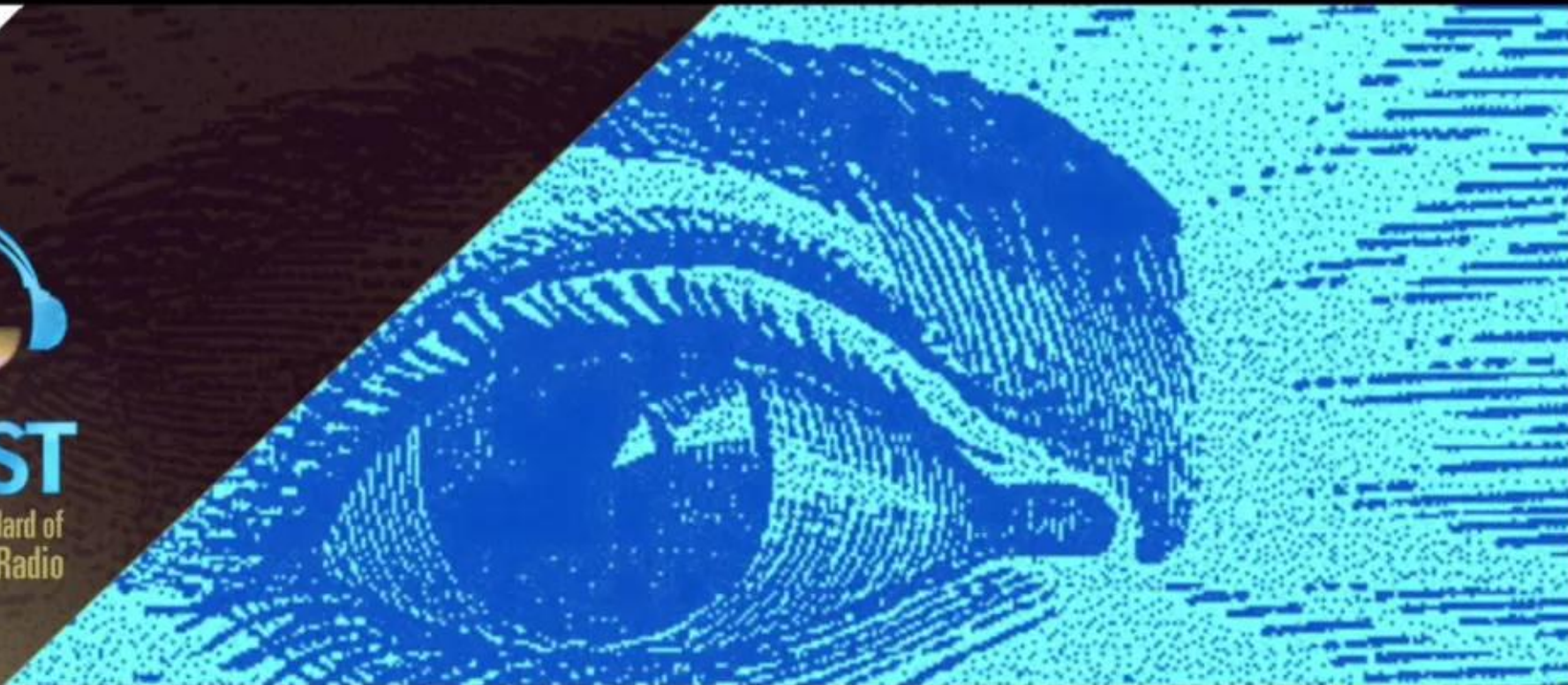


08/14/11



DAVID KAISER

1
00:00:00,000 --> 00:00:23,970

[Music]

