

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

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

3
00:00:23,879 --> 00:00:30,910
hello and welcome to the skeptic zone

4
00:00:26,589 --> 00:00:34,329
episode number 251 for the 11th of

5
00:00:30,910 --> 00:00:36,640
august 2013 Richard Saunders here with

6
00:00:34,329 --> 00:00:38,140
you from Sydney Australia what an

7
00:00:36,640 --> 00:00:41,289
interesting show we have lined up for

8
00:00:38,140 --> 00:00:43,179
you this week my good friend my dear

9
00:00:41,289 --> 00:00:46,359
friend who I haven't seen from the wild

10
00:00:43,179 --> 00:00:48,640
dr. Phil Plait is in town and just the

11
00:00:46,359 --> 00:00:51,960
other night I went along to hear a

12
00:00:48,640 --> 00:00:54,789
public talk by Phil death from the skies

13
00:00:51,960 --> 00:00:57,308
accompanied by joanne benim ooh and

14
00:00:54,789 --> 00:01:00,118
after that we were very lucky indeed to

15
00:00:57,308 --> 00:01:03,969
visit the sydney observatory with phil

16
00:01:00,118 --> 00:01:05,618
and get some behind-the-scenes a little

17
00:01:03,969 --> 00:01:07,539
behind-the-scenes tour I guess you would

18
00:01:05,618 --> 00:01:09,159
say we went up to the top of the

19
00:01:07,540 --> 00:01:13,060
observatory and saw the city at night

20
00:01:09,159 --> 00:01:16,420
and then then we went in and observed

21
00:01:13,060 --> 00:01:19,118
some stars and planets now this is your

22
00:01:16,420 --> 00:01:20,769
chance to be a annie's dropper as it

23
00:01:19,118 --> 00:01:23,680
were a little fly on the wall in the

24
00:01:20,769 --> 00:01:27,879
observatory is Phil play tonight and Joe

25
00:01:23,680 --> 00:01:31,329
and Ben amoo here into the telescope to

26
00:01:27,879 --> 00:01:34,149
look at the wonders of the cosmos you

27
00:01:31,328 --> 00:01:35,949
might say that's coming up at the top of

28
00:01:34,149 --> 00:01:38,049
the show and I hope you enjoy that I

29

00:01:35,950 --> 00:01:40,659
hope you enjoy that following that it's

30
00:01:38,049 --> 00:01:42,999
an interview with Tim Farley from what's

31
00:01:40,659 --> 00:01:45,520
the harm net what's the harm you might

32
00:01:42,998 --> 00:01:48,519
say what's the harm find out more with

33
00:01:45,519 --> 00:01:50,618
Tim Farley from what's the harm net and

34
00:01:48,519 --> 00:01:52,629
then we'll round off the show with the

35
00:01:50,618 --> 00:01:55,868
weakened science from the Royal

36
00:01:52,629 --> 00:01:58,539
Institution of Australia yes a slightly

37
00:01:55,868 --> 00:02:00,218
shorter show this week partly because

38
00:01:58,539 --> 00:02:02,409
I'm very busy at the moment are

39
00:02:00,218 --> 00:02:04,239
preparing for the mystery investigator

40
00:02:02,409 --> 00:02:06,399
show my good friend Ian Bryce who does

41
00:02:04,239 --> 00:02:08,439
the show with me sometimes and I will be

42
00:02:06,399 --> 00:02:10,689
performing at the Australian Museum for

43
00:02:08,439 --> 00:02:13,359

lots of kids lots of high school kids

44

00:02:10,689 --> 00:02:15,068

this week coming up when are we

45

00:02:13,360 --> 00:02:17,350

performing Tuesday Wednesday and

46

00:02:15,068 --> 00:02:18,969

Thursday I think and then the following

47

00:02:17,349 --> 00:02:22,680

week we're doing some shows for some

48

00:02:18,969 --> 00:02:25,090

younger kids science week here in

49

00:02:22,680 --> 00:02:27,909

Australia and the mystery investigators

50

00:02:25,090 --> 00:02:31,930

love to get out there and do our show

51

00:02:27,909 --> 00:02:34,419

about questioning claims now somebody

52

00:02:31,930 --> 00:02:35,920

else who likes to question claims

53

00:02:34,419 --> 00:02:39,039

is none other than our very own dr.

