:46,599
you to come in and help us work with a

472
00:21:44,500 --> 00:21:50,170
variety of NASA missions to map out the

473
00:21:46,599 --> 00:21:51,909
moon and Vesta Mars and Mercury and then

474
00:21:50,170 --> 00:21:54,220
we have all of our different seminar

475
00:21:51,910 --> 00:21:57,308
series and we will be starting a new

476
00:21:54,220 --> 00:21:59,890
round of classes coming up probably late

477
00:21:57,308 --> 00:22:02,139
November so this is a great way for

478
00:21:59,890 --> 00:22:05,020
people all around the world to really

479
00:22:02,140 --> 00:22:09,210
take an active part in exploring our

480
00:22:05,019 --> 00:22:11,799
solar system exactly we are the only

481
00:22:09,210 --> 00:22:14,710
citizen science project and astronomy to

482
00:22:11,799 --> 00:22:17,829
actually do publish research science

483
00:22:14,710 --> 00:22:19,480
with planetary Research there's lots of

484
00:22:17,829 --> 00:22:22,919
projects out there but we're the first

485

00:22:19,480 --> 00:22:25,360
one that actually get results that

486
00:22:22,920 --> 00:22:27,789
because we treat people like our

487
00:22:25,359 --> 00:22:30,369
students and our peers were the first

488
00:22:27,789 --> 00:22:33,279
ones to get these citizen science

489
00:22:30,369 --> 00:22:35,919
colleagues to the point that their data

490
00:22:33,279 --> 00:22:37,720
is allowing us to have a new

491
00:22:35,920 --> 00:22:40,630
understanding of these other worlds

492
00:22:37,720 --> 00:22:44,140
that's fantastic what's that URL again

493
00:22:40,630 --> 00:22:47,740
please Pamela it is cosmic West

494
00:22:44,140 --> 00:22:50,860
got Arg easy to remember folks Cosmo

495
00:22:47,740 --> 00:22:52,569
quest org now before we go Pamela let's

496
00:22:50,859 --> 00:22:54,759
have a chat about the end of the world

497
00:22:52,569 --> 00:22:57,639
it's very sad I mean we've had a good

498
00:22:54,759 --> 00:22:59,859
run I know humanity's only been here for

499
00:22:57,640 --> 00:23:02,170

a little blip in the whole scale of

500

00:22:59,859 --> 00:23:05,019

things but I'm very I was very sad to

501

00:23:02,170 --> 00:23:06,730

see on facebook or was it Twitter or

502

00:23:05,019 --> 00:23:08,019

somewhere people telling me but the

503

00:23:06,730 --> 00:23:09,430

world's coming to an end pretty soon

504

00:23:08,019 --> 00:23:14,470

with something called a Blood Moon

505

00:23:09,430 --> 00:23:18,840

should I be worried no not at all it's

506

00:23:14,470 --> 00:23:23,350

it's really amusing to me that that the

507

00:23:18,839 --> 00:23:28,539

upcoming a lunar eclipse has such a

508

00:23:23,349 --> 00:23:32,679

horrific name so our sep tember full

509

00:23:28,539 --> 00:23:36,549

moon uh this month on September 27th

510

00:23:32,680 --> 00:23:39,009

28th for those of you who are in Western

511

00:23:36,549 --> 00:23:43,419

Europe western Africa anywhere in South

512

00:23:39,009 --> 00:23:47,470

America or eastern North America you're

513

00:23:43,420 --> 00:23:50,590

going to be able to look up and see our

514
00:23:47,470 --> 00:23:53,740
moon pass into the earth shadow and I

515
00:23:50,589 --> 00:23:58,359
either in full or in part go from its

516
00:23:53,740 --> 00:24:01,000
bright shining self to being probably in

517
00:23:58,359 --> 00:24:02,949
all reality a dark bloody color because

518
00:24:01,000 --> 00:24:05,289
of all of the volcanic activity that's

519
00:24:02,950 --> 00:24:07,029
been going on lately but the name Blood

520
00:24:05,289 --> 00:24:09,839
Moon actually just comes from the time

521
00:24:07,029 --> 00:24:12,279
of year so it's a strange confluence of

522
00:24:09,839 --> 00:24:14,679
because volcanoes the eclipse will

523
00:24:12,279 --> 00:24:17,230
probably be very red because of timing

524
00:24:14,680 --> 00:24:21,549
it's called a Blood Moon ah that's

525
00:24:17,230 --> 00:24:24,339
interesting it's a we normally don't

526
00:24:21,549 --> 00:24:26,409
think that all this volcanic action is

527
00:24:24,339 --> 00:24:28,990
is so good and people certainly have a

528
00:24:26,410 --> 00:24:31,060
bad time if they live near one but but

529
00:24:28,990 --> 00:24:32,950
there's the the flip side is we get some

530
00:24:31,059 --> 00:24:34,599
interesting atmospheric effects of

531
00:24:32,950 --> 00:24:38,140
course well planes don't like it either

532
00:24:34,599 --> 00:24:42,879
I guess it's you know as long as the ash

533
00:24:38,140 --> 00:24:46,000
stays out of people's livelihood yeah it

534
00:24:42,880 --> 00:24:49,810
doesn't destroy houses homes businesses

535
00:24:46,000 --> 00:24:53,349
or airplane travel volcanism is actually

536
00:24:49,809 --> 00:24:56,259
very useful it is how we recycle a lot

537
00:24:53,349 --> 00:24:57,609
of material and all of that ash thrown

538
00:24:56,259 --> 00:24:59,650
up into the atmosphere

539
00:24:57,609 --> 00:25:02,139
it can be annoying when you're doing

540
00:24:59,650 --> 00:25:03,880
observational astronomy but when we're

541
00:25:02,140 --> 00:25:05,950
looking at the moon it creates really

542

00:25:03,880 --> 00:25:08,559
neat atmospheric effects and overall it

543
00:25:05,950 --> 00:25:10,390
does help reflect sunlight coming down

544
00:25:08,558 --> 00:25:12,519
towards our planet and right now we need

545
00:25:10,390 --> 00:25:16,120
all the sunlight reflected we can get so

546
00:25:12,519 --> 00:25:19,599
let's hope that some unlived upon island

547
00:25:16,119 --> 00:25:23,048
goes all Krakatau on us in the future it

548
00:25:19,599 --> 00:25:25,619
probably will happen I here's to hoping

549
00:25:23,048 --> 00:25:28,359
for a new Krakatoa week we can only hope

550
00:25:25,619 --> 00:25:30,459
we can only and will be well maybe

551
00:25:28,359 --> 00:25:32,259
that'll be a sign of the end times

552
00:25:30,460 --> 00:25:34,120
rather than this blood moon coming up

553
00:25:32,259 --> 00:25:36,910
well look forward to seeing it

554
00:25:34,119 --> 00:25:39,250
regardless and and last thing of course

555
00:25:36,910 --> 00:25:42,040
is right from the beginning of the

556
00:25:39,250 --> 00:25:44,619

skeptic zone right from the very early

557

00:25:42,039 --> 00:25:53,139
episodes I've been running this

558

00:25:44,619 --> 00:25:55,000
particular provo folks astronomy cast

559

00:25:53,140 --> 00:25:57,280
who takes a fact space journey through

560

00:25:55,000 --> 00:25:59,289
the cosmos as it offers listeners weekly

561

00:25:57,279 --> 00:26:02,619
discussions on astronomical topics

562

00:25:59,289 --> 00:26:04,690
ranging from planets to cosmology hosted

563

00:26:02,619 --> 00:26:06,939
by Fraser Cain of Universe Today and

564

00:26:04,690 --> 00:26:09,460
myself dr. Pamela gave southern illinois

565

00:26:06,940 --> 00:26:11,529
university edwardsville this show brings

566

00:26:09,460 --> 00:26:13,960
the questions of an avid astronomy lover

567

00:26:11,529 --> 00:26:16,058
directly to an astronomer together

568

00:26:13,960 --> 00:26:17,590
Fraser and I explore what is known and

569

00:26:16,058 --> 00:26:20,349
being discovered about the universe

570

00:26:17,589 --> 00:26:22,449
around us join us each week as we take a

571
00:26:20,349 --> 00:26:26,889
fax space journey through the cosmos at

572
00:26:22,450 --> 00:26:28,990
astronomy cast calm I don't know how

573
00:26:26,890 --> 00:26:32,049
many times I played that Pamela over the

574
00:26:28,990 --> 00:26:33,940
years how is the podcast going oh it's

575
00:26:32,048 --> 00:26:36,879
it's fabulous we just came back from our

576
