

1
00:00:00,000 --> 00:00:09,089
[Music]

2
00:00:05,929 --> 00:00:11,839
welcome to the skeptic zone the podcast

3
00:00:09,089 --> 00:00:13,919
from Australia for science and reason

4
00:00:11,839 --> 00:00:16,850
[Music]

5
00:00:13,919 --> 00:00:22,880
[Applause]

6
00:00:16,850 --> 00:00:25,618
[Music]

7
00:00:22,879 --> 00:00:28,739
hello and welcome to the skeptics on

8
00:00:25,618 --> 00:00:32,579
episode number 515 for the 2nd of

9
00:00:28,739 --> 00:00:34,589
September 2018 richardsaunders here with

10
00:00:32,579 --> 00:00:38,099
you from Sydney Australia a little bit

11
00:00:34,590 --> 00:00:39,420
cold for spring and I know the rest of

12
00:00:38,100 --> 00:00:41,640
the world saying hang on a minute the

13
00:00:39,420 --> 00:00:43,800
seasons haven't changed yet but for some

14
00:00:41,640 --> 00:00:45,628
reason here in Australia we regard the

15
00:00:43,799 --> 00:00:49,649
first day of September as the first day

16
00:00:45,628 --> 00:00:52,198
of spring even if the real first day of

17
00:00:49,649 --> 00:00:54,000
spring isn't until a bit later go figure

18
00:00:52,198 --> 00:00:55,460
that one out quite frankly I wouldn't

19
00:00:54,000 --> 00:00:58,049
mind if the first day of spring was

20
00:00:55,460 --> 00:01:00,000
delayed until next year but that's just

21
00:00:58,049 --> 00:01:02,908
me coming up on this week's episode of

22
00:01:00,000 --> 00:01:04,650
the skeptic zone we chat to associate

23
00:01:02,908 --> 00:01:07,590
adjunct hang on answer that egg junk

24
00:01:04,650 --> 00:01:11,130
professor ptosis professor ed JA we

25
00:01:07,590 --> 00:01:13,409
procedure them associate adjunct

26
00:01:11,129 --> 00:01:15,560
associate we chat the poor Willis a

27
00:01:13,409 --> 00:01:18,840
longtime friend of the sceptic zone

28
00:01:15,560 --> 00:01:21,780
dating way back to the early days Paul

29

00:01:18,840 --> 00:01:23,609
used to work at our I oz as the director

30
00:01:21,780 --> 00:01:25,829
there and that's when we were bringing

31
00:01:23,609 --> 00:01:27,780
you a week in science for many years

32
00:01:25,829 --> 00:01:29,969
Paul's gonna be talking to us about a

33
00:01:27,780 --> 00:01:34,560
recent survey that came out that shows a

34
00:01:29,969 --> 00:01:37,019
decline in the belief of or the belief

35
00:01:34,560 --> 00:01:38,760
in creationism amongst university

36
00:01:37,019 --> 00:01:42,719
students which must be a good thing and

37
00:01:38,760 --> 00:01:44,880
his take on the secular outlook a piece

38
00:01:42,719 --> 00:01:46,920
of his mind with Paul Willis coming up

39
00:01:44,879 --> 00:01:49,140
at the top of the show following that

40
00:01:46,920 --> 00:01:50,750
it's our new reporter Michele Franklin

41
00:01:49,140 --> 00:01:54,359
from Darwin in the Northern Territory

42
00:01:50,750 --> 00:01:56,459
with her segment life is wild and

43
00:01:54,359 --> 00:01:59,719

Michelle segments are going to be

44

00:01:56,459 --> 00:02:02,639

focusing on wildlife and animal issues

45

00:01:59,719 --> 00:02:05,819

very interesting this week to kick off

46

00:02:02,640 --> 00:02:10,739

she's going to be looking at our cats in

47

00:02:05,819 --> 00:02:11,639

danger of being eaten by snakes B that's

48

00:02:10,739 --> 00:02:14,700

an interesting one

49

00:02:11,639 --> 00:02:16,649

the story of Maggie the moggy bent

50

00:02:14,699 --> 00:02:19,289

around off the show the last part of our

51

00:02:16,650 --> 00:02:21,989

speed meet the scientists that was a

52

00:02:19,289 --> 00:02:24,840

wonderful night here in Sydney a couple

53

00:02:21,989 --> 00:02:27,480

of weeks ago during science week this

54

00:02:24,840 --> 00:02:30,718

week we're going to speed meet a marine

55

00:02:27,479 --> 00:02:34,318

archeologist and evolutionary biologist

56

00:02:30,718 --> 00:02:37,438

a behavioral neuroscientist a linguist

57

00:02:34,318 --> 00:02:41,128

and an astronomer well that's enough for

58
00:02:37,438 --> 00:02:43,289
me I'm gonna run downstairs try out some

59
00:02:41,128 --> 00:02:45,000
sweet potato pasta eat that very quickly

60
00:02:43,289 --> 00:02:47,598
come back and bring you the rest of the

61
00:02:45,000 --> 00:02:47,598
skeptic zone

62
00:02:51,659 --> 00:03:15,740
a piece of his mind with Professor Paul

63
00:03:13,469 --> 00:03:22,370
Willis

64
00:03:15,740 --> 00:03:25,459
[Music]

