



1
00:00:03,300 --> 00:00:08,500

[Music]

2
00:00:12,560 --> 00:00:11,209

so some of this is about Cleve Baxter's

3
00:00:14,360 --> 00:00:12,570

work so if any of you are familiar with

4
00:00:18,140 --> 00:00:14,370

that or read this you can life of plants

5
00:00:21,769 --> 00:00:18,150

I mean this will be familiar so just

6
00:00:24,740 --> 00:00:21,779

starting out so in the plant field sort

7
00:00:26,779 --> 00:00:24,750

of there's an emerging field called

8
00:00:30,200 --> 00:00:26,789

plant neurobiology where people are kind

9
00:00:34,190 --> 00:00:30,210

of appreciating the electrical side of

10
00:00:37,299 --> 00:00:34,200

plants and as mentioned the last talk

11
00:00:40,130 --> 00:00:37,309

j.c.bose was one of the pioneers of that

12
00:00:41,450 --> 00:00:40,140

and so sort of more mainstream people

13
00:00:45,440 --> 00:00:41,460

are recognizing that plants might have

14

00:00:51,560 --> 00:00:45,450

memory and recognize self versus other a

15

00:00:54,470 --> 00:00:51,570

sort of thing but it's but it's it's

16

00:00:56,900 --> 00:00:54,480

they're still not haven't gone this far

17

00:01:00,979 --> 00:00:56,910

today to the Baxter type effects so

18

00:01:03,979 --> 00:01:00,989

Cleve Backster back in the 60s sort of

19

00:01:05,960 --> 00:01:03,989

both sorry he's a Baxter's a lie

20

00:01:08,210 --> 00:01:05,970

detector expert he teaches people how to

21

00:01:10,310 --> 00:01:08,220

use lie detectors and so one night he

22

00:01:12,050 --> 00:01:10,320

got the idea to hook up a lie detector

23

00:01:14,870 --> 00:01:12,060

to a plant and see what happens when he

24

00:01:16,520 --> 00:01:14,880

watered it and he's expecting

25

00:01:18,380 --> 00:01:16,530

conductance to go up but then it

26

00:01:21,380 --> 00:01:18,390

actually went down and I saw it

27

00:01:23,420 --> 00:01:21,390

which he thought looked like a person's

28

00:01:25,310 --> 00:01:23,430

response to like a positive emotional

29

00:01:28,399 --> 00:01:25,320

stimulus so this guy I'm intrigued and

30

00:01:30,200 --> 00:01:28,409

he's so he tried so he tried to do other

31

00:01:33,590 --> 00:01:30,210

things that might evoke a reaction and

32

00:01:35,420 --> 00:01:33,600

so he thought maybe that he would burn

33

00:01:37,760 --> 00:01:35,430

try to burn the plant and see what

34

00:01:40,670 --> 00:01:37,770

happens and so then this is what he

35

00:01:42,679 --> 00:01:40,680

found so this is the original chart

36

00:01:45,050 --> 00:01:42,689

recording and right here is where he

37

00:01:47,210 --> 00:01:45,060

decided to go get the matches to burn

38

00:01:49,670 --> 00:01:47,220

the plant so there's this huge response

39

00:01:54,679 --> 00:01:49,680

that it seems to be the plant detecting

40

00:01:56,780 --> 00:01:54,689

this threaten threatening uh intent so

41

00:01:59,090 --> 00:01:56,790

did other things or like maybe I have

42

00:02:01,550 --> 00:01:59,100

two plants have somebody stop on one

43

00:02:04,130 --> 00:02:01,560

plant take the other that are taken at a

44

00:02:06,230 --> 00:02:04,140

plant put it in a room hook it up to the

45

00:02:07,550 --> 00:02:06,240

lie detector have some other people walk

46

00:02:09,469 --> 00:02:07,560

in there's no response from the plant

47

00:02:11,839 --> 00:02:09,479

the one the person who stomped on the

48

00:02:13,100 --> 00:02:11,849

plant comes in that there's a response

49

00:02:13,570 --> 00:02:13,110

from the plant that looks like a human

50

00:02:16,960 --> 00:02:13,580

fear

51
00:02:19,300 --> 00:02:16,970
spots so indication maybe they can

52
00:02:23,170 --> 00:02:19,310
somehow they're able to recognize people

53
00:02:25,570 --> 00:02:23,180
or threat other way of recognizing

54
00:02:28,480 --> 00:02:25,580
threats I mean he also found that the

55
00:02:32,530 --> 00:02:28,490
plants seemed to respond to his emotions

56
00:02:35,320 --> 00:02:32,540
even over long distances so it seemed

57
00:02:38,430 --> 00:02:35,330
that there's particularly that there may

58
00:02:41,290 --> 00:02:38,440
be some sort of bond that's formed by

59
00:02:42,790 --> 00:02:41,300
the when you take care of a plant it

60
00:02:45,700 --> 00:02:42,800
seems to maybe tune in to you somehow

61
00:02:48,070 --> 00:02:45,710
and so he found that even if he say he

62
00:02:50,830 --> 00:02:48,080
set up the plant set up a recording and

63
00:02:53,410 --> 00:02:50,840

then went out in town maybe a mile away

64

00:02:55,690 --> 00:02:53,420

and sort of started an argument with

65

00:02:57,190 --> 00:02:55,700

somebody something and then can note at

66

00:03:01,030 --> 00:02:57,200

the time and came back to the lab at

67

00:03:03,220 --> 00:03:01,040