00:26:33,940 --> 00:26:40,090
summer hiatus Fraser and I are still

577
00:26:36,880 --> 00:26:41,919
doing the old deck we're still bringing

578
00:26:40,089 --> 00:26:46,389
people of facts based journey through

579
00:26:41,919 --> 00:26:50,890
our cosmos one week at a time and it's

580
00:26:46,390 --> 00:26:53,860
hard to change the promo when we are

581
00:26:50,890 --> 00:26:56,830
still doing the exact same things are so

582
00:26:53,859 --> 00:27:00,548
much astronomy the cover and as we keep

583
00:26:56,829 --> 00:27:01,899
making new discoveries I I would never

584
00:27:00,548 --> 00:27:05,500
have guessed that there was a

585
00:27:01,900 --> 00:27:07,960
pyramid-shaped mountain on Ceres and at

586
00:27:05,500 --> 00:27:10,210
some point I can see as dedicating a

587
00:27:07,960 --> 00:27:11,230
full 30 minutes just to that mountain on

588
00:27:10,210 --> 00:27:13,929
Ceres

589
00:27:11,230 --> 00:27:16,480
that's fantastic and I'm so pleased that

590
00:27:13,929 --> 00:27:18,250
the the podcast is going and going

591
00:27:16,480 --> 00:27:20,319
strong after all these years it means

592
00:27:18,250 --> 00:27:23,619
that I'm running the promo for a good

593
00:27:20,319 --> 00:27:26,980
reason you you are and hey this is 10

594
00:27:23,619 --> 00:27:30,519
years of podcasting this year does that

595
00:27:26,980 --> 00:27:32,679
make you feel old yeah well I mean it's

596
00:27:30,519 --> 00:27:34,450
74 skipping zone we're trying to catch

597
00:27:32,679 --> 00:27:36,460
up you see Pamela we're desperately

598
00:27:34,450 --> 00:27:40,450
trying to catch up to you and SGU and

599

00:27:36,460 --> 00:27:42,190
another pocket for many years maybe one

600
00:27:40,450 --> 00:27:45,029
day we'll do it who knows maybe one what

601
00:27:42,190 --> 00:27:49,058
they will do it well dr. Pamela gate

602
00:27:45,029 --> 00:27:50,918
your slot on the skeptic zone is always

603
00:27:49,058 --> 00:27:52,690
hear your chair is waiting your

604
00:27:50,919 --> 00:27:55,150
microphone has always turned on for the

605
00:27:52,690 --> 00:27:56,980
skeptic zone any time you wish to come

606
00:27:55,150 --> 00:27:59,860
on and have a chat to our audience we

607
00:27:56,980 --> 00:28:01,660
would be delighted to have you I love

608
00:27:59,859 --> 00:28:04,298
all of you guys and I really love

609
00:28:01,660 --> 00:28:06,580
getting to be on Anna hopefully next

610
00:28:04,298 --> 00:28:10,298
time we record all once again be face to

611
00:28:06,579 --> 00:28:13,178
face and maybe not as 'il foreal filled

612
00:28:10,298 --> 00:28:16,329
as it was a couple years ago listeners

613
00:28:13,179 --> 00:28:18,460

might go back through the archives about

614

00:28:16,329 --> 00:28:19,928

two years ago Pamela was visiting Sydney

615

00:28:18,460 --> 00:28:21,519

and we strolled through the botanical

616

00:28:19,929 --> 00:28:24,910

gardens and we came across this giant

617

00:28:21,519 --> 00:28:26,980

pond full of eels and as we the Eels

618

00:28:24,910 --> 00:28:29,950

were swimming around near our feet we

619

00:28:26,980 --> 00:28:32,919

were recording it was quite fun it

620

00:28:29,950 --> 00:28:35,048

really was dr. Pamela gay all the way

621

00:28:32,919 --> 00:28:37,059

over there in Edwardsville in the

622

00:28:35,048 --> 00:28:39,069

heartland of tornadoes and all sorts of

623

00:28:37,058 --> 00:28:45,629

blood moons and terrible things happen

624

00:28:39,069 --> 00:28:45,629

people thank you once again thank you

625

00:29:00,890 --> 00:29:05,910

welcome to a week in science from ra oz

626

00:29:03,690 --> 00:29:08,549

bringing you the science you need to

627

00:29:05,910 --> 00:29:10,558

know anyone who knows me knows I'm a bit

628
00:29:08,549 --> 00:29:12,419
of a sci-fi fan and the question that

629
00:29:10,558 --> 00:29:18,359
literally no one has ever asked me is

630
00:29:12,420 --> 00:29:20,519
could cyborgs exist cyborgs are a staple

631
00:29:18,359 --> 00:29:23,909
of sci-fi appearing in everything from

632
00:29:20,519 --> 00:29:26,099
Doctor Who Star Trek Star Wars just

633
00:29:23,910 --> 00:29:28,140
about any show you can think of we think

634
00:29:26,099 --> 00:29:30,750
of cyborgs as a mixture of biological

635
00:29:28,140 --> 00:29:33,210
and computational technology such as a

636
00:29:30,750 --> 00:29:35,549
human body supplemented with electronics

637
00:29:33,210 --> 00:29:37,799
that all sounds a bit fans full but is

638
00:29:35,549 --> 00:29:39,509
it could humans one day start

639
00:29:37,799 --> 00:29:41,879
incorporating robotic or computer

640
00:29:39,509 --> 00:29:46,379
technology into our bodies believe it or

641
00:29:41,880 --> 00:29:48,000
not it's already started the University

642
00:29:46,380 --> 00:29:50,160
of Washington has already carried out

643
00:29:48,000 --> 00:29:51,839
experiments where a person's conscious

644
00:29:50,160 --> 00:29:53,850
thought was carried over the internet

645
00:29:51,839 --> 00:29:55,949
and induced movements in a second person

646
00:29:53,849 --> 00:29:57,928
sitting elsewhere there is also

647
00:29:55,950 --> 00:29:59,519
researched looking into the interaction

648
00:29:57,929 --> 00:30:01,800
between the human nervous system and

649
00:29:59,519 --> 00:30:04,079
machines potentially allowing human

650
00:30:01,799 --> 00:30:06,359
thought to control machinery but why do

651
00:30:04,079 --> 00:30:07,980
we want to the drawback of flesh and

652
00:30:06,359 --> 00:30:10,439
blood as bodies is that they will

653
00:30:07,980 --> 00:30:11,759
eventually fail while a cyborg body and

654
00:30:10,440 --> 00:30:14,220
mind could effectively give us

655
00:30:11,759 --> 00:30:16,140
immortality but more than that it may

656

00:30:14,220 --> 00:30:17,610
give hope to those who do have serious

657
00:30:16,140 --> 00:30:20,190
health problems which restricts their

658
00:30:17,609 --> 00:30:23,369
mobility communication or other day to

659
00:30:20,190 --> 00:30:25,870
day tasks and now for fast facts about

660
00:30:23,369 --> 00:30:28,339
cybernetics

661
00:30:25,869 --> 00:30:30,229
wearable electronics such as Google

662
00:30:28,339 --> 00:30:32,750
glass could be seen as the first step

663
00:30:30,230 --> 00:30:35,450
towards cybernetics giving humans high

664
00:30:32,750 --> 00:30:37,670
functionality through technology Isis

665
00:30:35,450 --> 00:30:39,950
Neil Harvison has implanted technology

666
00:30:37,670 --> 00:30:42,529
into his head to correct color blindness

667
00:30:39,950 --> 00:30:45,590
and he now even considers himself to be

668
00:30:42,529 --> 00:30:47,869
a cyborg in 2009 European doctors

669
00:30:45,589 --> 00:30:49,809
successfully integrated a robotic hand

670
00:30:47,869 --> 00:30:52,369

into the nervous system of an amputee

671

00:30:49,809 --> 00:30:55,039

allowing him to control the hand as if

672

00:30:52,369 --> 00:30:56,929

it were his own and a small mobile robot

673

00:30:55,039 --> 00:30:59,899

has also been built and successfully

674

00:30:56,930 --> 00:31:01,850

controlled using rat neurons that's it

675

00:30:59,900 --> 00:31:03,920

for this week in science if you want to

676

00:31:01,849 --> 00:31:05,509

find out more about cybernetics one day

677

00:31:03,920 --> 00:31:08,029

you won't even need the Internet to look

678

00:31:05,509 --> 00:31:12,920

it up but until then goes the are I's

679

00:31:08,029 --> 00:31:15,680

website RI aus org dot a you follow us

680

00:31:12,920 --> 00:31:17,720

on twitter at RS and like us on facebook

681

