

1
00:00:00,000 --> 00:00:09,109
[Music]

2
00:00:06,019 --> 00:00:11,839
welcome to the skeptic zone the podcast

3
00:00:09,109 --> 00:00:13,919
from Australia for science and reason

4
00:00:11,839 --> 00:00:16,969
[Music]

5
00:00:13,919 --> 00:00:16,969
[Applause]

6
00:00:22,868 --> 00:00:30,250
yes it's the skeptic zone podcast

7
00:00:25,969 --> 00:00:32,960
episode number 507 for the 8th of July

8
00:00:30,250 --> 00:00:35,509
2018 Richard Saunders here with you from

9
00:00:32,960 --> 00:00:37,789
Sydney Australia haven't been in the

10
00:00:35,509 --> 00:00:40,789
country for about a month nice to be

11
00:00:37,789 --> 00:00:42,948
home again but a bit of a jet lag going

12
00:00:40,789 --> 00:00:45,859
to catch up with me pretty soon I'm sure

13
00:00:42,948 --> 00:00:48,320
but never mind will will struggle on

14
00:00:45,859 --> 00:00:50,658
will struggle on it's nice to see the

15
00:00:48,320 --> 00:00:53,118
skeptics own cats again Henrietta and

16
00:00:50,658 --> 00:00:55,969
Maud who look at me and said yeah yeah

17
00:00:53,118 --> 00:00:59,030
where's the food and it's nice to be

18
00:00:55,969 --> 00:01:02,539
back to a little taste of winter here in

19
00:00:59,030 --> 00:01:05,599
Sydney Australia coming up on this

20
00:01:02,539 --> 00:01:08,688
week's show diet sceptic the diet

21
00:01:05,599 --> 00:01:14,599
sceptic Mande Lee Noble will be looking

22
00:01:08,688 --> 00:01:17,809
at a very unusual therapy emotional

23
00:01:14,599 --> 00:01:22,429
freedom techniques or tapping where

24
00:01:17,810 --> 00:01:26,240
people tap tap tap tap tap on various

25
00:01:22,430 --> 00:01:29,200
parts of your body for various health

26
00:01:26,239 --> 00:01:31,729
reasons or that's the claim anyway

27
00:01:29,200 --> 00:01:33,290
tapping for health emotional freedom

28
00:01:31,730 --> 00:01:36,350
techniques coming up at the top of the

29

00:01:33,290 --> 00:01:37,340
show with Mandy Lee Noble following that

30
00:01:36,349 --> 00:01:40,039
what a treat

31
00:01:37,340 --> 00:01:43,100
what a treat what a wonderful day I had

32
00:01:40,040 --> 00:01:46,610
at Auckland Zoo only about three days

33
00:01:43,099 --> 00:01:48,619
ago with dr. eugenie Scott now a

34
00:01:46,609 --> 00:01:51,859
longtime listeners to the show certainly

35
00:01:48,620 --> 00:01:54,890
know of dr. eugenie Scott we've had many

36
00:01:51,859 --> 00:01:57,709
adventures together or six months ago we

37
00:01:54,890 --> 00:02:00,349
went to the big trees National Park in

38
00:01:57,709 --> 00:02:04,429
California well a couple of days ago we

39
00:02:00,349 --> 00:02:06,709
were at Auckland Zoo and trips to the

40
00:02:04,430 --> 00:02:09,860
zoo are always fun I enjoy trips to the

41
00:02:06,709 --> 00:02:13,489
zoo but a trip to the zoo with someone

42
00:02:09,860 --> 00:02:14,959
of the stature and the knowledge of dr.

43
00:02:13,489 --> 00:02:17,650

eugenie Scott when it comes to

44

00:02:14,959 --> 00:02:20,989

evolutionary matters is quite something

45

00:02:17,650 --> 00:02:22,879

so you could be a fly on the wall you're

46

00:02:20,989 --> 00:02:25,849

a fly on my shoulder or something like

47

00:02:22,878 --> 00:02:29,750

that as dr. eugenie Scott and I wander

48

00:02:25,848 --> 00:02:33,289

around Auckland Zoo and see what there

49

00:02:29,750 --> 00:02:35,568

is to see then to wrap up the show

50

00:02:33,289 --> 00:02:39,919

a story a short story by our friend dr.

51

00:02:35,568 --> 00:02:42,078

Ken Harvey and his continuing quest to

52

00:02:39,919 --> 00:02:44,628

keep the government accountable the

53

00:02:42,079 --> 00:02:46,370

regulation the regulatory bodies

54

00:02:44,628 --> 00:02:49,848

accountable when it comes to matters of

55

00:02:46,370 --> 00:02:51,349

health care and health claims and he's

56

00:02:49,848 --> 00:02:55,938

going to be looking at a product called

57

00:02:51,348 --> 00:02:58,548

ease our cold does it easy cold we'll

58
00:02:55,938 --> 00:03:00,530
find out now stay tuned at the end of

59
00:02:58,549 --> 00:03:03,620
the show where you will have the chance

60
00:03:00,530 --> 00:03:06,219
to beat odds of eight million six

61
00:03:03,620 --> 00:03:10,730
hundred and forty thousand to one

62
00:03:06,219 --> 00:03:13,250
curious stay tuned but now it's time for

63
00:03:10,729 --> 00:03:15,138
me to run downstairs have an extra-large

64
00:03:13,250 --> 00:03:18,799
cup of coffee to keep myself going for a

65
00:03:15,139 --> 00:03:22,120
little while longer before the before

66
00:03:18,799 --> 00:03:25,609
the jet lag takes over and some lovely

67
00:03:22,120 --> 00:03:27,650
Vegemite toast I have missed my Vegemite

68
00:03:25,609 --> 00:03:30,610
over the past month well I do that I

69
00:03:27,650 --> 00:03:42,919
hope you enjoy the skeptic zone

70
00:03:30,610 --> 00:03:42,919
[Music]