54

00:02:35,919 --> 00:02:42,039

Ricci dr. Rachel Dunlop dr. Reggie will

55

00:02:39,039 --> 00:02:45,519

be speaking in Canberra on the

56

00:02:42,039 --> 00:02:48,909

seventeenth of August between three and

57

00:02:45,520 --> 00:02:51,850

four thirty p.m. the location is

58
00:02:48,909 --> 00:02:53,139
Questacon king edward terrace and i

59
00:02:51,849 --> 00:02:55,919
think people in canberra certainly

60
00:02:53,139 --> 00:02:59,318
nowhere Questacon is it's free admission

61
00:02:55,919 --> 00:03:02,018
Wow free admission what more could you

62
00:02:59,318 --> 00:03:05,259
ask for now dr. H is going to be giving

63
00:03:02,019 --> 00:03:08,170
a talk thinking outside the box how

64
00:03:05,259 --> 00:03:10,719
blue-green algae coconut bat soup and

65
00:03:08,169 --> 00:03:13,768
the jungles of Guam provide clues to the

66
00:03:10,719 --> 00:03:16,359
causes of motor neuron disease good

67
00:03:13,769 --> 00:03:19,450
heavens I think the message there folks

68
00:03:16,360 --> 00:03:22,269
is a mmm don't eat that bat soup for

69
00:03:19,449 --> 00:03:27,159
more information go to ww canberra

70
00:03:22,269 --> 00:03:28,900
skeptic co BAU and I'm sure dr. rachy

71
00:03:27,159 --> 00:03:30,639
when she's in Canberra we'll be hearing

72
00:03:28,900 --> 00:03:33,039
more interesting and exciting details

73
00:03:30,639 --> 00:03:35,169
about the upcoming Australian skeptics

74
00:03:33,039 --> 00:03:37,539
National Convention and we'll play the

75
00:03:35,169 --> 00:03:40,539
little little promotion of that towards

76
00:03:37,539 --> 00:03:42,340
the end of the show dr. H II not to be

77
00:03:40,539 --> 00:03:44,439
missed well that's all from me at the

78
00:03:42,340 --> 00:03:46,769
moment I'm just gonna stand up here walk

79
00:03:44,439 --> 00:03:52,810
over the other side of my office where

80
00:03:46,769 --> 00:03:54,129
hello sweetie this is Adele hello she

81
00:03:52,810 --> 00:03:56,650
keeps me company up here in my office

82
00:03:54,129 --> 00:03:59,229
sometimes and she's rolling on her back

83
00:03:56,650 --> 00:04:03,250
looking too cute for words yes hello

84
00:03:59,229 --> 00:04:04,929
sweetheart here we go well I thought I'd

85
00:04:03,250 --> 00:04:06,549
just give you a little bit of cuteness

86

00:04:04,930 --> 00:04:11,439
into your life folks what do you say

87
00:04:06,549 --> 00:04:13,689
Adele there we go well you're gonna stay

88
00:04:11,439 --> 00:04:16,629
there right you stay there Adele lie in

89
00:04:13,689 --> 00:04:21,250
the Sun on top of my main little

90
00:04:16,629 --> 00:04:23,500
wardrobe while you're doing that yes I'm

91
00:04:21,250 --> 00:04:26,949
going to run downstairs I'm going to

92
00:04:23,500 --> 00:04:30,129
find some miso soup you like the miso

93
00:04:26,949 --> 00:04:32,079
soup yes I thought so well maybe not I'm

94
00:04:30,129 --> 00:04:35,740
gonna find some miso soup which I quite

95
00:04:32,079 --> 00:04:37,918
like yes and we'll all enjoy the skeptic

96
00:04:35,740 --> 00:04:37,918
zone

97
00:04:52,939 --> 00:04:56,740
you soon dr. Phil place

98
00:05:05,069 --> 00:05:09,389
well thank you thank you Jeff and thank

99
00:05:07,170 --> 00:05:11,490
you everybody for coming it's very very

100
00:05:09,389 --> 00:05:15,269

exciting to be in Australia I love this

101

00:05:11,490 --> 00:05:16,680

country you guys are so cool every

102

00:05:15,269 --> 00:05:19,049

single one what's the best part about

103

00:05:16,680 --> 00:05:22,769

going to Australia us and you surrounded

104

00:05:19,050 --> 00:05:24,270

by Australians also standing on my head

105

00:05:22,769 --> 00:05:25,709

and seeing all of them upside down

106

00:05:24,269 --> 00:05:28,079

constellations you guys have here

107

00:05:25,709 --> 00:05:30,419

watching a riot come over the horizon

108

00:05:28,079 --> 00:05:32,609

upside down is something that will stay

109

00:05:30,420 --> 00:05:35,430

with me Chris to Atlanta's seriously

110

00:05:32,610 --> 00:05:37,350

freaky and the other night I saw alpha

111

00:05:35,430 --> 00:05:39,660

beta Centauri and summer concert you

112

00:05:37,350 --> 00:05:43,140

don't get to see as well as Sagittarius

113

00:05:39,660 --> 00:05:45,740

and Scorpius overhead which does not

114

00:05:43,139 --> 00:05:48,180

happen at nor managers that's very cool

115
00:05:45,740 --> 00:05:51,150
it's really really exciting to be here

116
00:05:48,180 --> 00:05:56,250
also you guys have I just go into a

117
00:05:51,149 --> 00:06:01,259
store my mentees a board index we've

118
00:05:56,250 --> 00:06:02,939
been eating Tim Tams all day so good so

119
00:06:01,259 --> 00:06:04,439
it's a real pleasure to hear the last

120
00:06:02,939 --> 00:06:06,269
time I was here was actually 10 years

121
00:06:04,439 --> 00:06:08,100
ago I was brought here by Richard

122
00:06:06,269 --> 00:06:10,680
Saunders was in fact in the audience

123
00:06:08,100 --> 00:06:13,320
with the Australian skeptics and

124
00:06:10,680 --> 00:06:16,680
wonderful toward I'm doing a few cities

125
00:06:13,319 --> 00:06:18,480
here again Sydney reminds me a lot of

126
00:06:16,680 --> 00:06:20,579
San Francisco where I'll engines when I

127
00:06:18,480 --> 00:06:22,790
come here and sleeping home and then

128
00:06:20,579 --> 00:06:26,899
nice and kangaroos hopping around so yes

129
00:06:22,790 --> 00:06:30,110
good reminder a long way from home so

130
00:06:26,899 --> 00:06:33,089
years ago as Jeff mentioned I studied

131
00:06:30,110 --> 00:06:35,490
supernova 1987a which is a star that

132
00:06:33,089 --> 00:06:37,229
exploded in another galaxy but

133
00:06:35,490 --> 00:06:38,699
relatively close by you could actually

134
00:06:37,230 --> 00:06:43,590
go outside and see it with your naked

135
00:06:38,699 --> 00:06:46,439
eye and I always kind of liked exploding

136
00:06:43,589 --> 00:06:48,500
stars of grub learning about neutron

137
00:06:46,439 --> 00:06:52,680
stars all black holes and libraries up

138
00:06:48,500 --> 00:06:55,110
and I've always been fascinated by that

139
00:06:52,680 --> 00:06:57,209
sort of thing this epic disasters i love

140
00:06:55,110 --> 00:06:59,069
disaster movies i mean i think most

141
00:06:57,209 --> 00:07:00,959
people didn't right now I going on

142
00:06:59,069 --> 00:07:02,519
roller coasters and being scared and I

143

00:07:00,959 --> 00:07:05,519
know that at the end I'll be able to get

144
00:07:02,519 --> 00:07:07,649
often and be happy and just remember the

145
00:07:05,519 --> 00:07:09,659
thrill oriental porn movies drunken

146
00:07:07,649 --> 00:07:12,229
reason like them as well so if you

147
00:07:09,660 --> 00:07:16,820
combine these two things and you like

148
00:07:12,230 --> 00:07:19,980
gigantic catastrophic cosmic events and

149
00:07:16,819 --> 00:07:23,040
you like talking about sort of threats

150
00:07:19,980 --> 00:07:24,600
to life it's very easy to make so this

151
00:07:23,040 --> 00:07:29,330
too much choice outs that's fun to be

152
00:07:24,600 --> 00:07:32,160
talking about i'm at just an amazing

153
00:07:29,329 --> 00:07:34,918
situation my friends with an amazing man

154
00:07:32,160 --> 00:07:38,010
dr. Phil Plait hello hey skeptics owners

155
00:07:34,918 --> 00:07:40,139
hey we three back on we are on top of

156
00:07:38,009 --> 00:07:42,029
the city observatory we are on top of

157
00:07:40,139 --> 00:07:44,370

the Sydney observatories isn't a place

158

00:07:42,029 --> 00:07:46,859

you get to see very often and it's a

159

00:07:44,370 --> 00:07:49,530

brilliant night the moon is setting over

160

00:07:46,860 --> 00:07:51,569

there with Venus bright as I've ever

161

00:07:49,529 --> 00:07:53,189

seen it in the city it's pretty whole

162

00:07:51,569 --> 00:07:54,930

city is just laid before it's all lit up

163

00:07:53,189 --> 00:07:57,000

yeah we're standing in front of the

164

00:07:54,930 --> 00:08:00,990

harbor and you can see the Harbormaster

165

00:07:57,000 --> 00:08:02,850

tower the bridge and return around here

166

00:08:00,990 --> 00:08:04,978

course you can't see that in luna park

167

00:08:02,850 --> 00:08:06,870

and the Magnificent opera house is all

168

00:08:04,978 --> 00:08:09,240

their force it's hard to believe I'm

169

00:08:06,870 --> 00:08:10,319

standing here again and you just come in

170

00:08:09,240 --> 00:08:11,879

and then every time you come to

171

00:08:10,319 --> 00:08:13,949

Australia which is an awful which is now

172
00:08:11,879 --> 00:08:15,839
twice plus including this one you look

173
00:08:13,949 --> 00:08:17,430
up in heavens and you're thinking you're

174
00:08:15,839 --> 00:08:19,289
standing on your head it's just so funny

175
00:08:17,430 --> 00:08:20,430
so completely it's odd i mean we're here

176
00:08:19,290 --> 00:08:22,229
on the observatory i can look out over

177
00:08:20,430 --> 00:08:24,030
the bridge in luna park and i can see

178
00:08:22,228 --> 00:08:26,279
Vega and Altair and these are very

179
00:08:24,029 --> 00:08:28,559
familiar stars but if I turn a little

180
00:08:26,279 --> 00:08:31,199
bit to the left and I guess you know I'm

181
00:08:28,560 --> 00:08:32,820
facing west and I can see Saturn and

182
00:08:31,199 --> 00:08:35,039
Spica and Arcturus and these are all

183
00:08:32,820 --> 00:08:36,360
very familiar stars but because you in

184
00:08:35,039 --> 00:08:38,360
the northern hemisphere we get him yeah

185
00:08:36,360 --> 00:08:40,590
and then I turn you know toward

186
00:08:38,360 --> 00:08:42,000
obviously that's south

187
00:08:40,590 --> 00:08:43,590
and it's like oh they're day that would

188
00:08:42,000 --> 00:08:46,110
be the Southern Cross an alpha and beta

189
00:08:43,590 --> 00:08:48,480
Centauri the rest of some tourists and

190
00:08:46,110 --> 00:08:51,810
Scorpius is straight overhead it's just

191
00:08:48,480 --> 00:08:54,240
it's crazy it's so weird you know you're

192
00:08:51,809 --> 00:08:55,919
you stand at Warren latitude and spin

193
00:08:54,240 --> 00:08:57,389
around and the stars rise and set and