65
00:03:22,370 --> 00:03:28,099
and joining me now all the way from

66
00:03:25,459 --> 00:03:30,170
Adelaide from media engagement services

67
00:03:28,098 --> 00:03:32,929
is none other than professor Paul Willis

68
00:03:30,169 --> 00:03:34,969
hello Paul oh thank you very much for

69
00:03:32,930 --> 00:03:37,370
the promotion it's actually only an

70
00:03:34,969 --> 00:03:39,259
adjunct asana see a professor but I'll

71
00:03:37,370 --> 00:03:41,360
gladly take the professorship thank you

72
00:03:39,259 --> 00:03:42,679
very much well not many people go to the

73
00:03:41,360 --> 00:03:46,209
bother of saying all the other things

74
00:03:42,680 --> 00:03:46,209
it's normally just professor isn't it

75
00:03:46,239 --> 00:03:53,378
technically no I am only an adjunct

76
00:03:49,039 --> 00:03:53,378
associate but yeah there you go

77
00:03:53,389 --> 00:03:57,378
nicely catch up with you Paul long time

78
00:03:55,400 --> 00:03:59,840
listeners to the skipping zone we'll rim

79
00:03:57,378 --> 00:04:00,919
well remember the contributions you've

80
00:03:59,840 --> 00:04:03,229
made to the show over the years

81
00:04:00,919 --> 00:04:05,179
especially with a week in science some

82
00:04:03,229 --> 00:04:07,729
years ago when you were at our IR s are

83
00:04:05,180 --> 00:04:10,519
good times you've moved on since then

84
00:04:07,729 --> 00:04:13,608
tell us a little bit about this meteor

85
00:04:10,519 --> 00:04:16,399
engagement look basically our main

86

00:04:13,609 --> 00:04:19,819
proposition is we can show researchers

87
00:04:16,399 --> 00:04:22,549
how to communicate their research using

88
00:04:19,819 --> 00:04:25,399
social media basically they can take

89
00:04:22,550 --> 00:04:28,280
control of their message and by doing so

90
00:04:25,399 --> 00:04:32,569
they can actually increase the impact of

91
00:04:28,279 --> 00:04:35,478
their research so we've worked out how

92
00:04:32,569 --> 00:04:39,079
to string together various social media

93
00:04:35,478 --> 00:04:41,269
platforms so that you create a network

94
00:04:39,079 --> 00:04:43,550
that reaches out specifically to the

95
00:04:41,269 --> 00:04:45,649
people who are actually interested in

96
00:04:43,550 --> 00:04:48,110
your research I think the basic

97
00:04:45,649 --> 00:04:50,538
proposition is you know a lot of people

98
00:04:48,110 --> 00:04:53,090
go into research communication and they

99
00:04:50,538 --> 00:04:55,399
think I want to tell the world about my

100
00:04:53,089 --> 00:04:58,728

research and it's like now why bother

101

00:04:55,399 --> 00:05:00,469

why bother going on television talking

102

00:04:58,728 --> 00:05:02,329

to a million people who couldn't really

103

00:05:00,470 --> 00:05:05,270

give a toss about what you're doing a

104

00:05:02,329 --> 00:05:08,060

much better value proposition is to set

105

00:05:05,269 --> 00:05:09,978

up a dedicated audience it might only be

106

00:05:08,060 --> 00:05:11,360

a couple of dozen people but if those

107

00:05:09,978 --> 00:05:13,609

people are actually going to take your

108

00:05:11,360 --> 00:05:15,169

research and do something with it that's

109

00:05:13,610 --> 00:05:18,710

the audience you need to be talking to

110

00:05:15,168 --> 00:05:20,719

so that's my basics pitch yeah and very

111

00:05:18,709 --> 00:05:23,089

interesting and just before we get on

112

00:05:20,720 --> 00:05:25,729

with the rest of the chat how can people

113

00:05:23,089 --> 00:05:28,819

look at that information online media

114

00:05:25,728 --> 00:05:31,389

engagement services.com do it's all

115
00:05:28,819 --> 00:05:35,538
there on our website we can produce

116
00:05:31,389 --> 00:05:36,079
seminars or workshops video tutorials

117
00:05:35,538 --> 00:05:38,478
and

118
00:05:36,079 --> 00:05:41,180
way to get this this kind of information

119
00:05:38,478 --> 00:05:43,250
across to researchers and folks of

120
00:05:41,180 --> 00:05:45,228
course Paul Willis has the runs on the

121
00:05:43,250 --> 00:05:48,079
board with long experience in the media

122
00:05:45,228 --> 00:05:50,598
and on TV and many Australians will

123
00:05:48,079 --> 00:05:52,188
remember but right now Paul I'm very

124
00:05:50,598 --> 00:05:54,860
interested in the story that I think you

125
00:05:52,189 --> 00:05:58,430
brought to my attention via a Twitter or

126
00:05:54,860 --> 00:06:01,129
Facebook a couple of weeks ago and it

127
00:05:58,430 --> 00:06:02,959
seems fewer Australian University

128
00:06:01,129 --> 00:06:05,870
students than ever believed in

129
00:06:02,959 --> 00:06:07,878
creationism and this is sort of research

130
00:06:05,870 --> 00:06:11,090
done by our mutual friend professor Mike

131
00:06:07,879 --> 00:06:13,849
Archer yeah who is actually my former

132
00:06:11,089 --> 00:06:16,218
supervisor and in fact in the very year

133
00:06:13,848 --> 00:06:22,389
that I started with him as a research

134
00:06:16,218 --> 00:06:26,810
student 1986 he started a regular annual

135
00:06:22,389 --> 00:06:29,418
survey of first year students asking

136
00:06:26,810 --> 00:06:31,908
which of four positions they actually

137
00:06:29,418 --> 00:06:33,918
hold true so these are students at the

138
00:06:31,908 --> 00:06:37,129
beginning of their university career in

139
00:06:33,918 --> 00:06:40,818
science in biological sciences and the

140
00:06:37,129 --> 00:06:43,370
four options are evolution without any

141
00:06:40,819 --> 00:06:45,468
kind of supernatural interference the

142
00:06:43,370 --> 00:06:47,538
second is that evolution has occurred

143

00:06:45,468 --> 00:06:50,329
but there has been a god or some other

144
00:06:47,538 --> 00:06:54,318
supernatural influence in over the whole

145
00:06:50,329 --> 00:06:57,859
process then there's adherence to

146
00:06:54,319 --> 00:07:02,300
creationism and the fourth category is

147
00:06:57,860 --> 00:07:05,300
don't really know and he's conducted

148
00:07:02,300 --> 00:07:07,639
that now for what thirty two years so

149
00:07:05,300 --> 00:07:10,389
he's got a really interesting set of

150
00:07:07,639 --> 00:07:13,240
data now which shows some very

151
00:07:10,389 --> 00:07:17,240
intriguing trend lines basically

152
00:07:13,240 --> 00:07:18,740
creationism amongst first year biology

153
00:07:17,240 --> 00:07:24,408
students at the University of New South

154
00:07:18,740 --> 00:07:26,478
Wales has dropped from about 12% down to

155
00:07:24,408 --> 00:07:29,079
just a few percent mmm but there is

156
00:07:26,478 --> 00:07:32,838
there is a significant decline in

157
00:07:29,079 --> 00:07:36,019

first-year students who are committed

158

00:07:32,838 --> 00:07:41,930

creationists but the most interesting

159

00:07:36,019 --> 00:07:45,109

drop is a very large drop in the number

160

00:07:41,930 --> 00:07:48,199

of theistic evolutionists so those are

161

00:07:45,110 --> 00:07:49,670

the the ones who tick the box saying

162

00:07:48,199 --> 00:07:53,990

evolution has occurred but

163

00:07:49,670 --> 00:07:56,569

being guided by God and commensurate

164

00:07:53,990 --> 00:08:01,759

with the drop in theistic evolution has

165

00:07:56,569 --> 00:08:05,659

been the rise of non theistic evolution

166

00:08:01,759 --> 00:08:08,029

of straight no God involved scientific

167

00:08:05,660 --> 00:08:11,660

evolution the grass that are generated

168

00:08:08,029 --> 00:08:14,539

and I can recommend that the listeners

169

00:08:11,660 --> 00:08:17,860

go and chase up these reports on this

170

00:08:14,540 --> 00:08:21,650

particular study because the grass

171

00:08:17,860 --> 00:08:25,910

generated there's a clear X with the

172
00:08:21,649 --> 00:08:29,750
decline of theistic evolution and the

173
00:08:25,910 --> 00:08:31,610
rise of plain evolutionary biology it's

174
00:08:29,750 --> 00:08:33,500
interesting because I mean ever since I

175
00:08:31,610 --> 00:08:35,600
have known you Paul that's been one of

176
00:08:33,500 --> 00:08:38,509
the major issues you've certainly been

177
00:08:35,600 --> 00:08:41,210
concerned with and if I hark back to the

178
00:08:38,509 --> 00:08:43,759
the origins of the Australian skeptics

179
00:08:41,210 --> 00:08:45,980
apart from spoon bending in UFOs and all

180
00:08:43,759 --> 00:08:48,500
the good stuff from the 1970s one of the

181
00:08:45,980 --> 00:08:50,539
huge issues that the Australians the

182
00:08:48,500 --> 00:08:53,990
Australian skeptics tackled in the early

183
00:08:50,539 --> 00:08:56,839
days was creationism and these days it

184
00:08:53,990 --> 00:08:58,639
hardly registers on the radar at all is

185
00:08:56,840 --> 00:09:02,530
that what you're you're finding is as

186
00:08:58,639 --> 00:09:06,159
well yeah I might my introduction to

187
00:09:02,529 --> 00:09:10,039
skepticism was through my work with

188
00:09:06,159 --> 00:09:11,870
creationism or against creationism I was

189
00:09:10,039 --> 00:09:14,860
arguing in primary school against

190
00:09:11,870 --> 00:09:18,440
teachers who were putting forward

191
00:09:14,860 --> 00:09:21,980
creationist message and yes there does

192
00:09:18,440 --> 00:09:25,160
seem to be a drop-off in Australia of

193
00:09:21,980 --> 00:09:27,350
the creationist message it doesn't seem

194
00:09:25,159 --> 00:09:30,589
to be as widespread or as pervasive as

195
00:09:27,350 --> 00:09:33,320
it was even 10 years ago when we had the

196
00:09:30,590 --> 00:09:36,200
whole intelligent design debacle yes

197
00:09:33,320 --> 00:09:38,600
which are reported on that for catalyst

198
00:09:36,200 --> 00:09:43,250
and you know we went went out to a

199
00:09:38,600 --> 00:09:46,540
school a Christian school in the hill

200

00:09:43,250 --> 00:09:48,769
suburbs of Sydney and they were

201
00:09:46,539 --> 00:09:50,870
presenting intelligent design in the

202
00:09:48,769 --> 00:09:52,909
classroom as look this is a possible

203
00:09:50,870 --> 00:09:54,919
alternative you know makes you think

204
00:09:52,909 --> 00:09:57,199
doesn't it no it it only makes you think

205
00:09:54,919 --> 00:10:00,769
if you don't know what the subject is

206
00:09:57,200 --> 00:10:03,230
you know it's it was adequately

207
00:10:00,769 --> 00:10:08,539
described as the lipstick on

208
00:10:03,230 --> 00:10:11,060
Pig of creations you know we it looks

209
00:10:08,539 --> 00:10:13,429
like from the data that's come in that

210
00:10:11,059 --> 00:10:14,419
that creationist influent has dropped

211
00:10:13,429 --> 00:10:18,699
off hmm

212
00:10:14,419 --> 00:10:23,569
but more importantly the whole

213
00:10:18,700 --> 00:10:26,660
abandoning of theistic evolution that's

214
00:10:23,570 --> 00:10:30,200

really well reflected in the census data

215

00:10:26,659 --> 00:10:34,399

which shows the rise of secularism of

216

00:10:30,200 --> 00:10:38,030

people choosing no religion as their

217

00:10:34,399 --> 00:10:42,889

first option on the census yeah yeah so

218

00:10:38,029 --> 00:10:45,169

this this rise in not simply the

219

00:10:42,889 --> 00:10:48,590

rejection of God but just moving away

220

00:10:45,169 --> 00:10:50,809

from the whole religious question I

221

00:10:48,590 --> 00:10:52,910

think that's what we're actually seeing

222

00:10:50,809 --> 00:10:54,829

reflected in this data refers to your

223

00:10:52,909 --> 00:10:56,539

students yes let's pick up on that

224

00:10:54,830 --> 00:10:58,940

subject in a moment but before we do

225

00:10:56,539 --> 00:11:01,490

that I wonder Paul if you remember about

226

00:10:58,940 --> 00:11:04,430

10 11 years ago you and I in a merry

227

00:11:01,490 --> 00:11:07,669

band of skeptics set off and we attended

228

00:11:04,429 --> 00:11:10,579

a creationist lecture complete with a

229
00:11:07,669 --> 00:11:15,759
model a scale model of Noah's Ark here

230
00:11:10,580 --> 00:11:20,570
in Sydney to so many of them they're all

231
00:11:15,759 --> 00:11:22,659
pulling as each other and you know as

232
00:11:20,570 --> 00:11:29,030
with virtually any subject that

233
00:11:22,659 --> 00:11:30,799
scepticism tackles I maintain that we're

234
00:11:29,029 --> 00:11:33,439
never going to win the battle you're

235
00:11:30,799 --> 00:11:36,079
never going to convince the the the

236
00:11:33,440 --> 00:11:38,390
other side that they're wrong but if you

237
00:11:36,080 --> 00:11:40,580
don't get in there and battle they will

238
00:11:38,389 --> 00:11:45,169
win and we can't afford that

239
00:11:40,580 --> 00:11:47,840
the object isn't a skeptical challenge

240
00:11:45,169 --> 00:11:49,579
to any supernatural proposition the

241
00:11:47,840 --> 00:11:51,500
object isn't to convince the other

242
00:11:49,580 --> 00:11:53,180
person that they're wrong as I said

243
00:11:51,500 --> 00:11:55,370
you're never going to do that they're

244
00:11:53,179 --> 00:11:57,559
committed but because of the online

245
00:11:55,370 --> 00:11:59,990
environment there is a large audience

246
00:11:57,559 --> 00:12:02,569
out there who are watching and they're

247
00:11:59,990 --> 00:12:06,850
the ones whose minds you can change mmm

248
00:12:02,570 --> 00:12:11,390
they're the ones who are looking for the