that time time of the argument there's a

68

00:03:04,920 --> 00:03:03,230

response to the plant so it's indicating

69

00:03:10,780 --> 00:03:04,930

somehow there's some sort of long

70

00:03:14,710 --> 00:03:10,790

long-distance connection and then one of

71

00:03:18,580 --> 00:03:14,720

the studies that he that he published on

72

00:03:19,810 --> 00:03:18,590

this was looking at another phenomenon

73

00:03:21,820 --> 00:03:19,820

and he found there seeing that plants

74

00:03:24,040 --> 00:03:21,830

seem to be sensitive to things dying in

75

00:03:26,650 --> 00:03:24,050

the nearby environment so I think he

76

00:03:30,340 --> 00:03:26,660

first one of the first things that

77

00:03:31,900 --> 00:03:30,350

tipped him off was that they were they

78

00:03:33,940 --> 00:03:31,910

were reacting and whenever people went

79

00:03:36,820 --> 00:03:33,950

and used the bathroom or that men's

80

00:03:38,800 --> 00:03:36,830

bathroom and it seemed that the even the

81

00:03:40,630 --> 00:03:38,810

urinal that when the cells in the urine

82

00:03:44,850 --> 00:03:40,640

hit the urinal disinfectant cake the

83

00:03:47,229 --> 00:03:44,860

plant seemed to react so so he did

84

00:03:50,470 --> 00:03:47,239

developed an automated experiment where

85

00:03:54,160 --> 00:03:50,480

he's using this contraption which is

86

00:03:56,110 --> 00:03:54,170

there's a some heated water here and

87

00:03:59,380 --> 00:03:56,120

then these cups one cup had brine shrimp

88

00:04:01,440 --> 00:03:59,390

in it the other cup had just water and

89

00:04:04,210 --> 00:04:01,450

then they would sort of randomly dump

90

00:04:06,699 --> 00:04:04,220

and then the brine shrimp would die I

91

00:04:09,610 --> 00:04:06,709

guess in the in the water and so he's

92

00:04:11,259 --> 00:04:09,620

found that the plants were detecting

93

00:04:16,630 --> 00:04:11,269

this when the when the brine shrimp were

94

00:04:21,099 --> 00:04:16,640

being dumped the plants reacted but this

95

00:04:22,719 --> 00:04:21,109

was some of this so after the book the

96

00:04:25,470 --> 00:04:22,729

secret life of plants came out this kind

97

00:04:26,790 --> 00:04:25,480

of became a big deal and

98

00:04:29,880 --> 00:04:26,800

there were some replication attempts

99

00:04:32,160 --> 00:04:29,890

that didn't succeed so this one this was

100

00:04:36,270 --> 00:04:32,170

the most prominent one it was published

101
00:04:39,810 --> 00:04:36,280
in science but there were some problems

102
00:04:43,680 --> 00:04:39,820
with it so we're so backs are found that

103
00:04:45,570 --> 00:04:43,690
you needed to he found that if he dealt

104
00:04:47,460 --> 00:04:45,580
too much for the plants beforehand they

105
00:04:50,850 --> 00:04:47,470
seemed to pay attention to the people I

106
00:04:52,350 --> 00:04:50,860
mean not to the shrimp so he went to

107
00:04:53,700 --> 00:04:52,360
great lengths to have people not

108
00:04:56,430 --> 00:04:53,710
connected to the experiment bringing the

109
00:04:57,960 --> 00:04:56,440
plants and they sort of the

110
00:05:02,760 --> 00:04:57,970
experimenters dealt with them minimally

111
00:05:05,310 --> 00:05:02,770
but in this guess Tiger paper they

112
00:05:08,070 --> 00:05:05,320
actually the experimenters water the

113
00:05:10,440 --> 00:05:08,080

plants right before which maybe as a way

114

00:05:12,870 --> 00:05:10,450

that those connections are formed and

115

00:05:14,100 --> 00:05:12,880

they wash the leaves off and so they're

116

00:05:16,230 --> 00:05:14,110

touching the plants and this sort of

117

00:05:19,560 --> 00:05:16,240

thing so it's entirely possible that

118

00:05:21,330 --> 00:05:19,570

they basically messed up here and got

119

00:05:22,890 --> 00:05:21,340

too much of a connection with the plants

120

00:05:27,150 --> 00:05:22,900

and the plants weren't paying attention

121

00:05:29,070 --> 00:05:27,160

to the shrimp and if you look at their

122

00:05:31,020 --> 00:05:29,080

data it's actually exactly a lot of

123

00:05:31,500 --> 00:05:31,030

responses they just don't they aren't

124

00:05:36,690 --> 00:05:31,510

responding

125

00:05:39,510 --> 00:05:36,700

something it's just something else so

126

00:05:41,160 --> 00:05:39,520

that's so I think once this paper came

127

00:05:44,040 --> 00:05:41,170

out I sort of dampened people's

128

00:05:46,200 --> 00:05:44,050

enthusiasm but but it there are some

129

00:05:50,760 --> 00:05:46,210

problems with it in what and you could

130

00:05:53,400 --> 00:05:50,770

see why it might not succeed all right

131

00:05:56,910 --> 00:05:53,410

let's skip this okay so what I did so I

132

00:05:58,440 --> 00:05:56,920

met with Cleve and he suggested that the

133

00:06:00,600 --> 00:05:58,450