194
00:08:55,919 --> 00:08:59,159
you're used to that but when you go

195
00:08:57,389 --> 00:09:01,919
north and south you're seeing different

196
00:08:59,159 --> 00:09:05,519
stars cuz the earth is no longer in the

197
00:09:01,919 --> 00:09:07,709
way of those stars yeah its just oh the

198
00:09:05,519 --> 00:09:10,169
first night I got here it's alpha and

199
00:09:07,710 --> 00:09:11,759
beta Centauri and it's just that's god I

200

00:09:10,169 --> 00:09:14,099
love that that's the closest star system

201
00:09:11,759 --> 00:09:16,169
that we know of Emilio and there it is

202
00:09:14,100 --> 00:09:18,269
Mary there yeah that's right has kept

203
00:09:16,169 --> 00:09:19,799
them incredibly bright and you were

204
00:09:18,269 --> 00:09:21,269
saying just before that when you landed

205
00:09:19,799 --> 00:09:23,339
you were looking at the mentholated

206
00:09:21,269 --> 00:09:25,079
clouds well no it was up but it was

207
00:09:23,340 --> 00:09:27,990
getting too bright i landed about 5am

208
00:09:25,080 --> 00:09:30,180
and i was at the brisbane airport and

209
00:09:27,990 --> 00:09:31,259
walked outside and i could i was looking

210
00:09:30,179 --> 00:09:32,699
a star and i'm looking at it thinking

211
00:09:31,259 --> 00:09:34,350
it's the right color and the right

212
00:09:32,700 --> 00:09:37,050
brightness to be serious but i don't

213
00:09:34,350 --> 00:09:39,300
know if that's serious and that one's

214
00:09:37,049 --> 00:09:41,159

Cano piss but I had to pull out my iPad

215

00:09:39,299 --> 00:09:42,750

fiddling with it it's like oh okay and

216

00:09:41,159 --> 00:09:45,120

then i realized i was looking at orion

217

00:09:42,750 --> 00:09:47,129

upside down but the longer I waited the

218

00:09:45,120 --> 00:09:49,259

brighter the sky god and then it was too

219

00:09:47,129 --> 00:09:51,029

late to see anything but that was that

220

00:09:49,259 --> 00:09:52,289

was briefly later tonight maybe you

221

00:09:51,029 --> 00:09:54,389

might have a chance to see some more

222

00:09:52,289 --> 00:09:56,939

loads the hours go by yeah it's it's why

223

00:09:54,389 --> 00:09:57,960

this seven ish now yeah yeah I don't

224

00:09:56,940 --> 00:09:59,940

know if we'll be able to see the

225

00:09:57,960 --> 00:10:02,780

Magellanic Cloud but it's rising right

226

00:09:59,940 --> 00:10:06,330

now but given that i spent four years

227

00:10:02,779 --> 00:10:08,819

three years years many many years

228

00:10:06,330 --> 00:10:11,940

multiple years looking at supernova

229
00:10:08,820 --> 00:10:13,379
1987a using Hubble and had never seen

230
00:10:11,940 --> 00:10:15,810
the Magellanic Cloud then came down here

231
00:10:13,379 --> 00:10:17,220
back in 2004 with you yeah yeah and

232
00:10:15,809 --> 00:10:19,049
sought for the first time you brought me

233
00:10:17,220 --> 00:10:20,910
up strongly ironmen went up the hill and

234
00:10:19,049 --> 00:10:22,469
we I mean you guys you jumped out of the

235
00:10:20,909 --> 00:10:23,819
car and i pointed out and I well I just

236
00:10:22,470 --> 00:10:25,139
I walk out of the car and looked up and

237
00:10:23,820 --> 00:10:27,480
just saw it and I was just standing

238
00:10:25,139 --> 00:10:28,769
there like oh my god and I got a big

239
00:10:27,480 --> 00:10:31,289
lump in my throat and I was about ready

240
00:10:28,769 --> 00:10:33,269
to weep yeah it was so beautiful to see

241
00:10:31,289 --> 00:10:35,039
that for the first time I was expecting

242
00:10:33,269 --> 00:10:36,509
like an Andromeda galaxy and it's so

243
00:10:35,039 --> 00:10:38,659
much better not so much bigger and

244
00:10:36,509 --> 00:10:38,659
brighter

245
00:10:39,179 --> 00:10:43,659
we're leaders in ultra notable sighs oh

246
00:10:41,708 --> 00:10:46,419
well I've studied this I've got a

247
00:10:43,659 --> 00:10:48,159
million spectra of this from stus Phil

248
00:10:46,419 --> 00:10:51,188
Plait is looking at something in the

249
00:10:48,159 --> 00:10:53,649
flesh is a we say in the in the hydrogen

250
00:10:51,188 --> 00:10:55,588
gas yeah what are you looking at so

251
00:10:53,649 --> 00:10:58,720
there's a star called a to Karen a and

252
00:10:55,589 --> 00:11:02,110
it's what it's about 4th magnitude of

253
00:10:58,720 --> 00:11:03,490
something like that and it's a

254
00:11:02,110 --> 00:11:05,558
supermassive star it's one of the most

255
00:11:03,490 --> 00:11:07,869
massive stars in galaxies it's called a

256
00:11:05,558 --> 00:11:10,208
luminous blue variable it's a very blue

257

00:11:07,869 --> 00:11:12,309
star and it's very luminous and it's

258
00:11:10,208 --> 00:11:14,229
variable so you know what do you call it

259
00:11:12,308 --> 00:11:17,139
company you have no game i investigate

260
00:11:14,230 --> 00:11:18,850
um she does variable stars oh she does

261
00:11:17,139 --> 00:11:21,789
this kind this is an extremely massive

262
00:11:18,850 --> 00:11:23,319
star 80 or more times the mass of the

263
00:11:21,789 --> 00:11:25,958
Sun it's basically the upper limit of

264
00:11:23,318 --> 00:11:29,588
how star how massive a star can be it's

265
00:11:25,958 --> 00:11:31,088
unstable it's basically so hot actually

266
00:11:29,589 --> 00:11:33,459
Adam and is tapping her foot I think she

267
00:11:31,089 --> 00:11:35,199
wants to come into we got a bunch of

268
00:11:33,458 --> 00:11:36,638
astronomers here who want to see and so

269
00:11:35,198 --> 00:11:37,899
this star the surface of the star is

270
00:11:36,639 --> 00:11:41,379
unstable it there's so much energy

271
00:11:37,899 --> 00:11:44,230

pouring up from below that it wants to

272

00:11:41,379 --> 00:11:47,949

blow the surface off and they're very

273

00:11:44,230 --> 00:11:50,800

unstable and 150 years ago or more the

274

00:11:47,948 --> 00:11:54,008

star had a massive outburst a paroxysm

275

00:11:50,799 --> 00:11:55,508

and it blew off these two lobes moving

276

00:11:54,009 --> 00:11:57,699

in opposite directions look like an

277

00:11:55,509 --> 00:11:59,438

hourglass and you can see that we've

278

00:11:57,698 --> 00:12:00,758

heard is just 16 inch telescope here at

279

00:11:59,438 --> 00:12:03,099

the Sydney Observatory you can see them

280

00:12:00,759 --> 00:12:04,629

in this event the star got tremendously

281

00:12:03,100 --> 00:12:07,720

bright it was like I think the second

282

00:12:04,629 --> 00:12:09,879

brightest star in the sky and what what

283

00:12:07,720 --> 00:12:11,949

the event was is it erupted with these

284

00:12:09,879 --> 00:12:13,778

two lobes and together those lobes

285

00:12:11,948 --> 00:12:16,870

themselves have about the mass of the

286
00:12:13,778 --> 00:12:18,639
Sun if I mean that that explosion is

287
00:12:16,870 --> 00:12:20,980
basically second only to the star

288
00:12:18,639 --> 00:12:24,850
blowing up how many let users that way

289
00:12:20,980 --> 00:12:26,079
about 7,500 light-years and a de carne

290
00:12:24,850 --> 00:12:27,220
is an interesting star because it's

291
00:12:26,078 --> 00:12:28,599
going to explode someday it's gonna

292
00:12:27,220 --> 00:12:30,730
become a supernova nobody really know

293
00:12:28,600 --> 00:12:31,928
already has yeah it's possible it's one

294
00:12:30,730 --> 00:12:33,778
of the few stars it's actually far

295
00:12:31,928 --> 00:12:36,990
enough away um

296
00:12:33,778 --> 00:12:38,909
yay did that just that just that it's a

297
00:12:36,990 --> 00:12:41,188
bit disorder I think once brighter than

298
00:12:38,909 --> 00:12:42,659
the other so they may look bigger job

299
00:12:41,188 --> 00:12:45,568
enemy was now peering through the

300
00:12:42,659 --> 00:12:47,730
telescope and I had no idea yeah look at

301
00:12:45,568 --> 00:12:49,169
me that smile or nothing well I've seen

302
00:12:47,730 --> 00:12:51,120
it Hubble pictures it's very famous

303
00:12:49,169 --> 00:12:53,068
Hubble picture of this and we've

304
00:12:51,120 --> 00:12:54,539
observed it with the space telescope

305
00:12:53,068 --> 00:12:56,610
imaging spectrograph which is the camera

306
00:12:54,539 --> 00:12:58,049
I worked on for a long time and the

307
00:12:56,610 --> 00:12:59,850
specter of this when you break up the

308
00:12:58,049 --> 00:13:01,740
light into its individual colors is a

309
00:12:59,850 --> 00:13:03,689
complete mess it's really hard to

310
00:13:01,740 --> 00:13:06,480
interpret because there's just so much

311
00:13:03,688 --> 00:13:08,969
going on but these two lobes actually I

312
00:13:06,480 --> 00:13:10,319
never really thought about how big the

313
00:13:08,970 --> 00:13:12,778
lobes were I've seen a million pictures

314

00:13:10,318 --> 00:13:14,759
of it I never considered that with a

315
00:13:12,778 --> 00:13:16,350
relatively you know I'm not gonna call

316
00:13:14,759 --> 00:13:18,480
this small but you know it's not this

317
00:13:16,350 --> 00:13:20,040
isn't a four meter telescope you can

318
00:13:18,480 --> 00:13:22,289
slap an eyepiece in and be able to see

319
00:13:20,039 --> 00:13:23,879
him that's astonishing what I got

320
00:13:22,289 --> 00:13:27,990
something for the astronomers in the

321
00:13:23,879 --> 00:13:30,149
room in the dome sorry okay so there is

322
00:13:27,990 --> 00:13:31,799
so much stuff out there to look at so

323
00:13:30,149 --> 00:13:33,360
much it's just ridiculous how do

324
00:13:31,799 --> 00:13:37,308
astronomers decide what they're gonna

325
00:13:33,360 --> 00:13:37,308
look at cuz there's so much to study

326
00:13:37,698 --> 00:13:42,990
what school you know but I mean there is

327
00:13:41,068 --> 00:13:45,360
so much stuff going on out there so okay

328
00:13:42,990 --> 00:13:46,620

a particular start may or may not be

329

00:13:45,360 --> 00:13:48,870

doing something interesting at any one

330

00:13:46,620 --> 00:13:50,879

point or particular galaxy how do you

331

00:13:48,870 --> 00:13:54,480

decide of all this amazing sky to look

332

00:13:50,879 --> 00:13:56,129

at what is you know is it is it just the

333

00:13:54,480 --> 00:13:58,170