249
00:12:06,850 --> 00:12:15,500
most reasonable and passionate argument

250
00:12:11,389 --> 00:12:16,850
so you know my tip on arguing against

251
00:12:15,500 --> 00:12:19,458
creationism or

252
00:12:16,850 --> 00:12:22,220
anything that you want to argue online

253
00:12:19,458 --> 00:12:25,849
there's three basic rules take the high

254
00:12:22,220 --> 00:12:28,250
moral ground always be polite and always

255
00:12:25,850 --> 00:12:31,490
bring it back to the evidence mmm if you

256
00:12:28,250 --> 00:12:34,278
take those three then the audience

257

00:12:31,490 --> 00:12:35,990
that's watching that discussion are more

258
00:12:34,278 --> 00:12:40,009
likely to accept what you're going to

259
00:12:35,990 --> 00:12:41,568
say rather than someone who's probably

260
00:12:40,009 --> 00:12:44,120
going to start ranting and name-calling

261
00:12:41,568 --> 00:12:47,629
and obfuscating now let's look at this

262
00:12:44,120 --> 00:12:50,839
whole area of secularism and it just

263
00:12:47,629 --> 00:12:52,879
occurred to me that even though you we

264
00:12:50,839 --> 00:12:54,589
can't convince the hardcore believers on

265
00:12:52,879 --> 00:12:56,958
the other side there are certainly less

266
00:12:54,589 --> 00:12:58,639
of them do you think that's partly

267
00:12:56,958 --> 00:13:03,948
because simply and to put it simply

268
00:12:58,639 --> 00:13:08,269
they're dying out yeah I think that

269
00:13:03,948 --> 00:13:10,490
there's also because now Society allows

270
00:13:08,269 --> 00:13:14,019
more debate and discussion and

271
00:13:10,490 --> 00:13:17,600

questioning of religious propositions

272

00:13:14,019 --> 00:13:18,860

each successive generation is doing

273

00:13:17,600 --> 00:13:21,500

exactly that they're actually

274

00:13:18,860 --> 00:13:23,769

questioning religious propositions and

275

00:13:21,500 --> 00:13:30,230

that they don't simply don't measure up

276

00:13:23,769 --> 00:13:34,879

to the expectations that people require

277

00:13:30,230 --> 00:13:39,079

for a code of living now you throw into

278

00:13:34,879 --> 00:13:40,578

that the abysmal track record of some of

279

00:13:39,078 --> 00:13:45,409

the churches when it comes to things

280

00:13:40,578 --> 00:13:50,179

like pedophilia in the ranks and the

281

00:13:45,409 --> 00:13:53,990

whole same-sex marriage debate that it's

282

00:13:50,179 --> 00:13:56,809

incongruous for many people to think

283

00:13:53,990 --> 00:13:59,930

that these are organizations that are

284

00:13:56,809 --> 00:14:03,588

promising to give you a moral code yeah

285

00:13:59,929 --> 00:14:06,979

and yet they're behaving so immoral and

286

00:14:03,589 --> 00:14:11,120

so all of these factors I think come

287

00:14:06,980 --> 00:14:15,409

together to have people abandoning faith

288

00:14:11,120 --> 00:14:18,139

and belief as a process to knowledge yes

289

00:14:15,409 --> 00:14:21,318

it's interesting so and of course this

290

00:14:18,139 --> 00:14:22,970

is led to in part I guess to the rise of

291

00:14:21,318 --> 00:14:27,649

what we might call the broader secular

292

00:14:22,970 --> 00:14:31,339

outlook yeah you know we have you can

293

00:14:27,649 --> 00:14:33,500

say maybe it's the rise of eighth

294

00:14:31,339 --> 00:14:35,870

but I I think it actually goes beyond

295

00:14:33,500 --> 00:14:38,750

that because you know I've been surfing

296

00:14:35,870 --> 00:14:42,259

along on the whole rise of atheism over

297

00:14:38,750 --> 00:14:43,759

the last decade or more but I've never

298

00:14:42,259 --> 00:14:47,528

really felt comfortable there

299

00:14:43,759 --> 00:14:52,549

because essentially as a proposition

300
00:14:47,528 --> 00:14:56,629
it's not stating what you accept its

301
00:14:52,549 --> 00:14:59,629
stating what you reject mmm and you know

302
00:14:56,629 --> 00:15:01,009
we don't define ourselves as well I'm

303
00:14:59,629 --> 00:15:03,649
not a stamp collector

304
00:15:01,009 --> 00:15:06,409
I mean tell you about me you don't

305
00:15:03,649 --> 00:15:08,720
expect the Catholic to say I'm not a

306
00:15:06,409 --> 00:15:12,799
Protestant that doesn't really tell you

307
00:15:08,720 --> 00:15:17,060
what they are and so by taking a

308
00:15:12,799 --> 00:15:20,629
rejection statement as the your position

309
00:15:17,059 --> 00:15:23,119
statement for what you accept in the

310
00:15:20,629 --> 00:15:26,750
world that that doesn't make sense to me

311
00:15:23,120 --> 00:15:29,950
but also there is an underlying thing

312
00:15:26,750 --> 00:15:34,190
that really it's not that I reject God

313
00:15:29,950 --> 00:15:37,790
it's that I reject belief as a knowledge

314

00:15:34,190 --> 00:15:41,149
system right and if you reject belief as

315
00:15:37,789 --> 00:15:44,509
a knowledge system then you can't accept

316
00:15:41,149 --> 00:15:48,950
the God because a God is only exists as

317
00:15:44,509 --> 00:15:50,929
a belief proposition you cannot provide

318
00:15:48,950 --> 00:15:54,250
evidence that there is a God and

319
00:15:50,929 --> 00:15:58,278
therefore it's a it's a belief statement

320
00:15:54,250 --> 00:16:00,230
so I think that more and more people are

321
00:15:58,278 --> 00:16:02,990
coming around to this it's not a

322
00:16:00,230 --> 00:16:08,320
rejection of God it's a rejection of

323
00:16:02,990 --> 00:16:11,089
belief and that's why I've switched from

324
00:16:08,320 --> 00:16:14,750
identifying as an atheist so identifying

325
00:16:11,089 --> 00:16:17,480
as a secular humanist you know I've now

326
00:16:14,750 --> 00:16:20,839
actually become a an ambassador for the

327
00:16:17,480 --> 00:16:24,889
National Secular Lobby and the basic

328
00:16:20,839 --> 00:16:27,740

proposition is look let's have a truly

329

00:16:24,889 --> 00:16:30,740

secular society where we have the

330

00:16:27,740 --> 00:16:32,810

religious freedom for you to believe and

331

00:16:30,740 --> 00:16:36,440

accept whatever you want

332

00:16:32,809 --> 00:16:38,569

I won't challenge that that you must

333

00:16:36,440 --> 00:16:42,260

play by the rules and there are three

334

00:16:38,570 --> 00:16:43,879

simple rules for a secular society you

335

00:16:42,259 --> 00:16:46,610

must not do any harm

336

00:16:43,879 --> 00:16:49,070

to yourself to your parishioners or to

337

00:16:46,610 --> 00:16:50,350

anybody else through your religious

338

00:16:49,070 --> 00:16:53,900

beliefs or practices

339

00:16:50,350 --> 00:16:57,980

you must not inflict your beliefs on

340

00:16:53,899 --> 00:17:01,360

anybody else in across society and you

341

00:16:57,980 --> 00:17:04,099

must act within the laws of that society

342

00:17:01,360 --> 00:17:06,680

if you stick within those three rules I

343
00:17:04,099 --> 00:17:09,259
don't give a damn what you believe you

344
00:17:06,680 --> 00:17:12,560
know you can go away and believe what

345
00:17:09,259 --> 00:17:15,160
you like but you must maintain that

346
00:17:12,559 --> 00:17:17,389
within the bounds of those three rules

347
00:17:15,160 --> 00:17:19,730
that's interesting and I couldn't help

348
00:17:17,390 --> 00:17:21,949
and I wonder if listeners felt the same

349
00:17:19,730 --> 00:17:24,049
way I couldn't help thinking of Isaac

350
00:17:21,949 --> 00:17:26,959
Asimov's robotic rules when you're

351
00:17:24,049 --> 00:17:29,629
reading those out well maybe with the

352
00:17:26,959 --> 00:17:32,180
rise of in artificial intelligence and

353
00:17:29,630 --> 00:17:35,420
maybe that's the way we do need to to

354
00:17:32,180 --> 00:17:37,640
phrase the laws of secularism maybe

355
00:17:35,420 --> 00:17:40,789
maybe we do oh so you're an ambassador

356
00:17:37,640 --> 00:17:43,900
for the National Secular Lobby and what

357
00:17:40,789 --> 00:17:47,420
else does that entail well let's see

358
00:17:43,900 --> 00:17:52,130
among our ranks are a Christian other--

359
00:17:47,420 --> 00:17:55,940
ambassador Jane Caro Philip Adams and

360
00:17:52,130 --> 00:17:59,560
basically we've been set up to provide

361
00:17:55,940 --> 00:18:03,650
an alternative to groups like the

362
00:17:59,559 --> 00:18:06,139
Australian Christian Lobby so in Paula

363
00:18:03,650 --> 00:18:09,530
in the political arena there is a

364
00:18:06,140 --> 00:18:13,430
secular voice that can be heard above

365
00:18:09,529 --> 00:18:15,230
all of the religious voices that are

366
00:18:13,430 --> 00:18:17,930
injected in there through various other

367
00:18:15,230 --> 00:18:19,789
lobby groups that's interesting because

368
00:18:17,930 --> 00:18:21,680
that's been a particular theme

369
00:18:19,789 --> 00:18:23,599
especially I think here in New South

370
00:18:21,680 --> 00:18:25,370
Wales for a long time with a hardcore

371

00:18:23,599 --> 00:18:30,289
Christian group in their New South Wales

372
00:18:25,369 --> 00:18:34,039
Parliament yeah look I think when you

373
00:18:30,289 --> 00:18:35,539
look across every state and indeed at

374
00:18:34,039 --> 00:18:37,970
the federal level particularly at the

375
00:18:35,539 --> 00:18:40,819
federal level look at this debacle

376
00:18:37,970 --> 00:18:44,210
that's just occurred with the the

377
00:18:40,819 --> 00:18:48,169
leadership of the nation yeah and a

378
00:18:44,210 --> 00:18:51,789
large chunk of that can be shaded home

379
00:18:48,170 --> 00:18:55,009
to the Conservatives who are basically

380
00:18:51,789 --> 00:18:57,440
most of them are extremely religious

381
00:18:55,009 --> 00:19:01,069
people and they're conservative

382
00:18:57,440 --> 00:19:06,440
Vijender is closely allied to their

383
00:19:01,069 --> 00:19:10,038
religious beliefs and so how can we have

384
00:19:06,440 --> 00:19:14,179
a different conversation one that is not

385
00:19:10,038 --> 00:19:18,558

hijacked by religious beliefs on the

386

00:19:14,179 --> 00:19:22,610

political stage one that gives a secular

387

00:19:18,558 --> 00:19:25,220

voice so that all beliefs and non belief

388

00:19:22,609 --> 00:19:28,219

systems have a right to be represented

389

00:19:25,220 --> 00:19:31,009

with equal merit on the political stage

390

00:19:28,220 --> 00:19:35,179

and how can people find out more about

391

00:19:31,009 --> 00:19:39,339

the national secular Lobby how do you

392

00:19:35,179 --> 00:19:43,720

find out about anything rounded Googler

393

00:19:39,339 --> 00:19:45,709

I have I have to ask Paul you know

394

00:19:43,720 --> 00:19:50,000

national secular Lobby

395

00:19:45,710 --> 00:19:52,519

we've got facebook page website Twitter

396

00:19:50,000 --> 00:19:53,359

account Instagram you name it all the

397

00:19:52,519 --> 00:19:56,298

bells and whistles

398

00:19:53,359 --> 00:19:59,298

just plug national secular Lobby into

399

00:19:56,298 --> 00:20:02,148

your favorite browser and and you will

400
00:19:59,298 --> 00:20:04,700
find more than you need to know about us

401
00:20:02,148 --> 00:20:06,678
well adjunct associate professor Paul

402
00:20:04,700 --> 00:20:08,419
Willis I keep promising or threatening

403
00:20:06,679 --> 00:20:10,700
to come down to Adelaide to visit you

404
00:20:08,419 --> 00:20:12,649
I'm sure I'll do it one day but for now

405
00:20:10,700 --> 00:20:15,440
thank you for appearing on the sceptic

406
00:20:12,648 --> 00:20:17,209
zone always a pleasure and yeah there's

407
00:20:15,440 --> 00:20:19,538
a cellar full of red wine here waiting

408
00:20:17,210 --> 00:20:19,538
for you

409
00:20:22,140 --> 00:20:34,900
[Music]

410
00:20:31,529 --> 00:20:37,450
calling all skeptics or listeners the

411
00:20:34,900 --> 00:20:39,790
you live and or near Glasgow are are you

412
00:20:37,450 --> 00:20:42,069
planning to visit sometime then you're

413
00:20:39,789 --> 00:20:45,549
in luck because the Glasgow skeptics

414
00:20:42,069 --> 00:20:46,839
have got your Monday nights sorted we

415
00:20:45,549 --> 00:20:49,509
are committed to filling up every

416
00:20:46,839 --> 00:20:52,240
available Monday night talks on science

417
00:20:49,509 --> 00:20:54,369
and skepticism past speakers include

418
00:20:52,240 --> 00:20:56,829
Eugenie Scott Jerry Coyne make up

419
00:20:54,369 --> 00:20:59,289
Marshall Nate Phelps torment Cecil from

420
00:20:56,829 --> 00:21:02,379
cognitive dissonance PZ Myers Richard

421
00:20:59,289 --> 00:21:04,659
Wiseman EC drilling Noah Heath and Eli

422
00:21:02,380 --> 00:21:07,660
from the scathing atheist Simon Singh

423
00:21:04,660 --> 00:21:10,570
Rebecca Watson and a multitude of local

424
00:21:07,660 --> 00:21:12,910
academics and skeptics there's literally

425
00:21:10,569 --> 00:21:13,629
nothing better you can do on a Monday in

426
00:21:12,910 --> 00:21:15,460
Glasgow

427
00:21:13,630 --> 00:21:18,400
it doesn't involve taking your clothes

428

00:21:15,460 --> 00:21:20,650
off so come join us we've also got a

429
00:21:18,400 --> 00:21:22,750
vibrant online community you can find us

430
00:21:20,650 --> 00:21:25,240
on Facebook Twitter and get involved

431
00:21:22,750 --> 00:21:29,190
with the discussion glasgow skeptics

432
00:21:25,240 --> 00:21:29,190
self-help for your brain

433
00:21:29,259 --> 00:21:39,269
[Music]