best way to do that to find these

134

00:06:03,420 --> 00:06:00,610

reactions is just a spontaneous emotion

135

00:06:05,820 --> 00:06:03,430

and so his suggestion was just have the

136

00:06:08,370 --> 00:06:05,830

plan set up and just have conversations

137

00:06:11,640 --> 00:06:08,380

with people and kind of see what happens

138

00:06:15,380 --> 00:06:11,650

and so that's what I did so I just had

139

00:06:19,640 --> 00:06:15,390

and so here's the setup I it was just a

140

00:06:22,620 --> 00:06:19,650

regular GSR galvanic skin response

141

00:06:26,030 --> 00:06:22,630

electrodes mount there with onto the

142

00:06:29,340 --> 00:06:26,040

leaf with just regular contact gel

143

00:06:33,330 --> 00:06:29,350

there's this kind of thing they used on

144

00:06:35,070 --> 00:06:33,340

a person but so kinetic skin responses

145

00:06:36,080 --> 00:06:35,080

in the proper term I guess for plants

146

00:06:41,210 --> 00:06:36,090

but

147

00:06:44,030 --> 00:06:41,220

it's the same thing and so yes I had

148

00:06:46,120 --> 00:06:44,040

basically conversations and then I did

149

00:06:48,590 --> 00:06:46,130

some other control things with just

150

00:06:51,379 --> 00:06:48,600

different sounds and playing trying

151
00:06:54,110 --> 00:06:51,389
music and changing the temperature and

152
00:06:56,060 --> 00:06:54,120
motion and this kind of thing but the

153
00:06:59,180 --> 00:06:56,070
conversations were we're in the same

154
00:07:03,560 --> 00:06:59,190
room the people or multiple people

155
00:07:07,460 --> 00:07:03,570
having a conversation and then the setup

156
00:07:09,230 --> 00:07:07,470
was that basically I had it the going

157
00:07:12,170 --> 00:07:09,240
into the computer so the output was on

158
00:07:14,810 --> 00:07:12,180
the screen and I started low-tech but I

159
00:07:18,260 --> 00:07:14,820
videotaped the screen for the output and

160
00:07:19,820 --> 00:07:18,270
then the microphone was capturing what

161
00:07:23,270 --> 00:07:19,830
the conversation at the time so that's

162
00:07:25,310 --> 00:07:23,280
how I kind of connected the data but I

163
00:07:27,290 --> 00:07:25,320

covered the screen so this is something

164

00:07:30,350 --> 00:07:27,300

so that the people couldn't see it so

165

00:07:33,379 --> 00:07:30,360

this was something Baxter noted and this

166

00:07:36,379 --> 00:07:33,389

is needs needs more study but that he

167

00:07:39,560 --> 00:07:36,389

found that it seemed like if you're

168

00:07:41,090 --> 00:07:39,570

watching the results as they happen sort

169

00:07:43,909 --> 00:07:41,100

of the watch pot that doesn't boil that

170

00:07:47,930 --> 00:07:43,919

they don't seem to result something to

171

00:07:49,370 --> 00:07:47,940

come out and I kind of that seemed that

172

00:07:50,570 --> 00:07:49,380

way too so I ended up covering the

173

00:07:53,330 --> 00:07:50,580

screen and then things seemed to work

174

00:07:55,430 --> 00:07:53,340

out better so that that's true that it's

175

00:07:57,320 --> 00:07:55,440

very interesting and could use a lot of

176

00:08:01,219 --> 00:07:57,330

study on its own sort of epistemological

177

00:08:05,930 --> 00:08:01,229

feedback something and then yet just a

178

00:08:08,029 --> 00:08:05,940

regular GSR and let's see so so the way

179

00:08:13,100 --> 00:08:08,039

I coded the data was just looking at

180

00:08:14,930 --> 00:08:13,110

four second intervals so in looking at

181

00:08:16,219 --> 00:08:14,940

whether there was a response or not from

182

00:08:18,860 --> 00:08:16,229

the plant and though in those time

183

00:08:20,900 --> 00:08:18,870

periods and looking at what was going on

184

00:08:22,520 --> 00:08:20,910

whether there was a motion in the

185

00:08:25,279 --> 00:08:22,530

conversation was whether it was just

186

00:08:28,370 --> 00:08:25,289

talking whether I was talking to the

187

00:08:29,779 --> 00:08:28,380

plant and whether there's movement to

188

00:08:32,120 --> 00:08:29,789

these sorts of things so I was just sort

189

00:08:35,990 --> 00:08:32,130

of categorizing in this each four second

190

00:08:36,860 --> 00:08:36,000

interval what's going on and then so

191

00:08:39,500 --> 00:08:36,870

yeah so there were eight different

192

00:08:42,920 --> 00:08:39,510

sessions five five and a half hours and

193

00:08:46,460 --> 00:08:42,930

it was a plant that I his name is boo

194

00:08:48,750 --> 00:08:46,470

tanika's that as my I had for a few

195

00:08:54,030 --> 00:08:51,030

and yeah it had kept in my room for a

196

00:08:56,970 --> 00:08:54,040

while so it was a plant that I had for a

197

00:09:01,050 --> 00:08:56,980

while and all these conversations were

198

00:09:06,330 --> 00:09:01,060