2
00:00:31,530 --> 00:00:27,400

you're in the para cast the gold

3
00:00:37,509 --> 00:00:31,540

standard of paranormal radio and now

4
00:00:40,390 --> 00:00:37,519

here's gene Steinberg so last week we

5
00:00:44,130 --> 00:00:40,400

had rapper casings he's author of UFOs

6
00:00:47,560 --> 00:00:44,140

and nukes concentrating primarily on

7
00:00:50,500 --> 00:00:47,570

UFOs seen in and around nuclear

8
00:00:53,020 --> 00:00:50,510

installations primarily in the USA but

9
00:00:55,090 --> 00:00:53,030

also some cases around the world and he

10
00:00:57,399 --> 00:00:55,100

has an incredible knowledge of

11
00:00:59,229 --> 00:00:57,409

everything about pepper so when you talk

12
00:01:02,140 --> 00:00:59,239

to him specifically if anything that

13
00:01:04,240 --> 00:01:02,150

relates to that he has it all he's been

14

00:01:06,580 --> 00:01:04,250

studying this stuff for more than 30

15

00:01:08,980 --> 00:01:06,590

years the only concern I have about

16

00:01:12,730 --> 00:01:08,990

investigations of that nature Chris is

17

00:01:15,039 --> 00:01:12,740

whether or not it leads to tunnel vision

18

00:01:16,990 --> 00:01:15,049

if you focus so much on your specialty

19

00:01:20,200 --> 00:01:17,000

then suddenly maybe you're missing

20

00:01:22,570 --> 00:01:20,210

things around the periphery yeah that's

21

00:01:25,060 --> 00:01:22,580

you know always a you know a possible

22

00:01:26,800 --> 00:01:25,070

kind of stumbling block but I think in

23

00:01:29,050 --> 00:01:26,810

Roberts case he's he's really grounded

24

00:01:31,179 --> 00:01:29,060

he seems to have a very good objective

25

00:01:32,550 --> 00:01:31,189

sense about his work he does keep up to

26

00:01:35,289 --> 00:01:32,560

speed I think in the field in general

27

00:01:37,510 --> 00:01:35,299

unlike some people who tend to really

28

00:01:40,120 --> 00:01:37,520

like you say specialize and focus in on

29

00:01:42,359 --> 00:01:40,130

on a single aspect but I really enjoyed

30

00:01:44,620 --> 00:01:42,369

the show and I really you know admire

31

00:01:46,929 --> 00:01:44,630

four decades worth of work that he's put

32

00:01:50,020 --> 00:01:46,939

into it and it's unfortunate that he has

33

00:01:51,730 --> 00:01:50,030

his Emma Woods OCD character out there

34

00:01:53,679 --> 00:01:51,740

that's been dogging him maybe there's

35

00:01:56,349 --> 00:01:53,689

something to it I think an article came

36

00:02:00,429 --> 00:01:56,359

out last week pertaining to that

37

00:02:02,260 --> 00:02:00,439

particular controversy of this Carlson

38

00:02:05,410 --> 00:02:02,270

character I'm gonna start calling him

39

00:02:07,480 --> 00:02:05,420

Emma Carlson what we're talking about

40

00:02:10,110 --> 00:02:07,490

here there's a character who calls

41

00:02:13,210 --> 00:02:10,120

herself Emma Woods who has been stalking

42

00:02:15,580 --> 00:02:13,220

UFO abduction researcher David Jacobs

43

00:02:17,350 --> 00:02:15,590

for several years that doesn't mean she

44

00:02:19,990 --> 00:02:17,360

doesn't have a case or anything but

45

00:02:22,480 --> 00:02:20,000

she's gotten so obsessive about this

46

00:02:24,580 --> 00:02:22,490

stalking that it destroys whatever case

47

00:02:26,680 --> 00:02:24,590

she might have it really does the whole

48

00:02:29,140 --> 00:02:26,690

and anonymity thing really bothers me

49

00:02:31,750 --> 00:02:29,150

she's put up a website she posts and

50

00:02:33,630 --> 00:02:31,760

tons of boards all under a pseudonym all

51

00:02:35,460 --> 00:02:33,640

for the sole purpose

52

00:02:37,650 --> 00:02:35,470

bringing down David Jacobson I don't

53

00:02:39,900 --> 00:02:37,660

agree like like you mentioned about

54

00:02:43,290 --> 00:02:39,910

yourself I I don't agree with a lot of

55

00:02:44,790 --> 00:02:43,300

Jacobs conclusions I I do have a sense

56

00:02:46,620 --> 00:02:44,800

that they're rather fear-based

57

00:02:48,420 --> 00:02:46,630

but I don't think anybody should have to

58

00:02:50,430 --> 00:02:48,430

go through what he's been going through

59

00:02:52,530 --> 00:02:50,440

with this woman I mean sure he set

60

00:02:54,150 --> 00:02:52,540

himself up doing hypnotic regressions

61

00:02:55,770 --> 00:02:54,160

over the phone long distance that sort

62

00:02:57,840 --> 00:02:55,780

of thing but it's getting to the point

63

00:03:00,510 --> 00:02:57,850

of beyond ridiculousness when when

64

00:03:02,970 --> 00:03:00,520

somebody is just on a vendetta to just

65

00:03:06,390 --> 00:03:02,980

slag you in every which way possible so

66

00:03:08,729 --> 00:03:06,400

oh well just much luck to Hastings and

67

00:03:09,900 --> 00:03:08,739

his his Emma Carlson and David Jacobs

68

00:03:12,360 --> 00:03:09,910

and his Emma woods

69

00:03:15,060 --> 00:03:12,370

well Jacobs told me last I heard from

70

00:03:18,630 --> 00:03:15,070

him via email that he was working on a

71

00:03:20,250 --> 00:03:18,640

more extensive rebuttal to her claims so

72

00:03:22,830 --> 00:03:20,260

maybe that will put the matter to rest

73

00:03:24,420 --> 00:03:22,840

but I kind of doubt it although things

74

00:03:25,590 --> 00:03:24,430

have been pretty quiet I think part of

75

00:03:28,620 --> 00:03:25,600

the reason the things are pretty quiet

76

00:03:31,680 --> 00:03:28,630

is more and more forums will not allow

77

00:03:34,199 --> 00:03:31,690

Emma woods to post until she presents

78

00:03:36,660 --> 00:03:34,209

some authentication as to who she really

79

00:03:39,960 --> 00:03:36,670

is yeah I mean you can attack anybody

80

00:03:41,520 --> 00:03:39,970

from the position of anonymity but

81

00:03:43,289 --> 00:03:41,530

you're attacking them by name it's not

82

00:03:45,900 --> 00:03:43,299

two anonymous people attacking each

83

00:03:47,759 --> 00:03:45,910

other and you have to think - what can

84

00:03:50,880 --> 00:03:47,769

she fear in terms of repercussions

85

00:03:53,220 --> 00:03:50,890

because Jacobs knows who she is she has

86

00:03:55,050 --> 00:03:53,230

certainly identified herself to a few of

87

00:03:58,890 --> 00:03:55,060

the people who support her I don't know

88

00:04:01,949 --> 00:03:58,900

maybe we shouldn't raise that hornet's

89

00:04:04,259 --> 00:04:01,959

nest let's let sleeping dogs lie but you

90

00:04:06,630 --> 00:04:04,269

know here at the power cast we have our

91

00:04:08,819 --> 00:04:06,640

own group of house critics in large part

92

00:04:11,009 --> 00:04:08,829

we ignore them I seldom respond to them

93

00:04:13,890 --> 00:04:11,019

I don't think you have more than once or

94

00:04:16,979 --> 00:04:13,900

twice in your fabulous faded career here

95

00:04:20,460 --> 00:04:16,989

I do try to stay above the fray I try to

96

00:04:22,860 --> 00:04:20,470

chip in my two cents wherever I think it

97

00:04:24,779 --> 00:04:22,870

might be appropriate and maybe give

98

00:04:27,900 --> 00:04:24,789

people a little little extra you know

99

00:04:30,540 --> 00:04:27,910

angle to look at a particular topic or

100

00:04:33,390 --> 00:04:30,550

issue but this whole idea of hiding

101
00:04:34,950 --> 00:04:33,400
behind avatars and anonymous names I've

102
00:04:36,630 --> 00:04:34,960
always had a problem with it of course

103
00:04:38,340 --> 00:04:36,640
you and I when we post everybody knows

104
00:04:40,159 --> 00:04:38,350
who we are but you know you get some of

105
00:04:43,230 --> 00:04:40,169
these people with these with these

106
00:04:45,050 --> 00:04:43,240
anonymous tags and and I think it

107
00:04:47,270 --> 00:04:45,060
emboldened them to

108
00:04:49,910 --> 00:04:47,280
get out of out of them outside of

109
00:04:51,650 --> 00:04:49,920
themselves and and be I think a little

110
00:04:53,930 --> 00:04:51,660
bit more strident than maybe they

111
00:04:55,640 --> 00:04:53,940
normally would I can't recall who told

112
00:04:57,860 --> 00:04:55,650
me this story but they were able to find

113
00:05:00,020 --> 00:04:57,870

out who a person was it was dogging them

114

00:05:02,420 --> 00:05:00,030

anonymously online and they showed up at

115

00:05:05,420 --> 00:05:02,430

their house it freaked them out

116

00:05:07,610 --> 00:05:05,430

I'd never go to that to those links but

117

00:05:11,780 --> 00:05:07,620

it is you know I'm willing to to put my

118

00:05:14,150 --> 00:05:11,790

reputation you know in my anonymity to

119

00:05:15,740 --> 00:05:14,160

rest and and just be Who I am and I

120

00:05:18,140 --> 00:05:15,750