434
00:21:41,309 --> 00:21:53,909
life is wild with Michelle Franklin

435
00:21:54,089 --> 00:21:57,730
hello from Darwin's in the top end of

436
00:21:56,799 --> 00:21:59,799
the Northern Territory

437
00:21:57,730 --> 00:22:01,870
this is Michelle Franklin reporting in

438
00:21:59,799 --> 00:22:04,480
with questions and maybe even some

439
00:22:01,869 --> 00:22:15,159
answers about our environment and the

440
00:22:04,480 --> 00:22:17,259
creatures that we share away so a friend

441
00:22:15,160 --> 00:22:20,170
of a friend asked me recently whether

442
00:22:17,259 --> 00:22:23,730

her pet cat was in danger of being eaten

443

00:22:20,170 --> 00:22:27,820

by the local wildlife or vice versa

444

00:22:23,730 --> 00:22:29,670

Maggie is a Maine Coon moggy and she

445

00:22:27,819 --> 00:22:32,379

recently moved here from South Africa

446

00:22:29,670 --> 00:22:35,350

she's been through quarantine and she's

447

00:22:32,380 --> 00:22:37,750

moved into a suburban house in Brisbane

448

00:22:35,349 --> 00:22:38,500

and all seems to be going pretty well so

449

00:22:37,750 --> 00:22:41,470

far

450

00:22:38,500 --> 00:22:44,170

except that one day recently Maggie's

451

00:22:41,470 --> 00:22:47,460

owners discovered that they have a new

452

00:22:44,170 --> 00:22:51,009

housemate a very large and non-venomous

453

00:22:47,460 --> 00:22:54,700

coastal carpet python I'm going to call

454

00:22:51,009 --> 00:22:57,069

her Sally the snake now of course

455

00:22:54,700 --> 00:23:00,100

Sally's owner is concerned for her pets

456

00:22:57,069 --> 00:23:02,259

welfare she has been thinking for a

457
00:23:00,099 --> 00:23:04,779
while now that she might build an

458
00:23:02,259 --> 00:23:07,119
outdoor enclosure so that Maggie can

459
00:23:04,779 --> 00:23:09,839
enjoyed the sunshine without any

460
00:23:07,119 --> 00:23:13,179
unwanted wildlife related incidents and

461
00:23:09,839 --> 00:23:15,459
the recent addition of Sally to the

462
00:23:13,180 --> 00:23:17,400
household has raised a couple of

463
00:23:15,460 --> 00:23:20,740
questions that I'd like to explore here

464
00:23:17,400 --> 00:23:23,740
question number one being is Maggie in

465
00:23:20,740 --> 00:23:26,650
danger and the short answer is yes

466
00:23:23,740 --> 00:23:29,680
carpet snakes do eat cats but how often

467
00:23:26,650 --> 00:23:33,490
does this happen and how much danger is

468
00:23:29,680 --> 00:23:36,039
Maggie actually in now I'm not a cat

469
00:23:33,490 --> 00:23:38,380
person so I had to google Maine Coon and

470
00:23:36,039 --> 00:23:40,930
it turns out that they're a pretty big

471
00:23:38,380 --> 00:23:42,610
breed of cat but the thing is carpet

472
00:23:40,930 --> 00:23:45,730
snakes can get pretty big too and

473
00:23:42,609 --> 00:23:50,990
reports are that Sally is a pretty big

474
00:23:45,730 --> 00:23:54,019
girl so according to a 2001 study

475
00:23:50,990 --> 00:23:57,529
published in wildlife research that

476
00:23:54,019 --> 00:23:59,450
looked at the stomach contents of 258

477
00:23:57,529 --> 00:24:03,170
carpet snakes which were removed from

478
00:23:59,450 --> 00:24:05,390
houses in Brisbane and Ipswich only two

479
00:24:03,170 --> 00:24:08,090
of those snakes actually had recently

480
00:24:05,390 --> 00:24:10,640
eaten a cat the rest of the prey items

481
00:24:08,089 --> 00:24:14,599
listed were various birds mammals and

482
00:24:10,640 --> 00:24:17,929
reptiles including 17 rats 8 mice for

483
00:24:14,599 --> 00:24:20,750
chickens 8 budgies 12 lovebirds a guinea

484
00:24:17,929 --> 00:24:23,720
pig and a fruit bat and the majority of

485

00:24:20,750 --> 00:24:25,609
the prey appeared to be birds so this in

486
00:24:23,720 --> 00:24:27,829
general seems to tell us that carpet

487
00:24:25,609 --> 00:24:30,259
snakes are far more likely to eat the

488
00:24:27,829 --> 00:24:33,529
local wildlife or the pest rats and mice

489
00:24:30,259 --> 00:24:35,029
rather than the pet cats but there's one

490
00:24:33,529 --> 00:24:38,149
small detail that makes a big difference

491
00:24:35,029 --> 00:24:40,190
here the size of the snake was

492
00:24:38,150 --> 00:24:42,740
correlated really strongly with the size

493
00:24:40,190 --> 00:24:45,110
of the prey item so the smaller snakes

494
00:24:42,740 --> 00:24:47,690
were eating mostly mice and rats and

495
00:24:45,109 --> 00:24:49,369
parrots while the really big snakes were

496
00:24:47,690 --> 00:24:52,340
eating the opossums and chickens and

497
00:24:49,369 --> 00:24:52,729
cats so not good news for Maggie the

498
00:24:52,339 --> 00:24:55,220
moggy

499
00:24:52,730 --> 00:24:58,808

and I think it's probably safe to say

500

00:24:55,220 --> 00:25:01,880

that Sally is in danger of being eaten

501

00:24:58,808 --> 00:25:04,428

question number two is Sally actually a

502

00:25:01,880 --> 00:25:06,250

benefit to have around and there's a

503

00:25:04,429 --> 00:25:09,679

couple of aspects to this question

504

00:25:06,250 --> 00:25:11,720

generally it's well accepted that having

505

00:25:09,679 --> 00:25:13,759

a carpet snake on your roof is good for

506

00:25:11,720 --> 00:25:15,679

rodent control they the rats and the

507

00:25:13,759 --> 00:25:18,829

sometimes opossums and things like that

508

00:25:15,679 --> 00:25:21,019

and this is supported by the 2001

509

00:25:18,829 --> 00:25:22,699

stomach contents research that showed a

510

00:25:21,019 --> 00:25:25,879

large number of rodents being eaten by

511

00:25:22,700 --> 00:25:28,308

carpet snakes but what about other

512

00:25:25,880 --> 00:25:31,040

snakes there's lots of venomous snakes

513

00:25:28,308 --> 00:25:33,200

that share our suburbs and sometimes our

514
00:25:31,039 --> 00:25:35,210
homes and one of the common arguments

515
00:25:33,200 --> 00:25:37,730
for keeping harmless snakes around is

516
00:25:35,210 --> 00:25:40,940
that they displace the venomous snakes

517
00:25:37,730 --> 00:25:43,610
and make our environment safer for us so

518
00:25:40,940 --> 00:25:45,620
is Sally the snake going to protect her

519
00:25:43,609 --> 00:25:49,849
new housemates from her less cuddly

520
00:25:45,619 --> 00:25:53,808
cousins and is the risk of Sally the

521
00:25:49,849 --> 00:25:55,819
snake eating Maggie the moggy offset by

522
00:25:53,808 --> 00:25:58,629
her presence reducing the risk of maybe

523
00:25:55,819 --> 00:26:01,490
encountering say Barry the brown snake

524
00:25:58,630 --> 00:26:03,230
now I've heard this claim before it

525
00:26:01,490 --> 00:26:04,190
seems fairly reasonable to think that

526
00:26:03,230 --> 00:26:06,798
snakes might be

527
00:26:04,190 --> 00:26:09,259
afraid of each other but when I went

528
00:26:06,798 --> 00:26:11,538
searching for evidence to back this up I

529
00:26:09,259 --> 00:26:13,548
couldn't find any there were studies

530
00:26:11,538 --> 00:26:15,980
that listed different types of benefits

531
00:26:13,548 --> 00:26:17,720
from having copper snakes around but

532
00:26:15,980 --> 00:26:20,419
none that I could find said anything

533
00:26:17,720 --> 00:26:22,879
about them deterring venomous snakes so

534
00:26:20,419 --> 00:26:25,850
I turned to an expert dr. Roger asam

535
00:26:22,878 --> 00:26:28,219
aware is a herpetologist who specializes

536
00:26:25,849 --> 00:26:31,099
in behavioral and evolutionary ecology

537
00:26:28,220 --> 00:26:33,288
of reptiles he said that he doesn't know

538
00:26:31,099 --> 00:26:34,819
of any scientific evidence supporting

539
00:26:33,288 --> 00:26:38,480
the idea that carpet snakes keep

540
00:26:34,819 --> 00:26:39,950
venomous snakes away and in fact for

541
00:26:38,480 --> 00:26:42,079
many of the large venomous snakes

542

00:26:39,950 --> 00:26:45,110
pythons are actually a source of food

543
00:26:42,079 --> 00:26:47,658
and since pythons generally don't eat

544
00:26:45,109 --> 00:26:49,638
other snakes there really isn't any

545
00:26:47,659 --> 00:26:52,879
reason for them to be worried about a

546
00:26:49,638 --> 00:26:55,069
carpet snake in the area now absence of

547
00:26:52,878 --> 00:26:58,099
evidence is not necessarily evidence of

548
00:26:55,069 --> 00:27:00,769
absence but I feel pretty confident that

549
00:26:58,099 --> 00:27:02,418
if this was a real thing someone would

550
00:27:00,769 --> 00:27:04,638
have found evidence and written about it

551
00:27:02,419 --> 00:27:08,330
so I'm going to assume that in this case

552
00:27:04,638 --> 00:27:10,969
it's an urban myth and while Maggie the

553
00:27:08,329 --> 00:27:13,638
moggy is in danger of being eaten by

554
00:27:10,970 --> 00:27:16,159
Sally the snake it's probably reasonable

555
00:27:13,638 --> 00:27:18,079
to assume that berry the brown snake is

556
00:27:16,159 --> 00:27:21,320

not concerned about Sally being there

557

00:27:18,079 --> 00:27:22,750

and he's going to show up regardless but

558

00:27:21,319 --> 00:27:25,460

now the plot thickens

559

00:27:22,750 --> 00:27:27,679

Sally's only been basking intermittently

560

00:27:25,460 --> 00:27:30,350

in the mornings and then disappearing

561

00:27:27,679 --> 00:27:32,840

for the rest of the day this behavior is

562

00:27:30,349 --> 00:27:34,849

common in snakes that are incubating

563

00:27:32,839 --> 00:27:37,158

eggs what they'll do is they'll go out

564

00:27:34,849 --> 00:27:39,619

in the mornings absorb a bunch of heat

565

00:27:37,159 --> 00:27:41,570

take that back to their nest and use it

566

00:27:39,619 --> 00:27:43,428

to incubate the eggs because they can't

567

00:27:41,569 --> 00:27:45,798

produce the heat themselves they use the

568

00:27:43,429 --> 00:27:48,649

the sunlight energy to to warm their

569

00:27:45,798 --> 00:27:49,970

eggs up for the sake of this story we're

570

00:27:48,648 --> 00:27:52,250

going to assume that this is what's

571
00:27:49,970 --> 00:27:54,589
happening here and Sally is about to

572
00:27:52,250 --> 00:27:56,960
become a new mum this introduces some

573
00:27:54,589 --> 00:27:59,240
complications to the situation if

574
00:27:56,960 --> 00:28:01,970
there's going to be new baby snakes

575
00:27:59,240 --> 00:28:05,359
around soon we're gonna land on question

576
00:28:01,970 --> 00:28:08,839
number three is Maggie going to eat the

577
00:28:05,359 --> 00:28:11,479
baby snakes so according to Maggie's

578
00:28:08,839 --> 00:28:13,480
owner she's not a killer and this is why

579
00:28:11,480 --> 00:28:16,700
she's been allowed outside up until now

580
00:28:13,480 --> 00:28:17,940
when I hear this my immediate response

581
00:28:16,700 --> 00:28:20,610
is to claim

582
00:28:17,940 --> 00:28:22,679
yes I've grown up with the ingrained

583
00:28:20,609 --> 00:28:25,008
understanding that cats are not to be

584
00:28:22,679 --> 00:28:27,210
allowed outside no matter what because

585
00:28:25,009 --> 00:28:29,940
no matter what their owners think

586
00:28:27,210 --> 00:28:32,100
they're all killers and it occurs to me

587
00:28:29,940 --> 00:28:34,490
now that I actually have no idea if this

588
00:28:32,099 --> 00:28:36,628
is true so I started digging around

589
00:28:34,490 --> 00:28:39,450
trying to find some research that

590
00:28:36,628 --> 00:28:41,908
confirm my preconceived ideas about cat

591
00:28:39,450 --> 00:28:43,798
behavior and yeah I know that's not how

592
00:28:41,909 --> 00:28:46,669
you're supposed to do it but the thing

593
00:28:43,798 --> 00:28:48,960
is I didn't find what I was looking for

594
00:28:46,669 --> 00:28:51,600
there's stacks of resources out there

595
00:28:48,960 --> 00:28:53,700
that explain the devastating impact of

596
00:28:51,599 --> 00:28:55,798
stray cats and feral cats on the native

597
00:28:53,700 --> 00:28:57,808
wildlife in Australia but when you

598
00:28:55,798 --> 00:29:00,359
narrow it down specifically to pet cats

599

00:28:57,808 --> 00:29:03,119
that are well cared for and fed daily

600
00:29:00,359 --> 00:29:06,028
the research becomes pretty sketchy

601
00:29:03,119 --> 00:29:06,658
there were several studies that looked

602
00:29:06,028 --> 00:29:09,599
promising

603
00:29:06,659 --> 00:29:11,669
that stated numbers of different species

604
00:29:09,599 --> 00:29:14,369
that were killed and percentages of cats

605
00:29:11,669 --> 00:29:16,620
that actually did the killing but the

606
00:29:14,369 --> 00:29:18,959
studies suggested that there's a large

607
00:29:16,619 --> 00:29:21,359
subset of cats that actually don't kill

608
00:29:18,960 --> 00:29:23,220
my mind was blonde for about four

609
00:29:21,359 --> 00:29:25,740
seconds until I scrolled down to the

610
00:29:23,220 --> 00:29:27,808
methodology and learned that a lot of

611
00:29:25,740 --> 00:29:31,169
this research is based on data that was

612
00:29:27,808 --> 00:29:32,609
gathered by asking cat owners how many

613
00:29:31,169 --> 00:29:34,320