were me with people I knew and so yeah

199

00:09:08,880 --> 00:09:06,340

so here's the data so so what we found

200

00:09:13,560 --> 00:09:08,890

is in intervals that contained emotion

201
00:09:17,340 --> 00:09:13,570
almost applet or 44% of the time or so

202
00:09:18,990 --> 00:09:17,350
there's responses from the plant and

203
00:09:22,650 --> 00:09:19,000
some of these are they're small but

204
00:09:26,220 --> 00:09:22,660
they're but they're and baseline is like

205
00:09:28,710 --> 00:09:26,230
two three percent so this the p-value

206
00:09:31,620 --> 00:09:28,720
here is like 10 to the negative 70 or

207
00:09:33,870 --> 00:09:31,630
something ridiculous so there's a huge

208
00:09:36,870 --> 00:09:33,880
difference and probably the better

209
00:09:38,820 --> 00:09:36,880
comparison is talking so just all

210
00:09:40,860 --> 00:09:38,830
talking instances of talking versus

211
00:09:44,100 --> 00:09:40,870
emotion because there you have all the

212
00:09:45,510 --> 00:09:44,110
same things going on pretty much except

213
00:09:47,400 --> 00:09:45,520

for that that here there's a motion

214

00:09:51,000 --> 00:09:47,410

present and here there isn't that's

215

00:09:53,610 --> 00:09:51,010

still very significant so so we're

216

00:09:55,860 --> 00:09:53,620

having so there's this huge effect that

217

00:09:57,810 --> 00:09:55,870

the plants are responding to the motion

218

00:09:59,280 --> 00:09:57,820

and then I also did some other things I

219

00:10:01,350 --> 00:09:59,290

didn't really test these systematically

220

00:10:03,390 --> 00:10:01,360

but like when I talked to the plant

221

00:10:05,490 --> 00:10:03,400

there seemed to be a fair number of

222

00:10:10,350 --> 00:10:05,500

responses and if I time doctor myself

223

00:10:12,060 --> 00:10:10,360

and it did too but but they're also

224

00:10:14,220 --> 00:10:12,070

times when I dressed the camera saying

225

00:10:15,870 --> 00:10:14,230

like okay this is whatever day it was or

226

00:10:17,310 --> 00:10:15,880

session or what I was going to do and

227

00:10:19,380 --> 00:10:17,320

they sorts of things and there's almost

228

00:10:21,990 --> 00:10:19,390

no responses to that there weren't as

229

00:10:23,190 --> 00:10:22,000

many trials for that but so I mean

230

00:10:25,200 --> 00:10:23,200

there's some interesting things that I

231

00:10:32,220 --> 00:10:25,210

didn't test as much music there seem to

232

00:10:36,690 --> 00:10:32,230

be very little response to so so yeah so

233

00:10:38,490 --> 00:10:36,700

and then also you have other things that

234

00:10:43,050 --> 00:10:38,500

sort of set it off movement moving

235

00:10:45,300 --> 00:10:43,060

nearby I don't think it's the same

236

00:10:47,760 --> 00:10:45,310

mechanism and I don't know what it is

237

00:10:49,290 --> 00:10:47,770

but the but you get a lot of responses

238

00:10:51,300 --> 00:10:49,300

but if you move if you just walked by

239

00:10:52,680 --> 00:10:51,310

the plant or whatever so if anyone knows

240

00:10:55,350 --> 00:10:52,690

about that I'd be curious because

241

00:10:57,660 --> 00:10:55,360

there's the fields seem to change but

242

00:11:00,210 --> 00:10:57,670

also at least some cell phones just

243

00:11:01,910 --> 00:11:00,220

wreaked havoc with the signal so there'd

244

00:11:04,220 --> 00:11:01,920

be just wild well

245

00:11:06,590 --> 00:11:04,230

signal going on in the plant well people

246

00:11:09,980 --> 00:11:06,600

are using the phone so it's another kind

247

00:11:13,879 --> 00:11:09,990

of interesting thing but uh that's

248

00:11:17,509 --> 00:11:13,889

that's Botanica stairs it was smaller

249

00:11:24,110 --> 00:11:17,519

than in the experiment they come a big

250

00:11:27,100 --> 00:11:24,120

plant says so ok so so yeah so the data

251
00:11:29,360 --> 00:11:27,110
is very I mean I'm very pleased with it

252
00:11:35,120 --> 00:11:29,370
but there are definitely some

253
00:11:36,170 --> 00:11:35,130
limitations this so I mean just in

254
00:11:39,350 --> 00:11:36,180
general with these sorts of

255
00:11:41,780 --> 00:11:39,360
consciousness things so there's

256
00:11:44,360 --> 00:11:41,790
spontaneity seems very important that we

257
00:11:48,949 --> 00:11:44,370
have get these nice all these nice

258
00:11:50,389 --> 00:11:48,959
responses and so we have to use sort of

259
00:11:53,389 --> 00:11:50,399
different methods and sort of the

260
00:11:56,090 --> 00:11:53,399
typical scientific approach of using the

261
00:11:59,780 --> 00:11:56,100
same stimuli over and over and seeing

262
00:12:01,639 --> 00:11:59,790
what happens I like to think like like

263
00:12:03,110 --> 00:12:01,649

telling a joke right the first if you

264