00:31:15,680 --> 00:31:20,110

i'm ben lewis and we'll catch you next

682

00:31:17,720 --> 00:31:20,110

week

683

00:31:37,849 --> 00:31:51,269

as reported at ww sunshine coast daily

684

00:31:44,309 --> 00:31:54,480

com au on the 16th of sep tember 2015 by

685
00:31:51,269 --> 00:31:58,460
Jamie Hill mum who said no to

686
00:31:54,480 --> 00:32:01,440
chemotherapy poison clear of cancer and

687
00:31:58,460 --> 00:32:08,029
here is Joe alabaster to read that

688
00:32:01,440 --> 00:32:13,620
report mum who said no to chemotherapy

689
00:32:08,029 --> 00:32:15,509
poison clear of cancer a sunshine coast

690
00:32:13,619 --> 00:32:18,059
mum who decided to fight breast cancer

691
00:32:15,509 --> 00:32:19,740
without drugs is clear of the disease

692
00:32:18,059 --> 00:32:24,329
and about to undergo reconstructive

693
00:32:19,740 --> 00:32:26,480
surgery charissa Macklin rice underwent

694
00:32:24,329 --> 00:32:29,399
a double mastectomy in March last year

695
00:32:26,480 --> 00:32:31,890
after being diagnosed with stage three

696
00:32:29,400 --> 00:32:35,310
ductal carcinoma which had spread to her

697
00:32:31,890 --> 00:32:38,040
lymph nodes she chose not to have

698
00:32:35,309 --> 00:32:40,529
chemotherapy radiation or the estrogen

699

00:32:38,039 --> 00:32:42,629
blocker tamoxifen after watching her

700

00:32:40,529 --> 00:32:46,079
mother's battle with breast cancer which

701

00:32:42,630 --> 00:32:48,480
ended with her death in 2011 ms macklin

702

00:32:46,079 --> 00:32:52,319
rice regards the conventional drugs as

703

00:32:48,480 --> 00:32:54,960
quote poison unquote and chose to fight

704

00:32:52,319 --> 00:32:57,720
cancer by adopting an organic vegan diet

705

00:32:54,960 --> 00:33:00,299
and making lifestyle changes the Blee

706

00:32:57,720 --> 00:33:04,410
Blee 43 year old said she was now clear

707

00:33:00,299 --> 00:33:06,779
of cancer quote I believe your body has

708

00:33:04,410 --> 00:33:08,970
everything it needs to fight you just

709

00:33:06,779 --> 00:33:12,180
need to give it the right fuel end quote

710

00:33:08,970 --> 00:33:15,240
she said she treated a recurrence of the

711

00:33:12,180 --> 00:33:18,799
disease some lumps in scar tissue in May

712

00:33:15,240 --> 00:33:21,779
this year using a homemade black selves

713

00:33:18,799 --> 00:33:24,419
ms macklin rice puts the recurrence down

714
00:33:21,779 --> 00:33:27,619
to becoming slack with her diet sneaking

715
00:33:24,420 --> 00:33:30,779
quote party foods end quote and alcohol

716
00:33:27,619 --> 00:33:33,239
quote I'd got a little complacent with

717
00:33:30,779 --> 00:33:36,930
food so I had to get strict again

718
00:33:33,240 --> 00:33:39,599
and quote she said besides eating mostly

719
00:33:36,930 --> 00:33:43,170
fruit and raw food ms macklin rice also

720
00:33:39,599 --> 00:33:46,139
fasts for three days once month quote

721
00:33:43,170 --> 00:33:48,600
I'm a great believer that our digestive

722
00:33:46,140 --> 00:33:52,470
system holds the key to our health end

723
00:33:48,599 --> 00:33:54,990
quote she said quote by doing the

724
00:33:52,470 --> 00:33:59,700
fasting you give your gut a chance to

725
00:33:54,990 --> 00:34:02,099
have a break and repair end quote she

726
00:33:59,700 --> 00:34:04,470
said yoga had also proven life-changing

727
00:34:02,099 --> 00:34:07,349

helping to heal become more accepting

728

00:34:04,470 --> 00:34:09,269

and believe in herself she said that her

729

00:34:07,349 --> 00:34:11,489

healthy lifestyle changes were hard at

730

00:34:09,269 --> 00:34:14,269

first but she had no problem maintaining

731

00:34:11,489 --> 00:34:17,239

them for the rest of her life quote I'm

732

00:34:14,269 --> 00:34:20,250

committed to living end quote she said

733

00:34:17,239 --> 00:34:22,409

ms macklin rice plans to use her spare

734

00:34:20,250 --> 00:34:25,320

time before and after reconstructive

735

00:34:22,409 --> 00:34:27,629

surgery on october six to start a blog

736

00:34:25,320 --> 00:34:30,510

for people interested in her approach to

737

00:34:27,630 --> 00:34:32,820

cancer and general health quote i

738

00:34:30,510 --> 00:34:35,220

wouldn't encourage everybody to heal the

739

00:34:32,820 --> 00:34:38,370

way i have not everybody is ready for

740

00:34:35,219 --> 00:34:40,049

that and quote she said this report

741

00:34:38,369 --> 00:34:42,329

caught the attention of russ bolt from

742
00:34:40,050 --> 00:34:45,300
the Brisbane skeptics society who penned

743
00:34:42,329 --> 00:34:47,909
the following letter to the editor dear

744
00:34:45,300 --> 00:34:50,190
editor as president of Brisbane skeptics

745
00:34:47,909 --> 00:34:52,049
society and concerned medical researcher

746
00:34:50,190 --> 00:34:55,409
i previously wrote to you in regard to

747
00:34:52,050 --> 00:34:57,720
your August thirteenth 2014 article low

748
00:34:55,409 --> 00:34:59,460
vaccination rates park new campaign in

749
00:34:57,719 --> 00:35:01,349
which a citizen that was not qualified

750
00:34:59,460 --> 00:35:03,389
to speak on vaccinations was

751
00:35:01,349 --> 00:35:06,119
inappropriately quoted as a legitimate

752
00:35:03,389 --> 00:35:07,139
source I was disappointed then to read a

753
00:35:06,119 --> 00:35:09,650
recent article in the newspaper

754
00:35:07,139 --> 00:35:12,869
published on the sixteenth of September

755
00:35:09,650 --> 00:35:15,530
2015 titled mum who said no to

756
00:35:12,869 --> 00:35:19,829
chemotherapy poison clear of cancer

757
00:35:15,530 --> 00:35:21,690
cancer is a serious illness over 120,000

758
00:35:19,829 --> 00:35:23,960
Australians are expected to be diagnosed

759
00:35:21,690 --> 00:35:26,490
with cancer by the end of the year with

760
00:35:23,960 --> 00:35:29,190
45,000 more unfortunately succumbing to

761
00:35:26,489 --> 00:35:30,779
the various forms of the disease many

762
00:35:29,190 --> 00:35:33,119
cancers can become life-threatening

763
00:35:30,780 --> 00:35:35,280
extremely quickly if not treated in the

764
00:35:33,119 --> 00:35:37,230
appropriate way so it is extremely

765
00:35:35,280 --> 00:35:38,880
alarming to see dangerous health advice

766
00:35:37,230 --> 00:35:41,490
not only featured in the sunshine coast

767
00:35:38,880 --> 00:35:43,559
daily but even worse lacking the

768
00:35:41,489 --> 00:35:45,599
appropriate evaluation and warnings that

769
00:35:43,559 --> 00:35:46,500
should be provided by qualified

770

00:35:45,599 --> 00:35:48,759
professional

771
00:35:46,500 --> 00:35:50,650
chemotherapeutic drugs used to treat

772
00:35:48,760 --> 00:35:53,050
cancers are some of the most potent

773
00:35:50,650 --> 00:35:54,579
drugs we have at our disposal since the

774
00:35:53,050 --> 00:35:56,620
advent of these treatments in the last

775
00:35:54,579 --> 00:35:58,799
30 years the rate of deaths due to

776
00:35:56,619 --> 00:36:01,509
cancer has decreased by sixteen percent

777
00:35:58,800 --> 00:36:02,800
however due to the potent nature of the

778
00:36:01,510 --> 00:36:04,480
drugs there are significant and

779
00:36:02,800 --> 00:36:07,030
extremely unpleasant side effects

780
00:36:04,480 --> 00:36:08,710
associated it is understandable that the

781
00:36:07,030 --> 00:36:11,019
prospect of enduring these side effects

782
00:36:08,710 --> 00:36:12,610
is very intimidating to patients who are

783
00:36:11,019 --> 00:36:14,500
already struggling with the news that

784
00:36:12,610 --> 00:36:16,329

they have a life-threatening illness it

785

00:36:14,500 --> 00:36:17,710

is for this very reason that allowing

786