71
00:03:45,800 --> 00:03:55,080
that looks good enough to eat

72
00:03:47,909 --> 00:04:02,219
or does it here's the diet skeptic man

73
00:03:55,080 --> 00:04:06,330
daily Nobile hello skeptics and

74
00:04:02,219 --> 00:04:14,219
listeners mandelino ball here dietitian

75
00:04:06,330 --> 00:04:16,949
and skeptic reporting from Brisbane this

76
00:04:14,219 --> 00:04:20,160
week on the diet skeptic report I will

77
00:04:16,949 --> 00:04:22,829
be discussing psychological acupuncture

78
00:04:20,160 --> 00:04:25,710
the counseling therapy known as

79
00:04:22,829 --> 00:04:28,680
emotional freedom techniques often

80
00:04:25,709 --> 00:04:31,889
abbreviated to EFT or more commonly

81
00:04:28,680 --> 00:04:34,139
described as tapping emotional freedom

82
00:04:31,889 --> 00:04:37,649
techniques were developed from elements

83
00:04:34,139 --> 00:04:41,129
of exposure therapy cognitive or thought

84
00:04:37,649 --> 00:04:43,589
based therapy and mindfulness mixed in

85
00:04:41,129 --> 00:04:48,329
with acupuncture neuro linguistic

86

00:04:43,589 --> 00:04:50,849
programming and energy medicine as a

87
00:04:48,329 --> 00:04:52,709
dietitian what drew me into taking a

88
00:04:50,850 --> 00:04:55,110
deep dive into the evidence for

89
00:04:52,709 --> 00:04:56,969
emotional freedom techniques is its

90
00:04:55,110 --> 00:05:00,810
recent application in weight loss

91
00:04:56,970 --> 00:05:03,810
programs there are several credentialed

92
00:05:00,810 --> 00:05:06,660
health providers in Australia offering

93
00:05:03,810 --> 00:05:10,530
EFT to address food cravings to achieve

94
00:05:06,660 --> 00:05:13,080
weight loss furthermore the dietitians

95
00:05:10,529 --> 00:05:15,839
Association of Australia is currently

96
00:05:13,079 --> 00:05:18,930
promoting training in emotional freedom

97
00:05:15,839 --> 00:05:22,139
techniques under its Centre for advanced

98
00:05:18,930 --> 00:05:24,959
learning initiative emotional freedom

99
00:05:22,139 --> 00:05:28,139
techniques is a self administered

100
00:05:24,959 --> 00:05:30,839

therapy we tap on acupuncture points

101

00:05:28,139 --> 00:05:34,050

with two fingers on the head and upper

102

00:05:30,839 --> 00:05:36,629

body in a given sequence while repeating

103

00:05:34,050 --> 00:05:40,889

prescribed statements relevant to the

104

00:05:36,629 --> 00:05:43,680

issue you are focusing on improving if

105

00:05:40,889 --> 00:05:46,560

tea is an accessible easy self

106

00:05:43,680 --> 00:05:48,209

administered therapy there are many

107

00:05:46,560 --> 00:05:51,470

instructional videos on the internet

108

00:05:48,209 --> 00:05:53,909

which fully demonstrate the process

109

00:05:51,470 --> 00:05:56,820

tapping is often promoted by its

110

00:05:53,910 --> 00:06:00,000

proponents as a bit weird but

111

00:05:56,819 --> 00:06:03,240

evidence-based in this report of the

112

00:06:00,000 --> 00:06:06,899

diet skeptic I will look at the validity

113

00:06:03,240 --> 00:06:09,389

of the studies that have tested EFT as a

114

00:06:06,899 --> 00:06:10,888

treatment for food cravings and measured

115
00:06:09,389 --> 00:06:15,449
the effect on weight loss

116
00:06:10,889 --> 00:06:17,939
I have also called on a special guest to

117
00:06:15,449 --> 00:06:22,590
comment on the scientific plausibility

118
00:06:17,939 --> 00:06:24,689
of psychological acupuncture firstly -

119
00:06:22,589 --> 00:06:28,319
the evidence for reduction in food

120
00:06:24,689 --> 00:06:31,050
cravings and weight loss Australian and

121
00:06:28,319 --> 00:06:33,389
Bondi University associate professor and

122
00:06:31,050 --> 00:06:36,478
the program director of masters of

123
00:06:33,389 --> 00:06:38,970
psychology dr. Peter Stapleton is

124
00:06:36,478 --> 00:06:42,569
described as a leader of worldwide

125
00:06:38,970 --> 00:06:45,660
research into psychological trials into

126
00:06:42,569 --> 00:06:48,409
new therapies in the area of obesity and

127
00:06:45,660 --> 00:06:52,889
weight management focused on clinical

128
00:06:48,410 --> 00:06:55,789
EFT I found three trials for food

129
00:06:52,889 --> 00:07:00,470
cravings that also managed weight loss

130
00:06:55,788 --> 00:07:02,908
co-authored by dr. Stapleton but firstly

131
00:07:00,470 --> 00:07:06,659
before we look at the outcomes of these

132
00:07:02,908 --> 00:07:08,879
trials it must be said that EFT includes

133
00:07:06,658 --> 00:07:11,219
other elements of evidence-based

134
00:07:08,879 --> 00:07:13,889
treatments and that none of these

135
00:07:11,220 --> 00:07:16,050
particular trials tests for whether it

136
00:07:13,889 --> 00:07:19,519
is those elements as opposed to the

137
00:07:16,050 --> 00:07:22,590
tapping then has produced the results

138
00:07:19,519 --> 00:07:25,918
also each of these three trials relied

139
00:07:22,589 --> 00:07:28,408
on self-reported data in the case of

140
00:07:25,918 --> 00:07:30,930
rating outcomes around food cravings

141
00:07:28,408 --> 00:07:34,250
although validated tools may have been

142
00:07:30,930 --> 00:07:37,740
used these are still subjective measures

143

00:07:34,250 --> 00:07:39,810
finally the research papers on EFT have

144
00:07:37,740 --> 00:07:42,960
come from a very small pool of

145
00:07:39,810 --> 00:07:46,019
researchers many of whom are authors on

146
00:07:42,959 --> 00:07:50,418
multiple papers and some of whom have

147
00:07:46,019 --> 00:07:52,918
significant commercial interests in EFT

148
00:07:50,418 --> 00:07:55,769
starting with the most recent of these

149
00:07:52,918 --> 00:07:58,939
three trials the trial reported

150
00:07:55,769 --> 00:08:01,709
significant improvements for body weight

151
00:07:58,939 --> 00:08:04,139
depression symptoms and a psychological

152
00:08:01,709 --> 00:08:04,919
measure for the influence of available

153
00:08:04,139 --> 00:08:08,819
food at twelve

154
00:08:04,920 --> 00:08:12,319
months the paper was published in the

155
00:08:08,819 --> 00:08:15,540
journal Explorer in 2018

156
00:08:12,319 --> 00:08:19,500
David Gorski of science-based medicine

157
00:08:15,540 --> 00:08:22,050

has described the journal Explorer as a

158

00:08:19,500 --> 00:08:25,620

sham masquerading as a real scientific

159

00:08:22,050 --> 00:08:29,129

journal which publishes truly ridiculous

160

00:08:25,620 --> 00:08:31,829

studies the trial had no control group

161

00:08:29,129 --> 00:08:35,730

and despite the fact that participants

162

00:08:31,829 --> 00:08:38,819

had to pay around 250 US dollars to be

163

00:08:35,730 --> 00:08:43,529

included in the trial it still suffered

164

00:08:38,820 --> 00:08:46,050

a 25% loss to follow up the losses to

165

00:08:43,529 --> 00:08:48,480

follow up were merely excluded from the

166

00:08:46,049 --> 00:08:51,240

data and no investigation into whether

167

00:08:48,480 --> 00:08:53,759

losses were around and were connected to

168

00:08:51,240 --> 00:08:56,370

a lack of success in treatment was ever

169

00:08:53,759 --> 00:08:58,649

done the second study was a

170

00:08:56,370 --> 00:09:01,560

non-inferiority study comparing

171

00:08:58,649 --> 00:09:04,429

cognitive behavioral therapy a gold

172
00:09:01,559 --> 00:09:06,929
standard for eating disorders with EFT

173
00:09:04,429 --> 00:09:10,319
measuring food cravings and weight loss

174
00:09:06,929 --> 00:09:13,289
as an outcome this studies potentially

175
00:09:10,320 --> 00:09:15,780
has a better study design than the

176
00:09:13,289 --> 00:09:17,579
previous study which may explain why it

177
00:09:15,779 --> 00:09:21,269
was published in the Journal of Applied

178
00:09:17,580 --> 00:09:23,570
Psychology at 12 months both groups

179
00:09:21,269 --> 00:09:26,850
demonstrated a clinically meaningful

180
00:09:23,570 --> 00:09:29,340
reduction in food cravings and it was

181
00:09:26,850 --> 00:09:32,399
concluded that EFT was not inferior to

182
00:09:29,340 --> 00:09:35,460
CBT however there was no significant

183
00:09:32,399 --> 00:09:37,740
reduction in weight in either group the

184
00:09:35,460 --> 00:09:39,629
third study showed significant

185
00:09:37,740 --> 00:09:41,970
improvements occurring in weight and

186
00:09:39,629 --> 00:09:44,850
subjective measures for food cravings at

187
00:09:41,970 --> 00:09:47,519
12 months however this study was

188
00:09:44,850 --> 00:09:51,420
published in the Journal of energy

189
00:09:47,519 --> 00:09:54,689
psychology in 2012 it also had no

190
00:09:51,419 --> 00:09:57,389
control group and over 50% lost to

191
00:09:54,690 --> 00:09:59,490
follow-up participants who continued

192
00:09:57,389 --> 00:10:02,519
including in trials are possibly more

193
00:09:59,490 --> 00:10:05,159
likely to be perceived benefit than

194
00:10:02,519 --> 00:10:09,210
those who are lost to follow-up and this

195
00:10:05,159 --> 00:10:11,610
may represent a bias in the results so

196
00:10:09,210 --> 00:10:13,259
to sum up the evidence for EFT is a

197
00:10:11,610 --> 00:10:16,050
treatment for improvements in food

198
00:10:13,259 --> 00:10:18,840
cravings and weight loss the trials are

199
00:10:16,049 --> 00:10:21,028
mostly published in low-quality journals

200

00:10:18,840 --> 00:10:23,700
and mostly did not have control groups

201
00:10:21,028 --> 00:10:25,350
or a study design that could demonstrate

202
00:10:23,700 --> 00:10:28,770
where the tapping was responsible for

203
00:10:25,350 --> 00:10:30,540
the measured effect no trials were

204
00:10:28,769 --> 00:10:32,549
longer than 12 months which given the

205
00:10:30,539 --> 00:10:34,799
current evidence on weight loss which is

