

The Skeptic Zone
Show 361 - 20 Sep 2015



Dr Pamela Gay

1
00:00:23,500 --> 00:00:09,100
welcome to the skeptic zone the podcast

2
00:00:29,930 --> 00:00:26,150
hello and welcome to the skeptic zone

3
00:00:32,380 --> 00:00:29,940
episode number 361 Richard Saunders with

4
00:00:34,820 --> 00:00:32,390
you once again from Sydney Australia

5
00:00:37,010 --> 00:00:34,830
coming up on this week's show let's go

6
00:00:39,290 --> 00:00:37,020
to Pluto yeah always wanted to go to

7
00:00:41,210 --> 00:00:39,300
Pluto no I haven't well well why not

8
00:00:44,210 --> 00:00:41,220
have you seen the latest pictures all

9
00:00:46,729 --> 00:00:44,220
goodness me on Mars you want to go to

10
00:00:49,400 --> 00:00:46,739
Mars and look at the dust or the dirt

11
00:00:51,710 --> 00:00:49,410
Devils on Mars fairing that we can think

12
00:00:53,810 --> 00:00:51,720
about the Blood Moon all these topics

13
00:00:56,180 --> 00:00:53,820

will be coming up when i chat to dr.

14

00:00:58,790 --> 00:00:56,190

Pamela gay I've known Pamela now for

15

00:01:01,910 --> 00:00:58,800

many years it's always a particular

16

00:01:03,710 --> 00:01:01,920

delight to catch up with Pamela gay what

17

00:01:07,220 --> 00:01:03,720

an interesting scientist she is

18

00:01:09,200 --> 00:01:07,230

certainly a leader in her field and I

19

00:01:11,930 --> 00:01:09,210

really enjoyed chatting to Pamela and

20

00:01:14,180 --> 00:01:11,940

gay about all these Spacey type things

21

00:01:15,700 --> 00:01:14,190

so I hope you'll enjoy that interview

22

00:01:17,750 --> 00:01:15,710

coming up at the top of the show

23

00:01:19,730 --> 00:01:17,760

following that it's a week in science

24

00:01:23,180 --> 00:01:19,740

from the Royal Institution of Australia

25

00:01:27,170 --> 00:01:23,190

who i'm sure i've been known to stargaze

26
00:01:29,240 --> 00:01:27,180
from time to time w WR IA us ova you

27
00:01:31,069 --> 00:01:29,250
hello to all the good people there then

28
00:01:33,170 --> 00:01:31,079
we have a special report courtesy of

29
00:01:34,969 --> 00:01:33,180
russ bolts from the Brisbane skeptics

30
00:01:37,789 --> 00:01:34,979
society don't forget they are hosting

31
00:01:40,520 --> 00:01:37,799
the Australian skeptics annual

32
00:01:43,160 --> 00:01:40,530
convention just next month that's very

33
00:01:44,929 --> 00:01:43,170
exciting but Ross is going to tell us or

34
00:01:48,319 --> 00:01:44,939
he's going to read to us he's open

35
00:01:51,649 --> 00:01:48,329
letter to the sunshine coast daily after

36
00:01:54,770 --> 00:01:51,659
it published a very uncritical report

37
00:01:56,240 --> 00:01:54,780
dealing with the cancer so will read out

38
00:01:58,700 --> 00:01:56,250

that report with the help of Joe

39

00:02:01,270 --> 00:01:58,710

alabaster then you'll hear Russ Bulger's

40

00:02:04,399 --> 00:02:01,280

reply his open letter to the editor

41

00:02:06,469 --> 00:02:04,409

sunshine coast daily paper up there in

42

00:02:09,080 --> 00:02:06,479

Queensland then to round off the show

43

00:02:11,140 --> 00:02:09,090

it's Maynard's spooky action with some

44

00:02:13,790 --> 00:02:11,150

reports that he did a few weeks ago at

45

00:02:15,590 --> 00:02:13,800

National Science Week may not will

46

00:02:18,500 --> 00:02:15,600

interview more people doing scientific

47

00:02:20,380 --> 00:02:18,510

outreach to school students now great

48

00:02:22,940 --> 00:02:20,390

news for those people in Sydney

49

00:02:25,130 --> 00:02:22,950

especially I mean all around Australia

50

00:02:26,810 --> 00:02:25,140

as you'll hear soon but especially in

51
00:02:30,320 --> 00:02:26,820
Sydney I'd like to tell you about

52
00:02:33,960 --> 00:02:30,330
lunchtime skeptics in the pub with Susan

53
00:02:37,020 --> 00:02:33,970
Kovac now this is Sunday the 11th of

54
00:02:41,670 --> 00:02:37,030
over from 1pm till 6pm it's a whole

55
00:02:43,950 --> 00:02:41,680
afternoon of skepticism nomming and well

56
00:02:46,380 --> 00:02:43,960
if you have to you might have a drink

57
00:02:48,770 --> 00:02:46,390
you know I won't force you to now first

58
00:02:52,170 --> 00:02:48,780
people in the sydney head to meetup com

59
00:02:54,750 --> 00:02:52,180
search Australian skeptics and that's

60
00:02:56,730 --> 00:02:54,760
where you'll find the list of events

61
00:02:59,520 --> 00:02:56,740
that Australian skeptics have yes this

62
00:03:02,610 --> 00:02:59,530
is all part of susan goreck australian

63
00:03:04,350 --> 00:03:02,620

tour on the thirtieth of sep tember not

64

00:03:05,940 --> 00:03:04,360

far away she's going to be speaking for

65

00:03:08,550 --> 00:03:05,950

the more d alex skeptics down there in

66

00:03:10,790 --> 00:03:08,560

victoria on the first of october it will

67

00:03:13,680 --> 00:03:10,800

be for the Victorian skeptics indeed

68

00:03:16,050 --> 00:03:13,690

October the third and fourth launceston

69

00:03:17,970 --> 00:03:16,060

and Tasmania doing a workshop on the 6th

70

00:03:20,580 --> 00:03:17,980

of October should be in Canberra at the

71

00:03:23,370 --> 00:03:20,590

Australian National University here in

72

00:03:25,590 --> 00:03:23,380

Sydney on october eleventh at Stratton's

73

00:03:28,080 --> 00:03:25,600

hotel then she's heading up for Brisbane

74

00:03:31,590 --> 00:03:28,090

for the National Convention and then

75

00:03:35,520 --> 00:03:31,600

Hong Kong goodness me she's going to

76

00:03:36,780 --> 00:03:35,530

need a long lie down after all this for

77

00:03:38,729 --> 00:03:36,790

more details check with your local

78

00:03:40,920 --> 00:03:38,739

skeptics or go to [meetup.com](https://www.meetup.com) and search

79

00:03:42,180 --> 00:03:40,930

for australian skeptics now before we

80

00:03:44,400 --> 00:03:42,190

get stuck into the show an update on

81

00:03:47,610 --> 00:03:44,410

Fred the cat who went to the vet on

82

00:03:50,310 --> 00:03:47,620

Friday for a tooth clean or a teeth

83

00:03:52,500 --> 00:03:50,320

cleaned which meant he had to go into

84

00:03:57,360 --> 00:03:52,510

general anaesthetic and for a cat 15

85

00:03:58,920 --> 00:03:57,370

that's no small undertaking but he came

86

00:04:01,229 --> 00:03:58,930

through very well he's been a bit groggy

87

00:04:02,850 --> 00:04:01,239

the last few days sort of sleeping a lot

88

00:04:05,520 --> 00:04:02,860

and walking a bit funny around the house

89

00:04:07,470 --> 00:04:05,530

but he's on the mend and the vet said

90

00:04:10,440 --> 00:04:07,480

he's doing pretty well freak at his age

91

00:04:11,970 --> 00:04:10,450

spread the skeptic zone cat he's not

92

00:04:13,740 --> 00:04:11,980

here right now he's just in the next

93

00:04:16,920 --> 00:04:13,750

room having a bit of a sleep but now

94

00:04:20,460 --> 00:04:16,930

it's time for me to run downstairs open

95

00:04:23,010 --> 00:04:20,470

the key jar and have some of my mother's

96

00:04:26,310 --> 00:04:23,020

famous peanut butter cookies she's been

97

00:04:29,690 --> 00:04:26,320

making since the late 60s oh oh boy

98

00:04:32,340 --> 00:04:29,700

they're good they are particularly good

99

00:04:34,980 --> 00:04:32,350

mothers peanut butter cookies well I'm

100

00:04:40,970 --> 00:04:34,990

enjoying two or three or six of those I

101
00:04:40,980 --> 00:05:00,770
Oh

102
00:05:06,659 --> 00:05:04,040
and joining me now all the way from

103
00:05:08,159 --> 00:05:06,669
edwardsville which is sort of in the

104
00:05:11,939 --> 00:05:08,169
middle of the United States here in

105
00:05:15,360 --> 00:05:11,949
Illinois it's my dear friend dr. Pamela

106
00:05:17,430 --> 00:05:15,370
gay hello Pamela I Richard how are you

107
00:05:19,650 --> 00:05:17,440
doing today I'm doing really well apart

108
00:05:22,439 --> 00:05:19,660
from the old Tut of the Sydney hay fever

109
00:05:24,950 --> 00:05:22,449
which comes around somehow annually

110
00:05:27,779 --> 00:05:24,960
around springtime strangely enough ah

111
00:05:29,670 --> 00:05:27,789
well it could be worse here in Illinois

112
00:05:32,370 --> 00:05:29,680
we have hay fever in the spring and we

113
00:05:35,490 --> 00:05:32,380

have it in fall and right now we're into

114

00:05:38,010 --> 00:05:35,500

the tree and goldenrod pollen season so

115

00:05:39,719 --> 00:05:38,020

everything is yellow and red and it's

116

00:05:43,529 --> 00:05:39,729

not just leaves that are turning red

117

00:05:46,499 --> 00:05:43,539

it's also the eyes and the skin sounds

118

00:05:47,790 --> 00:05:46,509

delightful it sounds delightful Pamela

119

00:05:49,290 --> 00:05:47,800

it's been a little while since you've

120

00:05:51,990 --> 00:05:49,300

been on the skeptic zone it's always a

121

00:05:53,700 --> 00:05:52,000

pleasure to catch up with you so much to

122

00:05:55,770 --> 00:05:53,710

talk about in the world of science and

123

00:05:58,800 --> 00:05:55,780

astronomy at the moment let's kick off

124

00:06:01,680 --> 00:05:58,810

with the the not so big elephant in the

125

00:06:04,170 --> 00:06:01,690

room the little Pluto little Pluto how

126

00:06:06,089 --> 00:06:04,180

exciting was that and I noticed over the

127

00:06:08,219 --> 00:06:06,099

last week there are new images and

128

00:06:11,100 --> 00:06:08,229

animations coming back from Pluto you

129

00:06:14,430 --> 00:06:11,110

must have been beside yourself well it's

130

00:06:16,740 --> 00:06:14,440

so yeah we are recording this on sep

131

00:06:19,409 --> 00:06:16,750

tember 19th which is a saturday and just

132

00:06:23,490 --> 00:06:19,419

yesterday September 18th we had a

133

00:06:25,290 --> 00:06:23,500

release of a new set of images on the

134

00:06:26,969 --> 00:06:25,300

public site now these aren't science

135

00:06:30,839 --> 00:06:26,979

quality images they are giving the

136

00:06:33,330 --> 00:06:30,849

science team nine months to a year to go

137

00:06:35,460 --> 00:06:33,340

through process the data really science

138

00:06:38,370 --> 00:06:35,470

before they release the raw images but

139

00:06:42,779 --> 00:06:38,380

they released a bunch of JPEGs yesterday

140

00:06:45,450 --> 00:06:42,789

allowing us to flip through and look at

141

00:06:48,839 --> 00:06:45,460

the edge of Pluto is the Sun shone

142

00:06:50,820 --> 00:06:48,849

through the atmosphere and basically it

143

00:06:54,120 --> 00:06:50,830

convinced me this is a world that defies

144

00:06:56,730 --> 00:06:54,130

everything I ever learned about planets

145

00:06:58,469 --> 00:06:56,740

it's it's not so much that we sent a

146

00:07:01,260 --> 00:06:58,479

ship out to explore it which is awesome

147

00:07:04,230 --> 00:07:01,270

so we sent a ship out to explore it and

148

00:07:06,120 --> 00:07:04,240

what we found makes no sense and this is

149

00:07:08,430 --> 00:07:06,130

true not just a Pluto but also if the

150

00:07:10,740 --> 00:07:08,440

little asteroid ceres a another

151

00:07:12,660 --> 00:07:10,750

dwarf planet in our solar system it's

152

00:07:16,560 --> 00:07:12,670

the old expression and it really hit

153

00:07:19,140 --> 00:07:16,570

home lately with space you expect the

154

00:07:21,120 --> 00:07:19,150

unexpected and it doesn't mean you

155

00:07:23,010 --> 00:07:21,130