00:36:16,329 --> 00:36:19,690

the propagation of the idea that

787

00:36:17,710 --> 00:36:21,519

chemotherapies are poison and in the

788

00:36:19,690 --> 00:36:24,429

process implying that the drugs are not

789

00:36:21,519 --> 00:36:26,019

effective is unacceptable patients

790

00:36:24,429 --> 00:36:28,419

should be well informed of the possible

791

00:36:26,019 --> 00:36:31,420

side effects but not misled this could

792

00:36:28,420 --> 00:36:33,340

very well lead to the loss of lives ms

793

00:36:31,420 --> 00:36:35,200

macklin rice advocates a number of

794

00:36:33,340 --> 00:36:37,420

alternative approaches including a

795

00:36:35,199 --> 00:36:39,509

strict dietary regime including cutting

796

00:36:37,420 --> 00:36:42,849

down quote party food and alcohol

797

00:36:39,510 --> 00:36:44,680

fasting and yoga there is no evidence

798

00:36:42,849 --> 00:36:46,630

that any of these things are a factor in

799
00:36:44,679 --> 00:36:48,699
preventing the advent or recurrence of

800
00:36:46,630 --> 00:36:51,099
cancer these things set a dangerous

801
00:36:48,699 --> 00:36:52,960
precedent of victim-blaming implying

802
00:36:51,099 --> 00:36:55,299
that if only a patient had followed the

803
00:36:52,960 --> 00:36:57,030
right diet or exercise regime they would

804
00:36:55,300 --> 00:36:58,750
have been able to prevent their cancer

805
00:36:57,030 --> 00:37:00,190
perhaps the most concerning

806
00:36:58,750 --> 00:37:02,500
recommendation though is the use of

807
00:37:00,190 --> 00:37:04,389
black selves a treatment that is proven

808
00:37:02,500 --> 00:37:06,760
to be extremely dangerous and is banned

809
00:37:04,389 --> 00:37:08,469
from sale in Australia furthermore there

810
00:37:06,760 --> 00:37:10,180
is no evidence that black self is an

811
00:37:08,469 --> 00:37:12,730
effective form of treatment against

812
00:37:10,179 --> 00:37:14,289
cancer stories of patients who go

813
00:37:12,730 --> 00:37:15,789
against the mainstream medical paradigm

814
00:37:14,289 --> 00:37:17,889
and claimed to have healed themselves

815
00:37:15,789 --> 00:37:20,380
with natural remedies make for an

816
00:37:17,889 --> 00:37:22,000
emotive and compelling narrative ms

817
00:37:20,380 --> 00:37:24,700
macklin rice is fortunate that her

818
00:37:22,000 --> 00:37:26,980
surgery a conventional intervention was

819
00:37:24,699 --> 00:37:29,859
a success and seems to have removed all

820
00:37:26,980 --> 00:37:31,809
the cancerous cells unfortunately these

821
00:37:29,860 --> 00:37:33,610
stories are the minority and represent

822
00:37:31,809 --> 00:37:37,869
survivorship bias in the worst possible

823
00:37:33,610 --> 00:37:39,610
way remember the dead can't talk early

824
00:37:37,869 --> 00:37:41,319
this year prominent Sunshine Coast

825
00:37:39,610 --> 00:37:43,510
health blogger Jessica ainscough and

826
00:37:41,320 --> 00:37:45,640
previously her mother became unfortunate

827

00:37:43,510 --> 00:37:47,200
victims of the belief that conventional

828
00:37:45,639 --> 00:37:48,670
cancer treatments were dangerous and

829
00:37:47,199 --> 00:37:50,649
that they could heal themselves with

830
00:37:48,670 --> 00:37:52,780
natural therapies diet and exercise I

831
00:37:50,650 --> 00:37:54,309
would hate to see more sunshine coast

832
00:37:52,780 --> 00:37:56,410
residents meet with a similar fate

833
00:37:54,309 --> 00:38:00,099
because they followed the advice in this

834
00:37:56,409 --> 00:38:02,230
article regards Ross mulch president

835
00:38:00,099 --> 00:38:04,179
skeptics society if you would like a

836
00:38:02,230 --> 00:38:06,039
more detailed analysis about this case

837
00:38:04,179 --> 00:38:08,079
or act from the respectful insolence

838
00:38:06,039 --> 00:38:10,090
blog has written a detailed blog post

839
00:38:08,079 --> 00:38:13,690
about this article which you can find

840
00:38:10,090 --> 00:38:15,220
online thank you to Russ Bulge for

841
00:38:13,690 --> 00:38:16,659

writing that letter and thank you too

842

00:38:15,219 --> 00:38:19,209

Joe alabaster for eating out the

843

00:38:16,659 --> 00:38:21,819

original report this whole situation

844

00:38:19,210 --> 00:38:25,240

reminds me of something that Heidi

845

00:38:21,820 --> 00:38:27,130

Robertson oil was Allison Gaylord sent

846

00:38:25,239 --> 00:38:30,759

from the Northern Rivers vaccination

847

00:38:27,130 --> 00:38:33,400

supporters group cancer doesn't care how

848

00:38:30,760 --> 00:38:45,760

much Rock Lee you eat or how many kale

849

00:38:33,400 --> 00:38:47,800

smoothies you consume virtual skeptics

850

00:38:45,760 --> 00:38:50,320

is a weekly web show in which we discuss

851

00:38:47,800 --> 00:38:51,820

the latest news in skepticism whether

852

00:38:50,320 --> 00:38:54,190

it's a new case of spontaneous human

853

00:38:51,820 --> 00:38:55,870

combustion a conspiracy theory the

854

00:38:54,190 --> 00:38:58,059

latest update on the upcoming robot

855

00:38:55,869 --> 00:39:00,190

apocalypse tech news for skeptics or the

856
00:38:58,059 --> 00:39:03,159
latest wacky religious claim we cover it

857
00:39:00,190 --> 00:39:05,829
all we record the show live as a Google+

858
00:39:03,159 --> 00:39:08,109
on-air hang out so join us and our host

859
00:39:05,829 --> 00:39:10,779
Brian Gregory for an hour of mostly

860
00:39:08,110 --> 00:39:13,690
intelligent talk every Wednesday at a PM

861
00:39:10,780 --> 00:39:16,269
eastern US time watch us at virtual

862
00:39:13,690 --> 00:39:19,630
skeptics calm and participate in the

863
00:39:16,269 --> 00:39:21,730
show on our hashtag virtual skeptics the

864
00:39:19,630 --> 00:39:25,410
virtual skeptics it's like meet the

865
00:39:21,730 --> 00:39:25,409
press but with chupacabras

866
00:39:26,340 --> 00:39:33,570
years may not spooky action at a

867
00:39:31,059 --> 00:39:33,570
distance

868
00:39:34,690 --> 00:39:38,809
look I've just come across in the code

869
00:39:37,400 --> 00:39:41,119
club of Australia I'm at the front of

870
00:39:38,809 --> 00:39:42,349
the young scientists of Australia now

871
00:39:41,119 --> 00:39:44,088
you guys get together with young

872
00:39:42,349 --> 00:39:45,230
scientists of New Zealand for Rumble at

873
00:39:44,088 --> 00:39:47,029
about three o'clock and I said the

874
00:39:45,230 --> 00:39:48,588
afternoon in this big punter but we

875
00:39:47,030 --> 00:39:49,970
always win because we're from Australia

876
00:39:48,588 --> 00:39:52,009
obviously said well there's more of us

877
00:39:49,969 --> 00:39:54,048
yeah yeah well they do have a higher

878
00:39:52,010 --> 00:39:55,280
sheep index I believe ya know but we've

879
00:39:54,048 --> 00:39:56,929
got the high people index and that's

880
00:39:55,280 --> 00:39:58,220
what counts i think what are you doing

881
00:39:56,929 --> 00:40:00,769
with the kids here today that you're

882
00:39:58,219 --> 00:40:03,469
interacting with kids I see eggs I see

883
00:40:00,769 --> 00:40:05,869
water I these-- paper I see a potential

884

00:40:03,469 --> 00:40:07,429
disaster yeah no there's no disaster

885
00:40:05,869 --> 00:40:08,750
here but we've got it a couple of fun

886
00:40:07,429 --> 00:40:11,598
activities so we got a mobius strip

887
00:40:08,750 --> 00:40:13,429
activity here ah so we pretty much cut

888
00:40:11,599 --> 00:40:14,630
it in half and blow people's minds by

889
00:40:13,429 --> 00:40:15,919
getting along galoot prints that are

890
00:40:14,630 --> 00:40:18,500
getting two loops and stuff like that

891
00:40:15,920 --> 00:40:20,088