206
00:10:32,549 --> 00:10:36,449
that weight loss is maximal at 6 to 12

207
00:10:34,799 --> 00:10:38,639
months and regardless of the degree of

208
00:10:36,450 --> 00:10:40,980
initial weight loss most weight is

209
00:10:38,639 --> 00:10:42,720
regained within a two-year period it

210
00:10:40,980 --> 00:10:45,210
could not be concluded that any of the

211
00:10:42,720 --> 00:10:46,528
current trials provide evidence of

212
00:10:45,210 --> 00:10:48,900
long-term weight loss

213
00:10:46,528 --> 00:10:51,419
there's also mirth mentioning that

214
00:10:48,899 --> 00:10:54,539

weight regain is driven by physiological

215

00:10:51,419 --> 00:10:55,229

factors as opposed to specific food

216

00:10:54,539 --> 00:10:58,379

cravings

217

00:10:55,230 --> 00:11:01,440

as for the plausibility of energy

218

00:10:58,379 --> 00:11:06,419

psychology I thought I'd ask someone who

219

00:11:01,440 --> 00:11:08,880

is an expert in things energy-related my

220

00:11:06,419 --> 00:11:13,469

husband dr. Chris noble research

221

00:11:08,879 --> 00:11:16,379

physicist Chris is there any evidence

222

00:11:13,470 --> 00:11:20,879

for subtle energy pathways such as

223

00:11:16,379 --> 00:11:23,460

meridians and acupoints in the body no

224

00:11:20,879 --> 00:11:25,588

these subtle energies are poorly defined

225

00:11:23,460 --> 00:11:27,290

and are mostly assumed to be outside of

226

00:11:25,589 --> 00:11:30,810

our current understanding of physics

227

00:11:27,289 --> 00:11:34,829

Chris do you know what this energy would

228

00:11:30,809 --> 00:11:37,319

be well as far as I can work out the

229
00:11:34,830 --> 00:11:39,990
working hypothesis in energy psychology

230
00:11:37,320 --> 00:11:42,390
is that tapping produces electrical

231
00:11:39,990 --> 00:11:45,029
signals at acupressure points via the

232
00:11:42,389 --> 00:11:47,159
pizza electric effect and these signals

233
00:11:45,029 --> 00:11:50,250
then travel to other organs in the body

234
00:11:47,159 --> 00:11:53,490
such as the amygdala through collagen a

235
00:11:50,250 --> 00:11:56,070
semiconductor in connective tissue but

236
00:11:53,490 --> 00:12:00,480
isn't there collagen throughout our

237
00:11:56,070 --> 00:12:03,330
bodies yes and the idea has very little

238
00:12:00,480 --> 00:12:05,490
prior plausibility but it is easily

239
00:12:03,330 --> 00:12:07,230
testable and there seems to be very

240
00:12:05,490 --> 00:12:09,750
little effort to test some of these

241
00:12:07,230 --> 00:12:13,409
basic principles despite an entire

242
00:12:09,750 --> 00:12:17,850
journal devoted to energy psychology so

243
00:12:13,409 --> 00:12:20,120
Chris other researchers have tested EFT

244
00:12:17,850 --> 00:12:24,028
using functional magnetic resonance

245
00:12:20,120 --> 00:12:27,299
imaging could a functional magnetic

246
00:12:24,028 --> 00:12:29,850
resonance imaging test that is used to

247
00:12:27,299 --> 00:12:33,058
demonstrate brain activity in response

248
00:12:29,850 --> 00:12:38,278
to stimuli be used as a credible test

249
00:12:33,058 --> 00:12:40,198
EFT know with no plausible mechanism for

250
00:12:38,278 --> 00:12:42,808
energy psychology it would not be

251
00:12:40,198 --> 00:12:45,448
credible to use fMRI results there's

252
00:12:42,808 --> 00:12:47,818
evidence for EFT it sounds great in

253
00:12:45,448 --> 00:12:50,578
media releases and gives an aura of

254
00:12:47,818 --> 00:12:53,248
science but before you use it to try to

255
00:12:50,578 --> 00:12:55,348
prove something like EFT you really need

256
00:12:53,249 --> 00:12:57,839
to be exactly clear about what you were

257

00:12:55,349 --> 00:13:02,099
trying to measure well thank you Chris

258
00:12:57,839 --> 00:13:05,159
for clearing up those points so I think

259
00:13:02,099 --> 00:13:07,589
listeners we would all do well to hear

260
00:13:05,158 --> 00:13:10,588
the disclaimer and dr. Peter Stapleton's

261
00:13:07,589 --> 00:13:12,809
website this material is for your

262
00:13:10,589 --> 00:13:14,759
general knowledge only and it is not a

263
00:13:12,808 --> 00:13:17,608
substitute for traditional medical

264
00:13:14,759 --> 00:13:18,928
attention counseling therapy or advice

265
00:13:17,609 --> 00:13:22,619
from a qualified health care

266
00:13:18,928 --> 00:13:25,438
professional and if you wish to embark

267
00:13:22,619 --> 00:13:29,639
on your own tapping journey you will

268
00:13:25,438 --> 00:13:32,458
find EFT is promoted as the universal

269
00:13:29,639 --> 00:13:35,759
healing aid a personal healing tool that

270
00:13:32,458 --> 00:13:38,598
can be applied to improve any human

271
00:13:35,759 --> 00:13:41,609

condition both physical and emotional

272

00:13:38,599 --> 00:13:45,509

EFT is promoted for all the following

273

00:13:41,609 --> 00:13:48,079

physical conditions allergies migraines

274

00:13:45,509 --> 00:13:50,599

pain management chronic fatigue syndrome

275

00:13:48,078 --> 00:13:53,338

multiple chemical sensitivities

276

00:13:50,599 --> 00:13:55,528

hypertension fibromyalgia cancer

277

00:13:53,339 --> 00:13:58,019

muscular dystrophy parkinson's disease

278

00:13:55,528 --> 00:14:01,349

cystic fibrosis and multiple sclerosis

279

00:13:58,019 --> 00:14:03,239

as well as other challenges such as

280

00:14:01,349 --> 00:14:05,999

behavioral issues in children

281

00:14:03,239 --> 00:14:08,339

relationship issues anger management

282

00:14:05,999 --> 00:14:12,749

stress management depression anxiety

283

00:14:08,339 --> 00:14:16,529

insomnia PTSD addictions sexual abuse

284

00:14:12,749 --> 00:14:19,558

and phobias EFT is also claimed to

285

00:14:16,528 --> 00:14:24,058

promote life abundance weight loss and

286
00:14:19,558 --> 00:14:27,478
career goals and finally some certified

287
00:14:24,058 --> 00:14:32,009
EFT universe practitioners provide

288
00:14:27,479 --> 00:14:34,859
additional EFT services such as matrix

289
00:14:32,009 --> 00:14:39,989
reimprinting for resolving issues in

290
00:14:34,859 --> 00:14:42,509
one's past or even quantum eft services

291
00:14:39,989 --> 00:14:46,149
for those with unresolved issues

292
00:14:42,509 --> 00:14:49,060
stemming from a past life

293
00:14:46,149 --> 00:14:52,778
so until next time skeptic listeners

294
00:14:49,059 --> 00:14:56,409
this has been mandala noble with special

295
00:14:52,778 --> 00:15:09,940
guest dr. Chris Noble signing off for

296
00:14:56,409 --> 00:15:11,379
the diet skeptic report hi I'm Darren

297
00:15:09,940 --> 00:15:13,450
McKee one of the hosts of the reality

298
00:15:11,379 --> 00:15:15,370
check each week my co-host and I explore

299
00:15:13,450 --> 00:15:17,140
a range of controversies and curiosities

300
00:15:15,370 --> 00:15:18,610
using science and critical thinking you

301
00:15:17,139 --> 00:15:20,649
can find us on itunes your favorite

302
00:15:18,610 --> 00:15:22,180
podcasting platform and on facebook by

303
00:15:20,649 --> 00:15:23,860
searching for the reality check or by

304
00:15:22,179 --> 00:15:26,019
following us on twitter at TRC

305
00:15:23,860 --> 00:15:27,399
underscore podcast until then keep an

306
00:15:26,019 --> 00:15:40,259
open mind but not so open your brain

307
00:15:27,399 --> 00:15:43,480
falls out you may well remember that

308
00:15:40,259 --> 00:15:46,539
some months ago I accompanied Jimmy

309
00:15:43,480 --> 00:15:48,970
Scott as we went to the big trees in

310
00:15:46,539 --> 00:15:51,399
California but the day Jeannie and I are

311
00:15:48,970 --> 00:15:53,620
at the Oakland Zoo and Jeannie this what

312
00:15:51,399 --> 00:15:56,939
paper thing you have in front of you is

313
00:15:53,620 --> 00:15:59,620
a map and we were just discussing how to

314

00:15:56,940 --> 00:16:01,060
our disbelief there's a lot of the

315
00:15:59,620 --> 00:16:06,639
younger generation who aren't sure how

316
00:16:01,059 --> 00:16:09,219
to use maps we're a couple of crabby old

317
00:16:06,639 --> 00:16:11,319
yeah we certainly are not crabby old

318
00:16:09,220 --> 00:16:14,560
people Richard but we know how to use up

319
00:16:11,320 --> 00:16:15,940
a map but Richard keeps trying to you

320
00:16:14,559 --> 00:16:17,708
know keeps taking his thumb and

321
00:16:15,940 --> 00:16:19,420
forefinger and trying to expand it but

322
00:16:17,708 --> 00:16:21,219
it's not gonna work that way you know

323
00:16:19,419 --> 00:16:23,409
and I tried talking to it I said take us

324
00:16:21,220 --> 00:16:27,459
to the lines that are didn't answer this

325
00:16:23,409 --> 00:16:29,919
is a map is a two-dimensional shape of

326
00:16:27,458 --> 00:16:32,109
the product upon which our lit written

327
00:16:29,919 --> 00:16:35,979
little lines and in this case of the map

328
00:16:32,110 --> 00:16:38,139

of the zoo lovely pictures of enclosures

329

00:16:35,980 --> 00:16:39,250

with little pictures of animals and this

330

00:16:38,139 --> 00:16:40,699

is going to be a fun day

331

00:16:39,250 --> 00:16:43,850

it's a

332

00:16:40,700 --> 00:16:45,680

brilliant warm sunny day here in Oakland

333

00:16:43,850 --> 00:16:48,170

we've just walked into the zoo this

334

00:16:45,679 --> 00:16:50,029

flamingos right in front of us as lots

335

00:16:48,169 --> 00:16:51,110

of children lots of children here today

336

00:16:50,029 --> 00:16:52,789

which is a good sign

337

00:16:51,110 --> 00:16:54,560

absolutely and we're just going to

338

00:16:52,789 --> 00:16:59,199

wander around and see what interesting

339

00:16:54,559 --> 00:17:02,349

things we can discover at Oakland Zoo

340

00:16:59,200 --> 00:17:05,630

[Music]