times they remembered they're kept

614

00:29:32,609 --> 00:29:37,168

bringing dead things home in the past

615

00:29:34,319 --> 00:29:38,788

year thanks for trying guys but I'm

616

00:29:37,169 --> 00:29:40,470

looking for something a bit more solid

617

00:29:38,788 --> 00:29:43,319

than what the cat owners say they

618

00:29:40,470 --> 00:29:47,100

remember there was some research that

619

00:29:43,319 --> 00:29:49,648

used cat mounted video cameras and that

620

00:29:47,099 --> 00:29:52,109

suggested higher predation rates than

621

00:29:49,648 --> 00:29:54,538

what the surveys reported but I couldn't

622

00:29:52,109 --> 00:29:56,819

find much solid evidence for or against

623

00:29:54,538 --> 00:29:59,908

the claim that some cats kill and some

624

00:29:56,819 --> 00:30:03,240

cats don't so once again I turned to an

625

00:29:59,909 --> 00:30:05,519

expert for some guidance ranae piccolo

626

00:30:03,240 --> 00:30:07,679

is an honors student at Griffith

627

00:30:05,519 --> 00:30:10,370

University and her research looks

628
00:30:07,679 --> 00:30:13,769
specifically at well cared for pet cats

629
00:30:10,369 --> 00:30:16,378
she's gathering up two samples from cats

630
00:30:13,769 --> 00:30:18,628
that have been allowed to roam free but

631
00:30:16,378 --> 00:30:21,839
were also fed daily and she's checking

632
00:30:18,628 --> 00:30:24,058
the samples for DNA to identify what

633
00:30:21,839 --> 00:30:26,849
species are actually being eaten by the

634
00:30:24,058 --> 00:30:28,950
cats this is good because it doesn't

635
00:30:26,849 --> 00:30:31,019
rely on humans seeing what's going on

636
00:30:28,950 --> 00:30:31,440
and it doesn't interfere with the cats

637
00:30:31,019 --> 00:30:33,720
purr

638
00:30:31,440 --> 00:30:36,240
in order to collect the data now the

639
00:30:33,720 --> 00:30:36,870
research isn't complete yet but once

640
00:30:36,240 --> 00:30:38,700
it's finished

641
00:30:36,869 --> 00:30:40,469
Rene should be able to tell us a lot

642
00:30:38,700 --> 00:30:42,720
more about what cats are actually

643
00:30:40,470 --> 00:30:44,490
killing and consuming above and beyond

644
00:30:42,720 --> 00:30:47,069
what their owners tell us that they

645
00:30:44,490 --> 00:30:49,259
remember seeing in the meantime

646
00:30:47,069 --> 00:30:50,609
Rene was kind enough to send me some of

647
00:30:49,259 --> 00:30:52,940
the background reading that she's

648
00:30:50,609 --> 00:30:56,099
gathered in preparing her research and

649
00:30:52,940 --> 00:30:58,200
overall it seems pretty clear that well

650
00:30:56,099 --> 00:31:01,199
cared-for pet cats are killing wildlife

651
00:30:58,200 --> 00:31:03,899
what isn't clear is the extent to which

652
00:31:01,200 --> 00:31:06,480
it's happening and the impact that it's

653
00:31:03,898 --> 00:31:09,000
happening on wildlife populations so to

654
00:31:06,480 --> 00:31:12,769
work out what to do I looked at an

655
00:31:09,000 --> 00:31:17,669
argument by Calvert Oh was published in

656

00:31:12,769 --> 00:31:20,308
2011 in biological conservation and it

657
00:31:17,669 --> 00:31:21,929
argues that the situation warrants the

658
00:31:20,308 --> 00:31:25,230
application of the precautionary

659
00:31:21,929 --> 00:31:27,419
principle so this mandates action to

660
00:31:25,230 --> 00:31:29,849
protect the environment when there is a

661
00:31:27,419 --> 00:31:32,899
scientifically plausible but unproven

662
00:31:29,849 --> 00:31:34,980
risk so this provides a rationale for

663
00:31:32,898 --> 00:31:37,788
immediate intervention to protect

664
00:31:34,980 --> 00:31:41,460
wildlife from pet cats while we await

665
00:31:37,788 --> 00:31:43,349
definitive studies so at the end of the

666
00:31:41,460 --> 00:31:45,600
day we've got a lot of things to

667
00:31:43,349 --> 00:31:47,548
consider and moving forward we need to

668
00:31:45,599 --> 00:31:50,069
make a decision about how to manage the

669
00:31:47,548 --> 00:31:53,609
situation of Maggie and Sally house

670
00:31:50,069 --> 00:31:55,859

sharing and decide what to do there are

671

00:31:53,609 --> 00:31:57,898

four main perspectives to consider here

672

00:31:55,859 --> 00:32:00,538

and you can choose your course of action

673

00:31:57,898 --> 00:32:03,689

depending on whether you value highest

674

00:32:00,538 --> 00:32:07,019

the needs of the snake the cat the human

675

00:32:03,690 --> 00:32:09,298

or the ecosystem and there's four

676

00:32:07,019 --> 00:32:13,200

possible courses of action that I can

677

00:32:09,298 --> 00:32:15,329

think of which are one do nothing to

678

00:32:13,200 --> 00:32:19,139

call the snake capture I have the snake

679

00:32:15,329 --> 00:32:23,970

and her eggs removed three rehome the

680

00:32:19,138 --> 00:32:26,758

cat or four contain the cat so I made up

681

00:32:23,970 --> 00:32:29,460

a punnett square of actions versus

682

00:32:26,759 --> 00:32:32,159

impacts to see if I could come up with

683

00:32:29,460 --> 00:32:34,950

an optimal solution might not be the

684

00:32:32,159 --> 00:32:38,159

best way to communicate through an audio

685
00:32:34,950 --> 00:32:40,470
medium but I'll do my best so I've put

686
00:32:38,159 --> 00:32:43,049
the four possible actions down the left

687
00:32:40,470 --> 00:32:45,210
side and the four points of view along

688
00:32:43,048 --> 00:32:46,918
the top and you can choose

689
00:32:45,210 --> 00:32:49,740
which action you want to consider and

690
00:32:46,919 --> 00:32:52,679
then cross-check that against each of

691
00:32:49,740 --> 00:32:55,679
the four perspectives and decide which

692
00:32:52,679 --> 00:32:57,750
one has the most positive outcomes if

693
00:32:55,679 --> 00:33:00,809
you choose option number one and do

694
00:32:57,750 --> 00:33:01,409
nothing all four perspectives are taking

695
00:33:00,808 --> 00:33:04,048
a risk

696
00:33:01,409 --> 00:33:07,049
the snake risks losing her babies the

697
00:33:04,048 --> 00:33:10,200
cat risks being eaten human risks losing

698
00:33:07,048 --> 00:33:13,349
her pet and the ecosystem risks the

699
00:33:10,200 --> 00:33:15,330
unknown impacts of a foreign predator if

700
00:33:13,349 --> 00:33:17,730
you choose option two and have the snake

701
00:33:15,329 --> 00:33:20,428
and her eggs removed the cat and the

702
00:33:17,730 --> 00:33:22,230
human are both benefited while the snake

703
00:33:20,429 --> 00:33:24,090
and the ecosystem are disadvantaged

704
00:33:22,230 --> 00:33:26,278
because removing the snake will

705
00:33:24,089 --> 00:33:28,379
essentially reduce the available habitat

706
00:33:26,278 --> 00:33:30,240
for snakes to inhabit meaning that

707
00:33:28,380 --> 00:33:32,460
there'll be increased competition for

708
00:33:30,240 --> 00:33:35,880
resources in their spaces that are left

709
00:33:32,460 --> 00:33:37,980
available to them according to a 2001

710
00:33:35,880 --> 00:33:40,470
study published in biological

711
00:33:37,980 --> 00:33:43,710
conservation over a ten-year period

712
00:33:40,470 --> 00:33:45,630
leading up to the study 11,000 snakes

713

00:33:43,710 --> 00:33:48,690
were removed from people's homes in New

714
00:33:45,630 --> 00:33:52,110
South Wales alone 20% of these were

715
00:33:48,690 --> 00:33:55,200
carpet snakes on top of this 11,000

716
00:33:52,109 --> 00:33:57,808
lizards were also removed and most of

717
00:33:55,200 --> 00:34:01,259
them looked a bit like snakes that's

718
00:33:57,808 --> 00:34:05,359
over 2,000 removals per year or roughly

719
00:34:01,259 --> 00:34:07,619
6 per day now I wasn't able to find any

720
00:34:05,359 --> 00:34:09,449
translocation research specific to

721
00:34:07,619 --> 00:34:12,059
carpet snakes but there was a

722
00:34:09,449 --> 00:34:15,480
comprehensive report by dr. Jeff short

723
00:34:12,059 --> 00:34:18,269
in 2009 that looked at a whole range of

724
00:34:15,480 --> 00:34:22,918
australian vertebrates and it suggested

725
00:34:18,269 --> 00:34:25,289
that 28% of translocations failed due to

726
00:34:22,918 --> 00:34:28,949
a whole range of reasons like being

727
00:34:25,289 --> 00:34:32,639

eaten at the release site for 40% of

728

00:34:28,949 --> 00:34:36,358

cases the outcome wasn't known and for

729

00:34:32,639 --> 00:34:39,329

32 percent of cases the outcome was

730

00:34:36,358 --> 00:34:42,598

actually known to be successful so this

731

00:34:39,329 --> 00:34:44,940

seems like a fairly high risk for poor

732

00:34:42,599 --> 00:34:48,510

Sally and her babies if you choose

733

00:34:44,940 --> 00:34:50,519

option 3 and remove the cat Sally the

734

00:34:48,510 --> 00:34:52,320

snake will benefit from a safer home

735

00:34:50,519 --> 00:34:55,739

although she may miss out on one decent

736

00:34:52,320 --> 00:34:57,869

meal I'm sure she'll be fine but it's

737

00:34:55,739 --> 00:34:59,009

not a good outcome for Maggie who loses

738

00:34:57,869 --> 00:35:02,579

her home or

739

00:34:59,010 --> 00:35:04,710

Maggie's owner who loses her pet and the

740

00:35:02,579 --> 00:35:09,059

impact on the ecosystem depends very

741

00:35:04,710 --> 00:35:11,010

much on what happens to Maggie if she

742
00:35:09,059 --> 00:35:13,079
moves to a different home but she's

743
00:35:11,010 --> 00:35:15,750
still allowed to roam then her impact is

744
00:35:13,079 --> 00:35:18,360
just shifted elsewhere this leaves us

745
00:35:15,750 --> 00:35:20,360
with option four which is the only one

746
00:35:18,360 --> 00:35:24,120
that ticks all the boxes containing

747
00:35:20,360 --> 00:35:26,490
Maggie either inside the house or in a

748
00:35:24,119 --> 00:35:28,889
purpose-built outdoor enclosure will

749
00:35:26,489 --> 00:35:31,289
ensure the safety of the cat the snake

750
00:35:28,889 --> 00:35:33,509
and the rest of the Wildlife one

751
00:35:31,289 --> 00:35:35,550
possible downside here is that if

752
00:35:33,510 --> 00:35:37,830
Maggie's not happy being kept inside the

753
00:35:35,550 --> 00:35:39,860
house then building a large enough

754
00:35:37,829 --> 00:35:42,840
outdoor enclosure to keep her happy is

755
00:35:39,860 --> 00:35:45,300
possibly going to be expensive so this

756
00:35:42,840 --> 00:35:47,579
decision really would depend on the

757
00:35:45,300 --> 00:35:50,210
behavior of the individual cat and the

758
00:35:47,579 --> 00:35:52,139
resources available to the owner so

759
00:35:50,210 --> 00:35:53,940
given what we've learned here today I

760
00:35:52,139 --> 00:35:56,159
think it's fairly clear that the best

761
00:35:53,940 --> 00:35:59,190
choice to benefit all involved is to

762
00:35:56,159 --> 00:36:01,710
confine the cat indoors or if you can

763
00:35:59,190 --> 00:36:03,900
build an outdoor enclosure where the cat

764
00:36:01,710 --> 00:36:06,960
is not able to interact with the

765
00:36:03,900 --> 00:36:08,940
wildlife this option also provides the

766
00:36:06,960 --> 00:36:10,740
added benefit of protecting Maggie from

767
00:36:08,940 --> 00:36:16,530
all the nebulous risks that are

768
00:36:10,739 --> 00:36:18,929
associated with roaming outside thank

769
00:36:16,530 --> 00:36:21,269
you to retire and Renee for sharing your

770

00:36:18,929 --> 00:36:23,849
knowledge and experience and also to

771
00:36:21,269 --> 00:36:25,530
Joanne who asked the question and who

772
00:36:23,849 --> 00:36:27,989
cared enough about her local wildlife

773
00:36:25,530 --> 00:36:31,800
and her pet to want the best answer for

774
00:36:27,989 --> 00:36:34,589
all involved link to the references that

775
00:36:31,800 --> 00:36:36,720
I used will be in the show notes and I'm

776
00:36:34,590 --> 00:36:39,150
looking forward to hearing the outcomes

777
00:36:36,719 --> 00:36:41,399
of Renee's research which shall be

778
00:36:39,150 --> 00:36:43,200
complete in the next few months but keep

779
00:36:41,400 --> 00:36:46,260
you all updated if there's any new

780
00:36:43,199 --> 00:36:46,919
information that comes to light and good

781
00:36:46,260 --> 00:36:49,170
luck to Maggie

782
00:36:46,920 --> 00:36:51,900
I hope you find a way to live in harmony

783
00:36:49,170 --> 00:36:53,460
with your new housemate also best of

784
00:36:51,900 --> 00:36:56,039

luck to Sally with your new brood of

785

00:36:53,460 --> 00:36:58,860

babies I hope they all find homes where

786

00:36:56,039 --> 00:37:00,320

the owner is as caring and conscientious

787

00:36:58,860 --> 00:37:12,269

as your landlord is

788

00:37:00,320 --> 00:37:15,130

[Music]

789

00:37:12,269 --> 00:37:18,280

the skeptic magazine the journal from

790

00:37:15,130 --> 00:37:20,470

Australian skeptics subscribe online to

791

00:37:18,280 --> 00:37:21,250

the world's second oldest skeptical

792

00:37:20,469 --> 00:37:25,649

magazine

793

00:37:21,250 --> 00:37:25,650

visit www.sap.com/learnbi for

794

00:37:27,519 --> 00:37:35,860

[Music]