and then we got the tangle of strings

892
00:40:18,500 --> 00:40:22,190
there which the kids are trying out now

893
00:40:20,088 --> 00:40:23,480
this is all it might seem like it's

894
00:40:22,190 --> 00:40:25,190
trivial stuff but there's some big

895
00:40:23,480 --> 00:40:26,929
concepts involved in just the mobius

896
00:40:25,190 --> 00:40:29,000
strip isn't it yeah obviously cuz I'm

897
00:40:26,929 --> 00:40:30,949
there's a lot of physics and topology

898
00:40:29,000 --> 00:40:33,469

involved i think that that's the word

899

00:40:30,949 --> 00:40:34,969

i'm not sure but um yeah it's kind of

900

00:40:33,469 --> 00:40:36,588

high-level stuff but it's kind of just

901

00:40:34,969 --> 00:40:38,118

like putting it out there so they can

902

00:40:36,588 --> 00:40:39,949

get like a feel of it now and have a bit

903

00:40:38,119 --> 00:40:41,450

of fun with it and it might not be

904

00:40:39,949 --> 00:40:42,919

explaining concepts now but it's just

905

00:40:41,449 --> 00:40:44,868

about getting science out there which is

906

00:40:42,920 --> 00:40:46,970

what the y SE does and what's the egg

907

00:40:44,869 --> 00:40:48,710

for i got to ask it looks like if you'd

908

00:40:46,969 --> 00:40:51,199

like to stand on a platform there I'm

909

00:40:48,710 --> 00:40:53,030

get better stand on a platform very

910

00:40:51,199 --> 00:40:55,489

carefully there we go that's balanced

911

00:40:53,030 --> 00:40:57,798

completely on eggs get out and that's

912

00:40:55,489 --> 00:40:59,328

not there's this special eggs nana you

913
00:40:57,798 --> 00:41:01,489
can check them out it's like this

914
00:40:59,329 --> 00:41:02,990
kicking idea all right so this is

915
00:41:01,489 --> 00:41:05,239
showing that the egg is a perfectly good

916
00:41:02,989 --> 00:41:06,769
shape for supporting way up yep yep so

917
00:41:05,239 --> 00:41:08,088
it's showing how there you can put

918
00:41:06,769 --> 00:41:09,619
tension on the top and the bottom and it

919
00:41:08,088 --> 00:41:11,449
won't crack but on the sides it's quite

920
00:41:09,619 --> 00:41:13,130
supple that's why the chicks can break

921
00:41:11,449 --> 00:41:14,659
through it but I see you've also brought

922
00:41:13,130 --> 00:41:16,670
quite a good supply paper towels because

923
00:41:14,659 --> 00:41:18,798
you don't trust these kids yeah cuz it's

924
00:41:16,670 --> 00:41:20,450
a bit wobbly when you throw then you can

925
00:41:18,798 --> 00:41:22,489
kind of tell us rolling around a bit so

926
00:41:20,449 --> 00:41:24,949
when it rolls a bit too much we've got

927
00:41:22,489 --> 00:41:26,269
to have a clean up but yeah other where

928
00:41:24,949 --> 00:41:27,889
can people find out more about young

929
00:41:26,269 --> 00:41:30,650
scientist australia where's your website

930
00:41:27,889 --> 00:41:33,139
oh yeah we've got a website at www isara

931
00:41:30,650 --> 00:41:34,880
you and then if you want to go to the

932
00:41:33,139 --> 00:41:36,318
sydney chapter you just go forward slash

933
00:41:34,880 --> 00:41:38,180
sydney after that and there's links on

934
00:41:36,318 --> 00:41:40,279
the website to tell you how to apply how

935
00:41:38,179 --> 00:41:41,690
to get involved and obviously if you

936
00:41:40,280 --> 00:41:42,390
want to sponsor us how to sponsor us as

937
00:41:41,690 --> 00:41:44,250
well okay

938
00:41:42,389 --> 00:41:46,108
now which chapter in Australia is the

939
00:41:44,250 --> 00:41:47,760
real badass leather jacket wearing

940
00:41:46,108 --> 00:41:49,409
chapter which is the one that you know

941

00:41:47,760 --> 00:41:50,700
they're real troublemakers yeah well we

942
00:41:49,409 --> 00:41:52,528
don't talk about them much that's the

943
00:41:50,699 --> 00:41:53,969
Victoria chapter watch out but they're

944
00:41:52,528 --> 00:41:56,338
always it causing troubles aren't they

945
00:41:53,969 --> 00:41:58,139
yeah yeah sure that they're challenging

946
00:41:56,338 --> 00:41:59,548
Einstein they're going that's not spooky

947
00:41:58,139 --> 00:42:01,469
accidents distance they're always saying

948
00:41:59,548 --> 00:42:03,000
that sort of stuff yeah obviously we'll

949
00:42:01,469 --> 00:42:06,268
have a good day here hey you to thank

950
00:42:03,000 --> 00:42:08,099
you thanks a lot and I've found myself

951
00:42:06,268 --> 00:42:10,858
now am i speaking to someone with a

952
00:42:08,099 --> 00:42:13,410
science degree oh yes and what does your

953
00:42:10,858 --> 00:42:16,230
degree in i'm doing a PhD in marine

954
00:42:13,409 --> 00:42:18,598
biology specifically on sea urchins and

955
00:42:16,230 --> 00:42:20,760

marine acoustics now what drew you to

956

00:42:18,599 --> 00:42:22,410

that and where you're doing it at I'm

957

00:42:20,760 --> 00:42:24,799

based at the University of Sydney but I

958

00:42:22,409 --> 00:42:26,730

did some research at visit island

959

00:42:24,798 --> 00:42:28,500

actually I know a few people have been

960

00:42:26,730 --> 00:42:30,449

attracted to marine biology are there

961

00:42:28,500 --> 00:42:31,889

many jobs are nowhere in Ireland there

962

00:42:30,449 --> 00:42:34,379

should be lots of jobs for that a lots

963

00:42:31,889 --> 00:42:37,469

of jobs in that field that really

964

00:42:34,380 --> 00:42:38,670

depends on the funding situation oh yeah

965

00:42:37,469 --> 00:42:40,618

that's a word I'm hearing a lot from

966

00:42:38,670 --> 00:42:43,349

scientists this morning funding it's a

967

00:42:40,619 --> 00:42:45,690

bit disappointing isn't it yes it has

968

00:42:43,349 --> 00:42:48,000

been well what are you doing here at the

969

00:42:45,690 --> 00:42:49,528

lizard island research station what do

970
00:42:48,000 --> 00:42:51,420
you look at I'm just looking let me take

971
00:42:49,528 --> 00:42:53,579
a guess you'd be looking at fishery

972
00:42:51,420 --> 00:42:57,289
stocks are you involved in coral at all

973
00:42:53,579 --> 00:43:00,480
I my work is focused on sea urchins and

974
00:42:57,289 --> 00:43:02,099
erosion and acoustics but there's a lot

975
00:43:00,480 --> 00:43:05,159
of work that goes on at Lizard Island on

976
00:43:02,099 --> 00:43:06,930
fish and turtles and now please tell me

977
00:43:05,159 --> 00:43:10,259
where do you a chance it in the

978
00:43:06,929 --> 00:43:13,949
biosphere they're usually on the benthos

979
00:43:10,259 --> 00:43:15,610
and there are really important ecosystem

980
00:43:13,949 --> 00:43:18,730
modifier so they

981
00:43:15,610 --> 00:43:21,579
I really important for eating the algae

982
00:43:18,730 --> 00:43:24,219
on the reef so that the coral can grow

983
00:43:21,579 --> 00:43:26,679
and not be smothered by algy you can

984
00:43:24,219 --> 00:43:29,709
they themselves get out of control yes

985
00:43:26,679 --> 00:43:31,359
sometimes their populations explode and

986
00:43:29,710 --> 00:43:33,369
is made in polluted areas or something

987
00:43:31,360 --> 00:43:35,920
is it really depends people still

988
00:43:33,369 --> 00:43:37,299
working on why it happens okay what's

989
00:43:35,920 --> 00:43:38,590
the thing that fascinates you about your

990
00:43:37,300 --> 00:43:41,800
work what's the one thing you'd like to

991
00:43:38,590 --> 00:43:45,070
solve and go yes I've done that I'm

992
00:43:41,800 --> 00:43:46,390
really interested in how sound is used

993
00:43:45,070 --> 00:43:47,980
by different animals and one you

994
00:43:46,389 --> 00:43:50,289
mentioned acoustic so everyone thinks of

995
00:43:47,980 --> 00:43:52,000
wiles but what are you looking at so I'm

996