341

00:17:02,350 --> 00:17:07,130

we've just come to the the fence here

342

00:17:05,630 --> 00:17:10,280

the little enclosure the big enclosure

343
00:17:07,130 --> 00:17:11,570
of a tortoise and it's in the distance

344
00:17:10,279 --> 00:17:13,639
there and it looked like a clump of

345
00:17:11,569 --> 00:17:16,939
rocks but you're just about to say

346
00:17:13,640 --> 00:17:20,300
something about their history yeah

347
00:17:16,940 --> 00:17:23,120
galapagos tortoises have a definite role

348
00:17:20,299 --> 00:17:26,948
to play in inspiring Charles Darwin's

349
00:17:23,119 --> 00:17:29,569
idea about natural selection

350
00:17:26,949 --> 00:17:32,840
Darwin was having lunch or having dinner

351
00:17:29,569 --> 00:17:35,569
with some residents of the Galapagos

352
00:17:32,839 --> 00:17:38,119
Islands some European residents and one

353
00:17:35,569 --> 00:17:40,519
of them one of the residents casually

354
00:17:38,119 --> 00:17:44,449
mentioned oh you know so-and-so is able

355
00:17:40,519 --> 00:17:46,460
to tell you what Island a turtle comes

356
00:17:44,450 --> 00:17:49,789
from just by the shape of its shell

357
00:17:46,460 --> 00:17:53,210
huh and of course one of the things that

358
00:17:49,789 --> 00:17:55,579
that triggered Darwin's idea about the

359
00:17:53,210 --> 00:17:57,250
immutability of species as they called

360
00:17:55,579 --> 00:18:01,309
it back again had the idea of evolution

361
00:17:57,250 --> 00:18:04,160
and of course the idea that different

362
00:18:01,309 --> 00:18:08,409
islands would would be petri dishes for

363
00:18:04,160 --> 00:18:10,790
the adaptation of very similar organisms

364
00:18:08,410 --> 00:18:12,019
but different because of their

365
00:18:10,789 --> 00:18:13,759
adaptation for the particular

366
00:18:12,019 --> 00:18:15,980
environment is one of the ideas that

367
00:18:13,759 --> 00:18:18,379
stimulated Darwinian natural selection

368
00:18:15,980 --> 00:18:20,269
if I remember the story correctly I

369
00:18:18,380 --> 00:18:23,960
think it had to do with the the ridge

370
00:18:20,269 --> 00:18:25,670
directly behind the the neck I think I

371

00:18:23,960 --> 00:18:27,380
remember reading that I was saying that

372
00:18:25,670 --> 00:18:28,550
that he could tell because the ridges

373
00:18:27,380 --> 00:18:30,470
were slightly different but you're right

374
00:18:28,549 --> 00:18:32,629
was basically the shape of the the shell

375
00:18:30,470 --> 00:18:35,450
he was looking at yeah there's details

376
00:18:32,630 --> 00:18:37,670
of course the other and of course Darwin

377
00:18:35,450 --> 00:18:40,940
didn't really twig to this whole idea

378
00:18:37,670 --> 00:18:43,009
until he got back to England and started

379
00:18:40,940 --> 00:18:46,250
looking over his notes and looking over

380
00:18:43,009 --> 00:18:48,019
the collections Darwin of course was an

381
00:18:46,250 --> 00:18:49,970
excellent geologist but he really was

382
00:18:48,019 --> 00:18:51,769
not an expert on either reptiles or

383
00:18:49,970 --> 00:18:52,779
birds or any of the other animals that

384
00:18:51,769 --> 00:18:55,789
he sent back and

385
00:18:52,779 --> 00:18:59,450

large quantities from his his voyage on

386

00:18:55,789 --> 00:19:05,930
the Beagle and it really was the

387

00:18:59,450 --> 00:19:08,660
mockingbirds that that helped secure

388

00:19:05,930 --> 00:19:10,490
this idea that animals on different

389

00:19:08,660 --> 00:19:12,140
islands would be adapted to slightly

390

00:19:10,490 --> 00:19:14,120
different environments even though they

391

00:19:12,140 --> 00:19:17,870
all were very similar yeah so from that

392

00:19:14,119 --> 00:19:19,819
it was pretty easy to come up with a

393

00:19:17,869 --> 00:19:22,579
hypothesis that well maybe all of these

394

00:19:19,819 --> 00:19:24,799
animals had a common ancestor and then

395

00:19:22,579 --> 00:19:27,439
diversified as they were separated on

396

00:19:24,799 --> 00:19:29,269
these different islands to adapt to the

397

00:19:27,440 --> 00:19:32,150
different environments of those islands

398

00:19:29,269 --> 00:19:34,099
and this has taught us the vovs over

399

00:19:32,150 --> 00:19:36,019
there he sees these heads now come up

400
00:19:34,099 --> 00:19:38,629
and we can see a little bit of movement

401
00:19:36,019 --> 00:19:40,129
but it's he's not exactly leaping over

402
00:19:38,630 --> 00:19:43,010
the place but you wouldn't expect a

403
00:19:40,130 --> 00:19:50,780
giant tortoise to do that for a tortoise

404
00:19:43,009 --> 00:19:52,400
that is a great deal of activity this is

405
00:19:50,779 --> 00:19:55,539
exciting take a photograph there's

406
00:19:52,400 --> 00:20:01,190
another one look we're just walking over

407
00:19:55,539 --> 00:20:02,259
down the fence line here and we can see

408
00:20:01,190 --> 00:20:06,769
another one

409
00:20:02,259 --> 00:20:08,329
yeah it's about 15 meters away just sort

410
00:20:06,769 --> 00:20:13,900
of sitting under the shade of the trees

411
00:20:08,329 --> 00:20:16,129
having a good day so - it's exciting -

412
00:20:13,900 --> 00:20:19,009
well there could be even more because

413
00:20:16,130 --> 00:20:22,190
the enclosure they have for the the

414
00:20:19,009 --> 00:20:24,410
tortoise is very big in fact please do

415
00:20:22,190 --> 00:20:26,110
not feed or touch the tortoise is a good

416
00:20:24,410 --> 00:20:28,490
advice we won't do that

417
00:20:26,109 --> 00:20:30,769
tortoises are really hard to get to

418
00:20:28,490 --> 00:20:32,390
breed in captivity I noticed they have

419
00:20:30,769 --> 00:20:34,009
two here I have no idea if it's a male

420
00:20:32,390 --> 00:20:35,660
and a female I have no idea if they are

421
00:20:34,009 --> 00:20:37,269
attempting to breed them or whatever I'm

422
00:20:35,660 --> 00:20:39,470
sure they would be absolutely

423
00:20:37,269 --> 00:20:41,750
outstandingly delighted if they did

424
00:20:39,470 --> 00:20:43,160
breathe but it's very difficult to get

425
00:20:41,750 --> 00:20:44,779
them breed to breed in captivity

426
00:20:43,160 --> 00:20:48,620
other than Olli yeah which is one of the

427
00:20:44,779 --> 00:20:52,129
reasons why you know Galapagos Tortoises

428

00:20:48,619 --> 00:20:53,859
and subspecies that belonged to the you

429
00:20:52,130 --> 00:20:57,550
know different groups there are

430
00:20:53,859 --> 00:21:00,049
eventually going extinct unfortunately

431
00:20:57,549 --> 00:21:02,149
now we're walking around I think I can

432
00:21:00,049 --> 00:21:04,430
see another one around this corner yes

433
00:21:02,150 --> 00:21:06,090
yes oh that's and it's that somewhat

434
00:21:04,430 --> 00:21:07,830
closer - we can

435
00:21:06,089 --> 00:21:10,250
walk around the enclosure sort of go

436
00:21:07,829 --> 00:21:13,048
bleed one into the other into the other

437
00:21:10,250 --> 00:21:15,659
lots of room and space fun that's very

438
00:21:13,048 --> 00:21:17,490
nice to see he's a little pond oh that's

439
00:21:15,659 --> 00:21:19,100
nice that's a reasonably close-up view

440
00:21:17,490 --> 00:21:40,409
now we're getting of this tortoise

441
00:21:19,099 --> 00:21:45,839
munching the grass walking along here

442
00:21:40,409 --> 00:21:47,610

looking across the chasm and just on the

443

00:21:45,839 --> 00:21:52,759

other side we've got three ring-tailed

444

00:21:47,609 --> 00:21:52,759

lemurs completely enjoying the day

445

00:21:53,329 --> 00:21:58,918

strolling along ignoring all the

446

00:21:55,619 --> 00:22:01,889

visitors ring-tailed lemurs something

447

00:21:58,919 --> 00:22:08,190

wonderful a lemur is a squirrel designed

448

00:22:01,890 --> 00:22:10,919

in Paris four of the mountain now they

449

00:22:08,190 --> 00:22:18,000

are really so charming yeah really

450

00:22:10,919 --> 00:22:20,130

beautiful animals prosimians oh casually

451

00:22:18,000 --> 00:22:22,829

you can think of three major groups of

452

00:22:20,130 --> 00:22:25,110

primates the prosimians the monkeys the

453

00:22:22,829 --> 00:22:26,668

apes and the humans and the monkeys apes

454

00:22:25,109 --> 00:22:29,459

and humans are much more closely related

455

00:22:26,669 --> 00:22:31,590

to each other than they are to groups

456

00:22:29,460 --> 00:22:34,140

like the prosimians to which the lemurs

457
00:22:31,589 --> 00:22:38,548
belong lemurs and Pato is a number of

458
00:22:34,140 --> 00:22:42,149
other African and Asian forms they're