expect to see something that you've seen

156

00:07:24,840 --> 00:07:23,020

before and link oh that's odd it should

157

00:07:27,600 --> 00:07:24,850

be on that planet you see you you get

158

00:07:29,460 --> 00:07:27,610

things that you you have to look twice

159

00:07:33,660 --> 00:07:29,470

and then take a cold shower and have

160

00:07:36,600 --> 00:07:33,670

another coffee and think what what this

161

00:07:39,060 --> 00:07:36,610

whole idea of the different geology on

162

00:07:41,400 --> 00:07:39,070

Pluto and the atmosphere itself that

163

00:07:43,170 --> 00:07:41,410

took me by surprise now I'm not over an

164

00:07:44,820 --> 00:07:43,180

astronomer of course but still I have a

165

00:07:47,340 --> 00:07:44,830

basic understanding of these how these

166

00:07:49,350 --> 00:07:47,350

things work and I seriously expected

167

00:07:50,580 --> 00:07:49,360

something more or less like our moon to

168

00:07:53,880 --> 00:07:50,590

be up there but it's not like that at

169

00:07:56,430 --> 00:07:53,890

all well I was I wasn't so much

170

00:07:59,640 --> 00:07:56,440

expecting the moon because we knew it

171

00:08:02,670 --> 00:07:59,650

was ice we did have indications that it

172

00:08:04,980 --> 00:08:02,680

has an atmosphere that is basically

173

00:08:07,440 --> 00:08:04,990

created from when it's closer to the Sun

174

00:08:10,920 --> 00:08:07,450

it heats up a little bit more as things

175

00:08:13,620 --> 00:08:10,930

freeze things sublimate out when it's

176

00:08:15,930 --> 00:08:13,630

further from the Sun things freeze and

177

00:08:19,170 --> 00:08:15,940

they settle back down to the surface so

178

00:08:21,900 --> 00:08:19,180

we knew that that was going on but the

179

00:08:24,720 --> 00:08:21,910

other thing that has thrown is it was

180

00:08:27,780 --> 00:08:24,730

back at the end of the 1990s when Pluto

181

00:08:30,870 --> 00:08:27,790

was closest to the Sun and it's a few

182

00:08:33,300 --> 00:08:30,880

years past then and we were expecting

183

00:08:36,900 --> 00:08:33,310

its atmosphere to be a whole lot less

184

00:08:40,140 --> 00:08:36,910

thick and one of the other really

185

00:08:43,200 --> 00:08:40,150

baffling things is when you look at the

186

00:08:45,780 --> 00:08:43,210

photos of Pluto it has this feature that

187

00:08:50,490 --> 00:08:45,790

clearly looks like a giant white hard on

188

00:08:53,130 --> 00:08:50,500

a beautiful body surface and that big

189

00:08:55,829 --> 00:08:53,140

White Hart is also where a lot of the

190

00:08:58,620 --> 00:08:55,839

carbon-based gases are coming from so we

191

00:09:02,040 --> 00:08:58,630

see carbon dioxide coming out of the

192

00:09:03,840 --> 00:09:02,050

heart of Pluto which I we have no idea

193

00:09:05,460 --> 00:09:03,850

how to explain that one no idea at all

194

00:09:07,050 --> 00:09:05,470

it sounds like it's going to be a song

195

00:09:09,300 --> 00:09:07,060

in the future you know the kids are the

196

00:09:10,980 --> 00:09:09,310

next century you'll be singing about the

197

00:09:14,130 --> 00:09:10,990

great heart of Pluto maybe in this

198

00:09:16,050 --> 00:09:14,140

century I I wouldn't be surprised if

199

00:09:18,660 --> 00:09:16,060

someone's already written a poem haiku

200

00:09:21,510 --> 00:09:18,670

or meme about it yes we might have

201
00:09:23,910 --> 00:09:21,520
inspired someone to do it today yes that

202
00:09:28,800 --> 00:09:23,920
sending your song now the great heart of

203
00:09:30,270 --> 00:09:28,810
Pluto the thing that gets me about all

204
00:09:32,760 --> 00:09:30,280
this coverages you keep hearing

205
00:09:36,300 --> 00:09:32,770
journalists say things like science our

206
00:09:39,660 --> 00:09:36,310
scientists are baffled by Pluto and they

207
00:09:43,140 --> 00:09:39,670
imply that we don't understand things

208
00:09:44,910 --> 00:09:43,150
because we're dumb and no it's not that

209
00:09:48,420 --> 00:09:44,920
weird ahmud that we're seeing something

210
00:09:50,820 --> 00:09:48,430
for the very first time and our limited

211
00:09:52,740 --> 00:09:50,830
human imaginations didn't prepare us for

212
00:09:55,680 --> 00:09:52,750
the full diversity of what the solar

213
00:09:57,660 --> 00:09:55,690

system has to offer and so it's not that

214

00:10:01,500 --> 00:09:57,670

weird um it's that apparently our

215

00:10:04,470 --> 00:10:01,510

imaginations failed us and now we're

216

00:10:06,510 --> 00:10:04,480

this exciting time of well the solar

217

00:10:08,670 --> 00:10:06,520

system gave us something unexpected and

218

00:10:10,920 --> 00:10:08,680

now we have the privilege of trying to

219

00:10:12,870 --> 00:10:10,930

understand it yes scientists a baffled

220

00:10:14,970 --> 00:10:12,880

indeed well its scientists be baffled it

221

00:10:17,280 --> 00:10:14,980

means there's another mystery for them

222

00:10:19,650 --> 00:10:17,290

all to explore an unwrapped and uncover

223

00:10:22,290 --> 00:10:19,660

and bring us more wonders I do like

224

00:10:24,840 --> 00:10:22,300

those shots though that I saw it I guess

225

00:10:26,460 --> 00:10:24,850

he saw it to an animation of the the

226
00:10:28,650 --> 00:10:26,470
probe passing by and you can see the

227
00:10:33,000 --> 00:10:28,660
planet sort of moving through space

228
00:10:36,090 --> 00:10:33,010
that's quite stunning it's not something

229
00:10:38,960 --> 00:10:36,100
that we're used to being able to see the

230
00:10:42,780 --> 00:10:38,970
the whole concept of the earth rotating

231
00:10:45,540 --> 00:10:42,790
we experience that every single day we

232
00:10:47,610 --> 00:10:45,550
sometimes we'll see snapshots of Mars

233
00:10:49,650 --> 00:10:47,620
rotating and Mars is similar enough to

234
00:10:53,700 --> 00:10:49,660
earth that were used to thinking of that

235
00:10:56,610 --> 00:10:53,710
but here is the planet got flown past by

236
00:10:58,860 --> 00:10:56,620
our space probe we saw it rotating we

237
00:11:02,250 --> 00:10:58,870
saw the Sun coming into view we saw all

238
00:11:06,210 --> 00:11:02,260

of these angles change and it was like a

239

00:11:12,360 --> 00:11:06,220

Star Trek JJ Abrams has reduced it but

240

00:11:15,540 --> 00:11:12,370

there was less lens flare it's it was

241

00:11:18,150 --> 00:11:15,550

one of those truly amazing the science

242

00:11:20,070 --> 00:11:18,160

was maximized by that opportunity that

243

00:11:22,650 --> 00:11:20,080

the sunlight just passing through that

244

00:11:24,870 --> 00:11:22,660

atmosphere and it gave us these fabulous

245

00:11:27,450 --> 00:11:24,880

images and this completely new

246

00:11:30,300 --> 00:11:27,460

perspective on our solar system one of

247

00:11:32,220 --> 00:11:30,310

the things that it's hard to judge

248

00:11:35,350 --> 00:11:32,230

because I don't know enough about these

249

00:11:38,259 --> 00:11:35,360

things to judge properly of course

250

00:11:40,569 --> 00:11:38,269

but how well-lit Pluto is is that

251
00:11:42,250 --> 00:11:40,579
because it is reasonably well lit all

252
00:11:43,740 --> 00:11:42,260
the way out there or is that because

253
00:11:46,750 --> 00:11:43,750
that's what the cameras were

254
00:11:48,970 --> 00:11:46,760
compensating for it's a little bit of

255
00:11:50,680 --> 00:11:48,980
both there's actually this thing called

256
00:11:52,930 --> 00:11:50,690
Pluto time and there's a website that

257
00:11:55,750 --> 00:11:52,940
you can go to just Google Pluto time and

258
00:12:00,610 --> 00:11:55,760
it will tell you for your location at

259
00:12:03,400 --> 00:12:00,620
that day in time of the year a what time

260
00:12:07,600 --> 00:12:03,410
the brightness outside at your location

261
00:12:10,509 --> 00:12:07,610
is the same brightness as Pluto and its

262
00:12:14,889 --> 00:12:10,519
actually remarkably bright so you can go

263
00:12:16,840 --> 00:12:14,899

outside often just a few minutes to a

264

00:12:21,699 --> 00:12:16,850

few tens of minutes depending on where

265

00:12:24,280 --> 00:12:21,709

you are after sunset and in that gray

266

00:12:27,009 --> 00:12:24,290

darkness after the golden moment has

267

00:12:30,069 --> 00:12:27,019

ended in that gray darkness when you can

268

00:12:32,290 --> 00:12:30,079

still look around and see things you're

269

00:12:33,910 --> 00:12:32,300

having a moment not unlike what it's

270

00:12:36,600 --> 00:12:33,920

like at Pluto and that's just an

271

00:12:39,220 --> 00:12:36,610

effective the Sun is that bright and

272

00:12:41,470 --> 00:12:39,230

even though the brightness drops off as

273

00:12:43,810 --> 00:12:41,480

the square of the distance which is a

274

00:12:45,970 --> 00:12:43,820

fancy way of saying that when you're two

275

00:12:50,470 --> 00:12:45,980

times further away it's four times

276

00:12:53,680 --> 00:12:50,480

fainter three times nine times um even

277

00:12:56,920 --> 00:12:53,690

though you have that going on you can

278

00:12:58,480 --> 00:12:56,930

still see quite nicely that's great it's

279

00:13:00,430 --> 00:12:58,490

good to know for the future people off

280

00:13:02,470 --> 00:13:00,440

to Pluto if you're listening to the

281

00:13:03,850 --> 00:13:02,480

skeptic zone on the ancient archives and

282

00:13:06,699 --> 00:13:03,860

you're on your way to Prudhoe be rest

283

00:13:08,920 --> 00:13:06,709

assured Pamela gay said way back in 2015

284

00:13:11,769 --> 00:13:08,930

that you should be able to see see your

285

00:13:15,430 --> 00:13:11,779

way around well it is only about four

286

00:13:17,710 --> 00:13:15,440

and a half light-hours away when we're

287

00:13:22,030 --> 00:13:17,720

on average when we're roughly on the

288

00:13:23,889 --> 00:13:22,040

same side is the son of the Sun four and

289

00:13:27,370 --> 00:13:23,899

a half to five and a half hours way so

290

00:13:30,120 --> 00:13:27,380

it will have heard this podcast if

291

00:13:32,560 --> 00:13:30,130

someone sends it out over the radio

292

00:13:34,720 --> 00:13:32,570

that's good to know Pam roads it's good

293

00:13:36,460 --> 00:13:34,730

to know well let's think about something

294

00:13:38,170 --> 00:13:36,470

a little closer to home and they've

295

00:13:40,420 --> 00:13:38,180

pluto's down the end of the block let's

296

00:13:42,189 --> 00:13:40,430

go halfway or less than half way of

297

00:13:44,470 --> 00:13:42,199

course let's visit Mars for a moment

298

00:13:46,809 --> 00:13:44,480

what's happening on Mars Pamela what's

299

00:13:49,090 --> 00:13:46,819

happening there at the moment well Mars

300

00:13:54,070 --> 00:13:49,100

is this happy little were

301
00:13:56,560 --> 00:13:54,080
old that we keep sending robots to so

302
00:13:57,960 --> 00:13:56,570
someday in the future explorers are

303
00:14:02,290 --> 00:13:57,970
actually going to be able to do

304
00:14:05,860 --> 00:14:02,300
archaeological digs and recover mars

305
00:14:09,220 --> 00:14:05,870
phoenix from the ice and find spirits

306
00:14:12,160 --> 00:14:09,230
stuck in the sand and currently we have

307
00:14:15,880 --> 00:14:12,170
curiosity out well getting curious about

308
00:14:20,590 --> 00:14:15,890
the rocks and doing all sorts of samples