00:43:50,289 --> 00:43:54,429
looking at sea urchins return our and

997
00:43:52,000 --> 00:43:56,349
invertebrate know what are my favorite

998

00:43:54,429 --> 00:43:58,210
what noise do they make and we even hear

999
00:43:56,349 --> 00:44:00,839
it oh yes they make a scratching sound

1000
00:43:58,210 --> 00:44:03,670
when they feed what sort of hurts is it

1001
00:44:00,840 --> 00:44:04,960
it's quite broad so it goes from like a

1002
00:44:03,670 --> 00:44:07,570
low frequency you are very high

1003
00:44:04,960 --> 00:44:08,949
frequency and they do that to attract

1004
00:44:07,570 --> 00:44:11,170
mates or just let people know where food

1005
00:44:08,949 --> 00:44:14,049
is we think it's just an artifact of

1006
00:44:11,170 --> 00:44:15,340
their feeding behavior okay and what do

1007
00:44:14,050 --> 00:44:17,110
you make of some of those strange big

1008
00:44:15,340 --> 00:44:19,030
noises that have been found in there in

1009
00:44:17,110 --> 00:44:20,530
the the bloop noises that the ocean

1010
00:44:19,030 --> 00:44:21,550
makes and that sort of thing is acoustic

1011
00:44:20,530 --> 00:44:25,510
expert what do you make it the whole

1012
00:44:21,550 --> 00:44:27,100

thing I think they that the experts who

1013

00:44:25,510 --> 00:44:29,020

were looking at the bloop nose for

1014

00:44:27,099 --> 00:44:32,289

example were pretty confident that it

1015

00:44:29,019 --> 00:44:34,570

was geological activity Oh rather

1016

00:44:32,289 --> 00:44:37,059

than an animal when they examined the

1017

00:44:34,570 --> 00:44:38,620

sound closely like some sort of small

1018

00:44:37,059 --> 00:44:41,799

plate popping or something on the ocean

1019

00:44:38,619 --> 00:44:43,299

floor yeah so moving and one of the kids

1020

00:44:41,800 --> 00:44:44,260

all askme today here at science week

1021

00:44:43,300 --> 00:44:45,940

what's the thing they seem to be

1022

00:44:44,260 --> 00:44:47,650

interested in they've been quite

1023

00:44:45,940 --> 00:44:50,500

interested in the microscope we have set

1024

00:44:47,650 --> 00:44:53,619

up with some coral and foraminifera in

1025

00:44:50,500 --> 00:44:56,679

it so you can see what what little dead

1026

00:44:53,619 --> 00:44:58,179

animals actually make up the sand and if

1027
00:44:56,679 --> 00:44:59,949
you could go anywhere in the world to do

1028
00:44:58,179 --> 00:45:01,480
investigations in your field where would

1029
00:44:59,949 --> 00:45:03,639
you go is Australia the sea urchin

1030
00:45:01,480 --> 00:45:06,099
capital of the world or not lizard

1031
00:45:03,639 --> 00:45:08,889
island is pretty amazing yeah why is

1032
00:45:06,099 --> 00:45:10,239
that well it's it's just a very

1033
00:45:08,889 --> 00:45:11,949
interesting place to work well you

1034
00:45:10,239 --> 00:45:14,349
better tell people where it is too I'm

1035
00:45:11,949 --> 00:45:16,389
so its up at the North is a great

1036
00:45:14,349 --> 00:45:19,269
barrier reef so it's quite warm up there

1037
00:45:16,389 --> 00:45:21,879
and there are a lot of sea urchins but

1038
00:45:19,269 --> 00:45:23,679
they usually come out at night so we

1039
00:45:21,880 --> 00:45:26,170
have to go out at night to find them and

1040
00:45:23,679 --> 00:45:27,129
sea urchins look great like starfish do

1041
00:45:26,170 --> 00:45:28,809
if you do stop-motion photography

1042
00:45:27,130 --> 00:45:32,710
because they moved around the seabed

1043
00:45:28,809 --> 00:45:36,159
yeah yeah and do they damage the coral

1044
00:45:32,710 --> 00:45:37,809
reef at all Adan um when they're when

1045
00:45:36,159 --> 00:45:40,509
they're in very very very high numbers

1046
00:45:37,809 --> 00:45:42,849
they can erode the reef and cause damage

1047
00:45:40,510 --> 00:45:44,500
and so what's the advice for us to keep

1048
00:45:42,849 --> 00:45:46,719
them in the correct numbers is it don't

1049
00:45:44,500 --> 00:45:48,940
pollute the place don't over fish how do

1050
00:45:46,719 --> 00:45:51,399
you keep them in balance yes overfishing

1051
00:45:48,940 --> 00:45:52,929
can lead to an increase in sea urchin

1052
00:45:51,400 --> 00:45:54,769
numbers because some of the larger fish

1053
00:45:52,929 --> 00:45:56,359
actually the sea urchins

1054
00:45:54,769 --> 00:45:58,730
and where can people find out more about

1055

00:45:56,360 --> 00:46:01,849
the lizard island research station and

1056
00:45:58,730 --> 00:46:03,139
they have a great website the link can

1057
00:46:01,849 --> 00:46:05,239
be found on the Australian Museum

1058
00:46:03,139 --> 00:46:10,309
website okay thank you very much have a

1059
00:46:05,239 --> 00:46:11,839
good science week well look I'm someone

1060
00:46:10,309 --> 00:46:13,610
who is not very good when you mentioned

1061
00:46:11,840 --> 00:46:15,650
the word machine code I think of the Lou

1062
00:46:13,610 --> 00:46:17,420
Reed album and I really not all that

1063
00:46:15,650 --> 00:46:18,710
good at this sort of thing but what are

1064
00:46:17,420 --> 00:46:20,119
we got in front of us in who are you

1065
00:46:18,710 --> 00:46:22,610
what are you doing here at science week

1066
00:46:20,119 --> 00:46:25,699
thanks for asking um so we're code club

1067
00:46:22,610 --> 00:46:27,200
australia and what we do is we we're a

1068
00:46:25,699 --> 00:46:29,359
network of educators and volunteers

1069
00:46:27,199 --> 00:46:30,769

teaching kids to code we start with what

1070

00:46:29,360 --> 00:46:33,620

we have in front of us which is scratch

1071

00:46:30,769 --> 00:46:35,690

bring on the code computer code that's

1072

00:46:33,619 --> 00:46:37,819

right this is the language of of

1073

00:46:35,690 --> 00:46:39,349

computers essentially this is the

1074

00:46:37,820 --> 00:46:42,110

language that tells computers to do

1075

00:46:39,349 --> 00:46:44,839

certain things it gets spaceships into

1076

00:46:42,110 --> 00:46:46,700

space and it also helps websites become

1077

00:46:44,840 --> 00:46:48,650

alive and apps on your phone work are we

1078

00:46:46,699 --> 00:46:51,589

going as deep as actual machine code or

1079

00:46:48,650 --> 00:46:53,960

not well you can use what we have to do

1080

00:46:51,590 --> 00:46:57,110

to program machines but what we've got

1081

00:46:53,960 --> 00:47:00,320

here is more of a concept of coding to

1082

00:46:57,110 --> 00:47:02,840

do things more in the digital space now

1083

00:47:00,320 --> 00:47:05,539

what we teach in scratch can be used to

1084
00:47:02,840 --> 00:47:08,030
control things like robots for education

1085
00:47:05,539 --> 00:47:10,639
so it does go further into the internet

1086
00:47:08,030 --> 00:47:12,050
of things but it is primarily just the

1087
00:47:10,639 --> 00:47:13,940
concept of coding that we're teaching

1088
00:47:12,050 --> 00:47:15,320
and what's the thing that we need to get

1089
00:47:13,940 --> 00:47:17,389
our head around when we're thinking of

1090
00:47:15,320 --> 00:47:18,920
coding what is the concept of coding

1091
00:47:17,389 --> 00:47:20,809
right so really what we're teaching

1092
00:47:18,920 --> 00:47:22,849
children to do is problem-solve on a

1093
00:47:20,809 --> 00:47:25,159
deeper level it's a word called or a

1094
00:47:22,849 --> 00:47:27,079
phrase called computational thinking so

1095
00:47:25,159 --> 00:47:28,489
rather than just taking a child and

1096
00:47:27,079 --> 00:47:30,619
sitting them down and teaching the maths

1097
00:47:28,489 --> 00:47:32,269
from a book what we're doing is we're

1098
00:47:30,619 --> 00:47:34,609
teaching them complex algorithms and