459
00:22:38,548 --> 00:22:45,089
two separate the monkey monkey ape human

460
00:22:42,148 --> 00:22:47,879
group and the prosimian group are really

461
00:22:45,089 --> 00:22:50,908
two separate branches of the very large

462
00:22:47,880 --> 00:22:53,870
primate tree they're often considered

463
00:22:50,909 --> 00:22:56,789
quote more primitive quote than the

464
00:22:53,869 --> 00:23:00,689
anthropoid or a monkey a human group but

465
00:22:56,788 --> 00:23:03,750
as my old as my old professor James

466
00:23:00,690 --> 00:23:07,769
Gavin used to say primitive can you hang

467
00:23:03,750 --> 00:23:09,569
by your feet that's an odd term

468
00:23:07,769 --> 00:23:11,339
primitive I've heard it before but III

469
00:23:09,569 --> 00:23:12,869
know even Richard Dawkins writes about

470
00:23:11,339 --> 00:23:17,490
the terms

471
00:23:12,869 --> 00:23:20,279
it's it's so value Laden yeah it is

472
00:23:17,490 --> 00:23:22,170
absolutely and the point is if a group

473
00:23:20,279 --> 00:23:23,940
of animals are a particular animal is

474
00:23:22,170 --> 00:23:25,950
successful and is still here and is

475
00:23:23,940 --> 00:23:29,640
breeding and is fine how can that be

476
00:23:25,950 --> 00:23:31,860
regarded as primitive well in that

477
00:23:29,640 --> 00:23:35,870
respect lemurs are very good at being

478
00:23:31,859 --> 00:23:37,919
lemurs or they wouldn't be here I mean

479
00:23:35,869 --> 00:23:39,959
there are a lot of animals that are

480
00:23:37,920 --> 00:23:42,690
being selected out because they can't

481
00:23:39,960 --> 00:23:45,900
survive in the Anthropocene or the human

482
00:23:42,690 --> 00:23:48,058
era in which we find ourselves but you

483
00:23:45,900 --> 00:23:49,470
know and and unfortunately many primate

484
00:23:48,058 --> 00:23:51,869
groups are going to be part of that

485

00:23:49,470 --> 00:23:54,440
extinction event possibly even lemurs

486
00:23:51,869 --> 00:23:57,719
lemurs are like these ringtails

487
00:23:54,440 --> 00:24:00,750
they're restricted to a very narrow

488
00:23:57,720 --> 00:24:06,230
geographic area on the planet back in

489
00:24:00,750 --> 00:24:08,220
the Pliocene and earlier biosea

490
00:24:06,230 --> 00:24:09,960
Oligocene they were much more broadly

491
00:24:08,220 --> 00:24:12,000
spread but now you just find them on

492
00:24:09,960 --> 00:24:14,190
madagascar and now with more

493
00:24:12,000 --> 00:24:17,179
environmental destruction in madagascar

494
00:24:14,190 --> 00:24:19,679
the habitats for lemurs and other

495
00:24:17,179 --> 00:24:22,380
persimmon ringtails and other prosimians

496
00:24:19,679 --> 00:24:24,150
on madagascar is becoming reduced and

497
00:24:22,380 --> 00:24:26,309
you know if you don't have a Baudette

498
00:24:24,150 --> 00:24:27,750
you don't survive yeah well I'm pleased

499
00:24:26,308 --> 00:24:30,389

to say the habitats they've provided

500

00:24:27,750 --> 00:24:32,308

them here is wonderful yeah I mean is

501

00:24:30,390 --> 00:24:34,620

it's as far removed as it from the old

502

00:24:32,308 --> 00:24:36,420

idea of you know walking along and

503

00:24:34,619 --> 00:24:38,639

seeing animals in cages as you can get

504

00:24:36,420 --> 00:24:42,300

they've got their own hillside trees

505

00:24:38,640 --> 00:24:44,309

environment shade it's it's a cage

506

00:24:42,299 --> 00:24:47,220

nevertheless but it's quite a nice one

507

00:24:44,308 --> 00:24:50,490

yeah I think these animals can live

508

00:24:47,220 --> 00:24:51,990

pretty contented in a very nice

509

00:24:50,490 --> 00:24:54,569

environment like this and they're

510

00:24:51,990 --> 00:24:56,039

completely acclimatized to a if that's

511

00:24:54,569 --> 00:24:57,928

the right word to people because there's

512

00:24:56,039 --> 00:24:59,539

lots of people here just chatting and

513

00:24:57,929 --> 00:25:03,030

looking at them like we are and they

514
00:24:59,539 --> 00:25:05,069
give a damn it you know zoo animals vary

515
00:25:03,029 --> 00:25:08,849
hugely in that regard

516
00:25:05,069 --> 00:25:11,879
I suspect animals like lemurs are find

517
00:25:08,849 --> 00:25:13,500
us very entertaining yes let's go out

518
00:25:11,880 --> 00:25:17,480
and watch the people yes

519
00:25:13,500 --> 00:25:21,329
whereas great apes well specifically

520
00:25:17,480 --> 00:25:24,180
gorillas less so chimpanzees but

521
00:25:21,329 --> 00:25:26,699
certainly gorillas tend to be rather shy

522
00:25:24,180 --> 00:25:28,980
and in temperament and they they really

523
00:25:26,700 --> 00:25:31,019
don't like being stared at if you go to

524
00:25:28,980 --> 00:25:33,360
a gorilla cage quite often what you'll

525
00:25:31,019 --> 00:25:35,789
see is the back of a girl yeah

526
00:25:33,359 --> 00:25:37,409
regularly gorillas will either be

527
00:25:35,789 --> 00:25:39,720
sitting where they can't be seen or

528
00:25:37,410 --> 00:25:41,970
can't be seen as well where they'll just

529
00:25:39,720 --> 00:25:44,100
sit with their back to the audience to

530
00:25:41,970 --> 00:25:45,690
the to the viewing public now these are

531
00:25:44,099 --> 00:25:48,209
the guys here these are winged tails

532
00:25:45,690 --> 00:25:50,370
they seem to be perfectly content to be

533
00:25:48,210 --> 00:25:52,079
amused by us I think so and they're just

534
00:25:50,369 --> 00:25:54,449
going about their daily activities

535
00:25:52,079 --> 00:25:58,019
having a bit of food they're sitting in

536
00:25:54,450 --> 00:26:01,470
the shade and when you leave is one of

537
00:25:58,019 --> 00:26:03,299
the things that zoos do and looking

538
00:26:01,470 --> 00:26:05,460
around this cage I think that's there

539
00:26:03,299 --> 00:26:09,619
maybe using that and this enclosure as

540
00:26:05,460 --> 00:26:12,809
well is they they hide food around the

541
00:26:09,619 --> 00:26:14,459
the enclosure to make it a little bit

542

00:26:12,809 --> 00:26:17,190
more of a challenge rather than just you

543
00:26:14,460 --> 00:26:20,130
know here's your here's your Purina

544
00:26:17,190 --> 00:26:23,250
lemur chow and this bucket over here

545
00:26:20,130 --> 00:26:25,500
near their gate they will hide the

546
00:26:23,250 --> 00:26:28,569
various foodstuffs in the case these

547
00:26:25,500 --> 00:26:31,028
guys eat fruits and vegetables mostly

548
00:26:28,569 --> 00:26:33,700
that full of whores and probably someone

549
00:26:31,028 --> 00:26:36,220
get out to hit the protein and all that

550
00:26:33,700 --> 00:26:40,090
but they'll they'll secrete the pieces

551
00:26:36,220 --> 00:26:41,798
around the the cage cage a closure

552
00:26:40,089 --> 00:26:44,619
enclosure yeah that's the best term I

553
00:26:41,798 --> 00:26:46,869
think yes it's spacious it really is it

554
00:26:44,619 --> 00:26:49,058
so they'll secrete the food around the

555
00:26:46,869 --> 00:26:50,918
enclosures and then the animals have to

556
00:26:49,058 --> 00:26:52,740

kind of use their intelligence and use

557

00:26:50,919 --> 00:26:59,528

their senses their sense of smell and

558

00:26:52,740 --> 00:27:01,538

color vision to find the stuff and

559

00:26:59,528 --> 00:27:04,319

that's good for them that you know keeps

560

00:27:01,538 --> 00:27:07,319

them keeps their little brains as usual

561

00:27:04,319 --> 00:27:09,668

that one over there sitting there look

562

00:27:07,319 --> 00:27:29,019

it's looking right at us and what are

563

00:27:09,669 --> 00:27:31,330

they doing primates watching other

564

00:27:29,019 --> 00:27:33,429

primates we are privately whoa did you

565

00:27:31,329 --> 00:27:33,970

see they're very good at jumping and

566

00:27:33,429 --> 00:27:36,909

lipped

567

00:27:33,970 --> 00:27:38,589

a huge deal at the baboon enclosure they

568

00:27:36,909 --> 00:27:40,480

are clearly but this is specifically

569

00:27:38,589 --> 00:27:43,058

that hamadryas baboons enclosure which

570

00:27:40,480 --> 00:27:45,639

is significant because all baboons are

571
00:27:43,058 --> 00:27:49,450
not alike hamid reyes are particularly

572
00:27:45,638 --> 00:27:51,668
interesting as baboons because they have

573
00:27:49,450 --> 00:27:54,909
a social system that's a bit different

574
00:27:51,669 --> 00:27:57,970
from your typical olive baboon or other

575
00:27:54,909 --> 00:28:00,159
all baboons are ground living monkeys

576
00:27:57,970 --> 00:28:01,808
and they spend most of their time on the

577
00:28:00,159 --> 00:28:03,429