think more people out there should do

121

00:05:20,450 --> 00:05:18,150

that and this whole excuse of well if my

122

00:05:22,850 --> 00:05:20,460

job found out I was posted on a UFO

123

00:05:25,040 --> 00:05:22,860

board I get fired I mean that's just a

124

00:05:27,770 --> 00:05:25,050

convenient excuse I think we're farther

125

00:05:29,390 --> 00:05:27,780

down the road than having to be too

126
00:05:31,670 --> 00:05:29,400
concerned about that unless you're some

127
00:05:33,170 --> 00:05:31,680
you know lead scientist at a National

128
00:05:34,790 --> 00:05:33,180
Lab maybe then you'd have something to

129
00:05:37,160 --> 00:05:34,800
worry about but for the most part I

130
00:05:39,890 --> 00:05:37,170
don't think people really have have that

131
00:05:43,100 --> 00:05:39,900
excuse to hang their anonymity on

132
00:05:45,890 --> 00:05:43,110
anymore I think it's this whole subject

133
00:05:47,540 --> 00:05:45,900
is is pretty much mainstream now and we

134
00:05:49,900 --> 00:05:47,550
need to move forward and you know

135
00:05:52,730 --> 00:05:49,910
everybody step up and you know claim

136
00:05:54,950 --> 00:05:52,740
their opinions and and stand behind them

137
00:05:58,370 --> 00:05:54,960
as as a real person instead of an

138
00:06:01,130 --> 00:05:58,380

anonymous avatar and tag and of course

139

00:06:03,200 --> 00:06:01,140

if you are a woman living in disability

140

00:06:06,170 --> 00:06:03,210

in New Zealand do you think the

141

00:06:08,630 --> 00:06:06,180

paparazzi is gonna basically fly across

142

00:06:09,290 --> 00:06:08,640

the ocean and seek you out oh yeah

143

00:06:11,030 --> 00:06:09,300

definitely

144

00:06:15,410 --> 00:06:11,040

oh man that happened the beaten path

145

00:06:17,450 --> 00:06:15,420

through the sheep herds to herd or New

146

00:06:19,520 --> 00:06:17,460

Zealand there's more sheep than humans

147

00:06:20,960 --> 00:06:19,530

and I think what's the saying the men

148

00:06:24,470 --> 00:06:20,970

are men the women are men and the sheep

149

00:06:26,090 --> 00:06:24,480

are all nervous bad joke I will not say

150

00:06:28,460 --> 00:06:26,100

anything because they claim I tell bad

151

00:06:29,990 --> 00:06:28,470

jokes but the real truth is I don't tell

152

00:06:32,510 --> 00:06:30,000

jokes occasionally I'll throw one of

153

00:06:34,580 --> 00:06:32,520

these old disc jockey puns out but I do

154

00:06:37,610 --> 00:06:34,590

not tell jokes want to tell you one

155

00:06:39,920 --> 00:06:37,620

thing very quickly about old stuff or an

156

00:06:43,100 --> 00:06:39,930

old story lately I've been coming across

157

00:06:45,110 --> 00:06:43,110

old friends that I knew in the early

158

00:06:48,260 --> 00:06:45,120

stages of my radio career such as a guy

159

00:06:50,720 --> 00:06:48,270

named Bob kite or RJ kite who does now

160

00:06:52,970 --> 00:06:50,730

the announcing for some of our bumpers

161

00:06:54,680 --> 00:06:52,980

over on the tech night out live and some

162

00:06:56,420 --> 00:06:54,690

of you who notice or care about these

163

00:06:58,310 --> 00:06:56,430

things you notice on our theme song we

164

00:06:59,119 --> 00:06:58,320

have a new voice there but he's somebody

165

00:07:02,449 --> 00:06:59,129

I've known from

166

00:07:04,909 --> 00:07:02,459

years bob Zanotti who actually ran a

167

00:07:07,879 --> 00:07:04,919

paranormal radio show on a college

168

00:07:09,919 --> 00:07:07,889

station in new jersey years ago I was a

169

00:07:11,809 --> 00:07:09,929

guest on the show and now after all

170

00:07:14,509 --> 00:07:11,819

these years I guess he sought us out and

171

00:07:16,759 --> 00:07:14,519

he graciously agreed to do those

172

00:07:19,579 --> 00:07:16,769

introductions for the show Bobson on t

173

00:07:21,679 --> 00:07:19,589

v-- lentes is manly voice he did indeed

174

00:07:24,259 --> 00:07:21,689

and he's a professional voice-over

175

00:07:26,959 --> 00:07:24,269

artist as you can tell from the quality

176

00:07:30,079 --> 00:07:26,969

of what he does but he also has a great

177

00:07:33,379 --> 00:07:30,089

collection of the old shows that he did

178

00:07:35,869 --> 00:07:33,389

featuring famous UFO personalities who

179

00:07:37,850 --> 00:07:35,879

are no longer here and I'm kind of

180

00:07:40,549 --> 00:07:37,860

hoping that we'll get together with Bob

181

00:07:42,230 --> 00:07:40,559

in the very near future and get some of

182

00:07:44,209 --> 00:07:42,240

this stuff back on the air I guess he

183

00:07:46,040 --> 00:07:44,219

has to digitize the old cassettes and

184

00:07:47,869 --> 00:07:46,050

reel-to-reel tape files or something

185

00:07:50,540 --> 00:07:47,879

we'll get him on the air you'll hear

186

00:07:52,790 --> 00:07:50,550

people like August see Roberts Dominick

187

00:07:53,239 --> 00:07:52,800

the chassis and other people no longer

188

00:07:55,759 --> 00:07:53,249

with us

189

00:07:58,339 --> 00:07:55,769

forgotten figures in the UFO field and

190

00:08:00,379 --> 00:07:58,349

perhaps they had very fascinating things

191

00:08:04,730 --> 00:08:00,389

to say we're also hoping to put together

192

00:08:06,739 --> 00:08:04,740

a show on Long John Nebel now his shows

193

00:08:09,350 --> 00:08:06,749

go back to the 50s I don't know if

194

00:08:12,379 --> 00:08:09,360

there's any copyright or heirs to Long

195

00:08:13,850 --> 00:08:12,389

John who might object if we ran segments

196

00:08:15,589 --> 00:08:13,860

on the air we'll have to check about

197

00:08:17,269 --> 00:08:15,599

permissions but I'd love to do that

198

00:08:20,119 --> 00:08:17,279

because I think a lot of fascinating

199

00:08:23,329 --> 00:08:20,129

things happen there and maybe listeners

200

00:08:25,909 --> 00:08:23,339

then can judge fairly whether or not

201
00:08:28,519 --> 00:08:25,919
we've learned anything about paranormal

202
00:08:31,639 --> 00:08:28,529
investigations specifically UFO

203
00:08:34,699 --> 00:08:31,649
investigations in any case Chris you set

204
00:08:36,350 --> 00:08:34,709
up this week's show ants all on a book

205
00:08:37,459 --> 00:08:36,360
and the give you let me give you the

206
00:08:39,409 --> 00:08:37,469
name of the book and then you can

207
00:08:42,230 --> 00:08:39,419
explain what this is going about it's

208
00:08:45,439 --> 00:08:42,240
called how the hippies save physics

209
00:08:47,569 --> 00:08:45,449
science counterculture and the quantum

210
00:08:50,600 --> 00:08:47,579
revival or what the heck is that about

211
00:08:53,300 --> 00:08:50,610
well it's a long story and I'm sure

212
00:08:56,720 --> 00:08:53,310
David Kiser is going to give us a really

213
00:08:58,639 --> 00:08:56,730

good entertaining overview of this

214

00:09:00,920 --> 00:08:58,649

wonderful saga that's been going on

215

00:09:03,210 --> 00:09:00,930

still going on actually to this day but

216

00:09:06,240 --> 00:09:03,220

in the early 70s there are a group

217

00:09:09,210 --> 00:09:06,250

of shall we say alternative thinking

218

00:09:13,199 --> 00:09:09,220

physicist Jack Sarfatti Nick Herbert

219

00:09:14,939 --> 00:09:13,209

Paul SOG Fred Alan wolf was a whole

220

00:09:18,179 --> 00:09:14,949

group of these guys that were real

221

00:09:21,119 --> 00:09:18,189

radical sort of new thinking physicists

222

00:09:23,689 --> 00:09:21,129

you know quantum physicists and they

223

00:09:26,790 --> 00:09:23,699

they loosely formed a group called the

224

00:09:28,710 --> 00:09:26,800

the fundamental fundamental physics

225

00:09:31,050 --> 00:09:28,720

group of course fundamental and physics

226

00:09:33,689 --> 00:09:31,060

are misspelled with F's instead of ph's

227

00:09:37,019 --> 00:09:33,699

and stuff and and they they were rumored

228

00:09:40,410 --> 00:09:37,029

to imbibe and quite a quite a wide

229

00:09:42,269 --> 00:09:40,420

assortment of psychedelics as was the

230

00:09:43,530 --> 00:09:42,279

custom at the time and there's some

231

00:09:45,689 --> 00:09:43,540

question this is one thing I want to

232

00:09:47,879 --> 00:09:45,699

bring up with Kaiser is I mean what role

233

00:09:49,679 --> 00:09:47,889

did the psychedelics play in these in

234

00:09:51,119 --> 00:09:49,689

their thinking because they they came up

235

00:09:54,199 --> 00:09:51,129

with some radical ideas including

236

00:09:57,179 --> 00:09:54,209

faster-than-light communication and

237

00:10:02,480 --> 00:09:57,189

fascinating yeah that's gonna be David

238

00:10:07,009 --> 00:10:04,759

[Music]