1099
00:47:32,269 --> 00:47:36,039
problem solving by giving them a real

1100
00:47:34,610 --> 00:47:39,200
life problem

1101
00:47:36,039 --> 00:47:42,170
for example for example if you want to

1102
00:47:39,199 --> 00:47:43,669
talk about the renewable water system

1103
00:47:42,170 --> 00:47:46,400
how can they demonstrate understanding

1104
00:47:43,670 --> 00:47:48,889
the renewable water system and then

1105
00:47:46,400 --> 00:47:52,220
through complex coding language they can

1106
00:47:48,889 --> 00:47:53,779
actually break that down and demonstrate

1107
00:47:52,219 --> 00:47:56,739
their understanding of it then they can

1108
00:47:53,780 --> 00:47:59,540
use algorithms in order to animate and

1109
00:47:56,739 --> 00:48:01,639
show that they've discovered the rate at

1110
00:47:59,539 --> 00:48:04,099
which water would be precipitated and

1111
00:48:01,639 --> 00:48:05,329
then released from a cloud that's much

1112

00:48:04,099 --> 00:48:06,549
more complicated than I thought I

1113
00:48:05,329 --> 00:48:08,480
thought a good example would be

1114
00:48:06,550 --> 00:48:09,200
translating from English to facial

1115
00:48:08,480 --> 00:48:10,880
something like that because that's

1116
00:48:09,199 --> 00:48:12,139
pretty much a black and white kind of

1117
00:48:10,880 --> 00:48:14,119
thing but what you're talking about

1118
00:48:12,139 --> 00:48:16,009
requires an algorithm that's right

1119
00:48:14,119 --> 00:48:17,960
that's right I think it's exciting to

1120
00:48:16,010 --> 00:48:20,240
see kids actually begging to do more

1121
00:48:17,960 --> 00:48:22,880
maths certainly something I would never

1122
00:48:20,239 --> 00:48:25,250
do I maths is where I really failed and

1123
00:48:22,880 --> 00:48:27,349
what what programming language is it

1124
00:48:25,250 --> 00:48:31,099
cause a specific language we start with

1125
00:48:27,349 --> 00:48:33,679
scratch MIT based project open source

1126
00:48:31,099 --> 00:48:35,630

projects we also move into HTML and then

1127

00:48:33,679 --> 00:48:38,059

we we end with Python

1128

00:48:35,630 --> 00:48:40,280

right okay and once they're at Python

1129

00:48:38,059 --> 00:48:41,809

they can do lots of things cathay python

1130

00:48:40,280 --> 00:48:43,910

is a real world language that are used

1131

00:48:41,809 --> 00:48:45,460

by app developers and web developers

1132

00:48:43,909 --> 00:48:48,859

there was actually just a conference for

1133

00:48:45,460 --> 00:48:50,269

Python developers in Brisbane whoa so

1134

00:48:48,860 --> 00:48:51,860

what about good old-fashioned the

1135

00:48:50,269 --> 00:48:53,659

original Doss or maybe Ruby on Rails

1136

00:48:51,860 --> 00:48:55,940

what about that or God is it oh no

1137

00:48:53,659 --> 00:48:57,799

Ruby's amazing actually we were

1138

00:48:55,940 --> 00:49:00,289

discussing developing some review

1139

00:48:57,800 --> 00:49:02,300

materials the thing is there are many

1140

00:49:00,289 --> 00:49:04,460

coding languages as her artist languages

1141
00:49:02,300 --> 00:49:07,160
well if you had to learn just one what

1142
00:49:04,460 --> 00:49:09,260
would a big Python I don't think that's

1143
00:49:07,159 --> 00:49:11,389
a that's an answer I can give I really

1144
00:49:09,260 --> 00:49:13,610
think it is good to just like speaking

1145
00:49:11,389 --> 00:49:15,559
it any language to know many because

1146
00:49:13,610 --> 00:49:17,059
that makes you more compatible to work

1147
00:49:15,559 --> 00:49:18,650
with other teams and more collaborative

1148
00:49:17,059 --> 00:49:21,049
all right what's the most frustrating

1149
00:49:18,650 --> 00:49:22,099
thing for you using a computer someone

1150
00:49:21,050 --> 00:49:23,269
who knows a little bit about the

1151
00:49:22,099 --> 00:49:24,829
language that's going on underneath that

1152
00:49:23,269 --> 00:49:25,969
bother what's the most frustrating thing

1153
00:49:24,829 --> 00:49:28,400
that people just haven't seemed to

1154
00:49:25,969 --> 00:49:30,349
absolve to make them more intuitive well

1155
00:49:28,400 --> 00:49:32,240
I'm one thing that I'm a really big fan

1156
00:49:30,349 --> 00:49:34,699
of is open source and creative commons

1157
00:49:32,239 --> 00:49:36,679
and so I really appreciate when things

1158
00:49:34,699 --> 00:49:39,409
are open and available oh you must

1159
00:49:36,679 --> 00:49:40,969
really hide Apple then actually I really

1160
00:49:39,409 --> 00:49:43,639
appreciate apple and I think that we're

1161
00:49:40,969 --> 00:49:44,929
all sort of working toward a better way

1162
00:49:43,639 --> 00:49:46,730
of sharing and learning from

1163
00:49:44,929 --> 00:49:49,099
technologies but that's my big

1164
00:49:46,730 --> 00:49:50,690
frustration is when we are working with

1165
00:49:49,099 --> 00:49:52,789
a school that's been given lots of

1166
00:49:50,690 --> 00:49:55,130
limitations and they can't take part in

1167
00:49:52,789 --> 00:49:56,509
learning from open source technology do

1168
00:49:55,130 --> 00:49:58,130
you think Linux is ready for primetime

1169

00:49:56,510 --> 00:49:59,660
yet do you think if someone like me goes

1170
00:49:58,130 --> 00:50:01,550
that's it I'm going to wipe this off my

1171
00:49:59,659 --> 00:50:03,769
mac and gonna run it on Linux that I

1172
00:50:01,550 --> 00:50:05,600
will spend a lot of time troubleshooting

1173
00:50:03,769 --> 00:50:07,219
it or was it quite ready yet I was

1174
00:50:05,599 --> 00:50:08,960
working with one of Australia's big

1175
00:50:07,219 --> 00:50:11,089
telco companies earlier this week and I

1176
00:50:08,960 --> 00:50:13,490
was happy to learn that a lot of the

1177
00:50:11,090 --> 00:50:16,610
developers have less or sort of hacked

1178
00:50:13,489 --> 00:50:18,349
their Apple machines to run Linux so I

1179
00:50:16,610 --> 00:50:20,990
think that Linux is coming around to

1180
00:50:18,349 --> 00:50:22,250
really being recognized as being a more

1181
00:50:20,989 --> 00:50:24,379
collaborative and open source player

1182
00:50:22,250 --> 00:50:26,389
yeah what about the even more obscure

1183
00:50:24,380 --> 00:50:28,519

open source one says is that this even

1184

00:50:26,389 --> 00:50:30,799

the more that are obscure than Linux

1185

00:50:28,519 --> 00:50:32,989

what are they called ah as far as

1186

00:50:30,800 --> 00:50:33,700

operating system well I know I know I

1187

00:50:32,989 --> 00:50:36,939

know

1188

00:50:33,699 --> 00:50:39,250

I know that you know Google Chrome has

1189

00:50:36,940 --> 00:50:41,889

come around as a really great system it

1190

00:50:39,250 --> 00:50:43,329

runs on a linux kernel though so I can't

1191

00:50:41,889 --> 00:50:45,909

say that I'm the expert in that in that

1192

00:50:43,329 --> 00:50:47,259

realm yeah oh and where can people find

1193

00:50:45,909 --> 00:50:49,059

out more about the code club australia

1194

00:50:47,260 --> 00:50:51,190

or get a bit more information about what

1195

00:50:49,059 --> 00:50:53,110

you up to yeah look twitter is a great

1196

00:50:51,190 --> 00:50:57,909

way to get in touch with us at code club

1197

00:50:53,110 --> 00:51:01,240

oz a us then we're also online at www

1198
00:50:57,909 --> 00:51:04,210
org so do html5 work out as well as

1199
00:51:01,239 --> 00:51:06,699
everyone hope you're not no comment

1200
00:51:04,210 --> 00:51:08,559
because the video tag just doesn't seem

1201
00:51:06,699 --> 00:51:10,179
to work the way it should yeah I think

1202
00:51:08,559 --> 00:51:12,130
the more the most familiar way that

1203