ground they can climb trees they

578
00:28:01,808 --> 00:28:05,138
generally sleep in trees it's not

579
00:28:03,429 --> 00:28:07,600
that they can't go into trees but their

580
00:28:05,138 --> 00:28:10,439
major adaptation is living on the ground

581
00:28:07,599 --> 00:28:13,109
exploding from ground resources like

582
00:28:10,440 --> 00:28:16,230
rhizomes and

583
00:28:13,109 --> 00:28:21,629
grass roots and stems and things like

584
00:28:16,230 --> 00:28:23,220
that but hamid reyes are particularly

585
00:28:21,630 --> 00:28:28,760
interesting among the bad ones because

586
00:28:23,220 --> 00:28:33,089
their social system is different from

587
00:28:28,759 --> 00:28:35,160
most other baboon species you have a big

588
00:28:33,089 --> 00:28:36,779
group of males and females and you have

589
00:28:35,160 --> 00:28:38,759
a male dominance hierarchy and a female

590
00:28:36,779 --> 00:28:40,920
dominance hierarchy they all kind of

591
00:28:38,759 --> 00:28:43,980
live together Hamid rights are different

592
00:28:40,920 --> 00:28:46,620
because they have a single male who has

593
00:28:43,980 --> 00:28:47,730
a group of females living with him and

594
00:28:46,619 --> 00:28:50,969
then of course the children of the

595
00:28:47,730 --> 00:28:53,099
females and this kind of what's been

596
00:28:50,970 --> 00:28:54,360
referred to as a harem relationship

597
00:28:53,099 --> 00:28:56,189
that's what we can see at the moment

598
00:28:54,359 --> 00:28:58,679
there's the big male there on the this

599

00:28:56,190 --> 00:29:01,730
log of over there and there are so many

600
00:28:58,680 --> 00:29:04,650
little ones lots and lots of children

601
00:29:01,730 --> 00:29:06,029
little little young oh there they go

602
00:29:04,650 --> 00:29:08,970
they're all running across the face of

603
00:29:06,029 --> 00:29:11,069
that to be the waterfall over there yeah

604
00:29:08,970 --> 00:29:12,839
there's a I don't know much about this

605
00:29:11,069 --> 00:29:15,119
particular colony but obviously they

606
00:29:12,839 --> 00:29:17,609
have monkeys of several different ages

607
00:29:15,119 --> 00:29:19,259
in here they clearly are doing okay on

608
00:29:17,609 --> 00:29:21,389
the you know getting them to reproduce

609
00:29:19,259 --> 00:29:23,400
by the way take a look at that big male

610
00:29:21,390 --> 00:29:26,250
the see how he's got this gorgeous big

611
00:29:23,400 --> 00:29:29,280
coat crosses head and shoulders and

612
00:29:26,250 --> 00:29:31,829
notice how well-groomed that coat is

613
00:29:29,279 --> 00:29:34,859

that that there's no tangles yes and

614

00:29:31,829 --> 00:29:38,099

that it doesn't care at all it's really

615

00:29:34,859 --> 00:29:39,509

very smooth the male gets a lot of

616

00:29:38,099 --> 00:29:41,219

grooming

617

00:29:39,509 --> 00:29:43,920

and it looks like it's just being

618

00:29:41,220 --> 00:29:47,990

brushed exactly he's easy really quite

619

00:29:43,920 --> 00:29:51,210

well taken care of shall we say but the

620

00:29:47,990 --> 00:29:54,120

so a male will take over in the wild not

621

00:29:51,210 --> 00:29:57,299

obviously in the zoo a male will take

622

00:29:54,119 --> 00:30:00,359

over a group of females and he will sire

623

00:29:57,299 --> 00:30:02,759

children of those females for the next

624

00:30:00,359 --> 00:30:04,769

several years until he gets too old or

625

00:30:02,759 --> 00:30:06,539

until another male comes along to kind

626

00:30:04,769 --> 00:30:08,639

of drive him off and replace him and

627

00:30:06,539 --> 00:30:11,159

then that male will take over the

628
00:30:08,640 --> 00:30:14,759
females remain constant so to speak the

629
00:30:11,160 --> 00:30:16,410
females in their offspring will will be

630
00:30:14,759 --> 00:30:18,809
the core of the troop so they're really

631
00:30:16,410 --> 00:30:21,480
the ones who you know that that's the

632
00:30:18,809 --> 00:30:25,649
continuity in the end the social

633
00:30:21,480 --> 00:30:29,940
grouping the male children of the of the

634
00:30:25,650 --> 00:30:31,500
group will spin off when they become you

635
00:30:29,940 --> 00:30:36,269
know teenagers the equivalent of

636
00:30:31,500 --> 00:30:39,000
teenagers for four baboons a few years

637
00:30:36,269 --> 00:30:41,549
old because they would be directly in

638
00:30:39,000 --> 00:30:44,579
competition with the single male yeah I

639
00:30:41,549 --> 00:30:46,529
head of the group so the the male

640
00:30:44,579 --> 00:30:48,779
spin-off but the females and their

641
00:30:46,529 --> 00:30:50,970
children remain and they are the core of

642
00:30:48,779 --> 00:30:53,129
the truth they look like they're having

643
00:30:50,970 --> 00:30:54,660
a great deal of I'm gonna just walk to

644
00:30:53,130 --> 00:30:56,970
the other end of this little walkway

645
00:30:54,660 --> 00:30:58,320
here Genie because we're standing in the

646
00:30:56,970 --> 00:30:59,759
direct sunlight at the moment so he

647
00:30:58,319 --> 00:31:02,129
might get a better view from over here

648
00:30:59,759 --> 00:31:04,440
they're having a great time I mean if I

649
00:31:02,130 --> 00:31:05,640
can understand their behavior they seem

650
00:31:04,440 --> 00:31:09,660
quite happy they're running around

651
00:31:05,640 --> 00:31:13,110
jumping on things and climbing up a sort

652
00:31:09,660 --> 00:31:15,420
of a cliff wall here and generally just

653
00:31:13,109 --> 00:31:17,849
hanging out well one thing that you'll

654
00:31:15,420 --> 00:31:20,350
find true of baby primates as they love

655
00:31:17,849 --> 00:31:22,359
to play they certainly do and

656

00:31:20,349 --> 00:31:24,519
there's something quite cute about any

657
00:31:22,359 --> 00:31:26,918
baby mammal I think yeah it's really

658
00:31:24,519 --> 00:31:29,919
true you noticed by the door over there

659
00:31:26,919 --> 00:31:31,480
there's a couple of youngsters kind of

660
00:31:29,919 --> 00:31:34,288
wrestling and pushing each other and

661
00:31:31,480 --> 00:31:37,808
you're climbing up the fake rocks and

662
00:31:34,288 --> 00:31:40,538
having a good time it's it's all you

663
00:31:37,808 --> 00:31:43,058
know any mammalian play is a great way

664
00:31:40,538 --> 00:31:44,859
to develop the skills for being an adult

665
00:31:43,058 --> 00:31:46,869
whatever that species is there's a

666
00:31:44,859 --> 00:31:48,398
little fella going up there but you put

667
00:31:46,869 --> 00:31:50,439
a bunch of kids in there and they do be

668
00:31:48,398 --> 00:31:54,008
doing the same thing we don't call

669
00:31:50,440 --> 00:31:56,110
monkey bars for nothing there goes there

670
00:31:54,009 --> 00:31:59,500

goes some chasing behavior yeah that

671

00:31:56,109 --> 00:32:01,689

looks like that looks like a young male

672

00:31:59,500 --> 00:32:06,250

he's they believe they may have to

673

00:32:01,690 --> 00:32:08,048

remove him from the the troop at some

674

00:32:06,250 --> 00:32:10,509

point in the future but then zoos have

675

00:32:08,048 --> 00:32:13,269

those kinds of exchanges they'll you

676

00:32:10,509 --> 00:32:16,509

know they'll swap animals around as they

677

00:32:13,269 --> 00:32:18,970

need to do to retain the appropriate

678

00:32:16,509 --> 00:32:29,909

social grouping yeah that definitely

679

00:32:18,970 --> 00:32:34,720

looks like a young male and that's where

680

00:32:29,909 --> 00:32:37,240

sadly the recorder stopped recording and

681

00:32:34,720 --> 00:32:38,980

unbeknownst to me and Geney we went

682

00:32:37,240 --> 00:32:41,500

around and looked at some more animals

683

00:32:38,980 --> 00:32:42,909

especially the great apes and Geney was

684

00:32:41,500 --> 00:32:44,589

telling me all about the muscle

685
00:32:42,909 --> 00:32:46,870
structure and the arm structure in

686
00:32:44,589 --> 00:32:49,538
various points about evolution and where

687
00:32:46,869 --> 00:32:52,298
they diverged it was fascinating stuff

688
00:32:49,538 --> 00:32:56,589
but sadly when I checked the recordings

689
00:32:52,298 --> 00:32:59,679
later on those recordings failed however

690
00:32:56,589 --> 00:33:03,189
and I hope you can appreciate how lucky

691
00:32:59,679 --> 00:33:05,620
I was to have a well if not exactly a

692
00:33:03,190 --> 00:33:09,009
guided tour around Auckland Zoo at a

693
00:33:05,619 --> 00:33:12,038
trip around the zoo we have somebody who

694
00:33:09,009 --> 00:33:13,620
is such an expert in her field as dr.