images you get and that's what you yeah

334

00:13:56,129 --> 00:13:59,399

Oh in this case in this case it makes

335

00:13:58,169 --> 00:14:01,769

that like ask you a question to you in

336

00:13:59,399 --> 00:14:05,490

my head of mates that's pretty does yeah

337

00:14:01,769 --> 00:14:06,778

no no no and we have maps up on the wall

338

00:14:05,490 --> 00:14:08,909

here that's computer display that shows

339

00:14:06,778 --> 00:14:10,350

the sky and I was just looking at it

340

00:14:08,909 --> 00:14:13,139

looking around it's like oh you know

341

00:14:10,350 --> 00:14:14,610

we've got some torres's up so let's look

342

00:14:13,139 --> 00:14:17,278

at Omega Centauri it's a globular

343
00:14:14,610 --> 00:14:20,159
cluster and Centaurus and my eye fell on

344
00:14:17,278 --> 00:14:22,318
on on Karina and I just thought oh that

345
00:14:20,159 --> 00:14:24,600
that'd be nice and I've never I've never

346
00:14:22,318 --> 00:14:26,399
seen it so why not take a look and there

347
00:14:24,600 --> 00:14:27,689
it is oh no why you are this part of the

348
00:14:26,399 --> 00:14:28,799
world would not yeah I mean I'm not

349
00:14:27,688 --> 00:14:30,838
gonna get a chance to see this again

350
00:14:28,799 --> 00:14:34,979
when i'm looking at how low this is this

351
00:14:30,839 --> 00:14:36,649
is way below my heart even bolder 30 or

352
00:14:34,980 --> 00:14:40,620
40 degrees i would guess i don't know

353
00:14:36,649 --> 00:14:42,769
that's yeah there's a Southern Cross

354
00:14:40,620 --> 00:14:45,870
this is way farther south than I can see

355
00:14:42,769 --> 00:14:49,230
that's magnificent from another

356
00:14:45,870 --> 00:14:51,480
perspective a few what to answer a

357
00:14:49,230 --> 00:14:52,800
particular science question then you

358
00:14:51,480 --> 00:14:54,779
have to figure out what things might

359
00:14:52,799 --> 00:14:56,399
potentially be the most the best way

360
00:14:54,779 --> 00:14:58,049
it's actually accessed that and then

361
00:14:56,399 --> 00:14:59,340
science question or you could go a

362
00:14:58,049 --> 00:15:01,169
different way and say well I'm trying to

363
00:14:59,340 --> 00:15:02,580
answer this science question I can do

364
00:15:01,169 --> 00:15:04,829
some different methods but maybe I

365
00:15:02,580 --> 00:15:10,170
really want to use that great telescope

366
00:15:04,830 --> 00:15:12,450
that's in Chile so I is a clever project

367
00:15:10,169 --> 00:15:14,279
that would allow me to use that or I

368
00:15:12,450 --> 00:15:15,570
started to actually study things very

369
00:15:14,279 --> 00:15:16,740
very far away in the universe but

370
00:15:15,570 --> 00:15:18,629
they're just these little specks of

371

00:15:16,740 --> 00:15:20,759
light and not terribly beautiful so I

372
00:15:18,629 --> 00:15:22,529
started to study near more clothes

373
00:15:20,759 --> 00:15:24,269
galaxies and more clothes galaxies

374
00:15:22,529 --> 00:15:25,860
because they start to get resolved and

375
00:15:24,269 --> 00:15:27,960
you can see these great spiral arms so

376
00:15:25,860 --> 00:15:31,080
in that sense I wanted to actually look

377
00:15:27,960 --> 00:15:33,870
at a lot prettier pictures in my might

378
00:15:31,080 --> 00:15:36,660
add a life so I wanted to do nearby

379
00:15:33,870 --> 00:15:39,870
galaxies instead okay you just heard the

380
00:15:36,659 --> 00:15:42,360
voice of Amanda Bauer AKA at astro pixie

381
00:15:39,870 --> 00:15:46,110
follow her on Twitter for dirty space

382
00:15:42,360 --> 00:15:48,960
news super scientists actually nothing

383
00:15:46,110 --> 00:15:50,700
for very much longer yeah it's true

384
00:15:48,960 --> 00:15:52,050
whatever catches your interest i'm here

385
00:15:50,700 --> 00:15:54,300

it can be anything whatever is just

386

00:15:52,049 --> 00:15:56,099

visible there you go that's the

387

00:15:54,299 --> 00:15:58,409

telescope moving now get a look at

388

00:15:56,100 --> 00:15:59,730

something new it screams cuz it doesn't

389

00:15:58,409 --> 00:16:02,179

want to move away from such a gorgeous

390

00:15:59,730 --> 00:16:02,180

star

391

00:16:03,970 --> 00:16:10,120

hold down is moving folks we're going to

392

00:16:07,000 --> 00:16:12,730

swing this around and look at Saturn

393

00:16:10,120 --> 00:16:16,360

it's quite disorientating ringing in a

394

00:16:12,730 --> 00:16:19,209

room which is moving around you and you

395

00:16:16,360 --> 00:16:22,360

tell us scopus gas bubble come up and

396

00:16:19,208 --> 00:16:25,750

just move to out in that all right Jen

397

00:16:22,360 --> 00:16:32,980

better move steps up and sees Saturday

398

00:16:25,750 --> 00:16:34,448

oh wow oh my god that is amazing I've

399

00:16:32,980 --> 00:16:37,028

only ever been able to see it through my

400
00:16:34,448 --> 00:16:38,799
dining hall skyscanner scope where all I

401
00:16:37,028 --> 00:16:41,379
could see was just these two little ears

402
00:16:38,799 --> 00:16:48,219
winking at me it's like oh I come in

403
00:16:41,379 --> 00:16:51,699
this is fast movie villains ya can oh my

404
00:16:48,220 --> 00:16:53,560
god that is just stunning you've never

405
00:16:51,698 --> 00:16:55,389
seen sad result I've seen it through

406
00:16:53,559 --> 00:17:00,638
mind a little skyscanner but all I can

407
00:16:55,389 --> 00:17:05,439
see years oh my singing through a big

408
00:17:00,639 --> 00:17:06,788
telescope wow it's so little I says it's

409
00:17:05,439 --> 00:17:08,709
always lit up when you look at it from

410
00:17:06,788 --> 00:17:10,689
Earth i guess but can you see a cap in

411
00:17:08,709 --> 00:17:14,589
the Rings yeah yes that's the

412
00:17:10,689 --> 00:17:16,120
Constitution yeah so I'm going to be an

413
00:17:14,588 --> 00:17:18,068
item of mindless I'm looking at the

414
00:17:16,119 --> 00:17:20,578
shadows outside the Rings brilliantly

415
00:17:18,068 --> 00:17:23,288
bracelets or moons don't around disease

416
00:17:20,578 --> 00:17:24,730
it's quite something I can see the

417
00:17:23,288 --> 00:17:26,769
shadow actually I can see the shadow

418
00:17:24,730 --> 00:17:36,009
just behind sentence casting on the

419
00:17:26,769 --> 00:17:37,929
Rings ah something like I've just waited

420
00:17:36,009 --> 00:17:41,829
to say probably in order to jewel-box

421
00:17:37,929 --> 00:17:43,360
now yes yeah a jewel box now Phil's

422
00:17:41,829 --> 00:17:48,220
walking over to the telescope he's

423
00:17:43,359 --> 00:17:51,158
peering through and ya know wow that's

424
00:17:48,220 --> 00:17:52,569
amazing look at the colors it's called

425
00:17:51,159 --> 00:17:55,900
the jewel box because of all the

426
00:17:52,569 --> 00:17:58,960
different colored stars god there's a

427
00:17:55,900 --> 00:18:01,000
gorgeous red star next one that's just

428

00:17:58,960 --> 00:18:02,259
sort of dulling ish is white but then

429
00:18:01,000 --> 00:18:04,869
there's a blue one on the other side

430
00:18:02,259 --> 00:18:07,058
listen is at this stage may google the

431
00:18:04,869 --> 00:18:08,889
duel book so they can see what Philly is

432
00:18:07,058 --> 00:18:10,450
talking about you want to you want to

433
00:18:08,890 --> 00:18:12,509
see pictures this is very pretty it's an

434
00:18:10,450 --> 00:18:14,830
open cluster which means it's um a

435
00:18:12,509 --> 00:18:15,599
collection of stars that probably form

436
00:18:14,829 --> 00:18:18,269
together and

437
00:18:15,599 --> 00:18:19,709
they're just a tight little not theirs I

438
00:18:18,269 --> 00:18:21,808
don't know a couple hundred stars here

439
00:18:19,710 --> 00:18:24,259
it's surprising to see this many colors

440
00:18:21,808 --> 00:18:26,460
though I wonder if that red one is a

441
00:18:24,259 --> 00:18:27,890
case got to be a red giant if it were

442
00:18:26,460 --> 00:18:30,660

dwarfed we wouldn't be able to see it so

443

00:18:27,890 --> 00:18:32,960

it's probably a luminous red giant like

444

00:18:30,660 --> 00:18:36,390

a star that's more evolved in the Sun

445

00:18:32,960 --> 00:18:41,669

very pretty go take a look looks walking

446

00:18:36,390 --> 00:18:43,890

over to the my pace now and very I'm

447

00:18:41,669 --> 00:18:45,600

quite impressed about how sharp the

448

00:18:43,890 --> 00:18:47,720

focus is and yes the colors are

449

00:18:45,599 --> 00:18:51,750

magnificent look at that I just Falls

450

00:18:47,720 --> 00:18:57,569

Thank You Phil Phil there's a this

451

00:18:51,750 --> 00:18:59,970

nearby stars Walter Ruby cruises it's

452

00:18:57,569 --> 00:19:03,119

while the rid of styles can ever say oh

453

00:18:59,970 --> 00:19:11,759

yeah yeah it's a carbon star isn't yeah

454

00:19:03,119 --> 00:19:16,979

oh cool Oh carbon stars her stuff your

455

00:19:11,759 --> 00:19:18,298

absorption lines are confusing me back

456

00:19:16,980 --> 00:19:21,298

in the day when I was when I was working

457
00:19:18,298 --> 00:19:22,650
on Hubble we got this image of these two

458
00:19:21,298 --> 00:19:23,970
stars they were right next to each other

459
00:19:22,650 --> 00:19:26,159
and they turns out they were in the

460
00:19:23,970 --> 00:19:28,230
Large Magellanic Cloud satellite galaxy

461
00:19:26,159 --> 00:19:29,970
the Milky Way mm-hmm and it was it was

462
00:19:28,230 --> 00:19:31,558
just coincidental picture with somebody

463
00:19:29,970 --> 00:19:32,909
was using another camera to look at

464
00:19:31,558 --> 00:19:34,319
something else in our camera happened to

465
00:19:32,909 --> 00:19:36,870
be point in that direction we took took

466
00:19:34,319 --> 00:19:38,428
the pictures and I've ever seen them

467
00:19:36,869 --> 00:19:39,689
than going home they're almost exactly

468
00:19:38,429 --> 00:19:44,130
the same brightness that's kind of neat

469
00:19:39,690 --> 00:19:46,110
and we had spectra which when you use a

470
00:19:44,130 --> 00:19:47,400
prism or grading and break the light up

471
00:19:46,109 --> 00:19:48,750
into its individual colors you can

472
00:19:47,400 --> 00:19:50,038
actually determine a lot of