795

00:37:32,369 --> 00:37:54,099

free to download the skeptic magazine

796

00:37:35,860 --> 00:37:56,440

from Australian skeptics and now we

797

00:37:54,099 --> 00:37:58,239

bring you part three of speed meet the

798

00:37:56,440 --> 00:38:06,940

scientists held the Powerhouse Museum

799

00:37:58,239 --> 00:38:09,099

here in Sydney during science week give

800

00:38:06,940 --> 00:38:11,829

me that old fashioned archaeology who do

801

00:38:09,099 --> 00:38:12,699

we have here my name is James hunter I'm

802

00:38:11,829 --> 00:38:16,079

with the Australian National Maritime

803

00:38:12,699 --> 00:38:19,389

Museum and what's your area of expertise

804

00:38:16,079 --> 00:38:21,340

i straddle two things one is maritime

805

00:38:19,389 --> 00:38:23,949

archaeology any other is naval history

806

00:38:21,340 --> 00:38:25,300

so I'm the museum's naval curator and

807

00:38:23,949 --> 00:38:27,849

we're talking about the museum which is

808

00:38:25,300 --> 00:38:28,120

just down the way Zinedine Darling

809

00:38:27,849 --> 00:38:29,500

Harbour

810

00:38:28,119 --> 00:38:30,929

that's correct yep we're the ones down

811

00:38:29,500 --> 00:38:33,130

at the end of the end of the road there

812

00:38:30,929 --> 00:38:34,960

yeah I'm just here representing the

813
00:38:33,130 --> 00:38:36,970
museum man talking a bit about maritime

814
00:38:34,960 --> 00:38:39,789
archaeology so I'm hoping people will

815
00:38:36,969 --> 00:38:41,559
come along and ask me what I do and I

816
00:38:39,789 --> 00:38:43,630
will tell them and hopefully not put

817
00:38:41,559 --> 00:38:46,239
them to sleep well that's that's always

818
00:38:43,630 --> 00:38:49,150
a good idea I think now there must be

819
00:38:46,239 --> 00:38:50,829
quite a very rich history of this in the

820
00:38:49,150 --> 00:38:53,889
Sydney area just alone I would imagine

821
00:38:50,829 --> 00:38:56,440
that is correct yes there are several

822
00:38:53,889 --> 00:38:58,089
shipwrecks in the harbour and just

823
00:38:56,440 --> 00:38:59,690
outside the harbour some of them quite

824
00:38:58,090 --> 00:39:02,059
significant

825
00:38:59,690 --> 00:39:04,010
in fact only about two weeks ago we were

826
00:39:02,059 --> 00:39:07,400
doing a dive on the Dunbar which is

827

00:39:04,010 --> 00:39:10,780
wrecked just outside the heads and it

828
00:39:07,400 --> 00:39:13,369
wrecked in 1857 it was an immigrant ship

829
00:39:10,780 --> 00:39:16,160
that came to Sydney at the beginning of

830
00:39:13,369 --> 00:39:19,220
the gold rush in Australia and it

831
00:39:16,159 --> 00:39:21,318
wrecked and everyone save one person

832
00:39:19,219 --> 00:39:24,139
perished all right so it was one of

833
00:39:21,318 --> 00:39:26,298
Sydney's largest loss of life in a

834
00:39:24,139 --> 00:39:29,389
single maritime event when you say just

835
00:39:26,298 --> 00:39:31,759
outside the heads how far outside if you

836
00:39:29,389 --> 00:39:34,098
go out the heads hang a right to go

837
00:39:31,760 --> 00:39:37,460
south and you go down probably about a

838
00:39:34,099 --> 00:39:39,349
kilometre that's how close I'm very

839
00:39:37,460 --> 00:39:42,048
close to the shore incredibly close to

840
00:39:39,349 --> 00:39:44,480
shore in fact parts of that wreck site

841
00:39:42,048 --> 00:39:46,909

are up against the cliff that's close

842

00:39:44,480 --> 00:39:49,699

yeah and what was the major problem the

843

00:39:46,909 --> 00:39:51,009

the dangerous area it sank or the fact

844

00:39:49,699 --> 00:39:54,139

that people couldn't swim

845

00:39:51,010 --> 00:39:55,460

well the wreck itself was a result of

846

00:39:54,139 --> 00:39:57,529

the fact that ship was caught in a gale

847

00:39:55,460 --> 00:39:59,829

they were trying to get in through the

848

00:39:57,530 --> 00:40:03,170

heads and the weather was really bad and

849

00:39:59,829 --> 00:40:05,599

the captain of the ship thought that he

850

00:40:03,170 --> 00:40:07,099

had he had tact at the right time to go

851

00:40:05,599 --> 00:40:09,859

through the heads and in fact he missed

852

00:40:07,099 --> 00:40:11,450

it because of the conditions and he had

853

00:40:09,858 --> 00:40:13,250

tact and put the ship right into the

854

00:40:11,449 --> 00:40:15,649

cliffs he basically drove the ship into

855

00:40:13,250 --> 00:40:19,219

the cliffs and it broke up very quickly

856
00:40:15,650 --> 00:40:21,048
you know high seas ship broke up people

857
00:40:19,219 --> 00:40:25,129
couldn't swim they were wearing heavy

858
00:40:21,048 --> 00:40:26,119
clothing and people drowned the one who

859
00:40:25,130 --> 00:40:28,640
survived

860
00:40:26,119 --> 00:40:30,289
the reason he survives was because he

861
00:40:28,639 --> 00:40:31,940
was up in the rigging he'd climbed up

862
00:40:30,289 --> 00:40:34,220
into the rigging as the ship started to

863
00:40:31,940 --> 00:40:36,440
break up and a wave basically caught him

864
00:40:34,219 --> 00:40:39,439
and just slammed him into the side of

865
00:40:36,440 --> 00:40:41,568
the cliff and he grabbed on and managed

866
00:40:39,440 --> 00:40:43,700
to find a handhold and that's what saved

867
00:40:41,568 --> 00:40:46,250
it that's that's it it's like a

868
00:40:43,699 --> 00:40:48,139
Hollywood story idiot that's that's a I

869
00:40:46,250 --> 00:40:50,239
mean I'm visualizing and I'm sure all my

870
00:40:48,139 --> 00:40:52,429
listeners out to that's that's amazing

871
00:40:50,239 --> 00:40:54,379
and the terrible thing was the guy was

872
00:40:52,429 --> 00:40:57,679
there for two days nobody knew he

873
00:40:54,380 --> 00:40:59,298
survives he he managed to kind of when

874
00:40:57,679 --> 00:41:01,788
the conditions calm down a bit he kind

875
00:40:59,298 --> 00:41:04,099
of shimmied across the cliffs and he

876
00:41:01,789 --> 00:41:05,600
found a spot like a little sort of ledge

877
00:41:04,099 --> 00:41:08,240
that stuck out where he

878
00:41:05,599 --> 00:41:10,130
sit down and yeah he was there for two

879
00:41:08,239 --> 00:41:11,629
days nobody knew he was there and then

880
00:41:10,130 --> 00:41:14,180
someone who happened to be looking over

881
00:41:11,630 --> 00:41:16,220
the cliff saw him and kind of heard him

882
00:41:14,179 --> 00:41:18,679
he was very feeble by this point he's

883
00:41:16,219 --> 00:41:20,509
dehydrated hungry and he was yelling for

884

00:41:18,679 --> 00:41:23,329
help and somebody saw him and so they

885
00:41:20,510 --> 00:41:25,970
actually were able to rescue him and I'm

886
00:41:23,329 --> 00:41:27,590
sure there are many stories I mean

887
00:41:25,969 --> 00:41:29,419
that's a dramatic one but there must be

888
00:41:27,590 --> 00:41:31,550
many stories of other shipwrecks or near

889
00:41:29,420 --> 00:41:33,829
disasters or all sorts of things just in

890
00:41:31,550 --> 00:41:36,860
the Sydney area that's right many many

891
00:41:33,829 --> 00:41:38,630
many many many many people yes ships

892
00:41:36,860 --> 00:41:42,200
hitting cliffs ships colliding with each

893
00:41:38,630 --> 00:41:44,599
other ships catching fire ships whoops I

894
00:41:42,199 --> 00:41:46,189
just drove it into the sand Bank you

895
00:41:44,599 --> 00:41:49,279
know that sort of thing it runs the

896
00:41:46,190 --> 00:41:51,980
gamut from very dramatic horrific loss

897
00:41:49,280 --> 00:41:54,290
of life to just benign sort of whoopsies

898
00:41:51,980 --> 00:41:56,719

Wow and where can people find out more

899

00:41:54,289 --> 00:41:59,059

about this fascinating history great

900

00:41:56,719 --> 00:42:00,889

place to go is the Maritime Museum yes I

901

00:41:59,059 --> 00:42:03,619

work there and yeah I'm giving a pitch

902

00:42:00,889 --> 00:42:05,000

but sure we've got lots of collections

903

00:42:03,619 --> 00:42:07,339

related to these sorts of maritime

904

00:42:05,000 --> 00:42:09,590

disasters we've got a library with lots

905

00:42:07,340 --> 00:42:10,970

of books and documents and be a good

906

00:42:09,590 --> 00:42:13,640

place to go and for those people

907

00:42:10,969 --> 00:42:15,589

visiting Sydney it's a very conveniently

908

00:42:13,639 --> 00:42:17,629

placed in darling harbour which is near

909

00:42:15,590 --> 00:42:19,490

the downtown area but if you just google

910

00:42:17,630 --> 00:42:21,349

the Maritime Museum and Sydney you'll

911

00:42:19,489 --> 00:42:25,909

easily find that all they have a website

912

00:42:21,349 --> 00:42:29,269

I presume they do yes some AM m dot gov

913
00:42:25,909 --> 00:42:31,619
dot a you thank you very much no problem

914
00:42:29,269 --> 00:42:34,119
nice talking to you

915
00:42:31,619 --> 00:42:37,750
from one extreme to the other hello

916
00:42:34,119 --> 00:42:38,949
hello well it's hardly an extreme you're

917
00:42:37,750 --> 00:42:41,769
sitting right next to the guy I was just

918
00:42:38,949 --> 00:42:43,659
talking to who do we have here sir my

919
00:42:41,769 --> 00:42:45,130
name is Karen Bowl I'm a researcher at

920
00:42:43,659 --> 00:42:47,289
the University of New South Wales and

921
00:42:45,130 --> 00:42:48,640
Sydney and what brings you here to meet

922
00:42:47,289 --> 00:42:51,480
the scientists Knight you want to meet a

923
00:42:48,639 --> 00:42:55,420
scientist I'm meeting many scientists

924
00:42:51,480 --> 00:42:57,130
I'm here because I'm incredibly excited

925
00:42:55,420 --> 00:42:59,079
about what I do actually and I realized

926
00:42:57,130 --> 00:43:01,300
you know what do I have to what do I

927

00:42:59,079 --> 00:43:03,969

have to give I don't cure cancer I don't

928

00:43:01,300 --> 00:43:05,890

necessarily you know I don't necessarily

929

00:43:03,969 --> 00:43:07,509

invent new things but I can share this

930

00:43:05,889 --> 00:43:09,460

incredible passion and this

931

00:43:07,510 --> 00:43:10,090

understanding of who we are and where we

932

00:43:09,460 --> 00:43:13,539

came from

933

00:43:10,090 --> 00:43:15,820

in other words evolutionary biology

934

00:43:13,539 --> 00:43:17,860

evolutionary biology absolutely so my

935

00:43:15,820 --> 00:43:19,690

background I was really fascinated when

936

00:43:17,860 --> 00:43:22,329

I was kid I read this book actually not

937

00:43:19,690 --> 00:43:25,389

not that much of a kid I read this book

938

00:43:22,329 --> 00:43:28,059

clan of the cave bear and it talked

939

00:43:25,389 --> 00:43:30,460

about absolutely and it sort of raised

940

00:43:28,059 --> 00:43:32,139

this idea about hybridization so for

941

00:43:30,460 --> 00:43:35,079
anyone who doesn't know interbreeding

942
00:43:32,139 --> 00:43:36,400
between our species and between the and

943
00:43:35,079 --> 00:43:37,509
the tolls or whatever other species

944
00:43:36,400 --> 00:43:40,840
might have been running around at the

945
00:43:37,510 --> 00:43:43,000
time and it caught me and then as I was

946
00:43:40,840 --> 00:43:44,590
going through my undergraduate studies a

947
00:43:43,000 --> 00:43:46,900
couple of papers started coming out

948
00:43:44,590 --> 00:43:48,550
about about DNA

949
00:43:46,900 --> 00:43:51,280
kinks of the end of total DNA in our own

950
00:43:48,550 --> 00:43:53,380
genomes and it just fascinated me so I

951
00:43:51,280 --> 00:43:55,000
thought do we have any do we have any

952
00:43:53,380 --> 00:43:56,619
evidence for this do we have any fossils

953
00:43:55,000 --> 00:43:59,710
do we have any any evidence of this

954
00:43:56,619 --> 00:44:02,289
hybridization going on and there are a

955
00:43:59,710 --> 00:44:03,610

lot of fossils where they think that it

956

00:44:02,289 --> 00:44:05,409

may be the case but we don't know we

957

00:44:03,610 --> 00:44:08,710

didn't know what we were looking for so

958

00:44:05,409 --> 00:44:10,029

I went and collected an awful lot of

959

00:44:08,710 --> 00:44:13,659

monkey skulls

960

00:44:10,030 --> 00:44:16,840

we're aware from all over Asia so

961

00:44:13,659 --> 00:44:17,949

there's a genus known as macaques so

962

00:44:16,840 --> 00:44:21,010

there are a lot of different kinds of

963

00:44:17,949 --> 00:44:22,509

macaques my my favorite study species

964

00:44:21,010 --> 00:44:24,660

but the Japanese macaque so there's no

965

00:44:22,510 --> 00:44:27,190

monkey that hangs out in the sauna

966

00:44:24,659 --> 00:44:29,170

they're very cute and it's very very

967

00:44:27,190 --> 00:44:30,610

easy to tell the hybrids between them

968

00:44:29,170 --> 00:44:32,440

and any other species because other

969

00:44:30,610 --> 00:44:33,130

macaques have tails but the snow monkeys

970
00:44:32,440 --> 00:44:34,690
don't

971
00:44:33,130 --> 00:44:36,130
so you just look for anything with an

972
00:44:34,690 --> 00:44:38,349
intermediate tail and you realize that

973
00:44:36,130 --> 00:44:40,059
had something Funky's going on so by

974
00:44:38,349 --> 00:44:41,650
looking at these hybridizing macaques we

975
00:44:40,059 --> 00:44:44,619
were able to get a better understanding

976
00:44:41,650 --> 00:44:46,150
of what hybridization does to the

977
00:44:44,619 --> 00:44:49,509
skeleton so what it does to the skull

978
00:44:46,150 --> 00:44:51,849
the two species genomes get together and

979
00:44:49,510 --> 00:44:53,080
they're mostly compatible but there are

980
00:44:51,849 --> 00:44:56,079
a few little mistakes along the way

981
00:44:53,079 --> 00:44:58,569
there you get these little minor

982
00:44:56,079 --> 00:45:00,159
developmental abnormalities so things

983
00:44:58,570 --> 00:45:02,410
like an extra tooth or a missing tooth

984
00:45:00,159 --> 00:45:05,679
or a you know a little bone out of place

985
00:45:02,409 --> 00:45:07,779
in the skull and we took all of that and

986
00:45:05,679 --> 00:45:09,219
applied it to humans and we're hoping

987
00:45:07,780 --> 00:45:11,080
they've got a better understanding and

988
00:45:09,219 --> 00:45:16,089
we may be able to identify hybrid

989
00:45:11,079 --> 00:45:18,489
fossils in the future Wow every time I

990
00:45:16,090 --> 00:45:20,260
sit down my mind is completely blown by

991
00:45:18,489 --> 00:45:22,359
what I'm hearing that's absolutely

992
00:45:20,260 --> 00:45:24,970
fascinating but what are you doing right

993
00:45:22,360 --> 00:45:27,760
at the moment okay so I'm currently

994
00:45:24,969 --> 00:45:29,980
working for the inspiration Center for

995
00:45:27,760 --> 00:45:31,360
biodiversity and heritage and we're

996
00:45:29,980 --> 00:45:32,409
really interested in in basically

997
00:45:31,360 --> 00:45:35,920
everything that's happened in Australia

998

00:45:32,409 --> 00:45:37,869
over the last 200,000 years so my

999
00:45:35,920 --> 00:45:40,510
particular project we're actually

1000
00:45:37,869 --> 00:45:42,609
working at some some caves in Borneo

1001
00:45:40,510 --> 00:45:44,500
which is still relevant to Australia so

1002
00:45:42,610 --> 00:45:45,760
we're looking at the population the

1003
00:45:44,500 --> 00:45:47,559
arrival of the first humans into

1004
00:45:45,760 --> 00:45:50,170
Australia and the spread of migration

1005
00:45:47,559 --> 00:45:52,059
like this so we're working at this cave

1006
00:45:50,170 --> 00:45:54,970