239

00:10:10,049 --> 00:10:07,019

I've gotta tell you about this

240

00:10:12,030 --> 00:10:10,059

GoToMeeting by citrix the way I meet

241

00:10:14,069 --> 00:10:12,040

online with my colleagues has just added

242

00:10:16,379 --> 00:10:14,079

a high definition group video

243

00:10:19,139 --> 00:10:16,389

conferencing it's called go to meeting

244

00:10:21,030 --> 00:10:19,149

with HD faces now you can collaborate

245

00:10:23,730 --> 00:10:21,040

with anyone around the world face to

246

00:10:25,350 --> 00:10:23,740

face and I've used GoToMeeting HD faces

247

00:10:27,720 --> 00:10:25,360

because it's awesome you see the facial

248

00:10:29,460 --> 00:10:27,730

expressions and that can express so much

249

00:10:31,710 --> 00:10:29,470

more than words of course the video

250

00:10:33,480 --> 00:10:31,720

quality is so clear natural it's got the

251

00:10:36,389 --> 00:10:33,490

highest resolution in the industry

252

00:10:38,400 --> 00:10:36,399

nothing compares GoToMeeting with HD

253

00:10:40,290 --> 00:10:38,410

faces will make your online meetings

254

00:10:42,869 --> 00:10:40,300

even more personal engaging and

255

00:10:44,819 --> 00:10:42,879

effective plus it's so easy to use all

256

00:10:46,949 --> 00:10:44,829

you need is an internet connection and a

257

00:10:49,590 --> 00:10:46,959

webcam I want you to try GoToMeeting

258

00:10:52,079 --> 00:10:49,600

with HD faces my listeners can try it

259

00:10:54,990 --> 00:10:52,089

free for 30 days visit goto meeting.com

260

00:10:57,299 --> 00:10:55,000

click the try it free button use the

261

00:11:00,240 --> 00:10:57,309

promo code podcast the promo code is

262

00:11:02,670 --> 00:11:00,250

podcast at goto meeting.com on the

263

00:11:04,290 --> 00:11:02,680

average Americans work between 45 to 50

264

00:11:05,730 --> 00:11:04,300

years hoping to build up enough wealth

265

00:11:08,549 --> 00:11:05,740

to retire and live out their golden

266

00:11:11,040 --> 00:11:08,559

years unfortunately with taxation the

267

00:11:13,290 --> 00:11:11,050

rising cost of food energy housing and

268

00:11:15,389 --> 00:11:13,300

medical many retirees are forced to live

269

00:11:16,540 --> 00:11:15,399

below the poverty line is this a fly

270

00:11:18,220 --> 00:11:16,550

free enterprise

271

00:11:19,930 --> 00:11:18,230

our monetary unit we call the Federal

272

00:11:22,690 --> 00:11:19,940

Reserve Note forcing us into perpetual

273

00:11:24,610 --> 00:11:22,700

debt ensuring inflation in higher taxes

274

00:11:26,590 --> 00:11:24,620

these questions and more can be answered

275

00:11:28,600 --> 00:11:26,600

by reading G Edward Griffin book the

276

00:11:30,280 --> 00:11:28,610

creature from Jekyll Island congressman

277

00:11:33,010 --> 00:11:30,290

Ron Paul states it's what every American

278

00:11:35,140 --> 00:11:33,020

needs to know about central bank power a

279

00:11:37,900 --> 00:11:35,150

gripping adventure into the secret world

280

00:11:39,460 --> 00:11:37,910

of international banking cartel hi this

281

00:11:41,650 --> 00:11:39,470

is Ted Anderson I will give a silver

282

00:12:08,700 --> 00:11:41,660

dollar from the early 1900's to anyone

283

00:12:15,910 --> 00:12:13,960

1-866-376-8255 it's let you safely store

284

00:12:17,890 --> 00:12:15,920

emergency preparedness foods for years

285

00:12:20,830 --> 00:12:17,900

traditional metal lids are single-use

286

00:12:22,690 --> 00:12:20,840

throwaways that contain BPA but Tattler

287

00:12:24,850 --> 00:12:22,700

canning lids are indefinitely reusable

288

00:12:27,010 --> 00:12:24,860

and guaranteed to last a lifetime when

289

00:12:29,500 --> 00:12:27,020

used as designed for home canning and

290

00:12:31,420 --> 00:12:29,510

contain no bpa Tattler lids are

291

00:12:33,550 --> 00:12:31,430

dishwasher safe perfect for standard

292

00:12:35,620 --> 00:12:33,560

pressure or water bath canning eliminate

293

00:12:37,750 --> 00:12:35,630

food spoilage from acid corrosion fit

294

00:12:38,830 --> 00:12:37,760

standard mason jars and are proudly made

295

00:12:41,200 --> 00:12:38,840

in the USA

296

00:12:43,480 --> 00:12:41,210

place orders by phone at eight seven

297

00:12:45,790 --> 00:12:43,490

seven seven four seven two seven nine

298

00:12:48,850 --> 00:12:45,800

three or go to reusable canning let's

299

00:12:51,310 --> 00:12:48,860

calm that's one eight seven seven seven

300

00:12:53,470 --> 00:12:51,320

four seven two seven nine three or go to

301
00:12:55,930 --> 00:12:53,480
reusable canning let's calm that's

302
00:12:58,080 --> 00:12:55,940
reusable canning let's calm Tattler

303
00:12:59,410 --> 00:12:58,090
reusable canning lids the original since

304
00:13:01,030 --> 00:12:59,420
1976

305
00:13:03,760 --> 00:13:01,040
if you're concerned about radiation

306
00:13:06,430 --> 00:13:03,770
poisoning from Japan in the air water or

307
00:13:08,680 --> 00:13:06,440
food and can't find potassium iodide go

308
00:13:11,260 --> 00:13:08,690
to restore your health now.com and

309
00:13:13,090 --> 00:13:11,270
choose liquid zeolite liquid zeolite is

310
00:13:15,250 --> 00:13:13,100
hands-down the best product to remove

311
00:13:17,680 --> 00:13:15,260
radiation from your body and safely

312
00:13:19,540 --> 00:13:17,690
removes toxins heavy metals boost energy

313
00:13:21,610 --> 00:13:19,550

levels and promotes a strong immune

314

00:13:24,310 --> 00:13:21,620

system for fatigue muscle weakness

315

00:13:26,350 --> 00:13:24,320

headaches memory loss influenza joint

316

00:13:28,360 --> 00:13:26,360

pain or toxic radiation poisoning

317

00:13:28,790 --> 00:13:28,370

use liquid zeolite from restore your

318

00:13:31,280 --> 00:13:28,800

health

319

00:13:33,139 --> 00:13:31,290

I'll calm liquid zeolite is so powerful

320

00:13:34,940 --> 00:13:33,149

it was used to clean up contamination in

321

00:13:36,050 --> 00:13:34,950

Chernobyl yet so gentle you won't even

322

00:13:37,670 --> 00:13:36,060