00:51:10,179 --> 00:51:14,529
people are more of a people are familiar

1204
00:51:12,130 --> 00:51:15,789
with HTML from the error message that

1205
00:51:14,530 --> 00:51:17,380
they get up on their computer than they

1206
00:51:15,789 --> 00:51:19,179
are with the language itself but you

1207
00:51:17,380 --> 00:51:20,530
know what I think that that's if that's

1208
00:51:19,179 --> 00:51:22,389
a way that we've introduced people to

1209
00:51:20,530 --> 00:51:24,400
the concept then that's doing its job as

1210
00:51:22,389 --> 00:51:26,259
well where are we along with the

1211
00:51:24,400 --> 00:51:28,900
protocol for the internet are we at HTML

1212
00:51:26,260 --> 00:51:30,670
sick or would beyond that well I'm

1213
00:51:28,900 --> 00:51:32,800
actually not a coder myself I develop

1214
00:51:30,670 --> 00:51:34,840
curriculum for children so you're

1215
00:51:32,800 --> 00:51:37,300
talking to the wrong kind of expert ok

1216
00:51:34,840 --> 00:51:38,559
I'm talking to an expert and the

1217
00:51:37,300 --> 00:51:42,220
question is asking it's an expert in

1218
00:51:38,559 --> 00:51:44,289
nothing yeah so fair enough yeah I think

1219
00:51:42,219 --> 00:51:46,029
HTML 6 is something I've seen and heard

1220
00:51:44,289 --> 00:51:47,710
of but it's not something I'm familiar

1221
00:51:46,030 --> 00:51:49,330
with personally ok thank you have a

1222
00:51:47,710 --> 00:51:50,710
great day he would look um what do you

1223
00:51:49,329 --> 00:51:51,819
think of science wig you've got kids

1224
00:51:50,710 --> 00:51:52,929
coming up to getting interested in

1225
00:51:51,820 --> 00:51:54,940
science you know did that have it every

1226

00:51:52,929 --> 00:51:57,250
day no i love this i love the direct

1227
00:51:54,940 --> 00:51:58,869
service part of my job often times i end

1228
00:51:57,250 --> 00:52:01,000
up as stuck in the office and i've been

1229
00:51:58,869 --> 00:52:03,420
playing all week and it's been amazing

1230
00:52:01,000 --> 00:52:03,420
thank you

1231
00:52:23,460 --> 00:52:27,460
thank you for listening to the skeptic

1232
00:52:25,809 --> 00:52:30,519
zone and don't forget people in Sydney

1233
00:52:27,460 --> 00:52:34,659
Sunday the 11th of october i had

1234
00:52:30,519 --> 00:52:36,900
Stratton's hotel from 1pm to 6pm Susan

1235
00:52:34,659 --> 00:52:39,519
go Beck an afternoon of eating drinking

1236
00:52:36,900 --> 00:52:41,650
skepticism bring your laptop it should

1237
00:52:39,519 --> 00:52:46,630
be a lot of fun and you can find out

1238
00:52:41,650 --> 00:52:49,539
more by going to meetup.com / aust a ust

1239
00:52:46,630 --> 00:52:51,910
skeptics and find out more information

1240
00:52:49,539 --> 00:52:54,250

there hope to see you there if you want

1241
00:52:51,909 --> 00:52:57,039
to come along I it would be good if you

1242
00:52:54,250 --> 00:53:00,068
could RSVP on meetup just so we have a

1243
00:52:57,039 --> 00:53:03,358
sort of idea of numbers and thank you

1244
00:53:00,068 --> 00:53:07,480
once again to the ever delightful and

1245
00:53:03,358 --> 00:53:09,578
knowledgeable dr. Pamela gay I had sir

1246
00:53:07,480 --> 00:53:12,699
so I said at the top of the show it's a

1247
00:53:09,579 --> 00:53:14,950
particular pleasure interviewing Pamela

1248
00:53:12,699 --> 00:53:16,989
gay I learned so much and if you haven't

1249
00:53:14,949 --> 00:53:18,578
already done so it's time to get your

1250
00:53:16,989 --> 00:53:21,399
tickets for the Australian skeptics

1251
00:53:18,579 --> 00:53:25,000
national convention in Brisbane from the

1252
00:53:21,400 --> 00:53:28,389
16th to 18th of October convention got

1253
00:53:25,000 --> 00:53:30,219
Brisbane skeptics or gives you all the

1254
00:53:28,389 --> 00:53:32,318
information the complete lineup

1255
00:53:30,219 --> 00:53:34,929
including Nobel laureate Brian Schmidt

1256
00:53:32,318 --> 00:53:37,659
joe nickell Eugenie Scott Susan go back

1257
00:53:34,929 --> 00:53:39,250
and a host of other skeptics i'll be

1258
00:53:37,659 --> 00:53:41,529
there maynard will be there Jay

1259
00:53:39,250 --> 00:53:43,389
alabaster answer give Heidi from the

1260
00:53:41,530 --> 00:53:45,880
skeptic zone it promises to be a

1261
00:53:43,389 --> 00:53:50,289
fabulous event convention doc Brisbane

1262
00:53:45,880 --> 00:53:52,869
skeptics org and well I hope to see you

1263
00:53:50,289 --> 00:53:57,789
there but before I go in my hot little

1264
00:53:52,869 --> 00:53:59,500
hands here I have the latest copy of the

1265
00:53:57,789 --> 00:54:02,500
skeptic magazine the journal from

1266
00:53:59,500 --> 00:54:06,338
Australian skeptics volume 35 number 3

1267
00:54:02,500 --> 00:54:09,130
September 2015 regulation roundup how

1268
00:54:06,338 --> 00:54:12,818
good are the enforcement's scientists

1269
00:54:09,130 --> 00:54:15,700
and soldiers monsters and the media what

1270
00:54:12,818 --> 00:54:18,579
a good issue at ears footer oh look at

1271
00:54:15,699 --> 00:54:20,259
that donegal by me well I better read

1272
00:54:18,579 --> 00:54:21,970
that and see what I said the skeptic

1273
00:54:20,260 --> 00:54:24,670
magazine the journal from Australian

1274
00:54:21,969 --> 00:54:29,519
skeptics and you can subscribe online at

1275
00:54:24,670 --> 00:54:33,920
skeptics com au for this fine journal

1276
00:54:29,519 --> 00:54:39,170
hmm your foes it's interesting

1277
00:54:33,920 --> 00:54:41,298
oh yeah hmm well coming up on next

1278
00:54:39,170 --> 00:54:43,548
week's show your guess is as good as

1279
00:54:41,298 --> 00:54:45,530
mine we'll find out soon enough some

1280
00:54:43,548 --> 00:54:47,960
interviews some reports maybe Heidi

1281
00:54:45,530 --> 00:54:51,319
maybe Joe maybe may done maybe Iran

1282
00:54:47,960 --> 00:54:53,088
maybe dr. ricci maybe me you'll have to

1283

00:54:51,318 --> 00:54:54,019
tune in and find out but thank you for

1284
00:54:53,088 --> 00:54:57,259
doing that and thank you for those

1285
00:54:54,019 --> 00:55:01,159
people who do contribute kick in help

1286
00:54:57,260 --> 00:55:04,099
chip in at skeptic zone TV at the

1287
00:55:01,159 --> 00:55:07,460
subscription link using PayPal less than

1288
00:55:04,099 --> 00:55:10,309
a dollar a week and that money means the

1289
00:55:07,460 --> 00:55:12,619
skeptic zone keeps going but for this

1290
00:55:10,309 --> 00:55:19,190
week this is Richard Saunders signing

1291
00:55:12,619 --> 00:55:20,858
off from Sydney Australia you've been

1292
00:55:19,190 --> 00:55:25,429
listening to the skeptics own podcast

1293
00:55:20,858 --> 00:55:28,039
visit our website at WCA pegs on TV for

1294
00:55:25,429 --> 00:55:32,118
contacts and archive of all episodes

1295
00:55:28,039 --> 00:55:34,250
since 2008 and our online store please

1296
00:55:32,119 --> 00:55:37,579
support the skeptic zone by following us

1297
00:55:34,250 --> 00:55:40,568

on twitter at skeptic zone liking us on

1298

00:55:37,579 --> 00:55:42,920

facebook and leaving a review on iTunes

1299

00:55:40,568 --> 00:55:45,588

you can also show your support by

1300

00:55:42,920 --> 00:55:49,338

subscribing via paypal for as little as

1301

00:55:45,588 --> 00:55:51,380

99 cents a week the skeptic zone is an

1302

00:55:49,338 --> 00:55:53,480

independent production the views and

1303

00:55:51,380 --> 00:55:55,670

opinions expressed on the skeptic zone

1304

00:55:53,480 --> 00:55:58,548

and not necessarily those of Australian

1305

00:55:55,670 --> 00:56:01,170

skeptics or any other skeptical

1306

00:55:58,548 --> 00:56:03,230

organization

1307

00:56:01,170 --> 00:56:03,230

you