309
00:14:24,280 --> 00:14:20,600
and where it is is a beautiful carved

310
00:14:26,650 --> 00:14:24,290
out preserved landscape in Gale Crater

311
00:14:30,850 --> 00:14:26,660
that once upon a time probably had water

312
00:14:34,810 --> 00:14:30,860
and what's interesting is as we look

313
00:14:37,720 --> 00:14:34,820

toward the future and the 2020 rover we

314

00:14:41,500 --> 00:14:37,730

are looking to find someplace that's the

315

00:14:43,480 --> 00:14:41,510

opposite of that to go exploring next so

316

00:14:47,080 --> 00:14:43,490

with the Mars 2020 rover what we're

317

00:14:49,690 --> 00:14:47,090

looking to do is find someplace that is

318

00:14:52,270 --> 00:14:49,700

constantly having what's exposed to the

319

00:14:54,940 --> 00:14:52,280

surface renewed so just like when you go

320

00:14:57,880 --> 00:14:54,950

to the chalk cliffs of Dover you can

321

00:14:59,830 --> 00:14:57,890

find dinosaur bones as the cliff decays

322

00:15:03,160 --> 00:14:59,840

away revealing layer upon layer of

323

00:15:06,130 --> 00:15:03,170

fossils if there are fossils to be found

324

00:15:08,920 --> 00:15:06,140

on Mars perhaps the place to go looking

325

00:15:12,610 --> 00:15:08,930

is someplace that has the study erosion

326

00:15:16,000 --> 00:15:12,620

so we're working over at cosmic West to

327

00:15:18,430 --> 00:15:16,010

look through images to find the most

328

00:15:20,500 --> 00:15:18,440

weathered surfaces the places with the

329

00:15:23,890 --> 00:15:20,510

moving sand dunes the places that are

330

00:15:25,690 --> 00:15:23,900

well changing so rapidly but not a

331

00:15:27,760 --> 00:15:25,700

crater is left standing because

332

00:15:30,370 --> 00:15:27,770

everything has literally been blown away

333

00:15:33,340 --> 00:15:30,380

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

334

00:15:35,890 --> 00:15:33,350

thing that struck me over the last 10 or

335

00:15:38,140 --> 00:15:35,900

so years about Mars when I've been

336

00:15:42,130 --> 00:15:38,150

looking at the images and hearing about

337

00:15:44,800 --> 00:15:42,140

it is the dramatic weather Mars has in

338

00:15:46,210 --> 00:15:44,810

regards to wind storms and dust devils

339

00:15:48,580 --> 00:15:46,220
and things like that it's it's quite

340

00:15:49,920 --> 00:15:48,590
something isn't it yeah there is

341

00:15:53,670 --> 00:15:49,930
actually photos that came out just

342

00:15:56,830 --> 00:15:53,680
yesterday of dirt Devils on Mars and

343

00:15:58,300 --> 00:15:56,840
it's amazing how much they look like the

344

00:16:00,370 --> 00:15:58,310
dirt Devils that we see out in the

345

00:16:02,450 --> 00:16:00,380
Painted Desert in the American Southwest

346

00:16:06,560 --> 00:16:02,460
where you have this

347

00:16:08,780 --> 00:16:06,570
red and orange sandstone surfaces and as

348

00:16:11,630 --> 00:16:08,790
the fine particulate get carried up into

349

00:16:13,340 --> 00:16:11,640
the admittedly much thinner on Mars but

350

00:16:17,630 --> 00:16:13,350
it carried up into the atmosphere they

351
00:16:20,300 --> 00:16:17,640
appears these white columns and looking

352
00:16:22,430 --> 00:16:20,310
down from the spacecraft at even the

353
00:16:26,660 --> 00:16:22,440
slightest angle you'll see these very

354
00:16:28,850 --> 00:16:26,670
thin wispy white columns that it might

355
00:16:31,790 --> 00:16:28,860
have been drawn by a child that hasn't

356
00:16:33,860 --> 00:16:31,800
actually seen a real tornado just

357
00:16:35,960 --> 00:16:33,870
tracking their way across the surface

358
00:16:37,700 --> 00:16:35,970
and often leaving these dark streaks

359
00:16:40,340 --> 00:16:37,710
where they've revealed slightly deeper

360
00:16:43,100 --> 00:16:40,350
down dirt well if that's been going on

361
00:16:46,190 --> 00:16:43,110
for presumably millions of years that's

362
00:16:48,940 --> 00:16:46,200
really um really shaped the surface of

363
00:16:52,010 --> 00:16:48,950

Mars and a dramatic sense hasn't it it

364

00:16:54,340 --> 00:16:52,020

has and what's interesting is just like

365

00:16:57,290 --> 00:16:54,350

here here on earth we don't see

366

00:17:00,020 --> 00:16:57,300

tornadoes on a regular basis everywhere

367

00:17:02,540 --> 00:17:00,030

on the planet where you are in Australia

368

00:17:05,480 --> 00:17:02,550

I I doubt Sydney's these very many

369

00:17:08,150 --> 00:17:05,490

tornadoes if any not many as it turns

370

00:17:10,430 --> 00:17:08,160

out that what once in a while in fact

371

00:17:12,680 --> 00:17:10,440

and I'll say it'll make the news a mini

372

00:17:14,540 --> 00:17:12,690

tornado hit the suburb of so-and-so and

373

00:17:16,010 --> 00:17:14,550

so-and-so but that's that's a once in a

374

00:17:20,000 --> 00:17:16,020

ten-year event or something like that

375

00:17:22,460 --> 00:17:20,010

right where is where I am we test our

376

00:17:24,860 --> 00:17:22,470

tornado signals once a month because we

377

00:17:27,560 --> 00:17:24,870

know there's going to be tornado season

378

00:17:31,930 --> 00:17:27,570

where those alarms go off pretty every

379

00:17:34,430 --> 00:17:31,940

day and so the shape of the geology

380

00:17:36,830 --> 00:17:34,440

literally shapes the atmosphere and

381

00:17:39,920 --> 00:17:36,840

shapes the thermal properties that

382

00:17:42,560 --> 00:17:39,930

create these conditions that are perfect

383

00:17:44,930 --> 00:17:42,570

for dust devils perfect for tornadoes

384

00:17:48,650 --> 00:17:44,940

perfect for all of these cyclical storms

385

00:17:51,710 --> 00:17:48,660

and not all of Mars has these dirt

386

00:17:53,390 --> 00:17:51,720

devils so as we look at different areas

387

00:17:56,300 --> 00:17:53,400

it's like here is the region of the

388

00:17:58,280 --> 00:17:56,310

black squiggly things on the surface and

389

00:18:01,010 --> 00:17:58,290

that's the area we're refining these

390

00:18:04,460 --> 00:18:01,020

these dirt devils and this is the region

391

00:18:07,550 --> 00:18:04,470

where things are filled with craters and

392

00:18:09,920 --> 00:18:07,560

it still looks like this ancient surface

393

00:18:12,770 --> 00:18:09,930

more like the moon and so different

394

00:18:14,780 --> 00:18:12,780

parts of Mars look dramatically

395

00:18:16,440 --> 00:18:14,790

different and this is one of those

396

00:18:19,380 --> 00:18:16,450

reasons why

397

00:18:22,800 --> 00:18:19,390

we need help mapping out Mars and and so

398

00:18:27,240 --> 00:18:22,810

if you go to cosmic west org I'm doing

399

00:18:29,910 --> 00:18:27,250

moon mappers we've gathered highly

400

00:18:31,560 --> 00:18:29,920

detailed images of this large region

401
00:18:34,310 --> 00:18:31,570
where we know there is a lot of erosion

402
00:18:37,740 --> 00:18:34,320
going on but some parts of the region

403
00:18:40,890 --> 00:18:37,750
have much more erosion much more wind

404
00:18:43,290 --> 00:18:40,900
much more weather and going on than

405
00:18:44,570 --> 00:18:43,300
other regions some of them you do get

406
00:18:46,920 --> 00:18:44,580
this image where it's like well

407
00:18:50,460 --> 00:18:46,930
expletive there are a bunch of craters

408
00:18:53,190 --> 00:18:50,470
here this area is well sheltered well

409
00:18:55,350 --> 00:18:53,200
preserved and that's not where we want

410
00:18:57,270 --> 00:18:55,360
to go fossil hunting it fossil hunting

411
00:18:58,740 --> 00:18:57,280
is far too strong of a word it's not

412
00:19:00,450 --> 00:18:58,750
where we want to go looking for the

413
00:19:05,070 --> 00:19:00,460

organic signatures of potential

414

00:19:06,780 --> 00:19:05,080

historical life so but what's cool is we

415

00:19:09,360 --> 00:19:06,790

are finally starting to talk about

416

00:19:11,610 --> 00:19:09,370

looking for biological signatures oh

417

00:19:14,040 --> 00:19:11,620

it's too good to be true Pamela fossil

418

00:19:17,640 --> 00:19:14,050

hunting on Mars get your tickets here I

419

00:19:19,590 --> 00:19:17,650

would I've been fossil hunting on this

420

00:19:22,680 --> 00:19:19,600

planet the prospect of doing it on

421

00:19:25,170 --> 00:19:22,690

another planet is thrilling let's just

422

00:19:30,530 --> 00:19:25,180

leave it let's leave it there pellet and

423

00:19:33,720 --> 00:19:30,540

Ozzie I want a t-shirt I want to t-shirt

424

00:19:36,650 --> 00:19:33,730

it would be so much harder because here

425

00:19:39,000 --> 00:19:36,660

on earth you can go fossil hunting and

426

00:19:42,930 --> 00:19:39,010

there are places like sunspot

427

00:19:46,680 --> 00:19:42,940

Observatory out in New Mexico it's the

428

00:19:47,910 --> 00:19:46,690

same mountain that patchy that started

429

00:19:50,520 --> 00:19:47,920

the saloon general sky surveys

430

00:19:52,980 --> 00:19:50,530

telescopes on its Apache point out and

431

00:19:56,040 --> 00:19:52,990

you can just walk along and pick up a

432

00:20:01,440 --> 00:19:56,050

rock and there's like oh I found a leaf

433

00:20:03,720 --> 00:20:01,450

from a long time ago on Mars that will

434

00:20:06,830 --> 00:20:03,730

never be the case it's me tell but

435

00:20:10,320 --> 00:20:06,840

there's the possibility of

436

00:20:12,090 --> 00:20:10,330

microorganisms of bacteria um it isn't

437

00:20:14,760 --> 00:20:12,100

to say that it's a definite it's just

438

00:20:18,750 --> 00:20:14,770

say there could have been a time in the

439

00:20:20,700 --> 00:20:18,760

past when Mars was wet that life could

440

00:20:23,580 --> 00:20:20,710

have existed and there are those who

441

00:20:26,940 --> 00:20:23,590

believe that if you dig down deep we may

442

00:20:30,480 --> 00:20:26,950

still find small microbes that leave

443

00:20:33,870 --> 00:20:30,490

very pathetic fossils there may

444

00:20:38,460 --> 00:20:33,880

still be pathetic life living a pathetic

445

00:20:41,400 --> 00:20:38,470

existence in the salty briny liquid deep

446

00:20:43,440 --> 00:20:41,410

down on Mars now speaking of Cosmo quiz

447

00:20:46,350 --> 00:20:43,450

Pamela can you for our listeners who

448

00:20:48,900 --> 00:20:46,360

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

449

00:20:51,150 --> 00:20:48,910

brief overview of that are about exactly

450

00:20:56,100 --> 00:20:51,160

what is Cosmo quest what is it all about

451
00:20:59,270 --> 00:20:56,110
our core mission is to invite the public

452
00:21:02,610 --> 00:20:59,280
to come and be researchers with us and

453
00:21:04,320 --> 00:21:02,620
not just ask them to do stuff there

454
00:21:07,620 --> 00:21:04,330
there's lots of sites that do that

455
00:21:10,380 --> 00:21:07,630
crowdsourcing work but we want to treat

456
00:21:11,910 --> 00:21:10,390
art our citizen science colleagues the

457
00:21:14,640 --> 00:21:11,920
same way we treat our students and our

458
00:21:16,590 --> 00:21:14,650
peers so we work to provide online

459
00:21:19,260 --> 00:21:16,600
seminars we work to provide online

460
00:21:22,260 --> 00:21:19,270
classes and activities and forums and

461
00:21:23,940 --> 00:21:22,270
ways that you can do all the things you

462
00:21:26,850 --> 00:21:23,950
would do in a research center in a