473
00:19:48,750 --> 00:19:51,480
characteristics about the object you're

474
00:19:50,038 --> 00:19:54,089
looking at how hot it is what it's made

475
00:19:51,480 --> 00:19:55,679
of if it has carbon oxygen whatever in a

476
00:19:54,089 --> 00:19:56,548
lot of different things so I thought I

477
00:19:55,679 --> 00:19:59,038
wonder what these aren't only look at

478
00:19:56,548 --> 00:20:01,048
the spectra and the spectra were crazy

479
00:19:59,038 --> 00:20:02,700
squiggles going up and down all over the

480
00:20:01,048 --> 00:20:04,918
place couldn't make heads or tails out

481
00:20:02,700 --> 00:20:06,480
of it and a lot of times for like a gas

482
00:20:04,919 --> 00:20:08,340
cloud or different kind of different

483
00:20:06,480 --> 00:20:10,620
kinds of stars the spectra very well

484
00:20:08,339 --> 00:20:12,899
behaved you see you see a shape to it

485

00:20:10,619 --> 00:20:14,189
you see dips and and and and bumps and

486
00:20:12,900 --> 00:20:16,470
you know what they all are but these

487
00:20:14,190 --> 00:20:17,880
were just a mess and then when I looked

488
00:20:16,470 --> 00:20:19,350
at both stars and compared to two

489
00:20:17,880 --> 00:20:20,730
spectra the two Spectre work almost

490
00:20:19,349 --> 00:20:22,798
exactly

491
00:20:20,730 --> 00:20:24,960
saying which is getting to be really

492
00:20:22,798 --> 00:20:27,029
creepy so I have two stars of the same

493
00:20:24,960 --> 00:20:28,710
brightness and clearly something going

494
00:20:27,029 --> 00:20:31,589
on under the same we realize their

495
00:20:28,710 --> 00:20:34,769
carbon stars they're highly evolved

496
00:20:31,589 --> 00:20:36,899
every old stars like the Sun that expand

497
00:20:34,769 --> 00:20:39,000
up they turn into red giants and they're

498
00:20:36,900 --> 00:20:41,570
very cool stars they're red but as they

499
00:20:39,000 --> 00:20:44,429

expand they the carbon in the atmosphere

500

00:20:41,569 --> 00:20:45,750

absorbs the light coming out of the star

501

00:20:44,429 --> 00:20:47,640

so when you break that light up into a

502

00:20:45,750 --> 00:20:49,619

spectrum you see all these sort of

503

00:20:47,640 --> 00:20:51,809

missing sections of the spectrum where

504

00:20:49,619 --> 00:20:53,909

carbon absorbs the light and carbon has

505

00:20:51,808 --> 00:20:56,279

these crazy absorption lines are all

506

00:20:53,910 --> 00:20:57,630

over the place what's weird as carbon

507

00:20:56,279 --> 00:20:59,220

stars typically don't have similar

508

00:20:57,630 --> 00:21:00,840

spectra and so to have two that are the

509

00:20:59,220 --> 00:21:04,740

same brightness that close together that

510

00:21:00,839 --> 00:21:07,319

are almost exactly the same was freakin

511

00:21:04,740 --> 00:21:08,460

bizarre and I've never been able to

512

00:21:07,319 --> 00:21:10,319

explain it and they were about a light

513

00:21:08,460 --> 00:21:11,850

year apart i calculated it if they're at

514
00:21:10,319 --> 00:21:13,490
the distance of the Magellanic Cloud

515
00:21:11,849 --> 00:21:16,619
their light your parts way too far away

516
00:21:13,490 --> 00:21:18,089
from each other to be a binary star they

517
00:21:16,619 --> 00:21:19,678
may have formed at the same time I

518
00:21:18,089 --> 00:21:22,159
couldn't understand why they would be

519
00:21:19,679 --> 00:21:24,419
dying at the sass not very far all is it

520
00:21:22,160 --> 00:21:25,500
there's dogs to be well they big enough

521
00:21:24,419 --> 00:21:27,000
yeah but they're not they're not

522
00:21:25,500 --> 00:21:28,650
orbiting each other a light-year is

523
00:21:27,000 --> 00:21:30,089
tremendously far for two storms or two

524
00:21:28,650 --> 00:21:31,230
each other but but two stars allow your

525
00:21:30,089 --> 00:21:33,779
apartment the nearest start of the Sun

526
00:21:31,230 --> 00:21:36,329
is full it's for ya so stars are more

527
00:21:33,779 --> 00:21:37,649
densely packed there and I i was totally

528
00:21:36,329 --> 00:21:39,720
baffled and we talked a bunch of

529
00:21:37,650 --> 00:21:41,070
astronomers nobody could explain it so I

530
00:21:39,720 --> 00:21:43,140
thought I need to talk to a carbon star

531
00:21:41,069 --> 00:21:45,178
person I found a guy and said listen

532
00:21:43,140 --> 00:21:48,750
I've got all this free data it's from

533
00:21:45,179 --> 00:21:50,220
Hubble it's crazy sharp spectra and it's

534
00:21:48,750 --> 00:21:51,569
a complete mystery and he's like now I'm

535
00:21:50,220 --> 00:21:53,750
too busy I got too many other things to

536
00:21:51,569 --> 00:21:56,220
do I can't deal with this data and

537
00:21:53,750 --> 00:21:58,230
mysteries never been solved as far as I

538
00:21:56,220 --> 00:22:01,950
know we've never able to figure enough

539
00:21:58,230 --> 00:22:03,419
it eats at me it's been 20 years so

540
00:22:01,950 --> 00:22:06,179
we're looking at one now is it look red

541
00:22:03,419 --> 00:22:08,220
to you Joe no blue to me ah not because

542

00:22:06,179 --> 00:22:10,440
that's the if you learn to read from

543
00:22:08,220 --> 00:22:13,890
since the recursive second row started

544
00:22:10,440 --> 00:22:17,548
with something across just let ya run it

545
00:22:13,890 --> 00:22:20,549
to the ridiculously bright one yeah this

546
00:22:17,548 --> 00:22:24,410
isn't the garnet stargazing no garnet is

547
00:22:20,548 --> 00:22:24,410
very red in the northern hemisphere

548
00:22:24,630 --> 00:22:32,810
I wonder over again and have another

549
00:22:26,640 --> 00:22:35,310
look through this eyepiece good heavens

550
00:22:32,809 --> 00:22:38,730
yes i see i see the red one in the blue

551
00:22:35,309 --> 00:22:40,259
wake up mr. blue one that's astonishing

552
00:22:38,730 --> 00:22:41,640
i'm looking for the finder i can

553
00:22:40,259 --> 00:22:44,369
certainly see the blue it's very blue

554
00:22:41,640 --> 00:22:46,680
yeah yeah really is and the red one is

555
00:22:44,369 --> 00:22:48,479
quite quite red and quite tiny compared

556
00:22:46,680 --> 00:22:52,830

what does beta Crucis is abby's are or

557

00:22:48,480 --> 00:22:54,240

no sir our way to look at that right if

558

00:22:52,829 --> 00:22:55,769

only we had some sort of way of

559

00:22:54,240 --> 00:23:01,620

connecting to some sort of knowledge

560

00:22:55,769 --> 00:23:04,559

base oh look at how red that is that's

561

00:23:01,619 --> 00:23:06,539

phenomenal so Jeff wide here at the city

562

00:23:04,559 --> 00:23:08,639

Observatory this is a tremendous

563

00:23:06,539 --> 00:23:10,519

opportunity we're enjoying tonight

564

00:23:08,640 --> 00:23:12,990

having a look at these wonderful stars

565

00:23:10,519 --> 00:23:14,700

but the observatory is here for

566

00:23:12,990 --> 00:23:17,819

everybody in cities now yes that's right

567

00:23:14,700 --> 00:23:20,610

so we're open 363 days and nights a year

568

00:23:17,819 --> 00:23:22,980

a bit garnish we not anymore we've cut

569

00:23:20,609 --> 00:23:24,659

back on our Sunday nights oh you so it's

570

00:23:22,980 --> 00:23:26,549

every day except Sunday and Good Friday

571
00:23:24,660 --> 00:23:28,529
and Christmas Day fair enough so that

572
00:23:26,549 --> 00:23:30,089
people can come along and have a look

573
00:23:28,529 --> 00:23:32,009
through our telescopes on a night like

574
00:23:30,089 --> 00:23:34,649
tonight it's an absolutely spectacular

575
00:23:32,009 --> 00:23:36,059
view it's great it's I mean the moon is

576
00:23:34,650 --> 00:23:37,440
setting so there's not too much

577
00:23:36,059 --> 00:23:39,480
pollution from the moon light pollution

578
00:23:37,440 --> 00:23:41,610
areas but I suppose when the moon's up

579
00:23:39,480 --> 00:23:44,430
right it's wonderful look at two yeah we

580
00:23:41,609 --> 00:23:47,189
love the earth obviously the forward

581
00:23:44,430 --> 00:23:49,920
gets the less you see the faint objects

582
00:23:47,190 --> 00:23:51,809
looking at a moment ago e to careen or

583
00:23:49,920 --> 00:23:54,600
in the globular clusters but to trade

584
00:23:51,809 --> 00:23:56,669
off the neuron nearest nicest prettiest

585
00:23:54,599 --> 00:23:58,259
object to look at yeah yeah except of

586
00:23:56,670 --> 00:24:01,380
course when it's full it's the worst

587
00:23:58,259 --> 00:24:03,599
time to get it right so overwhelming

588
00:24:01,380 --> 00:24:05,460
yeah there's no shadows low contrast

589
00:24:03,599 --> 00:24:07,349
Ryan yeah it's like staring at a light

590
00:24:05,460 --> 00:24:09,990
bulb trying to read 40 watts written on

591
00:24:07,349 --> 00:24:11,189
the bottom and what's the if people want

592
00:24:09,990 --> 00:24:13,019
to find out more I want to come and

593
00:24:11,190 --> 00:24:15,299
visit what's the website dr. Sidney

594
00:24:13,019 --> 00:24:17,879
Observatory com that's pretty easy it is

595
00:24:15,299 --> 00:24:19,619
so Jeff look thank you very much for

596
00:24:17,880 --> 00:24:22,140
this opportunity with having a wonderful

597
00:24:19,619 --> 00:24:24,679
time and phil's just beside himself so

598
00:24:22,140 --> 00:24:24,680
close

599

00:24:36,329 --> 00:24:40,259
be reasonable is a podcast of the

600
00:24:38,460 --> 00:24:42,480
Merseyside skeptics Society featuring

601
00:24:40,259 --> 00:24:44,519
hayley stevens and michael marshall each

602
00:24:42,480 --> 00:24:46,740
monthly interview explores beliefs from

603
00:24:44,519 --> 00:24:48,269
outside of the mainstream engaging with

604
00:24:46,740 --> 00:24:50,038
proponents to those beliefs to examine

605
00:24:48,269 --> 00:24:52,829
the evidence and reasoning behind each

606
00:24:50,038 --> 00:24:55,079
idea in July's episode we speak with

607
00:24:52,829 --> 00:24:58,470
andrew burton from the anti-abortion

608
00:24:55,079 --> 00:25:00,750
activist group 40 days for life listen

609
00:24:58,470 --> 00:25:02,880
to Andy's story and back issues to the

610
00:25:00,750 --> 00:25:05,220
shore by visiting merseyside skeptics

611
00:25:02,880 --> 00:25:09,380
talked at UK forward slash podcasts or

612