00:12:04,220 --> 00:12:03,120

tell someone a joke it might be funny

265

00:12:06,740 --> 00:12:04,230

and they laugh but then if you tell them

266

00:12:08,480 --> 00:12:06,750

it again the same joke again and again

267

00:12:10,160 --> 00:12:08,490

and again right after another they're

268

00:12:12,139 --> 00:12:10,170

not not laugh but it doesn't mean that

269

00:12:14,300 --> 00:12:12,149

jokes not funny right so it's just you

270

00:12:19,880 --> 00:12:14,310

have to you just have to approach it

271

00:12:25,280 --> 00:12:19,890

differently so see ya so my sample size

272

00:12:26,870 --> 00:12:25,290

is rather limited one plant but maybe

273

00:12:28,490 --> 00:12:26,880

since this is replicating other results

274

00:12:31,460 --> 00:12:28,500

hopefully that's not too too big of a

275

00:12:33,439 --> 00:12:31,470

problem but what I'd like to do is so

276

00:12:35,930 --> 00:12:33,449

another thing is seems this connection

277

00:12:39,470 --> 00:12:35,940

with people the plan and the person may

278

00:12:42,590 --> 00:12:39,480

be a vital factor and so it'd be good to

279

00:12:43,970 --> 00:12:42,600

have maybe have people come in who are

280

00:12:45,350 --> 00:12:43,980

close to their plants or something and

281

00:12:47,230 --> 00:12:45,360

bring a plant to the lab and that kind

282

00:12:51,530 --> 00:12:47,240

of thing

283

00:12:53,090 --> 00:12:51,540

another thing the broom set up was the

284

00:12:55,220 --> 00:12:53,100

plant was right there kind of next to

285

00:12:56,870 --> 00:12:55,230

the people would be better to have some

286

00:12:59,990 --> 00:12:56,880

separation and maybe a different

287

00:13:01,850 --> 00:13:00,000

shielding and that would help us figure

288

00:13:03,410 --> 00:13:01,860

out me what's going on with the with the

289

00:13:05,180 --> 00:13:03,420

nature of the signal right so whatever

290

00:13:07,400 --> 00:13:05,190

however the plants picking this up we'd

291

00:13:10,009 --> 00:13:07,410

like to be able to you know block

292

00:13:11,889 --> 00:13:10,019

potential forms of signal and in order

293

00:13:13,110 --> 00:13:11,899

to see what's it's actually going on

294

00:13:15,780 --> 00:13:13,120

some of the

295

00:13:17,880 --> 00:13:15,790

the facts are tried though he did say

296

00:13:19,470 --> 00:13:17,890

put a tried like a Faraday cage I think

297

00:13:21,630 --> 00:13:19,480

it looked like a Ledge shielded room and

298

00:13:23,970 --> 00:13:21,640

it still seemed to work so this would

299

00:13:27,870 --> 00:13:23,980

indicate that it's not electromagnetic

300

00:13:31,019 --> 00:13:27,880

unless it's some sort of frequency that

301
00:13:34,769 --> 00:13:31,029
these things are blocking and then also

302
00:13:36,750 --> 00:13:34,779
just how I coded things it was just sort

303
00:13:39,269 --> 00:13:36,760
of listening to the conversation that

304
00:13:43,230 --> 00:13:39,279
sort of judging what was whether there

305
00:13:46,860 --> 00:13:43,240
was motion present or not which could be

306
00:13:49,290 --> 00:13:46,870
better so so nice a nice way of doing

307
00:13:51,150 --> 00:13:49,300
that might actually be to have people

308
00:13:53,010 --> 00:13:51,160
the subjects worked up to GSR at the

309
00:13:55,290 --> 00:13:53,020
same time because it's sort of a nice

310
00:13:58,050 --> 00:13:55,300
measure of emotion especially negative

311
00:14:01,140 --> 00:13:58,060
emotion which is see what seems to be

312
00:14:05,040 --> 00:14:01,150
what people are responding to so people

313
00:14:06,990 --> 00:14:05,050

being embarrassed or surprised or the

314

00:14:08,610 --> 00:14:07,000

sort of thing rather than being happy

315

00:14:13,710 --> 00:14:08,620

that doesn't seem to evoke as many

316

00:14:16,230 --> 00:14:13,720

responses and so yeah so theoretically

317

00:14:17,960 --> 00:14:16,240

I'll just keep this short it seems that

318

00:14:20,070 --> 00:14:17,970

maybe this is some sort of non-local

319

00:14:22,800 --> 00:14:20,080

connection and entanglement but that

320

00:14:24,810 --> 00:14:22,810

just seems sort of the best the closest

321

00:14:26,550 --> 00:14:24,820

thing that might explain given that this

322

00:14:28,710 --> 00:14:26,560

this these effects seem to happen over a

323

00:14:34,440 --> 00:14:28,720

distance and that maybe they're not

324

00:14:36,949 --> 00:14:34,450

electromagnetic and yeah so that this

325

00:14:39,260 --> 00:14:36,959

spontaneity is and seems important and

326

00:14:43,350 --> 00:14:39,270

we have these distant connections and

327

00:14:44,940 --> 00:14:43,360

it's nice because this is indicating I

328

00:14:46,560 --> 00:14:44,950

mean that whatever this nature of the

329

00:14:49,710 --> 00:14:46,570