463
00:21:29,700 --> 00:21:26,860

university from watching planetarium

464

00:21:32,970 --> 00:21:29,710

shows admittedly on YouTube but we do

465

00:21:35,460 --> 00:21:32,980

produce planetarium shows to being able

466

00:21:38,669 --> 00:21:35,470

to vicariously attend conferences

467

00:21:41,100 --> 00:21:38,679

through all of our live coverage so we

468

00:21:44,490 --> 00:21:41,110

have a variety of projects and invite

469

00:21:46,590 --> 00:21:44,500

you to come in and help us work with a

470

00:21:50,160 --> 00:21:46,600

variety of NASA missions to map out the

471

00:21:51,900 --> 00:21:50,170

moon and Vesta Mars and Mercury and then

472

00:21:54,210 --> 00:21:51,910

we have all of our different seminar

473

00:21:57,299 --> 00:21:54,220

series and we will be starting a new

474

00:21:59,880 --> 00:21:57,309

round of classes coming up probably late

475

00:22:02,130 --> 00:21:59,890

November so this is a great way for

476

00:22:05,010 --> 00:22:02,140

people all around the world to really

477

00:22:09,200 --> 00:22:05,020

take an active part in exploring our

478

00:22:11,790 --> 00:22:09,210

solar system exactly we are the only

479

00:22:14,700 --> 00:22:11,800

citizen science project and astronomy to

480

00:22:17,820 --> 00:22:14,710

actually do publish research science

481

00:22:19,470 --> 00:22:17,830

with planetary Research there's lots of

482

00:22:22,910 --> 00:22:19,480

projects out there but we're the first

483

00:22:25,350 --> 00:22:22,920

one that actually get results that

484

00:22:27,780 --> 00:22:25,360

because we treat people like our

485

00:22:30,360 --> 00:22:27,790

students and our peers were the first

486

00:22:33,270 --> 00:22:30,370

ones to get these citizen science

487

00:22:35,910 --> 00:22:33,280

colleagues to the point that their data

488

00:22:37,710 --> 00:22:35,920

is allowing us to have a new

489

00:22:40,620 --> 00:22:37,720

understanding of these other worlds

490

00:22:44,130 --> 00:22:40,630

that's fantastic what's that URL again

491

00:22:47,730 --> 00:22:44,140

please Pamela it is cosmic West

492

00:22:50,850 --> 00:22:47,740

got Arg easy to remember folks Cosmo

493

00:22:52,560 --> 00:22:50,860

quest org now before we go Pamela let's

494

00:22:54,750 --> 00:22:52,570

have a chat about the end of the world

495

00:22:57,630 --> 00:22:54,760

it's very sad I mean we've had a good

496

00:22:59,850 --> 00:22:57,640

run I know humanity's only been here for

497

00:23:02,160 --> 00:22:59,860

a little blip in the whole scale of

498

00:23:05,010 --> 00:23:02,170

things but I'm very I was very sad to

499

00:23:06,720 --> 00:23:05,020

see on facebook or was it Twitter or

500

00:23:08,010 --> 00:23:06,730

somewhere people telling me but the

501
00:23:09,420 --> 00:23:08,020
world's coming to an end pretty soon

502
00:23:14,460 --> 00:23:09,430
with something called a Blood Moon

503
00:23:18,830 --> 00:23:14,470
should I be worried no not at all it's

504
00:23:23,340 --> 00:23:18,840
it's really amusing to me that that the

505
00:23:28,530 --> 00:23:23,350
upcoming a lunar eclipse has such a

506
00:23:32,670 --> 00:23:28,540
horrific name so our sep tember full

507
00:23:36,540 --> 00:23:32,680
moon uh this month on September 27th

508
00:23:39,000 --> 00:23:36,550
28th for those of you who are in Western

509
00:23:43,410 --> 00:23:39,010
Europe western Africa anywhere in South

510
00:23:47,460 --> 00:23:43,420
America or eastern North America you're

511
00:23:50,580 --> 00:23:47,470
going to be able to look up and see our

512
00:23:53,730 --> 00:23:50,590
moon pass into the earth shadow and I

513
00:23:58,350 --> 00:23:53,740

either in full or in part go from its

514

00:24:00,990 --> 00:23:58,360

bright shining self to being probably in

515

00:24:02,940 --> 00:24:01,000

all reality a dark bloody color because

516

00:24:05,280 --> 00:24:02,950

of all of the volcanic activity that's

517

00:24:07,020 --> 00:24:05,290

been going on lately but the name Blood

518

00:24:09,830 --> 00:24:07,030

Moon actually just comes from the time

519

00:24:12,270 --> 00:24:09,840

of year so it's a strange confluence of

520

00:24:14,670 --> 00:24:12,280

because volcanoes the eclipse will

521

00:24:17,220 --> 00:24:14,680

probably be very red because of timing

522

00:24:21,540 --> 00:24:17,230

it's called a Blood Moon ah that's

523

00:24:24,330 --> 00:24:21,550

interesting it's a we normally don't

524

00:24:26,400 --> 00:24:24,340

think that all this volcanic action is

525

00:24:28,980 --> 00:24:26,410

is so good and people certainly have a

526

00:24:31,050 --> 00:24:28,990

bad time if they live near one but but

527

00:24:32,940 --> 00:24:31,060

there's the the flip side is we get some

528

00:24:34,590 --> 00:24:32,950

interesting atmospheric effects of

529

00:24:38,130 --> 00:24:34,600

course well planes don't like it either

530

00:24:42,870 --> 00:24:38,140

I guess it's you know as long as the ash

531

00:24:45,990 --> 00:24:42,880

stays out of people's livelihood yeah it

532

00:24:49,800 --> 00:24:46,000

doesn't destroy houses homes businesses

533

00:24:53,340 --> 00:24:49,810

or airplane travel volcanism is actually

534

00:24:56,250 --> 00:24:53,350

very useful it is how we recycle a lot

535

00:24:57,600 --> 00:24:56,260

of material and all of that ash thrown

536

00:24:59,640 --> 00:24:57,610

up into the atmosphere

537

00:25:02,130 --> 00:24:59,650

it can be annoying when you're doing

538

00:25:03,870 --> 00:25:02,140

observational astronomy but when we're

539

00:25:05,940 --> 00:25:03,880

looking at the moon it creates really

540

00:25:08,549 --> 00:25:05,950

neat atmospheric effects and overall it

541

00:25:10,380 --> 00:25:08,559

does help reflect sunlight coming down

542

00:25:12,510 --> 00:25:10,390

towards our planet and right now we need

543

00:25:16,110 --> 00:25:12,520

all the sunlight reflected we can get so

544

00:25:19,590 --> 00:25:16,120

let's hope that some unlive upon island

545

00:25:23,039 --> 00:25:19,600

goes all Krakatau on us in the future it

546

00:25:25,610 --> 00:25:23,049

probably will happen I here's to hoping

547

00:25:28,350 --> 00:25:25,620

for a new Krakatoa week we can only hope

548

00:25:30,450 --> 00:25:28,360

we can only and will be well maybe

549

00:25:32,250 --> 00:25:30,460

that'll be a sign of the end times

550

00:25:34,110 --> 00:25:32,260

rather than this blood moon coming up

551

00:25:36,900 --> 00:25:34,120

well look forward to seeing it

552

00:25:39,240 --> 00:25:36,910

regardless and and last thing of course

553

00:25:42,030 --> 00:25:39,250

is right from the beginning of the

554

00:25:44,610 --> 00:25:42,040

skeptic zone right from the very early

555

00:25:53,130 --> 00:25:44,620

episodes I've been running this

556

00:25:54,990 --> 00:25:53,140

particular provo folks astronomy cast

557

00:25:57,270 --> 00:25:55,000

who takes a fact space journey through

558

00:25:59,280 --> 00:25:57,280

the cosmos as it offers listeners weekly

559

00:26:02,610 --> 00:25:59,290

discussions on astronomical topics

560

00:26:04,680 --> 00:26:02,620

ranging from planets to cosmology hosted

561

00:26:06,930 --> 00:26:04,690

by Fraser Cain of Universe Today and

562

00:26:09,450 --> 00:26:06,940

myself dr. Pamela gave southern illinois

563

00:26:11,520 --> 00:26:09,460

university edwardsville this show brings

564

00:26:13,950 --> 00:26:11,530

the questions of an avid astronomy lover

565

00:26:16,049 --> 00:26:13,960

directly to an astronomer together

566

00:26:17,580 --> 00:26:16,059

Fraser and I explore what is known and

567

00:26:20,340 --> 00:26:17,590

being discovered about the universe

568

00:26:22,440 --> 00:26:20,350

around us join us each week as we take a

569

00:26:26,880 --> 00:26:22,450

fax space journey through the cosmos at

570

00:26:28,980 --> 00:26:26,890

astronomy cast calm I don't know how

571

00:26:32,039 --> 00:26:28,990

many times I played that Pamela over the

572

00:26:33,930 --> 00:26:32,049

years how is the podcast going oh it's

573

00:26:36,870 --> 00:26:33,940

it's fabulous we just came back from our

574

00:26:40,080 --> 00:26:36,880

summer hiatus Fraser and I are still

575

00:26:41,909 --> 00:26:40,090

doing the old deck we're still bringing

576

00:26:46,380 --> 00:26:41,919

people of facts based journey through

577

00:26:50,880 --> 00:26:46,390

our cosmos one week at a time and it's

578

00:26:53,850 --> 00:26:50,890

hard to change the promo when we are

579

00:26:56,820 --> 00:26:53,860

still doing the exact same things are so

580

00:27:00,539 --> 00:26:56,830

much astronomy the cover and as we keep

581

00:27:01,890 --> 00:27:00,549

making new discoveries I I would never

582

00:27:05,490 --> 00:27:01,900

have guessed that there was a

583

00:27:07,950 --> 00:27:05,500

pyramid-shaped mountain on Ceres and at

584

00:27:10,200 --> 00:27:07,960

some point I can see as dedicating a

585

00:27:11,220 --> 00:27:10,210

full 30 minutes just to that mountain on

586

00:27:13,919 --> 00:27:11,230

Ceres

587

00:27:16,470 --> 00:27:13,929

that's fantastic and I'm so pleased that

588

00:27:18,240 --> 00:27:16,480

the the podcast is going and going

589

00:27:20,310 --> 00:27:18,250

strong after all these years it means

590

00:27:23,610 --> 00:27:20,320

that I'm running the promo for a good

591

00:27:26,970 --> 00:27:23,620

reason you you are and hey this is 10

592

00:27:30,510 --> 00:27:26,980

years of podcasting this year does that

593

00:27:32,669 --> 00:27:30,520

make you feel old yeah well I mean it's

594

00:27:34,440 --> 00:27:32,679

74 skipping zone we're trying to catch

595

00:27:36,450 --> 00:27:34,450

up you see Pamela we're desperately

596

00:27:40,440 --> 00:27:36,460

trying to catch up to you and SGU and

597

00:27:42,180 --> 00:27:40,450

another pocket for many years maybe one

598

00:27:45,020 --> 00:27:42,190

day we'll do it who knows maybe one what

599

00:27:49,049 --> 00:27:45,030

they will do it well dr. Pamela gate

600

00:27:50,909 --> 00:27:49,059

your slot on the skeptic zone is always

601
00:27:52,680 --> 00:27:50,919
hear your chair is waiting your

602
00:27:55,140 --> 00:27:52,690
microphone has always turned on for the

603
00:27:56,970 --> 00:27:55,150
skeptical zone any time you wish to come

604
00:27:59,850 --> 00:27:56,980
on and have a chat to our audience we

605
00:28:01,650 --> 00:27:59,860
would be delighted to have you I love

606
00:28:04,289 --> 00:28:01,660
all of you guys and I really love

607
00:28:06,570 --> 00:28:04,299
getting to be on Anna hopefully next

608
00:28:10,289 --> 00:28:06,580
time we record all once again be face to

609
00:28:13,169 --> 00:28:10,299
face and maybe not as 'il foreal filled

610
00:28:16,320 --> 00:28:13,179
as it was a couple years ago listeners

611
00:28:18,450 --> 00:28:16,330
might go back through the archives about

612
00:28:19,919 --> 00:28:18,460
two years ago Pamela was visiting Sydney

613
00:28:21,510 --> 00:28:19,929

and we strolled through the botanical

614

00:28:24,900 --> 00:28:21,520

gardens and we came across this giant

615

00:28:26,970 --> 00:28:24,910

pond full of eels and as we the Eels

616

00:28:29,940 --> 00:28:26,980