695
00:33:12,038 --> 00:33:15,579
eugenie Scott

696
00:33:13,619 --> 00:33:18,048
[Music]

697
00:33:15,579 --> 00:33:20,509
if you ever get the chance to visit a

698
00:33:18,048 --> 00:33:22,609
zoo with dr. eugenie Scott I sincerely

699
00:33:20,509 --> 00:33:24,740
recommend you take it up Thank You

700
00:33:22,609 --> 00:33:43,219
Jeanne thank you very much for a

701
00:33:24,740 --> 00:33:45,798
wonderful day at Oakland Zoo hi I'm

702
00:33:43,220 --> 00:33:47,600
Yvette Don Troma aka SCI babe and I

703
00:33:45,798 --> 00:33:50,778
debunk bad science for a living this

704
00:33:47,599 --> 00:33:52,308
includes health nutrition and general BS

705
00:33:50,778 --> 00:33:54,079
on the Internet and I'm looking forward

706
00:33:52,308 --> 00:34:12,648
to seeing you all at skeptic on on

707
00:33:54,079 --> 00:34:15,108
Australia this October now is a story

708
00:34:12,648 --> 00:34:18,769
brought to my attention by dr. Ken

709
00:34:15,108 --> 00:34:23,409
Harvey a longtime campaigner for science

710
00:34:18,769 --> 00:34:25,878
and reason especially in medicine and

711
00:34:23,409 --> 00:34:28,220
especially when it comes to the claims

712
00:34:25,878 --> 00:34:32,719
of medical so-called medical products

713

00:34:28,219 --> 00:34:35,388
this is reported at med rich calm that a

714
00:34:32,719 --> 00:34:38,898
you links in this week's show notes made

715
00:34:35,389 --> 00:34:41,419
reach proprietary limited a story by dr.

716
00:34:38,898 --> 00:34:43,429
Ken Harvey therapeutics goods

717
00:34:41,418 --> 00:34:47,358
administration's new complaint system

718
00:34:43,429 --> 00:34:49,059
fails at either cold test outcome of

719
00:34:47,358 --> 00:34:53,449
advertising complaints investigations

720
00:34:49,059 --> 00:34:55,630
specification 2018 enacted and this was

721
00:34:53,449 --> 00:34:57,500
posted on the 5th of July

722
00:34:55,630 --> 00:34:59,970
[Music]