plant the plants are responding somehow

330

00:14:51,390 --> 00:14:49,720

so the big question is that there this

331

00:14:54,960 --> 00:14:51,400

means plants are conscious or something

332

00:14:58,350 --> 00:14:54,970

and if and what it would show is that

333

00:15:00,480 --> 00:14:58,360

you know that the normal brain or neural

334

00:15:03,030 --> 00:15:00,490

system may not be may not be required

335

00:15:05,550 --> 00:15:03,040

for these sorts of sorts of things so it

336

00:15:07,230 --> 00:15:05,560

sort of pushes pushes that understanding

337

00:15:09,150 --> 00:15:07,240

I think plants in general are good

338

00:15:10,980 --> 00:15:09,160

because it's just showing anything like

339

00:15:13,920 --> 00:15:10,990

this I think kind of makes people think

340

00:15:15,180 --> 00:15:13,930

about things more on that at least in

341

00:15:18,019 --> 00:15:15,190

Western culture of people too generally

342

00:15:22,890 --> 00:15:18,029

regard don't regard plants as as

343

00:15:24,210 --> 00:15:22,900

potentially conscious beings and they

344

00:15:25,400 --> 00:15:24,220

also make good subjects because you

345

00:15:29,600 --> 00:15:25,410

don't have any movement

346

00:15:31,400 --> 00:15:29,610

facts or anything like that and so yeah

347

00:15:34,309 --> 00:15:31,410

and then just big questions about this

348

00:15:36,439 --> 00:15:34,319

signal and and why why it's like

349

00:15:50,740 --> 00:15:36,449

manifesting electromagnetically and so

350

00:15:58,460 --> 00:15:53,449

thank you very much and we already have

351

00:16:00,290 --> 00:15:58,470

one question right nearby so first of

352

00:16:01,280 --> 00:16:00,300

all that was me who could at your picture

353

00:16:02,960 --> 00:16:01,290

of your plant

354

00:16:04,579 --> 00:16:02,970

I thought everyone reacted to Tom's

355

00:16:10,850 --> 00:16:04,589

pictures of his children someone should

356

00:16:13,639 --> 00:16:10,860

react to your two I wanted to compliment

357

00:16:15,230 --> 00:16:13,649

you on your protocol design and where

358

00:16:17,119 --> 00:16:15,240

you're you aren't stressing the plant

359

00:16:19,579 --> 00:16:17,129

and it's this you know an animal source

360

00:16:22,100 --> 00:16:19,589

is the same thing they stress the animal

361

00:16:29,660 --> 00:16:22,110

yes so congratulations I'm not trying to

362

00:16:32,240 --> 00:16:29,670

set fire to your baby but and then just

363

00:16:37,009 --> 00:16:32,250

this issue of entanglement you know you

364

00:16:38,629 --> 00:16:37,019

and the plant or with most of things in

365

00:16:40,850 --> 00:16:38,639

saira search its you always have to

366

00:16:43,009 --> 00:16:40,860

consider experimenter effect so have you

367

00:16:46,100 --> 00:16:43,019

or other researchers who have done this

368

00:16:48,499 --> 00:16:46,110

plant consciousness considered how you

369

00:16:50,540 --> 00:16:48,509

could possibly try to control for is it

370

00:16:53,240 --> 00:16:50,550

just even your non-local entanglement

371

00:16:59,179 --> 00:16:53,250

with your EEG and your GSR equipment

372

00:17:01,129 --> 00:16:59,189

right right yeah I mean the the what

373

00:17:06,260 --> 00:17:01,139

makes me think it may not be is like

374

00:17:08,960 --> 00:17:06,270

this original sort of factors results

375

00:17:11,390 --> 00:17:08,970

here we go we're just a decision to go

376

00:17:13,970 --> 00:17:11,400

get matches sort of probably for him

377

00:17:15,289 --> 00:17:13,980

it's not like a huge psychological event

378

00:17:17,390 --> 00:17:15,299

it's just sort of okay yeah I'll go try

379

00:17:19,340 --> 00:17:17,400

this but then you get this big change in

380

00:17:22,130 --> 00:17:19,350

the plan so that kind of thing indicates

381

00:17:24,140 --> 00:17:22,140

that sort of asymmetry of it indicates

382

00:17:26,120 --> 00:17:24,150

that it's coming more from the plant

383

00:17:29,149 --> 00:17:26,130

than the person but there's other things

384

00:17:33,880 --> 00:17:29,159

yeah that it could be it's hard to it's

385

00:17:35,350 --> 00:17:33,890

hard to tell right right let's

386

00:17:37,120 --> 00:17:35,360

we have a whole bunch of people who'd

387

00:17:39,610 --> 00:17:37,130

like to ask questions so let's do them

388

00:17:44,019 --> 00:17:39,620

very efficiently yes sir

389

00:17:45,909 --> 00:17:44,029

Glenn again so when I've done these kind

390

00:17:47,740 --> 00:17:45,919

of experiments in the past admittedly

391

00:17:51,190 --> 00:17:47,750

working with human cells and not plant

392

00:17:53,799 --> 00:17:51,200

cells I've observed opposite effects

393

00:17:56,860 --> 00:17:53,809

with different kinds of emotions ha ha