were swimming around near our feet we

617

00:28:32,909 --> 00:28:29,950

were recording it was quite fun it

618

00:28:35,039 --> 00:28:32,919

really was dr. Pamela gay all the way

619

00:28:37,049 --> 00:28:35,049

over there in edwardsville in the

620

00:28:39,060 --> 00:28:37,059

heartland of tornadoes and all sorts of

621

00:29:00,880 --> 00:28:39,070

blood moons and terrible things happen

622

00:29:05,900 --> 00:29:03,680

welcome to a week in science from ra oz

623

00:29:08,540 --> 00:29:05,910

bringing you the science you need to

624

00:29:10,549 --> 00:29:08,550

know anyone who knows me knows I'm a bit

625

00:29:12,410 --> 00:29:10,559

of a sci-fi fan and the question that

626

00:29:18,350 --> 00:29:12,420

literally no one has ever asked me is

627

00:29:20,510 --> 00:29:18,360

could cyborgs exist cyborgs are a staple

628

00:29:23,900 --> 00:29:20,520

of sci-fi appearing in everything from

629

00:29:26,090 --> 00:29:23,910

Doctor Who Star Trek Star Wars just

630

00:29:28,130 --> 00:29:26,100

about any show you can think of we think

631

00:29:30,740 --> 00:29:28,140

of cyborgs as a mixture of biological

632

00:29:33,200 --> 00:29:30,750

and computational technology such as a

633

00:29:35,540 --> 00:29:33,210

human body supplemented with electronics

634

00:29:37,790 --> 00:29:35,550

that all sounds a bit fans full but is

635

00:29:39,500 --> 00:29:37,800

it could humans one day start

636

00:29:41,870 --> 00:29:39,510

incorporating robotic or computer

637

00:29:46,370 --> 00:29:41,880

technology into our bodies believe it or

638

00:29:47,990 --> 00:29:46,380

not it's already started the University

639

00:29:50,150 --> 00:29:48,000

of Washington has already carried out

640

00:29:51,830 --> 00:29:50,160

experiments where a person's conscious

641

00:29:53,840 --> 00:29:51,840

thought was carried over the internet

642

00:29:55,940 --> 00:29:53,850

and induced movements in a second person

643

00:29:57,919 --> 00:29:55,950

sitting elsewhere there is also

644

00:29:59,510 --> 00:29:57,929

researched looking into the interaction

645

00:30:01,790 --> 00:29:59,520

between the human nervous system and

646

00:30:04,070 --> 00:30:01,800

machines potentially allowing human

647

00:30:06,350 --> 00:30:04,080

thought to control machinery but why do

648

00:30:07,970 --> 00:30:06,360

we want to the drawback of flesh and

649

00:30:10,430 --> 00:30:07,980

blood as bodies is that they will

650

00:30:11,750 --> 00:30:10,440

eventually fail while a cyborg body and

651

00:30:14,210 --> 00:30:11,760

mind could effectively give us

652

00:30:16,130 --> 00:30:14,220

immortality but more than that it may

653

00:30:17,600 --> 00:30:16,140

give hope to those who do have serious

654

00:30:20,180 --> 00:30:17,610

health problems which restricts their

655

00:30:23,360 --> 00:30:20,190

mobility communication or other day to

656

00:30:25,860 --> 00:30:23,370

day tasks and now for fast facts about

657

00:30:28,330 --> 00:30:25,870

cybernetics

658

00:30:30,220 --> 00:30:28,340

wearable electronics such as Google

659

00:30:32,740 --> 00:30:30,230

glass could be seen as the first step

660

00:30:35,440 --> 00:30:32,750

towards cybernetics giving humans high

661

00:30:37,660 --> 00:30:35,450

functionality through technology Isis

662

00:30:39,940 --> 00:30:37,670

Neil Harvison has implanted technology

663

00:30:42,520 --> 00:30:39,950

into his head to correct color blindness

664

00:30:45,580 --> 00:30:42,530

and he now even considers himself to be

665

00:30:47,860 --> 00:30:45,590

a cyborg in 2009 European doctors

666

00:30:49,800 --> 00:30:47,870

successfully integrated a robotic hand

667

00:30:52,360 --> 00:30:49,810

into the nervous system of an amputee

668

00:30:55,030 --> 00:30:52,370

allowing him to control the hand as if

669

00:30:56,920 --> 00:30:55,040

it were his own and a small mobile robot

670

00:30:59,890 --> 00:30:56,930

has also been built and successfully

671

00:31:01,840 --> 00:30:59,900

controlled using rat neurons that's it

672

00:31:03,910 --> 00:31:01,850

for this week in science if you want to

673

00:31:05,500 --> 00:31:03,920

find out more about cybernetics one day

674

00:31:08,020 --> 00:31:05,510

you won't even need the Internet to look

675

00:31:12,910 --> 00:31:08,030

it up but until then goes the are l's

676
00:31:15,670 --> 00:31:12,920
website RI aus org dot a you follow us

677
00:31:17,710 --> 00:31:15,680
on twitter at RS and like us on facebook

678
00:31:37,840 --> 00:31:17,720
i'm ben lewis and we'll catch you next

679
00:31:51,260 --> 00:31:44,300
as reported at ww sunshine coast daily

680
00:31:54,470 --> 00:31:51,270
com au on the 16th of sep tember 2015 by

681
00:31:58,450 --> 00:31:54,480
Jamie Hill mum who said no to

682
00:32:01,430 --> 00:31:58,460
chemotherapy poison clear of cancer and

683
00:32:08,020 --> 00:32:01,440
here is Joe alabaster to read that

684
00:32:13,610 --> 00:32:08,030
report mum who said no to chemotherapy

685
00:32:15,500 --> 00:32:13,620
poison clear of cancer a sunshine coast

686
00:32:18,050 --> 00:32:15,510
mum who decided to fight breast cancer

687
00:32:19,730 --> 00:32:18,060
without drugs is clear of the disease

688
00:32:24,320 --> 00:32:19,740

and about to undergo reconstructive

689

00:32:26,470 --> 00:32:24,330

surgery charissa Macklin rice underwent

690

00:32:29,390 --> 00:32:26,480

a double mastectomy in March last year

691

00:32:31,880 --> 00:32:29,400

after being diagnosed with stage three

692

00:32:35,300 --> 00:32:31,890

ductal carcinoma which had spread to her

693

00:32:38,030 --> 00:32:35,310

lymph nodes she chose not to have

694

00:32:40,520 --> 00:32:38,040

chemotherapy radiation or the estrogen

695

00:32:42,620 --> 00:32:40,530

blocker tamoxifen after watching her

696

00:32:46,070 --> 00:32:42,630

mother's battle with breast cancer which

697

00:32:48,470 --> 00:32:46,080

ended with her death in 2011 ms macklin

698

00:32:52,310 --> 00:32:48,480

rice regards the conventional drugs as

699

00:32:54,950 --> 00:32:52,320

quote poison unquote and chose to fight

700

00:32:57,710 --> 00:32:54,960

cancer by adopting an organic vegan diet

701
00:33:00,290 --> 00:32:57,720
and making lifestyle changes the Blee

702
00:33:04,400 --> 00:33:00,300
Blee 43 year old said she was now clear

703
00:33:06,770 --> 00:33:04,410
of cancer quote I believe your body has

704
00:33:08,960 --> 00:33:06,780
everything it needs to fight you just

705
00:33:12,170 --> 00:33:08,970
need to give it the right fuel end quote

706
00:33:15,230 --> 00:33:12,180
she said she treated a recurrence of the

707
00:33:18,790 --> 00:33:15,240
disease some lumps in scar tissue in May

708
00:33:21,770 --> 00:33:18,800
this year using a homemade black selves

709
00:33:24,410 --> 00:33:21,780
ms macklin rice puts the recurrence down

710
00:33:27,610 --> 00:33:24,420
to becoming slack with her diet sneaking

711
00:33:30,770 --> 00:33:27,620
quote party foods end quote and alcohol

712
00:33:33,230 --> 00:33:30,780
quote I'd got a little complacent with

713
00:33:36,920 --> 00:33:33,240

food so I had to get strict again

714

00:33:39,590 --> 00:33:36,930

and quote she said besides eating mostly

715

00:33:43,160 --> 00:33:39,600

fruit and raw food ms macklin rice also

716

00:33:46,130 --> 00:33:43,170

fasts for three days once month quote

717

00:33:48,590 --> 00:33:46,140

I'm a great believer that our digestive

718

00:33:52,460 --> 00:33:48,600

system holds the key to our health end

719

00:33:54,980 --> 00:33:52,470

quote she said quote by doing the

720

00:33:59,690 --> 00:33:54,990

fasting you give your gut a chance to

721

00:34:02,090 --> 00:33:59,700

have a break and repair end quote she

722

00:34:04,460 --> 00:34:02,100

said yoga had also proven life-changing

723

00:34:07,340 --> 00:34:04,470

helping to heal become more accepting

724

00:34:09,260 --> 00:34:07,350

and believe in herself she said that her

725

00:34:11,480 --> 00:34:09,270

healthy lifestyle changes were hard at

726
00:34:14,260 --> 00:34:11,490
first but she had no problem maintaining

727
00:34:17,230 --> 00:34:14,270
them for the rest of her life quote I'm

728
00:34:20,240 --> 00:34:17,240
committed to living end quote she said

729
00:34:22,400 --> 00:34:20,250
ms macklin rice plans to use her spare

730
00:34:25,310 --> 00:34:22,410
time before and after reconstructive

731
00:34:27,620 --> 00:34:25,320
surgery on october six to start a blog

732
00:34:30,500 --> 00:34:27,630
for people interested in her approach to

733
00:34:32,810 --> 00:34:30,510
cancer and general health quote i

734
00:34:35,210 --> 00:34:32,820
wouldn't encourage everybody to heal the

735
00:34:38,360 --> 00:34:35,220
way i have not everybody is ready for

736
00:34:40,040 --> 00:34:38,370
that and quote she said this report

737
00:34:42,320 --> 00:34:40,050
caught the attention of russ bolt from

738
00:34:45,290 --> 00:34:42,330

the Brisbane skeptics society who penned

739

00:34:47,900 --> 00:34:45,300

the following letter to the editor dear

740

00:34:50,180 --> 00:34:47,910

editor as president of Brisbane skeptics

741

00:34:52,040 --> 00:34:50,190

society and concerned medical researcher

742

00:34:55,400 --> 00:34:52,050

i previously wrote to you in regard to

743

00:34:57,710 --> 00:34:55,410

your August thirteenth 2014 article low

744

00:34:59,450 --> 00:34:57,720

vaccination rates park new campaign in

745

00:35:01,340 --> 00:34:59,460

which a citizen that was not qualified

746

00:35:03,380 --> 00:35:01,350

to speak on vaccinations was

747

00:35:06,110 --> 00:35:03,390

inappropriately quoted as a legitimate

748

00:35:07,130 --> 00:35:06,120

source I was disappointed then to read a

749

00:35:09,640 --> 00:35:07,140

recent article in the newspaper

750

00:35:12,860 --> 00:35:09,650

published on the sixteenth of September

751
00:35:15,520 --> 00:35:12,870
2015 titled mum who said no to

752
00:35:19,820 --> 00:35:15,530
chemotherapy poison clear of cancer

753
00:35:21,680 --> 00:35:19,830
cancer is a serious illness over 120,000

754
00:35:23,950 --> 00:35:21,690
Australians are expected to be diagnosed

755
00:35:26,480 --> 00:35:23,960
with cancer by the end of the year with

756
00:35:29,180 --> 00:35:26,490
45,000 more unfortunately succumbing to

757
00:35:30,770 --> 00:35:29,190
the various forms of the disease many

758
00:35:33,110 --> 00:35:30,780
cancers can become life-threatening

759
00:35:35,270 --> 00:35:33,120
extremely quickly if not treated in the

760
00:35:37,220 --> 00:35:35,280
appropriate way so it is extremely

761
00:35:38,870 --> 00:35:37,230
alarming to see dangerous health advice

762
00:35:41,480 --> 00:35:38,880
not only featured in the sunshine coast

763
00:35:43,550 --> 00:35:41,490

daily but even worse lacking the

764

00:35:45,590 --> 00:35:43,560

appropriate evaluation and warnings that

765

00:35:46,490 --> 00:35:45,600

should be provided by qualified

766

00:35:48,750 --> 00:35:46,500

professional

767

00:35:50,640 --> 00:35:48,760

chemotherapeutic drugs used to treat

768

00:35:53,040 --> 00:35:50,650

cancers are some of the most potent

769

00:35:54,570 --> 00:35:53,050

drugs we have at our disposal since the

770

00:35:56,610 --> 00:35:54,580

advent of these treatments in the last