723
00:34:57,500 --> 00:35:03,360
stimulated by an article in today's of

724
00:34:59,969 --> 00:35:05,039
the conversation website also links in

725
00:35:03,360 --> 00:35:08,430
the show notes on farmer care

726
00:35:05,039 --> 00:35:11,909
laboratories either cold I have decided

727
00:35:08,429 --> 00:35:14,099

to try the TJ's new complaint system the

728

00:35:11,909 --> 00:35:17,789

photograph accompanying has a picture of

729

00:35:14,099 --> 00:35:20,539

easy cold the packaging either cold

730

00:35:17,789 --> 00:35:23,279

cough cold and flu day and night

731

00:35:20,539 --> 00:35:27,420

specifically formulated to help shorten

732

00:35:23,280 --> 00:35:29,880

a cold are the claims as I mentioned in

733

00:35:27,420 --> 00:35:31,950

a comment on this article this product

734

00:35:29,880 --> 00:35:34,920

has been the subject of a previous

735

00:35:31,949 --> 00:35:38,699

article in the conversation in 2015 it

736

00:35:34,920 --> 00:35:41,090

has also had six upheld complaints by

737

00:35:38,699 --> 00:35:43,819

the now abolished therapeutics goods

738

00:35:41,090 --> 00:35:48,180

advertising complaints resolution panel

739

00:35:43,820 --> 00:35:50,160

CRP from 2005 to 2016 and a

740

00:35:48,179 --> 00:35:53,609

recommendation to the secretary of the

741

00:35:50,159 --> 00:35:56,069

CRP in 2017 for failure to withdraw

742
00:35:53,610 --> 00:35:58,200
misleading representations that the

743
00:35:56,070 --> 00:36:01,019
product had quote been clinically

744
00:35:58,199 --> 00:36:03,059
trialed in the sense of being

745
00:36:01,019 --> 00:36:05,369
demonstrated to have effects such as

746
00:36:03,059 --> 00:36:08,309
reducing the duration impact on daily

747
00:36:05,369 --> 00:36:11,339
life or severity of symptoms of the cold

748
00:36:08,309 --> 00:36:13,349
in quote typically I could find no

749
00:36:11,340 --> 00:36:16,380
outcome of this recommendation to the

750
00:36:13,349 --> 00:36:18,299
secretary TGA on the TGA website in

751
00:36:16,380 --> 00:36:20,720
addition there was a decision to

752
00:36:18,300 --> 00:36:24,420
withdraw advertising approval in

753
00:36:20,719 --> 00:36:27,439
specified media only not the internet by

754
00:36:24,420 --> 00:36:30,869
the TGA on the 11th of October 2017

755
00:36:27,440 --> 00:36:33,510
regardless this product continues to be

756
00:36:30,869 --> 00:36:36,210
advertised with claims that have been

757
00:36:33,510 --> 00:36:38,970
repeatedly judged to be misleading and

758
00:36:36,210 --> 00:36:41,090
deceptive furthermore Pharma cares

759
00:36:38,969 --> 00:36:43,829
Laboratories has the unenviable

760
00:36:41,090 --> 00:36:45,900
reputation of having the most upheld

761
00:36:43,829 --> 00:36:48,119
complaints by any sponsor of

762
00:36:45,900 --> 00:36:51,750
complementary medicines over the 10-year

763
00:36:48,119 --> 00:36:54,750
life of this CRP however upon submission

764
00:36:51,750 --> 00:36:57,900
of the attached complaint I received the

765
00:36:54,750 --> 00:37:01,050
following error message and the message

766
00:36:57,900 --> 00:37:05,970
reads in red we're sorry but something

767
00:37:01,050 --> 00:37:09,230
went wrong era I D Ashby 9 - 2 e e FD -

768
00:37:05,969 --> 00:37:12,279
3 a a 1 - 4 AF 2

769
00:37:09,230 --> 00:37:15,230
I think 9c I think you get the message

770

00:37:12,280 --> 00:37:16,970
we've been notified about this issue and

771
00:37:15,230 --> 00:37:19,309
we'll take a look shortly thank you for

772
00:37:16,969 --> 00:37:21,649
your patience this is the same error I

773
00:37:19,309 --> 00:37:24,049
reported to the TGA when I tested their

774
00:37:21,650 --> 00:37:26,690
system on the 17th of May

775
00:37:24,050 --> 00:37:28,670
it's a pity it remained when the system

776
00:37:26,690 --> 00:37:31,190
went live I submitted that this

777
00:37:28,670 --> 00:37:33,800
complaint should have been addressed as

778
00:37:31,190 --> 00:37:36,500
quote high priority and quote because

779
00:37:33,800 --> 00:37:38,300
the sponsor is recalcitrant the product

780
00:37:36,500 --> 00:37:40,429
has a number of uphill complaints and

781
00:37:38,300 --> 00:37:42,830
the varied advertising claims by the

782
00:37:40,429 --> 00:37:44,960
sponsor and many others continue to

783
00:37:42,829 --> 00:37:47,480
state or imply that the product will

784
00:37:44,960 --> 00:37:51,409

shorten the duration and severity of a

785

00:37:47,480 --> 00:37:53,960

cold when it will not by allege repeated

786

00:37:51,409 --> 00:37:58,509

breaches of the therapeutics Goods

787

00:37:53,960 --> 00:38:03,470

advertising code 2017 sections for 1b

788

00:37:58,510 --> 00:38:07,790

for 2a and 4 to see in addition specific

789

00:38:03,469 --> 00:38:09,919

indications on the AR TG public summary

790

00:38:07,789 --> 00:38:12,320

documents are equally misleading and

791

00:38:09,920 --> 00:38:15,889

deceptive I asked for an immediate

792

00:38:12,320 --> 00:38:18,550

response from the TGA to me as to the

793

00:38:15,889 --> 00:38:20,839

priority allocated to this complaint and

794

00:38:18,550 --> 00:38:24,590

subsequently the measures taken by the

795

00:38:20,840 --> 00:38:27,980

TGA to achieve compliance and the

796

00:38:24,590 --> 00:38:30,710

outcome for publication I am concerned

797

00:38:27,980 --> 00:38:32,570

that the recently enacted therapeutics

798

00:38:30,710 --> 00:38:34,659

Goods information outcomes of

799

00:38:32,570 --> 00:38:37,820
advertising complaints investigations

800

00:38:34,659 --> 00:38:40,909
specification 2018 only states that

801

00:38:37,820 --> 00:38:44,030
quote the following specific kinds of

802

00:38:40,909 --> 00:38:46,069
therapeutic goods information may be

803

00:38:44,030 --> 00:38:49,580
released by the secretary to the public

804

00:38:46,070 --> 00:38:52,700
under subsection 61 5c of the Act

805

00:38:49,579 --> 00:38:55,489
end quote it remains to be seen what we

806

00:38:52,699 --> 00:38:59,029
get back from the TGA for the attached

807

00:38:55,489 --> 00:39:00,500
test complaint now the reason I'm

808

00:38:59,030 --> 00:39:01,760
bringing you this story and it's worth

809

00:39:00,500 --> 00:39:05,590
clicking on the link in the show notes

810

00:39:01,760 --> 00:39:08,180
that to have a look for yourself is to

811

00:39:05,590 --> 00:39:12,230
reiterate how important it is for people

812

00:39:08,179 --> 00:39:15,559
like dr. ken Harvey to be the what's the

813
00:39:12,230 --> 00:39:18,949
term The Barking Dog the watch dog the

814
00:39:15,559 --> 00:39:21,329
dog at the heels of government

815
00:39:18,949 --> 00:39:23,039
regulation to keep them

816
00:39:21,329 --> 00:39:26,519
honest to keep them up-to-date to keep

817
00:39:23,039 --> 00:39:28,739
them aware because sadly all too often

818
00:39:26,519 --> 00:39:31,289
things like outrageous claims for

819
00:39:28,739 --> 00:39:34,379
complementary medicines just sort of

820
00:39:31,289 --> 00:39:37,110
slip under the radar go unnoticed or at

821
00:39:34,380 --> 00:39:39,240
least an act upon for many years hence

822
00:39:37,110 --> 00:39:41,820
we have products that claim to be

823
00:39:39,239 --> 00:39:43,919
all-natural etc making outrageous claims

824
00:39:41,820 --> 00:39:46,289
that that simply don't stack up when put

825
00:39:43,920 --> 00:39:49,079
to the test now this may be the

826
00:39:46,289 --> 00:39:53,179
situation where you're listening to this

827

00:39:49,079 --> 00:39:55,500
show anywhere around the world companies

828
00:39:53,179 --> 00:39:56,579
well they'll get away with what they can

829
00:39:55,500 --> 00:39:59,909
get away with and if they can make

830
00:39:56,579 --> 00:40:02,069
products cheaply quickly especially

831
00:39:59,909 --> 00:40:05,909
homeopathic products which obviously

832
00:40:02,070 --> 00:40:09,300
have have no benefit in a medical sense

833
00:40:05,909 --> 00:40:12,809
and make outrageous claims well that's

834
00:40:09,300 --> 00:40:15,900
what companies tend to do so it is vital

835
00:40:12,809 --> 00:40:35,039
that people like dr. ken Harvey keep on

836
00:40:15,900 --> 00:40:37,769
their case hi this is dr. Pamela Gaye

837
00:40:35,039 --> 00:40:39,599
from astronomy cast each week Fraser

838
00:40:37,769 --> 00:40:41,449
Cain and I take our listeners on a

839
00:40:39,599 --> 00:40:44,610
fact-based journey through the cosmos

840
00:40:41,449 --> 00:40:47,460
with our weekly podcast we explain not

841
00:40:44,610 --> 00:40:49,260

just what we know but how we know what

842

00:40:47,460 --> 00:40:51,990

we know about this universe that we

843

00:40:49,260 --> 00:40:54,660

share check us out at astronomy cast

844

00:40:51,989 --> 00:40:56,489

calm and look for us in itunes google

845

00:40:54,659 --> 00:40:59,420

play and where ever you download

846

00:40:56,489 --> 00:41:12,099

podcasts see online

847

00:40:59,420 --> 00:41:12,099

[Music]

848

00:41:14,909 --> 00:41:20,109

thank you for listening to the skeptic

849

00:41:17,530 --> 00:41:23,230

zone now as promised I'm gonna give you

850

00:41:20,110 --> 00:41:26,829

the chance to beat odds of eight million

851

00:41:23,230 --> 00:41:30,159

six hundred and forty thousand to one

852

00:41:26,829 --> 00:41:32,409

and as longtime listeners to the skeptic

853

00:41:30,159 --> 00:41:34,269

zone know every once in a while we play

854

00:41:32,409 --> 00:41:41,730

the dice game where I had a series of

855

00:41:34,269 --> 00:41:46,509

dice here I have a four-sided die a

856
00:41:41,730 --> 00:41:52,539
six-sided die a ten sided die a 20-sided

857
00:41:46,510 --> 00:41:57,040
die a thirty sided die and a sixty sided

858
00:41:52,539 --> 00:42:00,699
die right your chance to use your

859
00:41:57,039 --> 00:42:03,279
prediction powers or your powers of just

860
00:42:00,699 --> 00:42:05,230
dumb luck maybe I'm gonna roll each of

861
00:42:03,280 --> 00:42:08,350
these die tell you the answer and see

862
00:42:05,230 --> 00:42:10,900
how many you can get right maybe you are

863
00:42:08,349 --> 00:42:14,019
psychic who knows all right so first is

864
00:42:10,900 --> 00:42:20,349
the four-sided die it's in the shape of

865
00:42:14,019 --> 00:42:25,690
a pyramid so here we go and it's come up

866
00:42:20,349 --> 00:42:28,210
with two that's the first and so is two

867
00:42:25,690 --> 00:42:29,320
you move up to the six-sided die the

868
00:42:28,210 --> 00:42:37,300
standard die

869
00:42:29,320 --> 00:42:46,990
here we go six let's move up to the

870
00:42:37,300 --> 00:42:53,500
10-sided dice shaking this 520 sided die

871
00:42:46,989 --> 00:42:56,259
here we go 22 those of you playing along

872
00:42:53,500 --> 00:43:00,969
at home and we move up to the 30 sided

873
00:42:56,260 --> 00:43:04,320
die it's quite chunky this one they keep

874
00:43:00,969 --> 00:43:04,319
falling off the table I'll try it again

875
00:43:04,619 --> 00:43:14,139
13 lastly the the 60 sided die which is

876
00:43:09,250 --> 00:43:16,929
quite big and almost almost quite too

877
00:43:14,139 --> 00:43:19,599
smooth very little variation but good

878
00:43:16,929 --> 00:43:22,960
enough to come up with a random number

879
00:43:19,599 --> 00:43:26,559
here we go as it rolls around

880
00:43:22,960 --> 00:43:29,260
table and back again and come on keeps

881
00:43:26,559 --> 00:43:34,150
rolling off the tech guy how it's

882
00:43:29,260 --> 00:43:42,130
steadied now 57 so the numbers you want

883
00:43:34,150 --> 00:43:44,108
are two six five 2013 and 57 no

884

00:43:42,130 --> 00:43:45,130
supplementary number if you've got all

885
00:43:44,108 --> 00:43:48,338
those right

886
00:43:45,130 --> 00:43:55,420
you beat odds of eight million six

887
00:43:48,338 --> 00:43:56,650
hundred and forty thousand to one and

888
00:43:55,420 --> 00:43:59,740
maybe you should apply for the

889
00:43:56,650 --> 00:44:02,500
Australian skeptics \$100,000 psychic

890
00:43:59,739 --> 00:44:05,739
challenge if you think you have a

891
00:44:02,500 --> 00:44:10,000
psychic or a paranormal power why not

892
00:44:05,739 --> 00:44:12,358
apply at www.sceeto.com not a you

893
00:44:10,000 --> 00:44:15,309
there's information there about the

894
00:44:12,358 --> 00:44:17,650
\$100,000 challenge yes it's certainly

895
00:44:15,309 --> 00:44:20,409
good to be back in Sydney Australia back

896
00:44:17,650 --> 00:44:22,269
in the skeptic ozone studios and the

897
00:44:20,409 --> 00:44:23,949
skeptic zone cats are all over me which

898
00:44:22,269 --> 00:44:26,320

is really nice in fact they've just

899

00:44:23,949 --> 00:44:28,598

never the studio at the moment they're

900

00:44:26,320 --> 00:44:31,210

looking for me for food I think food and

901

00:44:28,599 --> 00:44:33,220

back scratchers thank you - Mandy Lee

902

00:44:31,210 --> 00:44:36,730

Noble for this week's report and a big

903

00:44:33,219 --> 00:44:41,189

thank you to dr. eugenie Scott for being

904

00:44:36,730 --> 00:44:44,349

such a good friend a good friend indeed

905

00:44:41,190 --> 00:44:47,230

and what a pleasure it is to go anywhere

906

00:44:44,349 --> 00:44:50,650

with dr. Scott and have her explain

907

00:44:47,230 --> 00:44:53,829

interesting facts about natural history

908

00:44:50,650 --> 00:44:54,400

and evolution coming up on next week's

909

00:44:53,829 --> 00:44:56,170

show

910

00:44:54,400 --> 00:44:59,289

undoubtedly we'll bring you highlights

911

00:44:56,170 --> 00:45:02,070

of the talk coming up here in Sydney by

912

00:44:59,289 --> 00:45:05,108

dr. Angela Matt key now on the 12th

913
00:45:02,070 --> 00:45:06,849
Thursday the 12th at the at the

914
00:45:05,108 --> 00:45:08,920
Occidental hotel just near Wynyard

915
00:45:06,849 --> 00:45:10,859
station more details on this week's show

916
00:45:08,920 --> 00:45:13,930
notes hope to see you there at Sydney

917
00:45:10,858 --> 00:45:16,779
skeptics in the pub but until next week

918
00:45:13,929 --> 00:45:18,519
and with the jetlag rapidly catching up

919
00:45:16,780 --> 00:45:20,260
on me I think it's almost time for bed

920
00:45:18,519 --> 00:45:23,820
this is Richard Saunders signing off

921
00:45:20,260 --> 00:45:23,820
from Sydney Australia

922
00:45:25,778 --> 00:45:31,190
you've been listening to the skeptic

923
00:45:28,278 --> 00:45:37,880
zone podcast please visit our website at

924
00:45:31,190 --> 00:45:41,380
wwlp.com tax and to access the bat

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00:45:37,880 --> 00:45:44,059
catalog of episodes going back to 2008

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00:45:41,380 --> 00:45:47,329
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00:45:44,059 --> 00:45:49,609
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928
00:45:47,329 --> 00:45:50,499
facebook page or leave a review on

929
00:45:49,608 --> 00:45:53,179
itunes

930
00:45:50,498 --> 00:45:56,568
you can also support the skeptic zone

931
00:45:53,179 --> 00:45:59,288
via patreon or paypal the skeptic zone

932
00:45:56,568 --> 00:46:01,670
podcast is an independent production

933
00:45:59,289 --> 00:46:03,829
reviews and opinions expressed on the

934
00:46:01,670 --> 00:46:06,139
skeptic zone and not necessarily those

935
00:46:03,829 --> 00:46:07,940
of Australian skeptics or any other

936
00:46:06,139 --> 00:46:14,440
sceptical organisation

937
00:46:07,940 --> 00:46:14,440
[Music]