00:25:05,220 --> 00:25:09,380
search for be reasonable on iTunes

613
00:25:19,789 --> 00:25:25,139

I'm delighted to catch up with an old

614

00:25:22,799 --> 00:25:27,029
friend of mine who I think I met

615

00:25:25,140 --> 00:25:30,120
originally an Atlanta probably at a

616

00:25:27,029 --> 00:25:32,879
dragon con some years back Tim folly

617

00:25:30,119 --> 00:25:34,709
what's the harm net good to seize him

618

00:25:32,880 --> 00:25:37,800
it's good to see you Richard thank you

619

00:25:34,710 --> 00:25:40,230
it's a day blip blip blip what for if

620

00:25:37,799 --> 00:25:42,509
damn at the moment day for ya thursday

621

00:25:40,230 --> 00:25:44,009
friday saturday sunday i don't know

622

00:25:42,509 --> 00:25:46,049
about you but i had a bit of a late

623

00:25:44,009 --> 00:25:48,839
night because the poker tournament went

624

00:25:46,049 --> 00:25:51,480
on yeah i love my ring last night but

625

00:25:48,839 --> 00:25:54,119
I've had some late nights it goes we

626

00:25:51,480 --> 00:25:56,329
start early at 8am and it goes well past

627

00:25:54,119 --> 00:25:58,649
midnight so you can hear yourself out oh

628
00:25:56,329 --> 00:26:01,949
the coffee's gone but just across the

629
00:25:58,650 --> 00:26:03,450
whole before there was this what's the

630
00:26:01,950 --> 00:26:06,750
harm done it how long is that being

631
00:26:03,450 --> 00:26:09,960
going now it's been going since 2008 so

632
00:26:06,750 --> 00:26:12,509
five years same as the skeptic zone how

633
00:26:09,960 --> 00:26:14,340
about yeah yeah all right because the

634
00:26:12,509 --> 00:26:17,069
skeptic zone was launched at DragonCon

635
00:26:14,339 --> 00:26:18,480
Atlanta 2008 oh yeah randa and i remit

636
00:26:17,069 --> 00:26:20,159
yeah and i remembered that's why I met

637
00:26:18,480 --> 00:26:22,789
you because that's where the first time

638
00:26:20,160 --> 00:26:25,950
I got one of your what's the harm got

639
00:26:22,789 --> 00:26:28,920
our odds yeah and I think I even had a

640
00:26:25,950 --> 00:26:30,809
t-shirt at one stage yeah early on I had

641
00:26:28,920 --> 00:26:32,910
a few t-shirts just to promote it when

642
00:26:30,809 --> 00:26:34,769
no one knew what it was yeah I guess I'm

643
00:26:32,910 --> 00:26:36,300
that t-shirt and I suddenly remember the

644
00:26:34,769 --> 00:26:40,710
katsu souther cards were a nice simple

645
00:26:36,299 --> 00:26:42,659
design yeah yeah and so five years of

646
00:26:40,710 --> 00:26:45,059
doing the website hows it progressed

647
00:26:42,660 --> 00:26:46,740
how's it changed its well and has to

648
00:26:45,059 --> 00:26:49,109
change much it's pretty much the same

649
00:26:46,740 --> 00:26:51,690
design i've just added more cases and

650
00:26:49,109 --> 00:26:54,629
actually I haven't I'm in the middle of

651
00:26:51,690 --> 00:26:55,769
doing a revamp of it I've kind of gotten

652
00:26:54,630 --> 00:26:57,900
to the point where i've gotten too many

653
00:26:55,769 --> 00:26:59,400
projects you know how it is yeah i know

654
00:26:57,900 --> 00:27:01,410
where i have what's the harm and i have

655
00:26:59,400 --> 00:27:03,810
a blog called skep tools and then i do

656

00:27:01,410 --> 00:27:07,230
social media stuff and i do some work

657
00:27:03,809 --> 00:27:09,990
for jrf as a research fellow and it's

658
00:27:07,230 --> 00:27:12,180
tough kind of keeping track of it all so

659
00:27:09,990 --> 00:27:13,759
one of the things i would like to do is

660
00:27:12,180 --> 00:27:16,430
get what's the harm in 2a

661
00:27:13,759 --> 00:27:17,839
forum where others can help me with it

662
00:27:16,430 --> 00:27:21,380
and unfortunately the way I originally

663
00:27:17,839 --> 00:27:23,389
built it it's kind of kind of tricky to

664
00:27:21,380 --> 00:27:25,550
update the site I have to kind of do it

665
00:27:23,390 --> 00:27:27,080
myself you would thinking of that five

666
00:27:25,549 --> 00:27:28,730
years ago what you just wanted to get a

667
00:27:27,079 --> 00:27:31,099
sideout yeah I just wanted to get a site

668
00:27:28,730 --> 00:27:32,690
out there that was simple and so I wrote

669
00:27:31,099 --> 00:27:36,799
a piece of software just to help me

670
00:27:32,690 --> 00:27:39,470

manage the database but i'm thinking

671

00:27:36,799 --> 00:27:41,450

i'll move it to some more standardized

672

00:27:39,470 --> 00:27:43,880

platform like a blogging platform give

673

00:27:41,450 --> 00:27:46,430

this side anova whole revamp outlook

674

00:27:43,880 --> 00:27:48,140

yeah it will probably you know i'll try

675

00:27:46,430 --> 00:27:49,640

to make it look very similar in the way

676

00:27:48,140 --> 00:27:51,110

it looks but one of the things i

677

00:27:49,640 --> 00:27:53,090

definitely want to do is have the

678

00:27:51,109 --> 00:27:56,240

opportunity to have some longer content

679

00:27:53,089 --> 00:27:59,000

because a lot of the stories are there

680

00:27:56,240 --> 00:28:00,529

isn't much detail to talk about but

681

00:27:59,000 --> 00:28:02,329

occasionally you get a story where

682

00:28:00,529 --> 00:28:05,509

there's a lot of media coverage on and

683

00:28:02,329 --> 00:28:07,970

I'd like to be able to you know cover

684

00:28:05,509 --> 00:28:09,920

those more deeply do longer posts about

685
00:28:07,970 --> 00:28:12,529
those and the way I do the site now

686
00:28:09,920 --> 00:28:14,750
doesn't allow for that so if I moved it

687
00:28:12,529 --> 00:28:17,980
to a say a blogging platform I could do

688
00:28:14,750 --> 00:28:20,000
that and over the years how many new

689
00:28:17,980 --> 00:28:22,250
areas of interest for those people who

690
00:28:20,000 --> 00:28:25,009
mean maybe new to this sort of thing

691
00:28:22,250 --> 00:28:27,710
what's the harm net it comes from the

692
00:28:25,009 --> 00:28:30,619
expression people say oh well you don't

693
00:28:27,710 --> 00:28:32,870
believe in XYZ door this healing but

694
00:28:30,619 --> 00:28:34,849
what's the harm right really and your

695
00:28:32,869 --> 00:28:37,129
site says well here's the Harmon you

696
00:28:34,849 --> 00:28:39,439
provide cases yeah and and one of the

697
00:28:37,130 --> 00:28:41,720
things I had noticed was it always comes

698
00:28:39,440 --> 00:28:43,549
up with homeopathy and several the other

699
00:28:41,720 --> 00:28:46,339
things and I had noticed when people do

700
00:28:43,549 --> 00:28:49,309
magazine articles about these these

701
00:28:46,339 --> 00:28:51,169
things its standard sort of formula for

702
00:28:49,309 --> 00:28:53,269
magazine articles you find a personal

703
00:28:51,170 --> 00:28:55,759
story you lead with the personal story

704
00:28:53,269 --> 00:28:58,069
then you flesh out what the details of

705
00:28:55,759 --> 00:29:00,890
the science are and why whatever this is

706
00:28:58,069 --> 00:29:02,629
is bad and then you you but give it a

707
00:29:00,890 --> 00:29:04,280
button at the end with the ending of the

708
00:29:02,630 --> 00:29:06,830
story but each magazine article would

709
00:29:04,279 --> 00:29:08,839
have one story that that reporter had

710
00:29:06,829 --> 00:29:10,460
found and i had read several articles

711
00:29:08,839 --> 00:29:12,139
about some of these things it's like

712
00:29:10,460 --> 00:29:12,679
well there's this one story here and

713

00:29:12,140 --> 00:29:13,999
then this

714
00:29:12,679 --> 00:29:15,950
other article has this other story

715
00:29:13,999 --> 00:29:17,868
wouldn't it be neat if we could could

716
00:29:15,950 --> 00:29:19,879
put those all in one place so people

717
00:29:17,868 --> 00:29:21,618
could see all the stories and then link

718
00:29:19,878 --> 00:29:23,269
back to the articles and then some of

719
00:29:21,618 --> 00:29:24,949
them just had never been collected they

720
00:29:23,269 --> 00:29:26,359
were just little news items because some

721
00:29:24,950 --> 00:29:28,999
of these news items will just pass by

722
00:29:26,359 --> 00:29:32,148
and unless you're a skeptic and paying

723
00:29:28,999 --> 00:29:34,909
attention you wouldn't notice that you

724
00:29:32,148 --> 00:29:37,609
say you know the in obituaries notice

725
00:29:34,909 --> 00:29:39,379
that oh wait this was a homeopath and

726
00:29:37,609 --> 00:29:43,459
they were treating their cancer with

727
00:29:39,378 --> 00:29:45,199

homeopathy and this is a what's the harm

728

00:29:43,460 --> 00:29:47,840

case and here's to being what's to harm

729

00:29:45,200 --> 00:29:50,119

so what was some of the things when you

730

00:29:47,839 --> 00:29:53,480

first launch the site five years ago

731

00:29:50,118 --> 00:29:55,158

what were the topics and and and added

732

00:29:53,480 --> 00:29:57,710

to that what are some of the newer

733

00:29:55,159 --> 00:29:59,600

topics over the years yeah I started

734

00:29:57,710 --> 00:30:01,759

with you know some of the classic alt

735

00:29:59,599 --> 00:30:03,408

med things stuff that I could find on

736

00:30:01,759 --> 00:30:05,179

some of the existing sites where the

737

00:30:03,409 --> 00:30:07,519

cases were there but they were spread

738

00:30:05,179 --> 00:30:10,369

across different pages on the site like

739

00:30:07,519 --> 00:30:12,200

quack watch and you know australian

740

00:30:10,368 --> 00:30:14,658

skeptic site and anybody who had written

741

00:30:12,200 --> 00:30:16,610

about some of these issues and just kind

742
00:30:14,659 --> 00:30:18,440
of going around and collecting the story

743
00:30:16,609 --> 00:30:20,990
so i had you know homeopathy and

744
00:30:18,440 --> 00:30:23,570
naturopathy and some of the religious

745
00:30:20,990 --> 00:30:27,618
topics and then i tried to start to look

746
00:30:23,569 --> 00:30:33,470
for some more kind of off the beaten

747
00:30:27,618 --> 00:30:35,028
path things so i added Fung Shui at one

748
00:30:33,470 --> 00:30:36,710
point I found a very interesting story

749
00:30:35,028 --> 00:30:40,519
where someone ended up getting stabbed

750
00:30:36,710 --> 00:30:43,429
in a fight and the fight was over Fung