know you're taking it

323

00:13:39,560 --> 00:13:37,680

liquid zeolite comes with a money-back

324

00:13:41,960 --> 00:13:39,570

guarantee but it's only available at

325

00:13:44,000 --> 00:13:41,970

restore your health now.com learn how to

326

00:13:45,889 --> 00:13:44,010

get free bottles of liquid zeolite at

327

00:14:13,570 --> 00:13:45,899

restore your health now calm

328

00:14:18,130 --> 00:14:16,449

we want to hear from you if you have a

329

00:14:22,570 --> 00:14:18,140

comment or question about the podcast

330

00:14:26,530 --> 00:14:22,580

send it to news at the para cast com

331

00:14:28,210 --> 00:14:26,540

that's news at the para cast calm and

332

00:14:31,210 --> 00:14:28,220

don't forget to visit our famous pair

333

00:14:34,090 --> 00:14:31,220

cast community forums at forum dot the

334

00:14:41,319 --> 00:14:34,100

para cast comm get in on all the action

335

00:14:43,030 --> 00:14:41,329

at forum dot the para cast comm hey

336

00:14:45,790 --> 00:14:43,040

we're back at the para cast with Gene

337

00:14:48,460 --> 00:14:45,800

and Chris and it's my pleasure to

338

00:14:51,759 --> 00:14:48,470

announce and introduced to the audience

339

00:14:55,720 --> 00:14:51,769

our today's guest which is David Kaiser

340

00:14:58,930 --> 00:14:55,730

he's MIT graduate and he's written a

341

00:15:00,790 --> 00:14:58,940

very provocative book that I read a

342

00:15:03,940 --> 00:15:00,800

review of the book and and David I just

343

00:15:05,560 --> 00:15:03,950

instantly knew that we would just we

344

00:15:07,660 --> 00:15:05,570

should get you on the show and talk

345

00:15:10,240 --> 00:15:07,670

about this it's a little bit outside of

346

00:15:12,819 --> 00:15:10,250

our normal purview which is the

347

00:15:14,590 --> 00:15:12,829

paranormal but when you look at people

348

00:15:16,509 --> 00:15:14,600

like Jax are foggy and Nick Herbert

349

00:15:18,220 --> 00:15:16,519

these these guys are they're pretty

350

00:15:19,990 --> 00:15:18,230

paranormal in their own ways so I

351

00:15:22,360 --> 00:15:20,000

thought that this would be a good

352

00:15:24,220 --> 00:15:22,370

opportunity to open up our subject

353

00:15:26,290 --> 00:15:24,230

matter on the show and get you on I

354

00:15:28,180 --> 00:15:26,300

really enjoyed the book it was very

355

00:15:30,160 --> 00:15:28,190

entertaining you were able to take

356

00:15:32,230 --> 00:15:30,170

pretty complex subject matter and

357

00:15:32,980 --> 00:15:32,240

present it in an easy-to-understand

358

00:15:36,970 --> 00:15:32,990

layman

359

00:15:38,920 --> 00:15:36,980

there's a little math in there but

360

00:15:41,380 --> 00:15:38,930

nothing you know it's not rocket science

361

00:15:45,280 --> 00:15:41,390

just the whole way that you were able to

362

00:15:46,480 --> 00:15:45,290

present this this wonderful process that

363

00:15:48,550 --> 00:15:46,490

these gentlemen went through the

364

00:15:50,740 --> 00:15:48,560

scientists went through and are still

365

00:15:52,300 --> 00:15:50,750

going through to some some extent we'll

366

00:15:53,829 --> 00:15:52,310

talk about that I'm sure later on in the

367

00:15:55,449 --> 00:15:53,839

show what some of these gentlemen are up

368

00:15:57,880 --> 00:15:55,459

to but why don't you give us a little

369

00:15:59,860 --> 00:15:57,890

background on yourself and tell us a

370

00:16:02,260 --> 00:15:59,870

little bit about yourself but also how

371

00:16:05,139 --> 00:16:02,270

you became involved in writing this book

372

00:16:07,240 --> 00:16:05,149

how they helped you save physics sure I

373

00:16:09,040 --> 00:16:07,250

should start off with just a quick

374

00:16:11,019 --> 00:16:09,050

correction actually I am I'm not an MIT

375

00:16:12,550 --> 00:16:11,029

graduate but I do teach there now so I'm

376

00:16:15,579 --> 00:16:12,560

trying to make more MIT graduates but

377

00:16:17,740 --> 00:16:15,589

anyway my ask you fast question then we

378

00:16:20,230 --> 00:16:17,750

have a controversy in the pound in the

379

00:16:23,500 --> 00:16:20,240

field about a guy named Philip and Brad

380

00:16:26,439 --> 00:16:23,510

know who claims he went to MIT did you

381

00:16:27,460 --> 00:16:26,449

ever hear that's not conclusive by the

382

00:16:30,460 --> 00:16:27,470

way well they

383

00:16:32,200 --> 00:16:30,470

either that's the problem go ahead okay

384

00:16:34,300 --> 00:16:32,210

so I'm just gonna say that you know

385

00:16:36,760 --> 00:16:34,310

right now I am a professor at MIT I

386

00:16:38,710 --> 00:16:36,770

teach both in the program and science

387

00:16:40,960 --> 00:16:38,720

technology and society and also in the

388

00:16:42,490 --> 00:16:40,970

Department of Physics and I came to this

389

00:16:44,410 --> 00:16:42,500

topic the way that the book really got

390

00:16:45,970 --> 00:16:44,420

started was you know as a as a kid as a

391

00:16:48,250 --> 00:16:45,980

high school kid I was an avid reader

392

00:16:49,660 --> 00:16:48,260

popular science books I wanted to read

393

00:16:51,670 --> 00:16:49,670

haven't got get my hands on about modern

394

00:16:53,740 --> 00:16:51,680

physics and among the many many you know

395

00:16:55,510 --> 00:16:53,750

kind of paperbacks that I got really

396

00:16:57,250 --> 00:16:55,520

excited about as a kid one was Fritjof

397

00:16:58,690 --> 00:16:57,260

koppers built the DAO of physics the

398

00:17:00,610 --> 00:16:58,700

book is probably well known to many of

399

00:17:02,470 --> 00:17:00,620

your listeners runaway amazing hill

400

00:17:04,060 --> 00:17:02,480

international blockbuster bestseller

401
00:17:05,170 --> 00:17:04,070
these days it turns out that's not how

402
00:17:07,210 --> 00:17:05,180
it started out but that's certainly

403
00:17:09,280 --> 00:17:07,220
where is today and so I read that book

404
00:17:11,500 --> 00:17:09,290
as a kid and to be honest I wasn't all

405
00:17:14,470 --> 00:17:11,510