771

00:35:58,790 --> 00:35:56,620

30 years the rate of deaths due to

772

00:36:01,500 --> 00:35:58,800

cancer has decreased by sixteen percent

773

00:36:02,790 --> 00:36:01,510

however due to the potent nature of the

774

00:36:04,470 --> 00:36:02,800

drugs there are significant and

775

00:36:07,020 --> 00:36:04,480

extremely unpleasant side effects

776
00:36:08,700 --> 00:36:07,030
associated it is understandable that the

777
00:36:11,010 --> 00:36:08,710
prospect of enduring these side effects

778
00:36:12,600 --> 00:36:11,020
is very intimidating to patients who are

779
00:36:14,490 --> 00:36:12,610
already struggling with the news that

780
00:36:16,320 --> 00:36:14,500
they have a life-threatening illness it

781
00:36:17,700 --> 00:36:16,330
is for this very reason that allowing

782
00:36:19,680 --> 00:36:17,710
the propagation of the idea that

783
00:36:21,510 --> 00:36:19,690
chemotherapies are poison and in the

784
00:36:24,420 --> 00:36:21,520
process implying that the drugs are not

785
00:36:26,010 --> 00:36:24,430
effective is unacceptable patients

786
00:36:28,410 --> 00:36:26,020
should be well informed of the possible

787
00:36:31,410 --> 00:36:28,420
side effects but not misled this could

788
00:36:33,330 --> 00:36:31,420

very well lead to the loss of lives ms

789

00:36:35,190 --> 00:36:33,340

macklin rice advocates a number of

790

00:36:37,410 --> 00:36:35,200

alternative approaches including a

791

00:36:39,500 --> 00:36:37,420

strict dietary regime including cutting

792

00:36:42,840 --> 00:36:39,510

down quote party food and alcohol

793

00:36:44,670 --> 00:36:42,850

fasting and yoga there is no evidence

794

00:36:46,620 --> 00:36:44,680

that any of these things are a factor in

795

00:36:48,690 --> 00:36:46,630

preventing the advent or recurrence of

796

00:36:51,090 --> 00:36:48,700

cancer these things set a dangerous

797

00:36:52,950 --> 00:36:51,100

precedent of victim-blaming implying

798

00:36:55,290 --> 00:36:52,960

that if only a patient had followed the

799

00:36:57,020 --> 00:36:55,300

right diet or exercise regime they would

800

00:36:58,740 --> 00:36:57,030

have been able to prevent their cancer

801
00:37:00,180 --> 00:36:58,750
perhaps the most concerning

802
00:37:02,490 --> 00:37:00,190
recommendation though is the use of

803
00:37:04,380 --> 00:37:02,500
black selves a treatment that is proven

804
00:37:06,750 --> 00:37:04,390
to be extremely dangerous and is banned

805
00:37:08,460 --> 00:37:06,760
from sale in Australia furthermore there

806
00:37:10,170 --> 00:37:08,470
is no evidence that black self is an

807
00:37:12,720 --> 00:37:10,180
effective form of treatment against

808
00:37:14,280 --> 00:37:12,730
cancer stories of patients who go

809
00:37:15,780 --> 00:37:14,290
against the mainstream medical paradigm

810
00:37:17,880 --> 00:37:15,790
and claimed to have healed themselves

811
00:37:20,370 --> 00:37:17,890
with natural remedies make for an

812
00:37:21,990 --> 00:37:20,380
emotive and compelling narrative ms

813
00:37:24,690 --> 00:37:22,000

macklin rice is fortunate that her

814

00:37:26,970 --> 00:37:24,700

surgery a conventional intervention was

815

00:37:29,850 --> 00:37:26,980

a success and seems to have removed all

816

00:37:31,800 --> 00:37:29,860

the cancerous cells unfortunately these

817

00:37:33,600 --> 00:37:31,810

stories are the minority and represent

818

00:37:37,860 --> 00:37:33,610

survivorship bias in the worst possible

819

00:37:39,600 --> 00:37:37,870

way remember the dead can't talk early

820

00:37:41,310 --> 00:37:39,610

this year prominent Sunshine Coast

821

00:37:43,500 --> 00:37:41,320

health blogger Jessica ainscough and

822

00:37:45,630 --> 00:37:43,510

previously her mother became unfortunate

823

00:37:47,190 --> 00:37:45,640

victims of the belief that conventional

824

00:37:48,660 --> 00:37:47,200

cancer treatments were dangerous and

825

00:37:50,640 --> 00:37:48,670

that they could heal themselves with

826

00:37:52,770 --> 00:37:50,650

natural therapies diet and exercise I

827

00:37:54,300 --> 00:37:52,780

would hate to see more sunshine coast

828

00:37:56,400 --> 00:37:54,310

residents meet with a similar fate

829

00:38:00,090 --> 00:37:56,410

because they followed the advice in this

830

00:38:02,220 --> 00:38:00,100

article regards Ross mulch president

831

00:38:04,170 --> 00:38:02,230

skeptics society if you would like a

832

00:38:06,030 --> 00:38:04,180

more detailed analysis about this case

833

00:38:08,070 --> 00:38:06,040

or act from the respectful insolence

834

00:38:10,080 --> 00:38:08,080

blog has written a detailed blog post

835

00:38:13,680 --> 00:38:10,090

about this article which you can find

836

00:38:15,210 --> 00:38:13,690

online thank you to Russ Bulge for

837

00:38:16,650 --> 00:38:15,220

writing that letter and thank you too

838

00:38:19,200 --> 00:38:16,660

Joe alabaster for eating out the

839

00:38:21,810 --> 00:38:19,210

original report this whole situation

840

00:38:25,230 --> 00:38:21,820

reminds me of something that Heidi

841

00:38:27,120 --> 00:38:25,240

Robertson oil was Allison Gaylord sent

842

00:38:30,750 --> 00:38:27,130

from the Northern Rivers vaccination

843

00:38:33,390 --> 00:38:30,760

supporters group cancer doesn't care how

844

00:38:45,750 --> 00:38:33,400

much Rock Lee you eat or how many kale

845

00:38:47,790 --> 00:38:45,760

smoothies you consume virtual skeptics

846

00:38:50,310 --> 00:38:47,800

is a weekly web show in which we discuss

847

00:38:51,810 --> 00:38:50,320

the latest news in skepticism whether

848

00:38:54,180 --> 00:38:51,820

it's a new case of spontaneous human

849

00:38:55,860 --> 00:38:54,190

combustion a conspiracy theory the

850

00:38:58,050 --> 00:38:55,870

latest update on the upcoming robot

851
00:39:00,180 --> 00:38:58,060
apocalypse tech news for skeptics or the

852
00:39:03,150 --> 00:39:00,190
latest wacky religious claim we cover it

853
00:39:05,820 --> 00:39:03,160
all we record the show live as a Google+

854
00:39:08,100 --> 00:39:05,830
on-air hang out so join us and our host

855
00:39:10,770 --> 00:39:08,110
Brian Gregory for an hour of mostly

856
00:39:13,680 --> 00:39:10,780
intelligent talk every Wednesday at a PM

857
00:39:16,260 --> 00:39:13,690
eastern US time watch us at virtual

858
00:39:19,620 --> 00:39:16,270
skeptics calm and participate in the

859
00:39:21,720 --> 00:39:19,630
show on our hashtag virtual skeptics the

860
00:39:26,330 --> 00:39:21,730
virtual skeptics it's like meet the

861
00:39:34,680 --> 00:39:31,050
years may not spooky action at a

862
00:39:38,799 --> 00:39:37,390
look I've just come across in the code

863
00:39:41,109 --> 00:39:38,809

club of Australia I'm at the front of

864

00:39:42,339 --> 00:39:41,119

the young scientists of Australia now

865

00:39:44,079 --> 00:39:42,349

you guys get together with young

866

00:39:45,220 --> 00:39:44,089

scientists of New Zealand for Rumble at

867

00:39:47,020 --> 00:39:45,230

about three o'clock and I said the

868

00:39:48,579 --> 00:39:47,030

afternoon in this big punter but we

869

00:39:49,960 --> 00:39:48,589

always win because we're from Australia

870

00:39:52,000 --> 00:39:49,970

obviously said well there's more of us

871

00:39:54,039 --> 00:39:52,010

yeah yeah well they do have a higher

872

00:39:55,270 --> 00:39:54,049

sheep index I believe ya know but we've

873

00:39:56,920 --> 00:39:55,280

got the high people index and that's

874

00:39:58,210 --> 00:39:56,930

what counts i think what are you doing

875

00:40:00,760 --> 00:39:58,220

with the kids here today that you're

876

00:40:03,460 --> 00:40:00,770

interacting with kids I see eggs I see

877

00:40:05,859 --> 00:40:03,470

water I these-- paper I see a potential

878

00:40:07,420 --> 00:40:05,869

disaster yeah no there's no disaster

879

00:40:08,740 --> 00:40:07,430

here but we've got it a couple of fun

880

00:40:11,589 --> 00:40:08,750

activities so we got a mobius strip

881

00:40:13,420 --> 00:40:11,599

activity here ah so we pretty much cut

882

00:40:14,620 --> 00:40:13,430

it in half and blow people's minds by

883

00:40:15,910 --> 00:40:14,630

getting along galoot prints that are

884

00:40:18,490 --> 00:40:15,920

getting two loops and stuff like that

885

00:40:20,079 --> 00:40:18,500

and then we got the tangle of strings

886

00:40:22,180 --> 00:40:20,089

there which the kids are trying out now

887

00:40:23,470 --> 00:40:22,190

this is all it might seem like it's

888

00:40:25,180 --> 00:40:23,480

trivial stuff but there's some big

889

00:40:26,920 --> 00:40:25,190

concepts involved in just the mobius

890

00:40:28,990 --> 00:40:26,930

strip isn't it yeah obviously cuz I'm

891

00:40:30,940 --> 00:40:29,000

there's a lot of physics and topology

892

00:40:33,460 --> 00:40:30,950

involved i think that that's the word

893

00:40:34,960 --> 00:40:33,470

i'm not sure but um yeah it's kind of

894

00:40:36,579 --> 00:40:34,970

high-level stuff but it's kind of just

895

00:40:38,109 --> 00:40:36,589

like putting it out there so they can

896

00:40:39,940 --> 00:40:38,119

get like a feel of it now and have a bit

897

00:40:41,440 --> 00:40:39,950

of fun with it and it might not be

898

00:40:42,910 --> 00:40:41,450

explaining concepts now but it's just

899

00:40:44,859 --> 00:40:42,920

about getting science out there which is

900

00:40:46,960 --> 00:40:44,869

what the y SE does and what's the egg

901
00:40:48,700 --> 00:40:46,970
for i got to ask it looks like if you'd

902
00:40:51,190 --> 00:40:48,710
like to stand on a platform there I'm

903
00:40:53,020 --> 00:40:51,200
get better stand on a platform very

904
00:40:55,480 --> 00:40:53,030
carefully there we go that's balanced

905
00:40:57,789 --> 00:40:55,490
completely on eggs get out and that's

906
00:40:59,319 --> 00:40:57,799
not there's this special eggs nana you

907
00:41:01,480 --> 00:40:59,329
can check them out it's like this

908
00:41:02,980 --> 00:41:01,490
kicking idea all right so this is

909
00:41:05,230 --> 00:41:02,990
showing that the egg is a perfectly good

910
00:41:06,760 --> 00:41:05,240
shape for supporting way up yep yep so

911
00:41:08,079 --> 00:41:06,770
it's showing how there you can put

912
00:41:09,609 --> 00:41:08,089
tension on the top and the bottom and it

913
00:41:11,440 --> 00:41:09,619

won't crack but on the sides it's quite

914

00:41:13,120 --> 00:41:11,450

supple that's why the chicks can break

915

00:41:14,650 --> 00:41:13,130

through it but I see you've also brought

916

00:41:16,660 --> 00:41:14,660

quite a good supply paper towels because

917

00:41:18,789 --> 00:41:16,670

you don't trust these kids yeah cuz it's

918

00:41:20,440 --> 00:41:18,799

a bit wobbly when you throw then you can

919

00:41:22,480 --> 00:41:20,450

kind of tell us rolling around a bit so

920

00:41:24,940 --> 00:41:22,490

when it rolls a bit too much we've got

921

00:41:26,260 --> 00:41:24,950

to have a clean up but yeah other where

922

00:41:27,880 --> 00:41:26,270

can people find out more about young

923

00:41:30,640 --> 00:41:27,890

scientist australia where's your website

924

00:41:33,130 --> 00:41:30,650

oh yeah we've got a website at [www.isara](http://www.isara.com)