394

00:18:00,159 --> 00:17:56,870

and it appears that your data your

395

00:18:02,139 --> 00:18:00,169

effects are only showing effects in one

396

00:18:05,230 --> 00:18:02,149

direction so the question is have you

397

00:18:07,029 --> 00:18:05,240

seen any opposite effects and if not in

398

00:18:09,220 --> 00:18:07,039

the polarity of the response have you

399

00:18:11,680 --> 00:18:09,230

seen any qualitative differences in the

400

00:18:13,629 --> 00:18:11,690

nature of the signal yeah I didn't look

401
00:18:15,460 --> 00:18:13,639
at that sort of systematically but there

402
00:18:17,950 --> 00:18:15,470
are definitely different patterns of way

403
00:18:20,549 --> 00:18:17,960
the responses are so yeah I should I

404
00:18:23,950 --> 00:18:20,559
should go back and look look at that

405
00:18:25,570 --> 00:18:23,960
dick cartoon you know I'm glad you've

406
00:18:30,070 --> 00:18:25,580
got that chart up there because you're

407
00:18:32,560 --> 00:18:30,080
showing in effect before the actual

408
00:18:34,659 --> 00:18:32,570
action is taking place so one of the

409
00:18:37,960 --> 00:18:34,669
things that occurs to me here is you

410
00:18:41,139 --> 00:18:37,970
know we tend to we all do view a plant

411
00:18:44,200 --> 00:18:41,149
is an object something separate from us

412
00:18:47,200 --> 00:18:44,210
as individuals and I guess I think that

413
00:18:50,560 --> 00:18:47,210

may not be the case it occurs to me just

414

00:18:53,080 --> 00:18:50,570

and I think you can test this the plant

415

00:18:55,000 --> 00:18:53,090

actually may be like a mirror you know

416

00:18:57,009 --> 00:18:55,010

you look into a mirror on the wall and

417

00:18:58,750 --> 00:18:57,019

it reflects what you personally as an

418

00:19:01,149 --> 00:18:58,760

individual or doing and that sort of

419

00:19:02,950 --> 00:19:01,159

thing right so this plant maybe is

420

00:19:06,460 --> 00:19:02,960

acting or plants in general act as a

421

00:19:09,190 --> 00:19:06,470

mirror of the person who's doing the

422

00:19:10,509 --> 00:19:09,200

experiment or whatever it is that you're

423

00:19:14,230 --> 00:19:10,519

intending to do for example you're going

424

00:19:16,570 --> 00:19:14,240

to burn it and of course that response

425

00:19:18,970 --> 00:19:16,580

is immediate but that response was you

426

00:19:21,190 --> 00:19:18,980

know in the persons the operators

427

00:19:23,799 --> 00:19:21,200

intention right and so it isn't really a

428

00:19:25,509 --> 00:19:23,809

problem of precognition or something

429

00:19:29,100 --> 00:19:25,519

like that on the part of the plant you

430

00:19:32,889 --> 00:19:29,110

could test this probably by doing

431

00:19:34,299 --> 00:19:32,899

experiments with different operators if

432

00:19:38,399 --> 00:19:34,309

you will different people that have

433

00:19:42,340 --> 00:19:38,409

different relationships to like music or

434

00:19:44,250 --> 00:19:42,350

whatever various factors you use that

435

00:19:50,130 --> 00:19:44,260

you've been testing against

436

00:19:53,010 --> 00:19:50,140

okay just to come in yeah Chuck leer on

437

00:19:55,799 --> 00:19:53,020

cellphone response okay were you able to

438

00:19:58,440 --> 00:19:55,809

differentiate what the difference in

439

00:20:01,140 --> 00:19:58,450

response was between with if the

440

00:20:03,180 --> 00:20:01,150

cellphone was just turned on or whether

441

00:20:06,120 --> 00:20:03,190

somebody was actually talking it was

442

00:20:08,430 --> 00:20:06,130

when there actually a call was active

443

00:20:12,510 --> 00:20:08,440

yes it wasn't it was just present

444

00:20:13,860 --> 00:20:12,520

necessarily but if so sometimes if you

445

00:20:17,220 --> 00:20:13,870

have a cell phone your speaker and you

446

00:20:20,039 --> 00:20:17,230

hear that GGG buzz that would sometimes

447

00:20:21,870 --> 00:20:20,049

evoke responses in the plan so I don't

448

00:20:23,669 --> 00:20:21,880

know what's going on when the cell

449

00:20:25,440 --> 00:20:23,679

phones are there if they're somehow up

450

00:20:28,380 --> 00:20:25,450

linking or whatever but but yeah it

451
00:20:29,820 --> 00:20:28,390
seems that did when that happens the

452
00:20:32,730 --> 00:20:29,830
plants also something there's also a

453
00:20:34,140 --> 00:20:32,740
response so yeah I don't mean to say

454
00:20:37,440 --> 00:20:34,150
that the plants responding to that but

455
00:20:40,200 --> 00:20:37,450
it's affecting the plants amount yeah hi

456
00:20:43,200 --> 00:20:40,210
Luc Hendrix here my my question is about

457
00:20:45,030 --> 00:20:43,210
the people the subjects can you speak to

458
00:20:48,480 --> 00:20:45,040
differences in responses to certain

459