system called the Nia caves in Borneo

1007
00:45:52,059 --> 00:45:56,469
and it's got some of the oldest human

1008
00:45:54,969 --> 00:45:57,699
remains in Southeast Asia

1009
00:45:56,469 --> 00:45:58,869
at the time when they were first

1010
00:45:57,699 --> 00:46:01,329
discovered they were the oldest human

1011
00:45:58,869 --> 00:46:03,400
remains in the world

1012
00:46:01,329 --> 00:46:05,590

and they were quite controversially

1013

00:46:03,400 --> 00:46:09,250
linked to Tasmanian Aboriginal

1014

00:46:05,590 --> 00:46:10,720
Australians we've been going back and

1015

00:46:09,250 --> 00:46:13,059
we've been reanalyzing some of the bones

1016

00:46:10,719 --> 00:46:14,709
were found there and doing some new

1017

00:46:13,059 --> 00:46:17,349
excavations so looking for some new

1018

00:46:14,710 --> 00:46:20,289
things and my project particularly I'm

1019

00:46:17,349 --> 00:46:22,420
extracting the protein from the bones so

1020

00:46:20,289 --> 00:46:25,809
you may have heard of ancient DNA it's

1021

00:46:22,420 --> 00:46:27,909
become quite a big field but what most

1022

00:46:25,809 --> 00:46:29,679
people don't realize is that the protein

1023

00:46:27,909 --> 00:46:31,480
in your bones preserves better than DNA

1024

00:46:29,679 --> 00:46:35,559
and it can probably tell you everything

1025

00:46:31,480 --> 00:46:38,679
that DNA can I did not know that it's

1026

00:46:35,559 --> 00:46:40,420
it's quite a new field so DNA tends to

1027
00:46:38,679 --> 00:46:42,279
degrade quite quickly in places like

1028
00:46:40,420 --> 00:46:44,470
Southeast Asia where it's quite warm and

1029
00:46:42,280 --> 00:46:45,970
quite wet but the protein gets bound up

1030
00:46:44,469 --> 00:46:47,859
in the minerals in your bones and it can

1031
00:46:45,969 --> 00:46:50,199
stick around for a lot longer and where

1032
00:46:47,860 --> 00:46:53,769
DNA tells you about what you could look

1033
00:46:50,199 --> 00:46:55,809
like protein shows you the end result so

1034
00:46:53,769 --> 00:46:58,150
the interaction between your DNA and the

1035
00:46:55,809 --> 00:47:00,159
environment so you can see what diseases

1036
00:46:58,150 --> 00:47:01,780
you had what you're eating what you look

1037
00:47:00,159 --> 00:47:03,879
like who you were whether you are male

1038
00:47:01,780 --> 00:47:06,400
or female how old you were potentially

1039
00:47:03,880 --> 00:47:08,500
so anything we can get from DNA we can

1040
00:47:06,400 --> 00:47:09,940
probably get from protein and it's gonna

1041
00:47:08,500 --> 00:47:13,179
last a lot longer in a tropical

1042
00:47:09,940 --> 00:47:16,360
environment I need to take a deep breath

1043
00:47:13,179 --> 00:47:18,129
after that that was so interesting and

1044
00:47:16,360 --> 00:47:21,160
where can people find out more about you

1045
00:47:18,130 --> 00:47:23,590
or what you do so our research center

1046
00:47:21,159 --> 00:47:25,750
has a fantastic website actually if you

1047
00:47:23,590 --> 00:47:27,280
just google Australia's epic story you

1048
00:47:25,750 --> 00:47:28,780
will find our website and it's got

1049
00:47:27,280 --> 00:47:31,030
information about all of the human

1050
00:47:28,780 --> 00:47:33,250
evolution work all of the Australian

1051
00:47:31,030 --> 00:47:35,200
Aboriginal archaeology work and also the

1052
00:47:33,250 --> 00:47:38,239
biodiversity stuff

1053
00:47:35,199 --> 00:47:42,379
Australia's epic story really a story

1054
00:47:38,239 --> 00:47:46,149
well thank you very much thank you we

1055

00:47:42,380 --> 00:47:46,150
have a real refrain here

1056
00:47:47,130 --> 00:47:50,880
well I think I've come to the right

1057
00:47:48,960 --> 00:47:53,940
table folks not only is there champagne

1058
00:47:50,880 --> 00:47:58,349
on the table there's a rat brain a human

1059
00:47:53,940 --> 00:47:59,970
brain and models of Homer Simpson this

1060
00:47:58,349 --> 00:48:00,450
must be a winning table who do we have

1061
00:47:59,969 --> 00:48:03,179
here

1062
00:48:00,449 --> 00:48:06,348
I'm Kelsey Zimmerman I work at UNSW and

1063
00:48:03,179 --> 00:48:09,149
Katherine Baker I also work at UNSW and

1064
00:48:06,349 --> 00:48:10,859
you'll have to tell me what why do I see

1065
00:48:09,150 --> 00:48:12,989
a rat's brain in the human brain and all

1066
00:48:10,858 --> 00:48:14,489
these other things well we look at the

1067
00:48:12,989 --> 00:48:17,249
rat brain to study what happens during

1068
00:48:14,489 --> 00:48:18,720
adolescence adolescent humans and all of

1069
00:48:17,248 --> 00:48:20,068

all of the other adolescent species are

1070

00:48:18,719 --> 00:48:21,598

kind of screwed up and how they learn

1071

00:48:20,068 --> 00:48:22,978

and unlearned fear and they're very

1072

00:48:21,599 --> 00:48:25,318

susceptible to developing things like

1073

00:48:22,978 --> 00:48:27,929

anxiety and depression so what we do is

1074

00:48:25,318 --> 00:48:30,058

we use rep rings like this one and rats

1075

00:48:27,929 --> 00:48:31,649

like our little Mulder here to study

1076

00:48:30,059 --> 00:48:33,329

what happens in the brain when animals

1077

00:48:31,650 --> 00:48:35,278

learn fear and what happens when they

1078

00:48:33,329 --> 00:48:36,660

try to unlearn it and what we can learn

1079

00:48:35,278 --> 00:48:38,670

from that is how the brain is different

1080

00:48:36,659 --> 00:48:40,018

in adolescence and hopefully from that

1081

00:48:38,670 --> 00:48:41,369

we can find different treatments that

1082

00:48:40,018 --> 00:48:43,858

are more effective at treating anxiety

1083

00:48:41,369 --> 00:48:46,108

and depression and young people right

1084
00:48:43,858 --> 00:48:48,420
right so that's why we and I'm holding

1085
00:48:46,108 --> 00:48:50,969
up here folks it's a little Little flask

1086
00:48:48,420 --> 00:48:54,568
II with a rat oh it's tiny rats brain is

1087
00:48:50,969 --> 00:48:56,068
absolutely tiny commit that's an

1088
00:48:54,568 --> 00:49:00,748
adolescent brain there's still about the

1089
00:48:56,068 --> 00:49:03,389
same size but Santa made uh by one

1090
00:49:00,748 --> 00:49:04,169
centimeter by 1 centimeter yes smaller

1091
00:49:03,389 --> 00:49:06,838
than you think

1092
00:49:04,170 --> 00:49:10,820
but the adolescent human brain is not

1093
00:49:06,838 --> 00:49:13,190
dissimilar in size to the adult brain

1094
00:49:10,820 --> 00:49:15,230
it's probably a little bit smaller but

1095
00:49:13,190 --> 00:49:17,320
it's generally undergoing a lot of

1096
00:49:15,230 --> 00:49:19,880
development early in life and by

1097
00:49:17,320 --> 00:49:23,900
actually our brain continues develop

1098
00:49:19,880 --> 00:49:25,130
into our early 20s so actually one of

1099
00:49:23,900 --> 00:49:26,809
the interesting things that adolescence

1100
00:49:25,130 --> 00:49:28,460
is that our brain is rapidly growing up

1101
00:49:26,809 --> 00:49:29,929
until around adolescence and then

1102
00:49:28,460 --> 00:49:30,710
prefrontal cortex which is the area

1103
00:49:29,929 --> 00:49:32,259
that's involved in a lotta

1104
00:49:30,710 --> 00:49:35,599
decision-making and emotional regulation

1105
00:49:32,260 --> 00:49:37,100
starts to prune so we lose about 50% of

1106
00:49:35,599 --> 00:49:38,779
the synapses which are the connections

1107
00:49:37,099 --> 00:49:40,279
between different neurons over the

1108
00:49:38,780 --> 00:49:42,440
course of adolescence so the brain

1109
00:49:40,280 --> 00:49:44,750
becomes a lot more refined so that part

1110
00:49:42,440 --> 00:49:46,099
is actually while some of the neurons

1111
00:49:44,750 --> 00:49:47,360
are growing in different places it's

1112

00:49:46,099 --> 00:49:49,309
getting a lot more refined and

1113
00:49:47,360 --> 00:49:50,720
streamlined so that's kind of part of

1114
00:49:49,309 --> 00:49:52,579
the reason why adolescent brains can be

1115
00:49:50,719 --> 00:49:55,129
so sensitive to environmental stressors

1116
00:49:52,579 --> 00:49:57,349
or other stressful situations is because

1117
00:49:55,130 --> 00:50:00,430
it's a very vulnerable window where

1118
00:49:57,349 --> 00:50:00,429
there's a lot of change happening there

1119
00:50:01,570 --> 00:50:06,740
we certainly do yeah so another part of

1120
00:50:05,269 --> 00:50:08,360
research we have in our lab is actually

1121
00:50:06,739 --> 00:50:10,699
looking at affective junk food diets in

1122
00:50:08,360 --> 00:50:13,099
adolescents and we find that actually

1123
00:50:10,699 --> 00:50:15,500
adolescents are much more sensitive to

1124
00:50:13,099 --> 00:50:17,269
these type of diets than adults are so

1125
00:50:15,500 --> 00:50:20,210
in some of my work we've shown that an

1126
00:50:17,269 --> 00:50:25,039

adolescent rat is impaired in spatial

1127

00:50:20,210 --> 00:50:29,769

memories so earlier then saying I don't

1128

00:50:25,039 --> 00:50:32,420

rat is fed the same diet person comes in

1129

00:50:29,769 --> 00:50:34,159

Homer Simpson is so I've got a diagram

1130

00:50:32,420 --> 00:50:35,869

here about how we test for special

1131

00:50:34,159 --> 00:50:38,149

memories in the right so we've got -

1132

00:50:35,869 --> 00:50:40,339

Homer Simpson's here and basically rats

1133

00:50:38,150 --> 00:50:42,860

like novel things so I've got a little

1134

00:50:40,340 --> 00:50:45,289

diagram a little toy rat and he's like

1135

00:50:42,860 --> 00:50:47,420

sniffing both of them but after five

1136

00:50:45,289 --> 00:50:49,550

minutes when he's back in his home cage

1137

00:50:47,420 --> 00:50:51,309

I'll move one of these Homer Simpson's

1138

00:50:49,550 --> 00:50:54,590

and he has to go back into the cage and

1139

00:50:51,309 --> 00:50:56,239

find which one is the novel one and so a

1140

00:50:54,590 --> 00:50:58,059

normal rat will spend more time

1141
00:50:56,239 --> 00:51:01,309
investigating and sniffing around this

1142
00:50:58,059 --> 00:51:03,259
Homer Simpson in the new location but

1143
00:51:01,309 --> 00:51:05,900
the rat that's been fed this high-fat

1144
00:51:03,260 --> 00:51:08,060
high-sugar diet will forget and it'll

1145
00:51:05,900 --> 00:51:10,039
like go and explore like both of them

1146
00:51:08,059 --> 00:51:11,360
equally so that's how we test spatial

1147
00:51:10,039 --> 00:51:14,750
memories in rats

1148
00:51:11,360 --> 00:51:16,070
Wow I have come to the right table where

1149
00:51:14,750 --> 00:51:18,980
can people find out more about your

1150
00:51:16,070 --> 00:51:21,620
research we have a website our boss is

1151
00:51:18,980 --> 00:51:23,659
dr. professor Rick Richardson at UNSW

1152
00:51:21,619 --> 00:51:24,769
and so we're under the Richardson lab

1153
00:51:23,659 --> 00:51:26,059
and there's a lot more pictures and

1154
00:51:24,769 --> 00:51:28,429
information about the different research

1155
00:51:26,059 --> 00:51:33,619
that we do thank you very much thank you

1156
00:51:28,429 --> 00:51:37,069
very much thank you and it's time for

1157
00:51:33,619 --> 00:51:39,949
another table hello hello and who do we

1158
00:51:37,070 --> 00:51:42,080
have here and what do you do my name is

1159
00:51:39,949 --> 00:51:45,349
t'keyah Venus I'm a developmental

1160
00:51:42,079 --> 00:51:48,619
linguist which means that I study

1161
00:51:45,349 --> 00:51:51,380
language as a phenomenon and especially

1162
00:51:48,619 --> 00:51:54,079
how people learn it so how it develops

1163
00:51:51,380 --> 00:51:58,490
from young people just before they're

1164
00:51:54,079 --> 00:52:01,539
born until about five years of age from

1165
00:51:58,489 --> 00:52:03,829
my very limited understanding is that is

1166
00:52:01,539 --> 00:52:06,619
exactly at the time where the human

1167
00:52:03,829 --> 00:52:12,139
brain is like a Spanish listening and

1168
00:52:06,619 --> 00:52:15,139
learning an incredible rate and sponge

1169

00:52:12,139 --> 00:52:17,989
its presence that sponge is already

1170
00:52:15,139 --> 00:52:20,629
there before birth and the ears are also

1171
00:52:17,989 --> 00:52:23,539
functioning before birth so the sponge

1172
00:52:20,630 --> 00:52:25,220
starts absorbing before birth I think we

1173
00:52:23,539 --> 00:52:28,969
always have to keep in mind that birth

1174
00:52:25,219 --> 00:52:30,769
is just a benchmark event in life but

1175
00:52:28,969 --> 00:52:32,629
it's not when development starts

1176
00:52:30,769 --> 00:52:35,179
language development starts slightly

1177
00:52:32,630 --> 00:52:37,280
before that and especially the first and

1178
00:52:35,179 --> 00:52:40,549
second year of life are incredibly

1179
00:52:37,280 --> 00:52:42,980
important in in building the foundation

1180
00:52:40,550 --> 00:52:44,570
for further language development I mean

1181
00:52:42,980 --> 00:52:46,639
children get jokes only when they're

1182
00:52:44,570 --> 00:52:48,820
maybe eight or nine eight ten that's

1183
00:52:46,639 --> 00:52:51,019

they're still developing their bit

1184

00:52:48,820 --> 00:52:53,690
disabilities of language but the big

1185

00:52:51,019 --> 00:52:56,179
foundation blocks are created within the

1186

00:52:53,690 --> 00:52:57,619
first term yes yes yes you're right III

1187

00:52:56,179 --> 00:53:00,589
think there are many things that

1188

00:52:57,619 --> 00:53:01,789
children will grow to understand but if

1189

00:53:00,590 --> 00:53:05,030
you're talking about jokes

1190

00:53:01,789 --> 00:53:07,779
I mean being an uncle myself even when

1191

00:53:05,030 --> 00:53:10,880
the kids were three and four and five

1192

00:53:07,780 --> 00:53:13,220
they found things so funny and you can

1193

00:53:10,880 --> 00:53:14,840
make them laugh so hard isn't that

1194

00:53:13,219 --> 00:53:18,529
interesting that the sense of humor

1195

00:53:14,840 --> 00:53:20,900
kicks in so early I find it very hard to

1196

00:53:18,530 --> 00:53:25,850
speak to that because I'm a phonologists

1197

00:53:20,900 --> 00:53:28,160
so what I can observe is anecdotally how

1198
00:53:25,849 --> 00:53:30,079
children around me develop language and

1199
00:53:28,159 --> 00:53:32,690
develop jokes and develop a sense of

1200
00:53:30,079 --> 00:53:35,210
humor and sometimes can find something

1201
00:53:32,690 --> 00:53:38,030
very funny because they recognize that

1202
00:53:35,210 --> 00:53:41,389
everyone around them is laughing so

1203
00:53:38,030 --> 00:53:43,040
they're laughing at the same time yes

1204
00:53:41,389 --> 00:53:46,879
because that seems to be the thing that

1205
00:53:43,039 --> 00:53:49,340
we do but they might be looking at

1206
00:53:46,880 --> 00:53:51,980
context rather than actually

1207
00:53:49,340 --> 00:53:54,019
understanding why it's funny I guess do

1208
00:53:51,980 --> 00:53:56,300
you make a good point so we think about

1209
00:53:54,019 --> 00:53:59,509
something like a pun for example which

1210
00:53:56,300 --> 00:54:01,780
needs some complexity of thought to

1211
00:53:59,510 --> 00:54:04,130
understand and appreciate the humor that

1212
00:54:01,780 --> 00:54:06,590
really wouldn't come in until a bit

1213
00:54:04,130 --> 00:54:08,690
later you say until a bit later and I

1214
00:54:06,590 --> 00:54:12,050
don't want to be quoted really putting

1215