925

00:41:34,870 --> 00:41:33,140

you and then if you want to go to the

926
00:41:36,309 --> 00:41:34,880
sydney chapter you just go forward slash

927
00:41:38,170 --> 00:41:36,319
sydney after that and there's links on

928
00:41:40,270 --> 00:41:38,180
the website to tell you how to apply how

929
00:41:41,680 --> 00:41:40,280
to get involved and obviously if you

930
00:41:42,380 --> 00:41:41,690
want to sponsor us how to sponsor us as

931
00:41:44,240 --> 00:41:42,390
well okay

932
00:41:46,099 --> 00:41:44,250
now which chapter in Australia is the

933
00:41:47,750 --> 00:41:46,109
real badass leather jacket wearing

934
00:41:49,400 --> 00:41:47,760
chapter which is the one that you know

935
00:41:50,690 --> 00:41:49,410
they're real troublemakers yeah well we

936
00:41:52,519 --> 00:41:50,700
don't talk about them much that's the

937
00:41:53,960 --> 00:41:52,529
Victoria chapter watch out but they're

938
00:41:56,329 --> 00:41:53,970

always it causing troubles aren't they

939

00:41:58,130 --> 00:41:56,339

yeah yeah sure that they're challenging

940

00:41:59,539 --> 00:41:58,140

Einstein they're going that's not spooky

941

00:42:01,460 --> 00:41:59,549

accidents distance they're always saying

942

00:42:02,990 --> 00:42:01,470

that sort of stuff yeah obviously we'll

943

00:42:06,259 --> 00:42:03,000

have a good day here hey you to thank

944

00:42:08,089 --> 00:42:06,269

you thanks a lot and I've found myself

945

00:42:10,849 --> 00:42:08,099

now am i speaking to someone with a

946

00:42:13,400 --> 00:42:10,859

science degree oh yes and what does your

947

00:42:16,220 --> 00:42:13,410

degree in i'm doing a PhD in marine

948

00:42:18,589 --> 00:42:16,230

biology specifically on sea urchins and

949

00:42:20,750 --> 00:42:18,599

marine acoustics now what drew you to

950

00:42:22,400 --> 00:42:20,760

that and where you're doing it at I'm

951
00:42:24,789 --> 00:42:22,410
based at the University of Sydney but I

952
00:42:26,720 --> 00:42:24,799
did some research at visit island

953
00:42:28,490 --> 00:42:26,730
actually I know a few people have been

954
00:42:30,440 --> 00:42:28,500
attracted to marine biology are there

955
00:42:31,880 --> 00:42:30,450
many jobs are nowhere in Ireland there

956
00:42:34,370 --> 00:42:31,890
should be lots of jobs for that a lots

957
00:42:37,460 --> 00:42:34,380
of jobs in that field that really

958
00:42:38,660 --> 00:42:37,470
depends on the funding situation oh yeah

959
00:42:40,609 --> 00:42:38,670
that's a word I'm hearing a lot from

960
00:42:43,339 --> 00:42:40,619
scientists this morning funding it's a

961
00:42:45,680 --> 00:42:43,349
bit disappointing isn't it yes it has

962
00:42:47,990 --> 00:42:45,690
been well what are you doing here at the

963
00:42:49,519 --> 00:42:48,000

lizard island research station what do

964

00:42:51,410 --> 00:42:49,529

you look at I'm just looking let me take

965

00:42:53,569 --> 00:42:51,420

a guess you'd be looking at fishery

966

00:42:57,279 --> 00:42:53,579

stocks are you involved in coral at all

967

00:43:00,470 --> 00:42:57,289

I my work is focused on sea urchins and

968

00:43:02,089 --> 00:43:00,480

erosion and acoustics but there's a lot

969

00:43:05,150 --> 00:43:02,099

of work that goes on at Lizard Island on

970

00:43:06,920 --> 00:43:05,160

fish and turtles and now please tell me

971

00:43:10,249 --> 00:43:06,930

where do you a chance it in the

972

00:43:13,940 --> 00:43:10,259

biosphere they're usually on the benthos

973

00:43:15,600 --> 00:43:13,950

and there are really important ecosystem

974

00:43:18,720 --> 00:43:15,610

modifier so they

975

00:43:21,570 --> 00:43:18,730

I really important for eating the algae

976

00:43:24,210 --> 00:43:21,580

on the reef so that the coral can grow

977

00:43:26,670 --> 00:43:24,220

and not be smothered by algy you can

978

00:43:29,700 --> 00:43:26,680

they themselves get out of control yes

979

00:43:31,350 --> 00:43:29,710

sometimes their populations explode and

980

00:43:33,360 --> 00:43:31,360

is made in polluted areas or something

981

00:43:35,910 --> 00:43:33,370

is it really depends people still

982

00:43:37,290 --> 00:43:35,920

working on why it happens okay what's

983

00:43:38,580 --> 00:43:37,300

the thing that fascinates you about your

984

00:43:41,790 --> 00:43:38,590

work what's the one thing you'd like to

985

00:43:45,060 --> 00:43:41,800

solve and go yes I've done that I'm

986

00:43:46,380 --> 00:43:45,070

really interested in how sound is used

987

00:43:47,970 --> 00:43:46,390

by different animals and one you

988

00:43:50,280 --> 00:43:47,980

mentioned acoustic so everyone thinks of

989

00:43:51,990 --> 00:43:50,290

wiles but what are you looking at so I'm

990

00:43:54,420 --> 00:43:52,000

looking at sea urchins return our and

991

00:43:56,340 --> 00:43:54,430

invertebrate know what are my favorite

992

00:43:58,200 --> 00:43:56,350

what noise do they make and we even hear

993

00:44:00,830 --> 00:43:58,210

it oh yes they make a scratching sound

994

00:44:03,660 --> 00:44:00,840

when they feed what sort of hurts is it

995

00:44:04,950 --> 00:44:03,670

it's quite broad so it goes from like a

996

00:44:07,560 --> 00:44:04,960

low frequency you are very high

997

00:44:08,940 --> 00:44:07,570

frequency and they do that to attract

998

00:44:11,160 --> 00:44:08,950

mates or just let people know where food

999

00:44:14,040 --> 00:44:11,170

is we think it's just an artifact of

1000

00:44:15,330 --> 00:44:14,050

their feeding behavior okay and what do

1001
00:44:17,100 --> 00:44:15,340
you make of some of those strange big

1002
00:44:19,020 --> 00:44:17,110
noises that have been found in there in

1003
00:44:20,520 --> 00:44:19,030
the the bloop noises that the ocean

1004
00:44:21,540 --> 00:44:20,530
makes and that sort of thing is acoustic

1005
00:44:25,500 --> 00:44:21,550
expert what do you make it the whole

1006
00:44:27,090 --> 00:44:25,510
thing I think they that the experts who

1007
00:44:29,010 --> 00:44:27,100
were looking at the bloop nose for

1008
00:44:32,280 --> 00:44:29,020
example were pretty confident that it

1009
00:44:34,560 --> 00:44:32,290
was geological activity Oh rather

1010
00:44:37,050 --> 00:44:34,570
than an animal when they examined the

1011
00:44:38,610 --> 00:44:37,060
sound closely like some sort of small

1012
00:44:41,790 --> 00:44:38,620
plate popping or something on the ocean

1013
00:44:43,290 --> 00:44:41,800

floor yeah so moving and one of the kids

1014

00:44:44,250 --> 00:44:43,300

all askme today here at science week

1015

00:44:45,930 --> 00:44:44,260

what's the thing they seem to be

1016

00:44:47,640 --> 00:44:45,940

interested in they've been quite

1017

00:44:50,490 --> 00:44:47,650

interested in the microscope we have set

1018

00:44:53,610 --> 00:44:50,500

up with some coral and foraminifera in

1019

00:44:56,670 --> 00:44:53,620

it so you can see what what little dead

1020

00:44:58,170 --> 00:44:56,680

animals actually make up the sand and if

1021

00:44:59,940 --> 00:44:58,180

you could go anywhere in the world to do

1022

00:45:01,470 --> 00:44:59,950

investigations in your field where would

1023

00:45:03,630 --> 00:45:01,480

you go is Australia the sea urchin

1024

00:45:06,090 --> 00:45:03,640

capital of the world or not lizard

1025

00:45:08,880 --> 00:45:06,100

island is pretty amazing yeah why is

1026

00:45:10,230 --> 00:45:08,890

that well it's it's just a very

1027

00:45:11,940 --> 00:45:10,240

interesting place to work well you

1028

00:45:14,340 --> 00:45:11,950

better tell people where it is too I'm

1029

00:45:16,380 --> 00:45:14,350

so its up at the North is a great

1030

00:45:19,260 --> 00:45:16,390

barrier reef so it's quite warm up there

1031

00:45:21,870 --> 00:45:19,270

and there are a lot of sea urchins but

1032

00:45:23,670 --> 00:45:21,880

they usually come out at night so we

1033

00:45:26,160 --> 00:45:23,680

have to go out at night to find them and

1034

00:45:27,120 --> 00:45:26,170

sea urchins look great like starfish do

1035

00:45:28,800 --> 00:45:27,130

if you do stop-motion photography

1036

00:45:32,700 --> 00:45:28,810

because they moved around the seabed

1037

00:45:36,150 --> 00:45:32,710

yeah yeah and do they damage the coral

1038

00:45:37,800 --> 00:45:36,160

reef at all Adan um when they're when

1039

00:45:40,500 --> 00:45:37,810

they're in very very very high numbers

1040

00:45:42,840 --> 00:45:40,510

they can erode the reef and cause damage

1041

00:45:44,490 --> 00:45:42,850

and so what's the advice for us to keep

1042

00:45:46,710 --> 00:45:44,500

them in the correct numbers is it don't

1043

00:45:48,930 --> 00:45:46,720

pollute the place don't over fish how do

1044

00:45:51,390 --> 00:45:48,940

you keep them in balance yes overfishing

1045

00:45:52,920 --> 00:45:51,400

can lead to an increase in sea urchin

1046

00:45:54,760 --> 00:45:52,930

numbers because some of the larger fish

1047

00:45:56,350 --> 00:45:54,770

actually the sea urchins

1048

00:45:58,720 --> 00:45:56,360

and where can people find out more about

1049

00:46:01,840 --> 00:45:58,730

the lizard island research station and

1050

00:46:03,130 --> 00:46:01,850

they have a great website the link can

1051

00:46:05,230 --> 00:46:03,140

be found on the Australian Museum

1052

00:46:10,300 --> 00:46:05,240

website okay thank you very much have a

1053

00:46:11,830 --> 00:46:10,310

good science week well look I'm someone

1054

00:46:13,600 --> 00:46:11,840

who is not very good when you mentioned

1055

00:46:15,640 --> 00:46:13,610

the word machine code I think of the Lou

1056

00:46:17,410 --> 00:46:15,650

Reed album and I really not all that

1057

00:46:18,700 --> 00:46:17,420

good at this sort of thing but what are

1058

00:46:20,110 --> 00:46:18,710

we got in front of us in who are you

1059

00:46:22,600 --> 00:46:20,120

what are you doing here at science week

1060

00:46:25,690 --> 00:46:22,610

thanks for asking um so we're code club

1061

00:46:27,190 --> 00:46:25,700

australia and what we do is we we're a

1062

00:46:29,350 --> 00:46:27,200

network of educators and volunteers

1063

00:46:30,760 --> 00:46:29,360

teaching kids to code we start with what

1064

00:46:33,610 --> 00:46:30,770

we have in front of us which is scratch

1065

00:46:35,680 --> 00:46:33,620

bring on the code computer code that's

1066

00:46:37,810 --> 00:46:35,690

right this is the language of of

1067

00:46:39,340 --> 00:46:37,820

computers essentially this is the

1068

00:46:42,100 --> 00:46:39,350

language that tells computers to do

1069

00:46:44,830 --> 00:46:42,110

certain things it gets spaceships into

1070

00:46:46,690 --> 00:46:44,840

space and it also helps websites become

1071

00:46:48,640 --> 00:46:46,700

alive and apps on your phone work are we

1072

00:46:51,580 --> 00:46:48,650

going as deep as actual machine code or

1073

00:46:53,950 --> 00:46:51,590

not well you can use what we have to do

1074

00:46:57,100 --> 00:46:53,960

to program machines but what we've got

1075

00:47:00,310 --> 00:46:57,110

here is more of a concept of coding to

1076

00:47:02,830 --> 00:47:00,320

do things more in the digital space now

1077

00:47:05,530 --> 00:47:02,840

what we teach in scratch can be used to

1078

00:47:08,020 --> 00:47:05,540

control things like robots for education

1079

00:47:10,630 --> 00:47:08,030

so it does go further into the internet

1080

00:47:12,040 --> 00:47:10,640

of things but it is primarily just the

1081

00:47:13,930 --> 00:47:12,050

concept of coding that we're teaching

1082

00:47:15,310 --> 00:47:13,940

and what's the thing that we need to get

1083

00:47:17,380 --> 00:47:15,320

our head around when we're thinking of

1084

00:47:18,910 --> 00:47:17,390

coding what is the concept of coding

1085

00:47:20,800 --> 00:47:18,920

right so really what we're teaching

1086

00:47:22,840 --> 00:47:20,810

children to do is problem-solve on a

1087

00:47:25,150 --> 00:47:22,850

deeper level it's a word called or a

1088

00:47:27,070 --> 00:47:25,160

phrase called computational thinking so

1089

00:47:28,480 --> 00:47:27,080

rather than just taking a child and

1090

00:47:30,610 --> 00:47:28,490

sitting them down and teaching the maths

1091

00:47:32,260 --> 00:47:30,620

from a book what we're doing is we're

1092

00:47:34,600 --> 00:47:32,270

teaching them complex algorithms and

1093

00:47:36,030 --> 00:47:34,610

problem solving by giving them a real

1094

00:47:39,190 --> 00:47:36,040

life problem

1095

00:47:42,160 --> 00:47:39,200

for example for example if you want to

1096

00:47:43,660 --> 00:47:42,170

talk about the renewable water system

1097

00:47:46,390 --> 00:47:43,670

how can they demonstrate understanding

1098

00:47:48,880 --> 00:47:46,400

the renewable water system and then

1099

00:47:52,210 --> 00:47:48,890

through complex coding language they can

1100

00:47:53,770 --> 00:47:52,220

actually break that down and demonstrate

1101
00:47:56,730 --> 00:47:53,780
their understanding of it then they can

1102
00:47:59,530 --> 00:47:56,740
use algorithms in order to animate and

1103
00:48:01,630 --> 00:47:59,540
show that they've discovered the rate at

1104
00:48:04,090 --> 00:48:01,640
which water would be precipitated and

1105
00:48:05,320 --> 00:48:04,100
then released from a cloud that's much

1106
00:48:06,540 --> 00:48:05,330
more complicated than I thought I

1107
00:48:08,470 --> 00:48:06,550
thought a good example would be

1108
00:48:09,190 --> 00:48:08,480
translating from English to facial

1109
00:48:10,870 --> 00:48:09,200
something like that because that's

1110
00:48:12,130 --> 00:48:10,880
pretty much a black and white kind of

1111
00:48:14,110 --> 00:48:12,140
thing but what you're talking about