that excited or really into that kind of

406
00:17:16,720 --> 00:17:14,480
Eastern spirituality side but I was

407
00:17:19,120 --> 00:17:16,730
really enamored of his explanations his

408
00:17:20,920 --> 00:17:19,130
introduction to ideas from relativity

409
00:17:22,420 --> 00:17:20,930
and quantum theory and that book really

410
00:17:24,610 --> 00:17:22,430
really stuck with me when I got to

411
00:17:26,440 --> 00:17:24,620
college I got really excited about the

412
00:17:27,790 --> 00:17:26,450
notion of Bell's Theorem and quantum

413
00:17:30,370 --> 00:17:27,800

entanglement of trouble we'll talk about

414

00:17:32,230 --> 00:17:30,380

it some in some detail later on but that

415

00:17:33,790 --> 00:17:32,240

was the sort of quantum weirdness the

416

00:17:35,800 --> 00:17:33,800

the notion that quantum theory is

417

00:17:38,080 --> 00:17:35,810

painting a picture for us of the world

418

00:17:39,460 --> 00:17:38,090

that just seems so out of whack with our

419

00:17:41,200 --> 00:17:39,470

intuitions and with what we're used to

420

00:17:42,490 --> 00:17:41,210

that was really captivating I mean I

421

00:17:44,260 --> 00:17:42,500

really grabbed and then in grad school

422

00:17:47,230 --> 00:17:44,270

is working on my physics dissertation I

423

00:17:49,900 --> 00:17:47,240

had the opportunity to do a benchtop

424

00:17:51,850 --> 00:17:49,910

experiment on entanglement on Bell's

425

00:17:54,640 --> 00:17:51,860

Theorem it turns out the very first

426

00:17:57,190 --> 00:17:54,650

version of that experiment was done by a

427

00:17:58,780 --> 00:17:57,200

physicist named John clauser and when I

428

00:18:00,490 --> 00:17:58,790

did a little more digging it turns out

429

00:18:02,050 --> 00:18:00,500

clauser had done that experiment in

430

00:18:03,640 --> 00:18:02,060

Berkeley in the 70s

431

00:18:05,590 --> 00:18:03,650

Fritjof copper who wrote the dowel

432

00:18:07,060 --> 00:18:05,600

physics was also in Berkeley in

433

00:18:08,590 --> 00:18:07,070

Stephanies around that same time in fact

434

00:18:10,540 --> 00:18:08,600

they knew each other they were both

435

00:18:13,360 --> 00:18:10,550

members of this of this little weird

436

00:18:14,530 --> 00:18:13,370

kind of eccentric ragtag group they

437

00:18:15,640 --> 00:18:14,540

called themselves the fundamental

438

00:18:17,620 --> 00:18:15,650

physics group and that's the group that

439

00:18:19,420 --> 00:18:17,630

I really focus on for this book so I do

440

00:18:21,400 --> 00:18:19,430

in looking in hindsight you know they're

441

00:18:23,230 --> 00:18:21,410

many kind of you know arrows along the

442

00:18:25,480 --> 00:18:23,240

way they led me to this group and to try

443

00:18:27,160 --> 00:18:25,490

to write that book well first of all you

444

00:18:29,890 --> 00:18:27,170

know Bell's Theorem really does play an

445

00:18:33,100 --> 00:18:29,900

important it's a pivotal subject in the

446

00:18:34,450 --> 00:18:33,110

book and in these scientists process why

447

00:18:36,370 --> 00:18:34,460

don't you give us kind of a layman's

448

00:18:38,650 --> 00:18:36,380

thumbnail sketch of what Bell's Theorem

449

00:18:40,120 --> 00:18:38,660

is so our listeners can understand how

450

00:18:43,870 --> 00:18:40,130

these guys were

451

00:18:46,960 --> 00:18:43,880

excited and inspired to to work in this

452

00:18:47,860 --> 00:18:46,970

realm sure a belter is one of these you

453

00:18:49,840 --> 00:18:47,870

know quintessential

454

00:18:51,850 --> 00:18:49,850

examples of just quantum weirdness it's

455

00:18:53,919 --> 00:18:51,860

it's on a level with Schrodinger's cat

456

00:18:55,870 --> 00:18:53,929

or you know you name your favorite weird

457

00:18:57,820 --> 00:18:55,880

thought expand so Belgium's name for

458

00:19:00,370 --> 00:18:57,830

business with John Bell he published in

459

00:19:03,580 --> 00:19:00,380

a really totally obscure journal in 1964

460

00:19:05,560 --> 00:19:03,590

got completely ignored by physicists for

461

00:19:07,060 --> 00:19:05,570

a long time by the group in Berkeley

462

00:19:08,560 --> 00:19:07,070

that I write about they were among the

463

00:19:10,840 --> 00:19:08,570

earliest to really pick up on this and

464

00:19:13,240 --> 00:19:10,850

get excited so Bell's Theorem seems to

465

00:19:15,789 --> 00:19:13,250

suggest that quantum particles that had

466

00:19:17,500 --> 00:19:15,799

interacted at some point in the past in

467

00:19:19,480 --> 00:19:17,510

all kinds about you pretty mundane ways

468

00:19:21,070 --> 00:19:19,490

nothing fancy about it that they can

469

00:19:23,020 --> 00:19:21,080

retain a kind of connection with each

470

00:19:25,779 --> 00:19:23,030

other even if those particles have moved

471

00:19:27,580 --> 00:19:25,789

arbitrarily far apart so what it seems

472

00:19:29,169 --> 00:19:27,590

to implies if we sort of tickle a

473

00:19:31,480 --> 00:19:29,179

particle here we make some measurements

474

00:19:33,490 --> 00:19:31,490

on an electron completely mundane

475

00:19:35,409 --> 00:19:33,500

straightforward thing it should make its

476

00:19:37,960 --> 00:19:35,419

partner particle dance instantly

477

00:19:40,390 --> 00:19:37,970

instantaneously even if that particle is

478

00:19:42,070 --> 00:19:40,400

you know a galaxy away it boggles the

479

00:19:43,870 --> 00:19:42,080

mind that these two things which are no

480

00:19:46,120 --> 00:19:43,880

longer in contact with each other they

481

00:19:48,190 --> 00:19:46,130

stopped interacting long ago and yet

482

00:19:50,470 --> 00:19:48,200

they can retain this almost like a kind

483

00:19:52,029 --> 00:19:50,480

of telepathic style link if like that's

484

00:19:53,409 --> 00:19:52,039

when people struggle to put those

485

00:19:54,850 --> 00:19:53,419

equations in the words they come up with

486

00:19:56,980 --> 00:19:54,860

words like that there's a weird

487

00:19:58,510 --> 00:19:56,990

connection between them that is really