751
00:30:40,519 --> 00:30:46,819
Shui stuff it was just amazingly weird

752
00:30:43,429 --> 00:30:48,559
story and numerology there were some

753
00:30:46,819 --> 00:30:51,918
people who got arrested because they

754
00:30:48,558 --> 00:30:54,648
were manipulating a currency in Hong

755
00:30:51,919 --> 00:30:56,389
Kong simply to get bills that had the

756
00:30:54,648 --> 00:30:58,248
right numbers in their serial number

757
00:30:56,388 --> 00:31:00,199
they weren't actually stealing anything

758
00:30:58,249 --> 00:31:01,879
they were just moving dot you know they

759
00:31:00,200 --> 00:31:03,679
worked in a bank and they were basically

760
00:31:01,878 --> 00:31:05,928
going through the money that was there

761
00:31:03,679 --> 00:31:07,610
looking for the bills that had the you

762
00:31:05,929 --> 00:31:09,649
know that you know all eighths or

763
00:31:07,609 --> 00:31:11,209
whatever the lucky number was and taking

764
00:31:09,648 --> 00:31:12,949
those bills for themselves and then

765
00:31:11,210 --> 00:31:15,230
replacing them with other bills so they

766
00:31:12,950 --> 00:31:17,660
weren't stealing but it was considered

767
00:31:15,230 --> 00:31:21,200
impropriety to be messing around in

768
00:31:17,660 --> 00:31:22,940
and ended up getting fired so I tried to

769
00:31:21,200 --> 00:31:27,380
expand that out and I even added a

770

00:31:22,940 --> 00:31:29,450
category for GPS partially so that so

771
00:31:27,380 --> 00:31:32,150
many of my categories have really sad

772
00:31:29,450 --> 00:31:33,470
stories and the GPS page is something

773
00:31:32,150 --> 00:31:35,600
that you can just kind of laugh at

774
00:31:33,470 --> 00:31:37,400
because the worst thing that happens on

775
00:31:35,599 --> 00:31:40,159
that page is someone ruins their car

776
00:31:37,400 --> 00:31:42,140
yeah no one no one ever got killed but

777
00:31:40,160 --> 00:31:43,460
they might wreck a car or something run

778
00:31:42,140 --> 00:31:47,210
it into a lake or something like that

779
00:31:43,460 --> 00:31:48,740
have you had criticism over the years

780
00:31:47,210 --> 00:31:50,690
people writing in to you saying right

781
00:31:48,740 --> 00:31:53,569
why is this on what's the harm but well

782
00:31:50,690 --> 00:31:55,220
I'm every so often I get somebody pops

783
00:31:53,569 --> 00:31:56,869
up and says oh well why don't you

784
00:31:55,220 --> 00:31:59,630

include Big Pharma and all the people

785

00:31:56,869 --> 00:32:02,929

that are healed right now I have a guy

786

00:31:59,630 --> 00:32:06,140

who is an hiv/aids denier to you know

787

00:32:02,930 --> 00:32:08,120

they deny that the HIV virus causes the

788

00:32:06,140 --> 00:32:09,590

AIDS disease and that the AIDS disease

789

00:32:08,119 --> 00:32:11,750

is actually caused by something else

790

00:32:09,589 --> 00:32:14,059

entirely which is amazing that they

791

00:32:11,750 --> 00:32:16,130

persist in that because we're

792

00:32:14,059 --> 00:32:18,409

successfully treating aids patients with

793

00:32:16,130 --> 00:32:21,110

with the you know and there's plenty of

794

00:32:18,410 --> 00:32:23,360

evidence for it but they persist and he

795

00:32:21,109 --> 00:32:25,939

so he's emailing me not I don't get a

796

00:32:23,359 --> 00:32:28,429

ton you know one of the reasons is is

797

00:32:25,940 --> 00:32:30,170

that I didn't I don't call attention to

798

00:32:28,430 --> 00:32:32,120

the fact that the site is mine if you

799
00:32:30,170 --> 00:32:34,539
look around on the site you can find an

800
00:32:32,119 --> 00:32:37,609
email address and email me and

801
00:32:34,539 --> 00:32:41,299
occasionally I get these funny emails

802
00:32:37,609 --> 00:32:45,109
where people say you know you're

803
00:32:41,299 --> 00:32:47,329
obviously trying to hide because you

804
00:32:45,109 --> 00:32:49,279
know it took me 15 minutes to find this

805
00:32:47,329 --> 00:32:52,579
email to send it to you and it's like

806
00:32:49,279 --> 00:32:57,410
well but you you found it so I'm really

807
00:32:52,579 --> 00:32:59,179
not hiding that well mi so yeah early on

808
00:32:57,410 --> 00:33:00,860
I didn't even have my name on the site

809
00:32:59,180 --> 00:33:03,140
and then people were very suspicious of

810
00:33:00,859 --> 00:33:07,069
that so i added a thing in this in the

811
00:33:03,140 --> 00:33:08,960
faq page that we're identify myself but

812
00:33:07,069 --> 00:33:12,500
yeah people always accuse you of being

813
00:33:08,960 --> 00:33:14,380
in the pocket of however their nemesis

814
00:33:12,500 --> 00:33:18,519
is yes Big Pharma or

815
00:33:14,380 --> 00:33:23,050
big whoever so and I usually just try to

816
00:33:18,519 --> 00:33:25,000
send a polite reply I the recent guy was

817
00:33:23,049 --> 00:33:27,879
complaining that i didn't have comments

818
00:33:25,000 --> 00:33:30,009
on the site and you know so obviously

819
00:33:27,880 --> 00:33:31,720
you're not interested in free speech and

820
00:33:30,009 --> 00:33:33,759
i pointed out to him i said you know

821
00:33:31,720 --> 00:33:36,610
you're completely free to post whatever

822
00:33:33,759 --> 00:33:39,160
you want on another website that's right

823
00:33:36,609 --> 00:33:41,439
there's only about a billion other

824
00:33:39,160 --> 00:33:44,050
websites as you can use to post whatever

825
00:33:41,440 --> 00:33:46,350
you want on the energy how people think

826
00:33:44,049 --> 00:33:49,180
they have a right to dictate how you

827

00:33:46,349 --> 00:33:51,490
what you do on your own web page yet but

828
00:33:49,180 --> 00:33:53,350
I knew all along I didn't really want to

829
00:33:51,490 --> 00:33:55,960
have comments on the site because I just

830
00:33:53,349 --> 00:33:59,199
knew it would get out of hand it wit it

831
00:33:55,960 --> 00:34:01,630
would ya even on facebook if i if i post

832
00:33:59,200 --> 00:34:03,150
a skeptical story sometimes this can you

833
00:34:01,630 --> 00:34:05,920
turn into hundreds and hundreds of

834
00:34:03,150 --> 00:34:08,440
arguments and fights and says well i'm

835
00:34:05,920 --> 00:34:11,889
surprised sometimes people do that

836
00:34:08,440 --> 00:34:14,200
because I'm skeptical and I'm posting a

837
00:34:11,889 --> 00:34:16,059
skeptical story on my own Facebook page

838
00:34:14,199 --> 00:34:20,230
what do people expect the enterprise

839
00:34:16,059 --> 00:34:21,579
right yeah but that happens and what are

840
00:34:20,230 --> 00:34:24,340
the other projects are involved with

841
00:34:21,579 --> 00:34:27,519

well I've got the skeptics blog and I do

842

00:34:24,340 --> 00:34:29,559

a segment on skepticism kind of

843

00:34:27,519 --> 00:34:31,269

irregularly now where I do skeptic

844

00:34:29,559 --> 00:34:33,639

history and then some of the stuff from

845

00:34:31,269 --> 00:34:35,679

skip tools so I call it skepticism past

846

00:34:33,639 --> 00:34:37,510

and future and the history thing has

847

00:34:35,679 --> 00:34:40,898

been an interesting sort of side thing

848

00:34:37,510 --> 00:34:42,550

it started out as a basically kind of a

849

00:34:40,898 --> 00:34:44,980

gimmick so that I would have something

850

00:34:42,550 --> 00:34:47,560

to post that was skeptical every day on

851

00:34:44,980 --> 00:34:49,090

my twitter feed even if I was busy and

852

00:34:47,559 --> 00:34:53,320

didn't have anything else to post that

853

00:34:49,090 --> 00:34:56,289

day so every morning evening for your

854

00:34:53,320 --> 00:34:59,620

Australian listeners but morning here in

855

00:34:56,289 --> 00:35:02,139

the US I I post oh you know today in

856
00:34:59,619 --> 00:35:03,730
1942 and it'll be something interesting

857
00:35:02,139 --> 00:35:05,619
to skeptics you know some some

858
00:35:03,730 --> 00:35:09,130
historical event for someone's birthday

859
00:35:05,619 --> 00:35:10,809
and so researching that has led me to

860
00:35:09,130 --> 00:35:12,579
find a lot of interesting things that

861
00:35:10,809 --> 00:35:14,769
I've written articles about and stuff

862
00:35:12,579 --> 00:35:16,179
like that and and here at tam we

863
00:35:14,769 --> 00:35:17,650
actually had a whole workshop about

864
00:35:16,179 --> 00:35:19,980
skeptic history which was interesting

865
00:35:17,650 --> 00:35:23,320
and I presented some research that I did

866
00:35:19,980 --> 00:35:24,949
just trying to gather into one place a

867
00:35:23,320 --> 00:35:27,769
list of all

868
00:35:24,949 --> 00:35:31,189
skeptic workshops and conventions and

869
00:35:27,769 --> 00:35:33,289
skeptic amps and symposiums yes it had

870
00:35:31,190 --> 00:35:35,659
been held over the years and just to

871
00:35:33,289 --> 00:35:38,420
kind of find out you know how many

872
00:35:35,659 --> 00:35:40,429
countries have had them you know how

873
00:35:38,420 --> 00:35:42,800
many there been are there more now than

874
00:35:40,429 --> 00:35:45,710
there were before that sort of thing and

875
00:35:42,800 --> 00:35:48,289
it was interesting it seems to match

876
00:35:45,710 --> 00:35:50,659
some research that I showed last year

877
00:35:48,289 --> 00:35:53,210
about the growth in skeptic podcasts

878
00:35:50,659 --> 00:35:56,509
that skeptics since 2009 skeptic

879
00:35:53,210 --> 00:35:58,519
podcasts of just ballooned yeah and

880
00:35:56,510 --> 00:36:00,260
there's over a hundred of them now and

881
00:35:58,519 --> 00:36:02,780
the same thing has happened with

882
00:36:00,260 --> 00:36:04,940
conferences just since 2009 there's been

883
00:36:02,780 --> 00:36:07,310
a huge jump in a number of conferences

884

00:36:04,940 --> 00:36:08,780
that you can go to there's a lot of in

885
00:36:07,309 --> 00:36:11,000
the United States there's regional

886
00:36:08,780 --> 00:36:12,680
conferences just about every other

887
00:36:11,000 --> 00:36:14,838
weekend somewhere in the United States

888
00:36:12,679 --> 00:36:18,379
are some sort of turning into stock I

889
00:36:14,838 --> 00:36:19,608
can't wait yeah yeah I think every

890
00:36:18,380 --> 00:36:21,619