1112
00:48:16,000 --> 00:48:14,120
requires an algorithm that's right

1113
00:48:17,950 --> 00:48:16,010

that's right I think it's exciting to

1114

00:48:20,230 --> 00:48:17,960

see kids actually begging to do more

1115

00:48:22,870 --> 00:48:20,240

maths certainly something I would never

1116

00:48:25,240 --> 00:48:22,880

do I maths is where I really failed and

1117

00:48:27,340 --> 00:48:25,250

what what programming language is it

1118

00:48:31,090 --> 00:48:27,350

cause a specific language we start with

1119

00:48:33,670 --> 00:48:31,100

scratch MIT based project open source

1120

00:48:35,620 --> 00:48:33,680

projects we also move into HTML and then

1121

00:48:38,050 --> 00:48:35,630

we we end with Python

1122

00:48:40,270 --> 00:48:38,060

right okay and once they're at Python

1123

00:48:41,800 --> 00:48:40,280

they can do lots of things cathay python

1124

00:48:43,900 --> 00:48:41,810

is a real world language that are used

1125

00:48:45,450 --> 00:48:43,910

by app developers and web developers

1126

00:48:48,850 --> 00:48:45,460

there was actually just a conference for

1127

00:48:50,260 --> 00:48:48,860

Python developers in Brisbane whoa so

1128

00:48:51,850 --> 00:48:50,270

what about good old-fashioned the

1129

00:48:53,650 --> 00:48:51,860

original Doss or maybe Ruby on Rails

1130

00:48:55,930 --> 00:48:53,660

what about that or God is it oh no

1131

00:48:57,790 --> 00:48:55,940

Ruby's amazing actually we were

1132

00:49:00,280 --> 00:48:57,800

discussing developing some review

1133

00:49:02,290 --> 00:49:00,290

materials the thing is there are many

1134

00:49:04,450 --> 00:49:02,300

coding languages as her artist languages

1135

00:49:07,150 --> 00:49:04,460

well if you had to learn just one what

1136

00:49:09,250 --> 00:49:07,160

would a big Python I don't think that's

1137

00:49:11,380 --> 00:49:09,260

a that's an answer I can give I really

1138

00:49:13,600 --> 00:49:11,390

think it is good to just like speaking

1139

00:49:15,550 --> 00:49:13,610

it any language to know many because

1140

00:49:17,050 --> 00:49:15,560

that makes you more compatible to work

1141

00:49:18,640 --> 00:49:17,060

with other teams and more collaborative

1142

00:49:21,040 --> 00:49:18,650

all right what's the most frustrating

1143

00:49:22,090 --> 00:49:21,050

thing for you using a computer someone

1144

00:49:23,260 --> 00:49:22,100

who knows a little bit about the

1145

00:49:24,820 --> 00:49:23,270

language that's going on underneath that

1146

00:49:25,960 --> 00:49:24,830

bother what's the most frustrating thing

1147

00:49:28,390 --> 00:49:25,970

that people just haven't seemed to

1148

00:49:30,340 --> 00:49:28,400

absolve to make them more intuitive well

1149

00:49:32,230 --> 00:49:30,350

I'm one thing that I'm a really big fan

1150

00:49:34,690 --> 00:49:32,240

of is open source and creative commons

1151
00:49:36,670 --> 00:49:34,700
and so I really appreciate when things

1152
00:49:39,400 --> 00:49:36,680
are open and available oh you must

1153
00:49:40,960 --> 00:49:39,410
really hide Apple then actually I really

1154
00:49:43,630 --> 00:49:40,970
appreciate apple and I think that we're

1155
00:49:44,920 --> 00:49:43,640
all sort of working toward a better way

1156
00:49:46,720 --> 00:49:44,930
of sharing and learning from

1157
00:49:49,090 --> 00:49:46,730
technologies but that's my big

1158
00:49:50,680 --> 00:49:49,100
frustration is when we are working with

1159
00:49:52,780 --> 00:49:50,690
a school that's been given lots of

1160
00:49:55,120 --> 00:49:52,790
limitations and they can't take part in

1161
00:49:56,500 --> 00:49:55,130
learning from open source technology do

1162
00:49:58,120 --> 00:49:56,510
you think Linux is ready for primetime

1163
00:49:59,650 --> 00:49:58,130

yet do you think if someone like me goes

1164

00:50:01,540 --> 00:49:59,660

that's it I'm going to wipe this off my

1165

00:50:03,760 --> 00:50:01,550

mac and gonna run it on Linux that I

1166

00:50:05,590 --> 00:50:03,770

will spend a lot of time troubleshooting

1167

00:50:07,210 --> 00:50:05,600

it or was it quite ready yet I was

1168

00:50:08,950 --> 00:50:07,220

working with one of Australia's big

1169

00:50:11,080 --> 00:50:08,960

telco companies earlier this week and I

1170

00:50:13,480 --> 00:50:11,090

was happy to learn that a lot of the

1171

00:50:16,600 --> 00:50:13,490

developers have less or sort of hacked

1172

00:50:18,340 --> 00:50:16,610

their Apple machines to run Linux so I

1173

00:50:20,980 --> 00:50:18,350

think that Linux is coming around to

1174

00:50:22,240 --> 00:50:20,990

really being recognized as being a more

1175

00:50:24,370 --> 00:50:22,250

collaborative and open source player

1176
00:50:26,380 --> 00:50:24,380
yeah what about the even more obscure

1177
00:50:28,510 --> 00:50:26,390
open source one says is that this even

1178
00:50:30,790 --> 00:50:28,520
the more that are obscure than Linux

1179
00:50:32,980 --> 00:50:30,800
what are they called ah as far as

1180
00:50:33,690 --> 00:50:32,990
operating system well I know I know I

1181
00:50:39,240 --> 00:50:33,700
know

1182
00:50:41,880 --> 00:50:39,250
come around as a really great system it

1183
00:50:43,320 --> 00:50:41,890
runs on a linux kernel though so I can't

1184
00:50:45,900 --> 00:50:43,330
say that I'm the expert in that in that

1185
00:50:47,250 --> 00:50:45,910
realm yeah oh and where can people find

1186
00:50:49,050 --> 00:50:47,260
out more about the code club australia

1187
00:50:51,180 --> 00:50:49,060
or get a bit more information about what

1188
00:50:53,100 --> 00:50:51,190

you up to yeah look twitter is a great

1189

00:50:57,900 --> 00:50:53,110

way to get in touch with us at code club

1190

00:51:01,230 --> 00:50:57,910

oz a us then we're also online at www

1191

00:51:04,200 --> 00:51:01,240

org so do html5 work out as well as

1192

00:51:06,690 --> 00:51:04,210

everyone hope you're not no comment

1193

00:51:08,550 --> 00:51:06,700

because the video tag just doesn't seem

1194

00:51:10,170 --> 00:51:08,560

to work the way it should yeah I think

1195

00:51:12,120 --> 00:51:10,180

the more the most familiar way that

1196

00:51:14,520 --> 00:51:12,130

people are more of a people are familiar

1197

00:51:15,780 --> 00:51:14,530

with HTML from the error message that

1198

00:51:17,370 --> 00:51:15,790

they get up on their computer than they

1199

00:51:19,170 --> 00:51:17,380

are with the language itself but you

1200

00:51:20,520 --> 00:51:19,180

know what I think that that's if that's

1201
00:51:22,380 --> 00:51:20,530
a way that we've introduced people to

1202
00:51:24,390 --> 00:51:22,390
the concept then that's doing its job as

1203
00:51:26,250 --> 00:51:24,400
well where are we along with the

1204
00:51:28,890 --> 00:51:26,260
protocol for the internet are we at HTML

1205
00:51:30,660 --> 00:51:28,900
sick [h__h] or would beyond that well I'm

1206
00:51:32,790 --> 00:51:30,670
actually not a coder myself I develop

1207
00:51:34,830 --> 00:51:32,800
curriculum for children so you're

1208
00:51:37,290 --> 00:51:34,840
talking to the wrong kind of expert ok

1209
00:51:38,550 --> 00:51:37,300
I'm talking to an expert and the

1210
00:51:42,210 --> 00:51:38,560
question is asking it's an expert in

1211
00:51:44,280 --> 00:51:42,220
nothing yeah so fair enough yeah I think

1212
00:51:46,020 --> 00:51:44,290
HTML 6 is something I've seen and heard

1213
00:51:47,700 --> 00:51:46,030

of but it's not something I i'm familiar

1214

00:51:49,320 --> 00:51:47,710

with personally ok thank you have a

1215

00:51:50,700 --> 00:51:49,330

great day he would look um what do you

1216

00:51:51,810 --> 00:51:50,710

think of science wig you've got kids

1217

00:51:52,920 --> 00:51:51,820

coming up to getting interested in

1218

00:51:54,930 --> 00:51:52,930

science you know did that have it every

1219

00:51:57,240 --> 00:51:54,940

day no i love this i love the direct

1220

00:51:58,860 --> 00:51:57,250

service part of my job often times i end

1221

00:52:00,990 --> 00:51:58,870

up as stuck in the office and i've been

1222

00:52:23,450 --> 00:52:01,000

playing all week and it's been amazing

1223

00:52:27,450 --> 00:52:25,799

thank you for listening to the skeptic

1224

00:52:30,510 --> 00:52:27,460

zone and don't forget people in Sydney

1225

00:52:34,650 --> 00:52:30,520

Sunday the 11th of october i had

1226
00:52:36,890 --> 00:52:34,660
Stratton's hotel from 1pm to 6pm Susan

1227
00:52:39,510 --> 00:52:36,900
go Beck an afternoon of eating drinking

1228
00:52:41,640 --> 00:52:39,520
skepticism bring your laptop it should

1229
00:52:46,620 --> 00:52:41,650
be a lot of fun and you can find out

1230
00:52:49,530 --> 00:52:46,630
more by going to meetup.com / aust a ust

1231
00:52:51,900 --> 00:52:49,540
skeptics and find out more information

1232
00:52:54,240 --> 00:52:51,910
there hope to see you there if you want

1233
00:52:57,030 --> 00:52:54,250
to come along I it would be good if you

1234
00:53:00,059 --> 00:52:57,040
could RSVP on [meetup](http://meetup.com) just so we have a

1235
00:53:03,349 --> 00:53:00,069
sort of idea of numbers and thank you

1236
00:53:07,470 --> 00:53:03,359
once again to the ever delightful and

1237
00:53:09,569 --> 00:53:07,480
knowledgeable dr. Pamela gay I had sir

1238
00:53:12,690 --> 00:53:09,579

so I said at the top of the show it's a

1239

00:53:14,940 --> 00:53:12,700

particular pleasure interviewing Pamela

1240

00:53:16,980 --> 00:53:14,950

gay I learned so much and if you haven't

1241

00:53:18,569 --> 00:53:16,990

already done so it's time to get your

1242

00:53:21,390 --> 00:53:18,579

tickets for the Australian skeptics

1243

00:53:24,990 --> 00:53:21,400

national convention in Brisbane from the

1244

00:53:28,380 --> 00:53:25,000

16th to 18th of October convention got

1245

00:53:30,210 --> 00:53:28,390

Brisbane skeptics or gives you all the

1246

00:53:32,309 --> 00:53:30,220

information the complete lineup

1247

00:53:34,920 --> 00:53:32,319

including Nobel laureate Brian Schmidt

1248

00:53:37,650 --> 00:53:34,930

joe nickell Eugenie Scott Susan go back

1249

00:53:39,240 --> 00:53:37,660

and a host of other skeptics i'll be

1250

00:53:41,520 --> 00:53:39,250

there maynard will be there Jay

1251
00:53:43,380 --> 00:53:41,530
alabaster answer give Heidi from the

1252
00:53:45,870 --> 00:53:43,390
skeptical zone it promises to be a

1253
00:53:50,280 --> 00:53:45,880
fabulous event convention doc Brisbane

1254
00:53:52,859 --> 00:53:50,290
skeptics.org and well I hope to see you

1255
00:53:57,780 --> 00:53:52,869
there but before I go in my hot little

1256
00:53:59,490 --> 00:53:57,790
hands here I have the latest copy of the

1257
00:54:02,490 --> 00:53:59,500
skeptical magazine the journal from

1258
00:54:06,329 --> 00:54:02,500
Australian skeptics volume 35 number 3

1259
00:54:09,120 --> 00:54:06,339
September 2015 regulation roundup how

1260
00:54:12,809 --> 00:54:09,130
good are the enforcement's scientists

1261
00:54:15,690 --> 00:54:12,819
and soldiers monsters and the media what

1262
00:54:18,569 --> 00:54:15,700
a good issue at ears footer oh look at

1263
00:54:20,250 --> 00:54:18,579

that donegal by me well I better read

1264

00:54:21,960 --> 00:54:20,260

that and see what I said the skeptic

1265

00:54:24,660 --> 00:54:21,970

magazine the journal from Australian

1266

00:54:29,510 --> 00:54:24,670

skeptics and you can subscribe online at

1267

00:54:33,910 --> 00:54:29,520

skeptics com au for this fine journal

1268

00:54:39,160 --> 00:54:33,920

hmm your foes it's interesting

1269

00:54:41,289 --> 00:54:39,170

oh yeah hmm well coming up on next

1270

00:54:43,539 --> 00:54:41,299

week's show your guess is as good as

1271

00:54:45,520 --> 00:54:43,549

mine we'll find out soon enough some

1272

00:54:47,950 --> 00:54:45,530

interviews some reports maybe Heidi

1273

00:54:51,309 --> 00:54:47,960

maybe Joe maybe may done maybe Iran

1274

00:54:53,079 --> 00:54:51,319

maybe dr. ricci maybe me you'll have to

1275

00:54:54,010 --> 00:54:53,089

tune in and find out but thank you for

1276

00:54:57,250 --> 00:54:54,020

doing that and thank you for those

1277

00:55:01,150 --> 00:54:57,260

people who do contribute kick in help

1278

00:55:04,089 --> 00:55:01,160

chip in at skeptic zone TV at the

1279

00:55:07,450 --> 00:55:04,099

subscription link using PayPal less than

1280

00:55:10,299 --> 00:55:07,460

a dollar a week and that money means the

1281

00:55:12,609 --> 00:55:10,309

skeptic zone keeps going but for this

1282

00:55:19,180 --> 00:55:12,619

week this is Richard Saunders signing

1283

00:55:20,849 --> 00:55:19,190

off from Sydney Australia you've been

1284

00:55:25,420 --> 00:55:20,859

listening to the skeptics own podcast

1285

00:55:28,030 --> 00:55:25,430

visit our website at WCA pegs on TV for

1286

00:55:32,109 --> 00:55:28,040

contacts and archive of all episodes

1287

00:55:34,240 --> 00:55:32,119

since 2008 and our online store please

1288

00:55:37,569 --> 00:55:34,250

support the skeptic zone by following us

1289

00:55:40,559 --> 00:55:37,579

on twitter at skeptic zone liking us on

1290

00:55:42,910 --> 00:55:40,569

facebook and leaving a review on iTunes

1291

00:55:45,579 --> 00:55:42,920

you can also show your support by

1292

00:55:49,329 --> 00:55:45,589

subscribing via paypal for as little as

1293

00:55:51,370 --> 00:55:49,339

99 cents a week the skeptic zone is an

1294

00:55:53,470 --> 00:55:51,380

independent production the views and

1295

00:55:55,660 --> 00:55:53,480

opinions expressed on the skeptic zone

1296

00:55:58,539 --> 00:55:55,670

and not necessarily those of Australian

1297

00:56:01,160 --> 00:55:58,549

skeptics or any other skeptical