488

00:20:00,430 --> 00:19:58,520

not like what we would see around us at

489

00:20:02,590 --> 00:20:00,440

least in the ordinary ordinary world so

490

00:20:04,120 --> 00:20:02,600

Bell's Theorem is one of these examples

491

00:20:06,039 --> 00:20:04,130

where the quantum world can just depart

492

00:20:08,289 --> 00:20:06,049

really quite radically from our

493

00:20:10,450 --> 00:20:08,299

expectations so this is really a bell

494

00:20:14,070 --> 00:20:10,460

rock sort of foundation to quantum

495

00:20:18,760 --> 00:20:16,450

Bell's Theorem nowadays is often known

496

00:20:20,260 --> 00:20:18,770

as quite an entanglement or nonlocality

497

00:20:23,049 --> 00:20:20,270

these are all basically pointing the

498

00:20:24,580 --> 00:20:23,059

same idea well what about it I mean

499

00:20:26,230 --> 00:20:24,590

let's let's start kind of at the

500

00:20:29,470 --> 00:20:26,240

beginning once you give us a sense of

501
00:20:32,560 --> 00:20:29,480
who these fundamental physics groups

502
00:20:34,180 --> 00:20:32,570
were who the individuals were and kind

503
00:20:38,020 --> 00:20:34,190
of lets that set the stage a little bit

504
00:20:38,590 --> 00:20:38,030
about the the times around that the Bay

505
00:20:40,240 --> 00:20:38,600
Area

506
00:20:43,690 --> 00:20:40,250
these are Wilder willie times and these

507
00:20:46,480 --> 00:20:43,700
guys I don't think I think it's safe to

508
00:20:49,230 --> 00:20:46,490
say that they were quite psychedelically

509
00:20:52,149 --> 00:20:49,240
aware they I'm sure they were doing

510
00:20:53,530 --> 00:20:52,159
psychedelics like most people of their

511
00:20:56,470 --> 00:20:53,540
age at that time

512
00:20:58,450 --> 00:20:56,480
once you give us a sense of how this

513
00:21:00,190 --> 00:20:58,460

group got together you know the

514

00:21:03,940 --> 00:21:00,200

struggles that they had in the beginning

515

00:21:06,880 --> 00:21:03,950

of their process and sort of give us a

516

00:21:09,730 --> 00:21:06,890

sense of the you know the the landscape

517

00:21:10,990 --> 00:21:09,740

there sure yeah you know the the group

518

00:21:12,700 --> 00:21:11,000

that they formed they called themselves

519

00:21:14,200 --> 00:21:12,710

very playful title the fun a little

520

00:21:15,490 --> 00:21:14,210

physics group they spelled physics with

521

00:21:17,890 --> 00:21:15,500

an F they're clearly having a good time

522

00:21:20,740 --> 00:21:17,900

and it really had a core of maybe eight

523

00:21:22,510 --> 00:21:20,750

or ten members the group was would the

524

00:21:24,670 --> 00:21:22,520

end of the weekly meetings would grow or

525

00:21:25,810 --> 00:21:24,680

contract it could be as many as 40 or 50

526

00:21:27,790 --> 00:21:25,820

but there's only about eight or ten of

527

00:21:29,890 --> 00:21:27,800

them who kind of saw it through every

528

00:21:31,750 --> 00:21:29,900

week for about almost four years for the

529

00:21:33,760 --> 00:21:31,760

long long-running informal but

530

00:21:35,410 --> 00:21:33,770

long-running group and like you say

531

00:21:37,000 --> 00:21:35,420

these were basically folks who were

532

00:21:39,100 --> 00:21:37,010

largely down-on-her-luck at the time

533

00:21:41,890 --> 00:21:39,110

they had almost all of them had

534

00:21:44,200 --> 00:21:41,900

completed PhDs in physics from some of

535

00:21:45,850 --> 00:21:44,210

the nation's most elite Snee a premier

536

00:21:47,830 --> 00:21:45,860

graduate program these were incredibly

537

00:21:49,660 --> 00:21:47,840

well trained smart physicists you know

538

00:21:51,040 --> 00:21:49,670

places like Columbia and Stanford and

539

00:21:52,540 --> 00:21:51,050

Berkeley and Illinois and you know you

540

00:21:54,700 --> 00:21:52,550

name it but they had finished their

541

00:21:57,130 --> 00:21:54,710

training just at when the bottom fell

542

00:21:59,260 --> 00:21:57,140

out of the physics profession it was an

543

00:22:01,090 --> 00:21:59,270

incredibly hard time to get anything

544

00:22:04,120 --> 00:22:01,100

like a kind of standard job in physics

545

00:22:06,280 --> 00:22:04,130

in the early 70s at one point in 1971

546

00:22:08,140 --> 00:22:06,290

for example their more than a thousand

547

00:22:11,440 --> 00:22:08,150

young physicists registered looking for

548

00:22:12,970 --> 00:22:11,450

jobs and 50 jobs on offer a thousand 250

549

00:22:14,770 --> 00:22:12,980

and we were talking you know that the

550

00:22:16,930 --> 00:22:14,780

market had just fallen through the floor

551

00:22:19,060 --> 00:22:16,940

a kind of speculative bubble had burst

552

00:22:21,640 --> 00:22:19,070

is like a Bernie Madoff kind of scheme

553

00:22:24,100 --> 00:22:21,650

you know go on I wanted to just mention

554

00:22:25,930 --> 00:22:24,110

here it seems like we're reliving you've

555

00:22:27,790 --> 00:22:25,940

had experience today because the bottom

556

00:22:29,680 --> 00:22:27,800

has fallen out today you have people

557

00:22:31,720 --> 00:22:29,690

with advanced degrees today who are

558

00:22:33,970 --> 00:22:31,730

lucky to get employed at a fast-food

559

00:22:35,920 --> 00:22:33,980

restaurant for one of the same reasons

560

00:22:37,540 --> 00:22:35,930

yeah that's right and so we've gone

561

00:22:39,670 --> 00:22:37,550

through these blumenbach cycles actually

562

00:22:41,890 --> 00:22:39,680

a few times in in reading last few

563

00:22:43,480 --> 00:22:41,900

decades I want again to this as we

564

00:22:46,660 --> 00:22:43,490

progress through our segments of the

565

00:22:48,910 --> 00:22:46,670

show our guest is David Kaiser yes he is

566

00:22:51,460 --> 00:22:48,920

a professor at MIT you can find his name

567

00:22:55,150 --> 00:22:51,470

on their site it's real this time we got

568

00:22:58,150 --> 00:22:55,160

somebody from MIT the co-host is Chris

569

00:23:01,800 --> 00:22:58,160

O'Brien I'm gene Steinberg you're in the

570

00:23:08,180 --> 00:23:05,019

[Music]