00:20:54,870 --> 00:20:48,490
people yeah well it seems mainly to be

460
00:20:57,330 --> 00:20:54,880
responding to me and so but it did seem

461
00:20:59,070 --> 00:20:57,340
to be easy other other people too sorry

462
00:21:01,080 --> 00:20:59,080
yeah I should go back and look at more

463
00:21:02,940 --> 00:21:01,090

fine-grain dad sort of yeah which people

464

00:21:05,460 --> 00:21:02,950

it's responding quick quick comment and

465

00:21:07,140 --> 00:21:05,470

a question regarding the noise and the

466

00:21:08,970 --> 00:21:07,150

pickup with a cell phone uh-huh

467

00:21:12,030 --> 00:21:08,980

we found when we use a differential

468

00:21:14,070 --> 00:21:12,040

input on the galvanic skin response then

469

00:21:16,110 --> 00:21:14,080

we get rid of these pick-up effects Oh

470

00:21:19,680 --> 00:21:16,120

as opposed so it's got to be floating

471

00:21:23,310 --> 00:21:19,690

and not not associated with ground okay

472

00:21:28,230 --> 00:21:23,320

second thing have you checked whether

473

00:21:30,299 --> 00:21:28,240

the reaction to people into you is due

474

00:21:32,190 --> 00:21:30,309

to something that might be chemicals

475

00:21:34,860 --> 00:21:32,200

such as pheromones because if you're in

476

00:21:36,690 --> 00:21:34,870

the same room as the plant then it very

477

00:21:39,210 --> 00:21:36,700

well may be picking up what you're

478

00:21:41,340 --> 00:21:39,220

physically emitting right right that's

479

00:21:42,450 --> 00:21:41,350

why I say it'd be better to do some

480

00:21:44,430 --> 00:21:42,460

different shielding and that kind of

481

00:21:47,549 --> 00:21:44,440

thing yeah so it could be and maybe

482

00:21:49,230 --> 00:21:47,559

that's why these responses are robust

483

00:21:51,150 --> 00:21:49,240

maybe it's both maybe it's also

484

00:21:53,270 --> 00:21:51,160

pheromones or something but but yeah so

485

00:21:56,610 --> 00:21:53,280

either way it's interesting

486

00:21:59,010 --> 00:21:56,620

Brenda done first of all I want to

487

00:22:02,100 --> 00:21:59,020

commend you on this research I think

488

00:22:04,919 --> 00:22:02,110

this is a terribly important area of

489

00:22:07,320 --> 00:22:04,929

study for those of us who are interested

490

00:22:10,380 --> 00:22:07,330

in the nature of consciousness there's a

491

00:22:13,260 --> 00:22:10,390

lot of work going on I can remember days

492

00:22:16,350 --> 00:22:13,270

when you couldn't say consciousness in a

493

00:22:19,039 --> 00:22:16,360

khadeem you can say it now but so many

494

00:22:21,990 --> 00:22:19,049

people think you're talking about brain

495

00:22:25,020 --> 00:22:22,000

epiphenomena and i think if we can look

496

00:22:27,450 --> 00:22:25,030

at entities like plants and show that

497

00:22:29,700 --> 00:22:27,460

they have an awareness of their

498

00:22:32,250 --> 00:22:29,710

environment and ability to interact with

499

00:22:34,500 --> 00:22:32,260

it that's going to tell us an awful lot

500

00:22:38,100 --> 00:22:34,510

about what questions we should be asking

501
00:22:41,370 --> 00:22:38,110
right I might also just mention very

502
00:22:45,840 --> 00:22:41,380
briefly that many years ago we attempted

503
00:22:48,419 --> 00:22:45,850
a little pilot experiment where we set

504
00:22:51,750 --> 00:22:48,429
up an random event generator that

505
00:22:56,039 --> 00:22:51,760
modulated a grow light or a series of

506
00:22:59,400 --> 00:22:56,049
grow lights and put it in a darkened

507
00:23:02,370 --> 00:22:59,410
room with the plant and although the

508
00:23:05,730 --> 00:23:02,380
experiment didn't go on very far very

509
00:23:09,240 --> 00:23:05,740
long the plant did manage to produce a

510
00:23:11,940 --> 00:23:09,250
very strong effect on the re G which had

511
00:23:16,890 --> 00:23:11,950
the ultimate effect of increasing the

512
00:23:19,890 --> 00:23:16,900
light and if anybody wants to explore

513
00:23:22,830 --> 00:23:19,900

that again I encourage them to do it we

514

00:23:27,000 --> 00:23:22,840

put we plan to go back to that again but

515

00:23:28,950 --> 00:23:27,010

I will observe that the plant managed to

516

00:23:34,370 --> 00:23:28,960

get stronger effects than any human I've

517

00:23:37,830 --> 00:23:34,380

ever seen yeah one more brief question

518

00:23:40,020 --> 00:23:37,840

Lu Marin kovitch if you cut all the

519

00:23:42,299 --> 00:23:40,030

greenery off the plant and just left the

520

00:23:45,810 --> 00:23:42,309

roots the root ball would you get a

521

00:23:47,789 --> 00:23:45,820

response yeah I don't know I think

522

00:23:51,030 --> 00:23:47,799

there's a trunk there's a trauma aspect

523

00:23:53,450 --> 00:23:51,040

there too so yeah what's the calm down