00:54:08,690 --> 00:54:14,480
really putting an age to that but what

1216
00:54:12,050 --> 00:54:16,670
we can observe that language competence

1217
00:54:14,480 --> 00:54:18,679
is knowing the language but it's also

1218
00:54:16,670 --> 00:54:21,079
knowing how to use it in a social

1219
00:54:18,679 --> 00:54:21,980
context and if you know to laugh at the

1220
00:54:21,079 --> 00:54:24,199
right moment

1221
00:54:21,980 --> 00:54:27,110
you may appear like a confident language

1222
00:54:24,199 --> 00:54:29,329
user but you may not have gotten the

1223
00:54:27,110 --> 00:54:31,430
joke that's interesting that's

1224
00:54:29,329 --> 00:54:33,110
fascinating and again folks is one of

1225
00:54:31,429 --> 00:54:35,210
the many fascinating scientists here

1226

00:54:33,110 --> 00:54:37,970
tonight are you online where can people

1227
00:54:35,210 --> 00:54:40,369
find out more about what you do we are

1228
00:54:37,969 --> 00:54:42,980
the child language lab at at Macquarie

1229
00:54:40,369 --> 00:54:45,799
University which means that we are also

1230
00:54:42,980 --> 00:54:48,380
always looking for little scientists to

1231
00:54:45,800 --> 00:54:49,789
help us with our research I think the

1232
00:54:48,380 --> 00:54:51,880
best thing to do would actually be

1233
00:54:49,789 --> 00:54:55,619
googling for child language lab

1234
00:54:51,880 --> 00:54:57,088
Macquarie University and then find us

1235
00:54:55,619 --> 00:54:58,710
there's the clue folks if you are

1236
00:54:57,088 --> 00:55:00,778
interested in that sort of thing thank

1237
00:54:58,710 --> 00:55:04,170
you very much thank you very much and

1238
00:55:00,778 --> 00:55:05,728
ever good night I've come out here to

1239
00:55:04,170 --> 00:55:07,469
the Courtyard in front of the the

1240
00:55:05,728 --> 00:55:07,828

Powerhouse Museum hello who do we have

1241
00:55:07,469 --> 00:55:11,338
here

1242
00:55:07,829 --> 00:55:12,839
adjacent hurry and next to your

1243
00:55:11,338 --> 00:55:15,449
telescope and you're just telling people

1244
00:55:12,838 --> 00:55:18,058
about Jupiter and what are you finding

1245
00:55:15,449 --> 00:55:20,489
is fascinating people tonight is it

1246
00:55:18,059 --> 00:55:21,960
because you're focused on Jupiter so

1247
00:55:20,489 --> 00:55:24,239
part of it is Jupiter and the fact that

1248
00:55:21,960 --> 00:55:26,130
you can actually see this detail on the

1249
00:55:24,239 --> 00:55:27,509
surface so you'll see some stripes which

1250
00:55:26,130 --> 00:55:29,039
are the different gases that make up

1251
00:55:27,509 --> 00:55:31,519
Jupiter and you're actually seeing

1252
00:55:29,039 --> 00:55:34,979
detail on the surface of a planet that's

1253
00:55:31,518 --> 00:55:36,838
720 million kilometres away it's pretty

1254
00:55:34,978 --> 00:55:39,478
mind-blowing stuff how many light

1255
00:55:36,838 --> 00:55:44,578
seconds there's one for you oh it's

1256
00:55:39,478 --> 00:55:46,768
actually about 45 minutes so well you

1257
00:55:44,579 --> 00:55:50,219
got me well done good answer 45 light

1258
00:55:46,768 --> 00:55:52,588
minutes about that yes that's it let's

1259
00:55:50,219 --> 00:55:55,588
gang up I'm gazing up now there it is

1260
00:55:52,588 --> 00:55:58,619
that one yes so that is it that is it

1261
00:55:55,588 --> 00:56:00,710
get your laser out yes that's right it's

1262
00:55:58,619 --> 00:56:02,880
stupid around yeah that's Jupiter and

1263
00:56:00,710 --> 00:56:04,858
people are lined up to look for your

1264
00:56:02,880 --> 00:56:07,140
telescope and this bright one down here

1265
00:56:04,858 --> 00:56:09,088
so that one right down near the horizon

1266
00:56:07,139 --> 00:56:11,278
towards the West is actually Venus

1267
00:56:09,088 --> 00:56:14,038
that's Venus so we've got Venus over

1268
00:56:11,278 --> 00:56:16,228
here higher up we do have Jupiter that

1269
00:56:14,039 --> 00:56:17,430
we just saw a little bit further along

1270
00:56:16,228 --> 00:56:20,218
in that Lionel

1271
00:56:17,429 --> 00:56:22,919
there's no that's Mars okay we've got

1272
00:56:20,219 --> 00:56:24,749
Saturn just over here and a little bit

1273
00:56:22,920 --> 00:56:27,450
further down we've got Mars just only

1274
00:56:24,748 --> 00:56:29,788
doesn't Mars look bright tonight it does

1275
00:56:27,449 --> 00:56:31,528
it's actually almost it's just gone past

1276
00:56:29,789 --> 00:56:34,019
the closest point to earth for the last

1277
00:56:31,528 --> 00:56:36,989
three years or so and it was just at

1278
00:56:34,018 --> 00:56:39,328
opposition so that is where the Sun

1279
00:56:36,989 --> 00:56:41,249
Earth and Mars all line up in one nice

1280
00:56:39,329 --> 00:56:43,170
big straight long line well let's wander

1281
00:56:41,248 --> 00:56:45,419
over to your telescope now folks I'll

1282
00:56:43,170 --> 00:56:47,690
just bend over here and have a look

1283

00:56:45,420 --> 00:56:50,670
through this little eyepiece and Wow

1284
00:56:47,690 --> 00:56:52,880
look at that and you can see four of the

1285
00:56:50,670 --> 00:56:52,880
moons

1286
00:56:53,298 --> 00:56:58,579
actually I can see five percent sure if

1287
00:56:57,079 --> 00:56:59,930
that fifth one is actually a minute I'd

1288
00:56:58,579 --> 00:57:01,760
have to double-check your little stuff

1289
00:56:59,929 --> 00:57:04,489
you'll be a star way way way back behind

1290
00:57:01,760 --> 00:57:06,170
it all but we do have the four largest

1291
00:57:04,489 --> 00:57:10,129
moons of Jupiter we've got Io Europa

1292
00:57:06,170 --> 00:57:11,869
Ganymede and Callisto yeah so they're

1293
00:57:10,130 --> 00:57:13,490
the four large ones that we can see that

1294
00:57:11,869 --> 00:57:15,260
almost like stars and they're right

1295
00:57:13,489 --> 00:57:17,328
there and you know what if I look up

1296
00:57:15,260 --> 00:57:20,450
with my naked eye now and I'm looking

1297
00:57:17,329 --> 00:57:22,460

towards Jupiter am I fooling myself to

1298

00:57:20,449 --> 00:57:25,250

think I can see one of the moons above

1299

00:57:22,460 --> 00:57:28,608

it so whilst it may look like a moon

1300

00:57:25,250 --> 00:57:29,809

it's actually a star that one I can

1301

00:57:28,608 --> 00:57:30,949

never pronounce it correctly it's

1302

00:57:29,809 --> 00:57:32,990

pronounced something along the lines of

1303

00:57:30,949 --> 00:57:35,659

Zuber and I Kenobi Kenobi

1304

00:57:32,989 --> 00:57:38,598

yeah and it's actually a binary star so

1305

00:57:35,659 --> 00:57:40,789

it's two stars orbiting one another and

1306

00:57:38,599 --> 00:57:42,079

spinning around in space alright well

1307

00:57:40,789 --> 00:57:44,088

thank you very much for that little

1308

00:57:42,079 --> 00:57:45,670

lesson and as I can see all the people

1309

00:57:44,088 --> 00:57:48,230

lined up here looks like a very

1310

00:57:45,670 --> 00:57:50,059

successful night for astronomy engage

1311

00:57:48,230 --> 00:57:57,260

and david has bank and for Sydney

1312
00:57:50,059 --> 00:57:59,359
Observatory as well that was the final

1313
00:57:57,260 --> 00:58:01,730
part of our three-part series of speed

1314
00:57:59,358 --> 00:58:03,230
Mead the scientists big thank you to

1315
00:58:01,730 --> 00:58:05,010
Frankie Lee from the powerhouse museum

1316
00:58:03,230 --> 00:58:08,369
for making it all possible

1317
00:58:05,010 --> 00:58:08,369
[Music]

1318
00:58:21,530 --> 00:58:25,920
thank you for listening to the skeptic

1319
00:58:23,820 --> 00:58:28,830
zone this week and a big thank you a big

1320
00:58:25,920 --> 00:58:31,200
THANK YOU to Angus Firth who was my

1321
00:58:28,829 --> 00:58:34,139
intern for this episode who came along

1322
00:58:31,199 --> 00:58:37,049
and edited and mixed a lot of today's

1323
00:58:34,139 --> 00:58:39,809
episode and he did a fantastic job well

1324
00:58:37,050 --> 00:58:42,150
done anger sir I think you'll be doing

1325
00:58:39,809 --> 00:58:42,960
some more skeptics own editing in the

1326
00:58:42,150 --> 00:58:45,180
near future

1327
00:58:42,960 --> 00:58:47,699
now don't forget of course the big

1328
00:58:45,179 --> 00:58:51,299
skeptic on convention coming up in

1329
00:58:47,699 --> 00:58:53,460
October and you if you're in Sydney

1330
00:58:51,300 --> 00:58:56,910
please come along to the free event on

1331
00:58:53,460 --> 00:58:59,159
the eve of skeptic on which is a big

1332
00:58:56,909 --> 00:59:00,690
welcome event at the Occidental hotel in

1333
00:58:59,159 --> 00:59:03,449
we need where we normally have skeptics

1334
00:59:00,690 --> 00:59:05,280
in the pub link on this week's show

1335
00:59:03,449 --> 00:59:08,159
notes if you want to come along please

1336
00:59:05,280 --> 00:59:09,960
RSVP remember it's free it's just nice

1337
00:59:08,159 --> 00:59:12,059
to know the numbers we're going to have

1338
00:59:09,960 --> 00:59:15,179
a big trivia night as well we're gonna

1339
00:59:12,059 --> 00:59:17,130
take out take up two floors of the

1340

00:59:15,179 --> 00:59:19,049
Occidental hotel it should be a really

1341
00:59:17,130 --> 00:59:21,450
great night of course while you're there

1342
00:59:19,050 --> 00:59:24,380
if you haven't done so already please

1343
00:59:21,449 --> 00:59:26,730
book your tickets for a skeptic on

1344
00:59:24,380 --> 00:59:29,460
coming up on next week's show we're

1345
00:59:26,730 --> 00:59:31,019
going to be chatting to the challenge

1346
00:59:29,460 --> 00:59:32,760
coordinator and investigator from an

1347
00:59:31,019 --> 00:59:35,460
Australian skeptics Ian Bryce we've had

1348
00:59:32,760 --> 00:59:37,140
to bump his segment from this week to

1349
00:59:35,460 --> 00:59:40,320
next week because this week's show was

1350
00:59:37,139 --> 00:59:42,269
quite full also we chat to Celestia

1351
00:59:40,320 --> 00:59:45,180
award from the squaring the strange

1352
00:59:42,269 --> 00:59:48,059
podcast a wonderful sceptical podcast

1353
00:59:45,179 --> 00:59:51,569
coming out of well I guess it's coming

1354
00:59:48,059 --> 00:59:54,029

out of Albuquerque New Mexico and Las

1355

00:59:51,570 --> 00:59:55,800
Vegas Nevada with her co-hosts

1356

00:59:54,030 --> 00:59:59,220
Ben and Pasquale anyway we're gonna be

1357

00:59:55,800 --> 01:00:00,810
chatting to Celestia Ward and she is if

1358

00:59:59,219 --> 01:00:04,949
you might remember some people might

1359

01:00:00,809 --> 01:00:07,679
know she is a fantastic artist in fact

1360

01:00:04,949 --> 01:00:09,868
the caricature of me and may not we both

1361

01:00:07,679 --> 01:00:12,358
use on our business cards was done by a

1362

01:00:09,869 --> 01:00:15,539
Celestia a big thank you to those people

1363

01:00:12,358 --> 01:00:19,679
who continue to support the skeptic zone

1364

01:00:15,539 --> 01:00:23,009
with donations and PayPal micro payments

1365

01:00:19,679 --> 01:00:24,469
and via patreon and new people and you

1366

01:00:23,010 --> 01:00:26,849
know who you are

1367

01:00:24,469 --> 01:00:28,108
the only reason really the show keeps

1368

01:00:26,849 --> 01:00:30,599
going because I certainly couldn't

1369
01:00:28,108 --> 01:00:32,338
afford to do this show there the time it

1370
01:00:30,599 --> 01:00:35,030
takes and the equipment and all the rest

1371
01:00:32,338 --> 01:00:38,029
of the things without real financials

1372
01:00:35,030 --> 01:00:40,720
bought from listeners like you and if

1373
01:00:38,030 --> 01:00:44,090
you've never thought about contributing

1374
01:00:40,719 --> 01:00:46,159
maybe even \$5 a month goes a long way

1375
01:00:44,090 --> 01:00:49,519
here the skeptic zone via patreon or

1376
01:00:46,159 --> 01:00:51,500
whatever links at skeptic zone TV much

1377
01:00:49,519 --> 01:00:53,719
appreciated by myself and the whole team

1378
01:00:51,500 --> 01:00:56,929
here at the skeptic zone and a big shout

1379
01:00:53,719 --> 01:00:59,419
out to my friends enjoying Dragon Con

1380
01:00:56,929 --> 01:01:03,669
you know Atlanta Georgia right now

1381
01:00:59,420 --> 01:01:06,650
I've been following various threads and

1382
01:01:03,670 --> 01:01:08,240
postings and videos on YouTube and

1383
01:01:06,650 --> 01:01:10,190
Facebook and Twitter and all sorts of

1384
01:01:08,239 --> 01:01:12,169
things man I'm so jealous I wish I was

1385
01:01:10,190 --> 01:01:14,659
there I hope maybe I can be there

1386
01:01:12,170 --> 01:01:16,309
next year I haven't been to Dragon Con

1387
01:01:14,659 --> 01:01:19,190
for about eight years my first Dragon

1388
01:01:16,309 --> 01:01:21,139
Con was 10 years ago and that's in fact

1389
01:01:19,190 --> 01:01:24,320
where I recorded the first segment for

1390
01:01:21,139 --> 01:01:26,239
the skeptic zone which I guess in a way

1391
01:01:24,320 --> 01:01:29,090
this weekend marks the 10th anniversary

1392
01:01:26,239 --> 01:01:31,399
of the first bit of recording for the

1393
01:01:29,090 --> 01:01:32,900
skeptics and so there you go but for

1394
01:01:31,400 --> 01:01:39,710
this week this is Richard Saunders

1395
01:01:32,900 --> 01:01:41,480
signing off from Sydney Australia you've

1396
01:01:39,710 --> 01:01:45,889
been listening to the skeptic zone

1397

01:01:41,480 --> 01:01:50,329
podcast please visit our website at WWDC

1398
01:01:45,889 --> 01:01:52,879
be for show notes contacts and to access

1399
01:01:50,329 --> 01:01:56,480
the bat catalog of episodes going back

1400
01:01:52,880 --> 01:02:00,140
to 2008 you can follow the skeptic zone

1401
01:01:56,480 --> 01:02:02,539
podcast on twitter at skeptic zone visit

1402
01:02:00,139 --> 01:02:03,400
our facebook page or leave a review on

1403
01:02:02,539 --> 01:02:06,110
itunes

1404
01:02:03,400 --> 01:02:09,470
you can also support the skeptic zone

1405
01:02:06,110 --> 01:02:12,190
via patreon or PayPal the skeptic zone

1406
01:02:09,469 --> 01:02:14,569
podcast is an independent production

1407
01:02:12,190 --> 01:02:16,700
reviews and opinions expressed on the

1408
01:02:14,570 --> 01:02:19,070
skeptic zone and not necessarily those

1409
01:02:16,699 --> 01:02:20,859
of Australian skeptics or any other

1410
01:02:19,070 --> 01:02:27,349
sceptical organisation

1411
01:02:20,860 --> 01:02:27,349

[Music]

1412
01:02:29,670 --> 01:02:35,289
hello all the people who listen after

1413
01:02:32,170 --> 01:02:36,818
the music the post music gang arm maybe

1414
01:02:35,289 --> 01:02:39,880
somebody can come up with a name I've

1415
01:02:36,818 --> 01:02:41,858
had more requests for the dice game so

1416
01:02:39,880 --> 01:02:44,140
here we go I've got a dye in my hand

1417
01:02:41,858 --> 01:02:46,028
it's a 10 sided I'm gonna roll it three

1418
01:02:44,139 --> 01:02:50,528
times which will give me a number

1419
01:02:46,028 --> 01:02:53,278
between 0 and 1000 so you use your

1420
01:02:50,528 --> 01:02:56,048
predicting power now folks predict away

1421
01:02:53,278 --> 01:02:58,719
before I roll the first number have you

1422
01:02:56,048 --> 01:03:03,759
got your number between 0 or from 1 to

1423
01:02:58,719 --> 01:03:05,368
1000 good I'm just waiting for you yes

1424
01:03:03,760 --> 01:03:19,829
you've got it all right here we go

1425
01:03:05,369 --> 01:03:24,059
shake the die 105 105 did you get that

1426

01:03:19,829 --> 01:03:24,059

for now I saw a juice