weekend you could probably get to a

891
00:36:19,608 --> 00:36:24,469
tricky gun for example if you look hard

892
00:36:21,619 --> 00:36:26,809
enough it was like that's right while

893
00:36:24,469 --> 00:36:30,049
Tim folly the address everybody what's

894
00:36:26,809 --> 00:36:33,679
the harm dotnet check it out next time

895
00:36:30,050 --> 00:36:36,250
somebody says oh what's the harm in in

896
00:36:33,679 --> 00:36:38,358
in the chiropractic what's the harm

897
00:36:36,250 --> 00:36:40,099
acupuncture's pushing your neck around

898
00:36:38,358 --> 00:36:42,019

that's right you can go to what's the

899

00:36:40,099 --> 00:36:43,820

harm in timbale thank you very much

900

00:36:42,019 --> 00:36:45,880

thank you Richard

901

00:36:43,820 --> 00:36:45,880

you

902

00:36:55,789 --> 00:36:57,820

Oh

903

00:37:01,559 --> 00:37:06,730

hi I'm audit oh yeah Kristen or evil

904

00:37:05,110 --> 00:37:08,440

tips advice on logic lifted all the

905

00:37:06,730 --> 00:37:10,150

skeptics ohm ohm skip the comedian or

906

00:37:08,440 --> 00:37:11,889

again the finish can prob get upper

907

00:37:10,150 --> 00:37:12,760

bleph a podcast or Flanagan escapes it

908

00:37:11,889 --> 00:37:14,980

would even make you look if I'm

909

00:37:12,760 --> 00:37:17,170

attractive it's not since Rob I skipped

910

00:37:14,980 --> 00:37:18,909

system alone or had professors the deep

911

00:37:17,170 --> 00:37:20,530

plan architecture and calendar or

912

00:37:18,909 --> 00:37:21,819

escaped escaped irritated or like you

913
00:37:20,530 --> 00:37:23,619
till on will escape this killer sausage

914
00:37:21,820 --> 00:37:25,030
escapes his blog in a plethora d Emily

915
00:37:23,619 --> 00:37:27,789
Oh discrete areas have tape escapes is

916
00:37:25,030 --> 00:37:31,269
for domestic hina edita also skip say

917
00:37:27,789 --> 00:37:33,130
stop mo hello I'm moderate and I'm

918
00:37:31,269 --> 00:37:35,050
Kristin and we want to let you know that

919
00:37:33,130 --> 00:37:37,150
there are lots of Norwegian skeptics for

920
00:37:35,050 --> 00:37:38,740
you to get to know their blogs and pub

921
00:37:37,150 --> 00:37:40,510
mates and a podcast and the Norwegian

922
00:37:38,739 --> 00:37:42,429
skeptics also do paranormal tests and

923
00:37:40,510 --> 00:37:45,070
consumer activism to find out more

924
00:37:42,429 --> 00:37:47,969
Google Norwegian skeptics or visit skep

925
00:37:45,070 --> 00:37:47,970
seasonal

926
00:37:54,309 --> 00:37:59,269
this week in science we saw a lad

927
00:37:57,079 --> 00:38:01,549
culture hamburger and more effects of

928
00:37:59,269 --> 00:38:03,259
climate change this time on marine life

929
00:38:01,550 --> 00:38:13,730
and did you hear the one about the

930
00:38:03,260 --> 00:38:15,800
cactus and the oil spill this week a

931
00:38:13,730 --> 00:38:18,699
beef burger was created by growing

932
00:38:15,800 --> 00:38:21,140
muscle cells harvested from a living cow

933
00:38:18,699 --> 00:38:23,239
theoretically this is a way to produce

934
00:38:21,139 --> 00:38:25,460
meat without the methane and carbon

935
00:38:23,239 --> 00:38:27,799
dioxide production associated with

936
00:38:25,460 --> 00:38:30,289
cattle farming and using around one

937
00:38:27,800 --> 00:38:33,880
percent of the land by this new method

938
00:38:30,289 --> 00:38:36,650
one cow would make 175 million burgers

939
00:38:33,880 --> 00:38:38,809
whereas traditional farming would use

940
00:38:36,650 --> 00:38:41,389
four hundred and forty thousand cows

941

00:38:38,809 --> 00:38:43,579
this three hundred and seventy thousand

942
00:38:41,389 --> 00:38:46,549
dollar burger claims to be one hundred

943
00:38:43,579 --> 00:38:50,900
percent natural beef with no unnatural

944
00:38:46,550 --> 00:38:53,000
chemicals so would you eat it more

945
00:38:50,900 --> 00:38:54,559
evidence this week that warming oceans

946
00:38:53,000 --> 00:38:57,619
are messing about with our marine life

947
00:38:54,559 --> 00:39:00,500
an international team identified more

948
00:38:57,619 --> 00:39:03,170
than 1700 changes in breeding patterns

949
00:39:00,500 --> 00:39:05,960
and habitats including many in Australia

950
00:39:03,170 --> 00:39:08,090
marine species are shifting to cool the

951
00:39:05,960 --> 00:39:10,730
region's much faster than land-based

952
00:39:08,090 --> 00:39:13,610
species with some moving towards the

953
00:39:10,730 --> 00:39:16,369
poles at around 72 kilometers per decade

954
00:39:13,610 --> 00:39:18,440
the report also found that the timing of

955
00:39:16,369 --> 00:39:21,409

breeding and migration cycles is

956

00:39:18,440 --> 00:39:26,240

changing by four point four days each

957

00:39:21,409 --> 00:39:28,789

decade the spikes at cacti have inspired

958

00:39:26,239 --> 00:39:31,339

a novel way to remove oil from water

959

00:39:28,789 --> 00:39:33,320

plastic surgery doesn't necessarily

960

00:39:31,340 --> 00:39:34,910

increase your attractiveness but will

961

00:39:33,320 --> 00:39:37,490

make you appear around three years

962

00:39:34,909 --> 00:39:39,889

younger jumping spiders use a drag line

963

00:39:37,489 --> 00:39:42,229

of silk like a bungee cord hoping to

964

00:39:39,889 --> 00:39:45,500

stabilise their landing to hunt prey and

965

00:39:42,230 --> 00:39:47,510

finally dogs also suffer from contagious

966

00:39:45,500 --> 00:39:51,260

yawning and are more likely to catch

967

00:39:47,510 --> 00:39:54,120

their owners yawn than a stranger's

968

00:39:51,260 --> 00:39:56,460

last week we asked what food was more

969

00:39:54,119 --> 00:39:58,949

likely to win you a Nobel Prize it's

970
00:39:56,460 --> 00:40:01,289
chocolate of course the paper is on our

971
00:39:58,949 --> 00:40:03,629
website and congrats to twitterers at

972
00:40:01,289 --> 00:40:05,610
dock clock and at blue numeral who

973
00:40:03,630 --> 00:40:07,320
tweeted us the answer this week we're

974
00:40:05,610 --> 00:40:10,140
asking how dolphins recognize their

975
00:40:07,320 --> 00:40:13,980
buddies after 20 years is it by their

976
00:40:10,139 --> 00:40:16,949
face whistle flipper shape or smell

977
00:40:13,980 --> 00:40:20,940
tweet me your answer at our i underscore

978
00:40:16,949 --> 00:40:22,889
a us hashtag week in sigh that's it for

979
00:40:20,940 --> 00:40:35,369
this week in science we'll see you right

980
00:40:22,889 --> 00:40:37,199
here next week have you heard the one

981
00:40:35,369 --> 00:40:38,819
about how the illuminati in conjunction

982
00:40:37,199 --> 00:40:40,649
with the US government are hiding the

983
00:40:38,820 --> 00:40:42,030
existence of aliens in order to ensure

984
00:40:40,650 --> 00:40:44,099
the supply of helium is kept low

985
00:40:42,030 --> 00:40:45,480
although the CIA the militant wing of

986
00:40:44,099 --> 00:40:47,279
the Freemasons are working with the

987
00:40:45,480 --> 00:40:48,420
elders of zion to take control of the

988
00:40:47,280 --> 00:40:50,910
population of the world through

989
00:40:48,420 --> 00:40:52,530
fluoridated chemtrails canberra skeptics

990
00:40:50,909 --> 00:40:54,089
incorporated on behalf of the shadow

991
00:40:52,530 --> 00:40:55,920
government will be massing an array of

992
00:40:54,090 --> 00:40:58,530
dark forces for the australian skeptics

993
00:40:55,920 --> 00:41:00,659
national convention 2013 this convention

994
00:40:58,530 --> 00:41:02,730
has conspired to coincide with the 50th

995
00:41:00,659 --> 00:41:04,230
anniversary of the assassination of John

996
00:41:02,730 --> 00:41:06,750
F Kennedy possibly the most famous

997
00:41:04,230 --> 00:41:08,099
conspiracy theory of all time if you've

998

00:41:06,750 --> 00:41:10,260
ever wanted to learn about the truth

999
00:41:08,099 --> 00:41:11,880
behind the death of JFK what makes for a

1000
00:41:10,260 --> 00:41:13,890
good conspiracy theory and why they are

1001
00:41:11,880 --> 00:41:16,050
so prevalent Canberra skeptics invites

1002
00:41:13,889 --> 00:41:18,359
you to attend that is of course should

1003
00:41:16,050 --> 00:41:20,700
you choose to accept it come to national

1004
00:41:18,360 --> 00:41:24,620
skeptics convention org and just

1005
00:41:20,699 --> 00:41:24,619
remember they will be watching you

1006
00:41:29,349 --> 00:41:31,410
Oh

1007
00:41:35,309 --> 00:41:40,210
thank you for listening to the skeptic

1008
00:41:37,929 --> 00:41:44,440
zone and are you still here Adele hello

1009
00:41:40,210 --> 00:41:46,409
what do you have to say no more

1010
00:41:44,440 --> 00:41:49,690
interviews a no more interviews today I

1011
00:41:46,409 --> 00:41:51,670
wish you could see this folks is lying

1012
00:41:49,690 --> 00:41:54,610

on her back in the Sun tossing and

1013

00:41:51,670 --> 00:41:58,389

turning looking up to me and say what

1014

00:41:54,610 --> 00:42:00,160

are you doing on next week's show I

1015

00:41:58,389 --> 00:42:01,599

think we'll probably have some more dr.

1016

00:42:00,159 --> 00:42:04,029

Phil Plait I'm going to be seeing him

1017

00:42:01,599 --> 00:42:06,429

again before he leaves such a pleasure

1018

00:42:04,030 --> 00:42:10,360

to see old friends like like Phil Plait

1019

00:42:06,429 --> 00:42:12,819

in Sydney I love looking at the stars

1020

00:42:10,360 --> 00:42:16,329

with Phil Plait it it's just incredible

1021

00:42:12,820 --> 00:42:18,910

we'll have some more Maynard's spooky

1022

00:42:16,329 --> 00:42:21,429

action coming up soon and other bits and

1023

00:42:18,909 --> 00:42:24,639

pieces but until then this is Richard

1024

00:42:21,429 --> 00:42:26,919

Saunders and I'm very quiet little

1025

00:42:24,639 --> 00:42:32,829

pussycat signing off from Sydney

1026

00:42:26,920 --> 00:42:34,599

Australia you've been listening to the

1027
00:42:32,829 --> 00:42:39,130
skeptical zone

1028
00:42:34,599 --> 00:42:42,430
visit our website at www.skepticalzoomtv.com

1029
00:42:39,130 --> 00:42:45,059
the comments contacts and extra video

1030
00:42:42,429 --> 00:42:45,058
reports

1031
00:42:48,179 --> 00:42:50,239
you