571

00:23:10,640 --> 00:23:08,190

Ray Perkins a reclusive veteran burned

572

00:23:12,640 --> 00:23:10,650

out from the Gulf War lives tortured by

573

00:23:14,870 --> 00:23:12,650

relentless perplexing nightmares

574

00:23:16,789 --> 00:23:14,880

nightmares of a horrific battle in deep

575

00:23:18,680 --> 00:23:16,799

space and of a mysterious woman's

576
00:23:21,560 --> 00:23:18,690
suffering and agony for her devastated

577
00:23:25,090 --> 00:23:21,570
world a woman not yet born calling

578
00:23:27,560 --> 00:23:25,100
across centuries to him then a

579
00:23:30,049 --> 00:23:27,570
coincidence leads him to his destiny his

580
00:23:32,600 --> 00:23:30,059
chance to alter of the universe attack

581
00:23:34,610 --> 00:23:32,610
of the rottens the former fiction editor

582
00:23:36,740 --> 00:23:34,620
for Star Wars and Indiana Jones Robert

583
00:23:38,600 --> 00:23:36,750
Simpson writes the soul of the novel

584
00:23:40,220 --> 00:23:38,610
attack of the Rockets lies in its heart

585
00:23:42,139 --> 00:23:40,230
and passion for building a convincing

586
00:23:45,049 --> 00:23:42,149
tale of a love that spans the galaxy a

587
00:23:47,450 --> 00:23:45,059
thrilling storm attack of the Rockets is

588
00:23:48,980 --> 00:23:47,460

available now read a simple chapter and

589

00:23:51,590 --> 00:23:48,990

get a special discount off of the cover

590

00:23:56,450 --> 00:23:51,600

price at our website Rocco is calm

591

00:23:58,310 --> 00:23:56,460

that's our Ock o IDs calm attack of the

592

00:24:01,880 --> 00:23:58,320

Rockets a novel in a grand

593

00:24:03,680 --> 00:24:01,890

science-fiction tradition ready to say

594

00:24:06,230 --> 00:24:03,690

that you're ready for the super summer

595

00:24:07,639 --> 00:24:06,240

sale and herbal healer Academy herbal

596

00:24:10,220 --> 00:24:07,649

healer has been the leader in quality

597

00:24:13,010 --> 00:24:10,230

natural supplements for 23 years

598

00:24:14,659 --> 00:24:13,020

log on to herbal healer calm and take

599

00:24:17,330 --> 00:24:14,669

advantage of herbal healer Academy's

600

00:24:19,580 --> 00:24:17,340

incredible savings on 500 parts per

601
00:24:21,799 --> 00:24:19,590
million colloidal silver the best

602
00:24:25,100 --> 00:24:21,809
pharmaceutical grade available and all

603
00:24:27,799 --> 00:24:25,110
sizes on sale super bail Plex with you

604
00:24:30,740 --> 00:24:27,809
Hindi and super thin Plex for summer

605
00:24:34,190 --> 00:24:30,750
toning by glucosamine chondroitin 60 cap

606
00:24:37,010 --> 00:24:34,200
summer sale price til only \$12 hone and

607
00:24:39,980 --> 00:24:37,020
answer 250 caps summer sale price to

608
00:24:42,529 --> 00:24:39,990
just \$18 and if your brains a little

609
00:24:45,230 --> 00:24:42,539
foggy we have a great supplement on sale

610
00:24:47,240 --> 00:24:45,240
called memory power log on and hit the

611
00:24:50,090 --> 00:24:47,250
post card specials link for more super

612
00:24:52,310 --> 00:24:50,100
summer savings at herbal healer calm as

613
00:24:54,500 --> 00:24:52,320

always deep customers get a free catalog

614

00:24:56,930 --> 00:24:54,510

with first order herbal healer Academy

615

00:24:59,330 --> 00:24:56,940

healing the world with nature one person

616

00:25:03,630 --> 00:25:01,230

before you throw away your used

617

00:25:06,150 --> 00:25:03,640

batteries you need to listen to this now

618

00:25:08,100 --> 00:25:06,160

going green can save money go green and

619

00:25:09,810 --> 00:25:08,110

save money by giving life to your used

620

00:25:11,640 --> 00:25:09,820

batteries by charging them with the

621

00:25:13,650 --> 00:25:11,650

Renaissance charger the Renaissance

622

00:25:15,300 --> 00:25:13,660

charger uses a new revolutionary battery

623

00:25:17,130 --> 00:25:15,310

charging technology that effectively

624

00:25:18,750 --> 00:25:17,140

extends a life of new batteries and

625

00:25:21,300 --> 00:25:18,760

gives new life to used batteries

626
00:25:23,640 --> 00:25:21,310
invented by legendary audio genius John

627
00:25:25,710 --> 00:25:23,650
Bedini this unique and patented charging

628
00:25:27,510 --> 00:25:25,720
system rejuvenates the electrochemical

629
00:25:30,150 --> 00:25:27,520
plate structure in the battery without

630
00:25:32,310 --> 00:25:30,160
additives increasing capacity and

631
00:25:33,870 --> 00:25:32,320
maintaining cell integrity Renaissance

632
00:25:35,670 --> 00:25:33,880
charge offers a full line of products

633
00:25:38,700 --> 00:25:35,680
made in the USA for all types and sizes

634
00:25:40,440 --> 00:25:38,710
of batteries find out why our customers

635
00:25:42,510 --> 00:25:40,450
tell us the Renaissance charger is the

636
00:25:44,460 --> 00:25:42,520
only battery charger they will ever use

637
00:25:47,820 --> 00:25:44,470
save your money save the environment

638
00:25:50,580 --> 00:25:47,830

visit us online at our - charge com

639

00:25:53,280 --> 00:25:50,590

that's our - charge comm or call us at

640

00:25:55,380 --> 00:25:53,290

2:08 seven seven two four five one four

641

00:25:57,690 --> 00:25:55,390

that's two zero eight seven seven two

642

00:26:00,750 --> 00:25:57,700

four five one four be a part of the

643

00:26:03,570 --> 00:26:00,760

revolution today you can't argue with

644

00:26:05,670 --> 00:26:03,580

success and many people have found great

645

00:26:08,430 --> 00:26:05,680

success in fighting back colds and flu

646

00:26:11,250 --> 00:26:08,440

viruses with ally see the world's best

647

00:26:13,290 --> 00:26:11,260

garlic extract so now it's time to get

648

00:26:15,750 --> 00:26:13,300

even more success with the other great

649

00:26:18,540 --> 00:26:15,760

quality natural products from affinity

650

00:26:21,180 --> 00:26:18,550

health products like sea energy liquid

651
00:26:23,670 --> 00:26:21,190
vitamins lose and snooze and the one day

652
00:26:26,190 --> 00:26:23,680
diet or human growth hormone support

653
00:26:28,260 --> 00:26:26,200
menopause specialist for women and joint

654
00:26:30,540 --> 00:26:28,270
specialists see these and many other

655
00:26:32,970 --> 00:26:30,550
quality affinity health products for men

656
00:26:37,290 --> 00:26:32,980
and women online at affinity health

657
00:26:39,990 --> 00:26:37,300
products calm that's AF F I and I T Y

658
00:26:42,000 --> 00:26:40,000
health products calm or call in your

659
00:26:44,850 --> 00:26:42,010
orders at eight seven seven eight eight

660
00:26:47,220 --> 00:26:44,860
eight seven one two six that's one eight

661
00:26:49,890 --> 00:26:47,230
seven seven eight eight eight seven one

662
00:26:52,610 --> 00:26:49,900
two six trust your health to the makers

663
00:26:55,530 --> 00:26:52,620

of Alesi the world's best garlic extract

664

00:26:57,570 --> 00:26:55,540

affinity health products the finest and

665

00:27:02,040 --> 00:26:57,580

most innovative natural health products

666

00:27:03,660 --> 00:27:02,050

available are you tired of searching for

667

00:27:06,290 --> 00:27:03,670

great talk radio

668

00:27:12,950 --> 00:27:06,300

are you more important search

669

00:27:15,470 --> 00:27:12,960

we are the GCM radio network hello this

670

00:27:17,960 --> 00:27:15,480

is John burrows one of the witnesses to

671

00:27:20,090 --> 00:27:17,970

the Rendlesham UFO incident you're

672

00:27:25,390 --> 00:27:20,100

listening to the podcast the gold

673

00:27:31,150 --> 00:27:27,670

we're back gene and Kris talking to

674

00:27:32,740 --> 00:27:31,160

David Kiser professor at MIT author of

675

00:27:36,100 --> 00:27:32,750

and let me give you the full name of the

676

00:27:39,190 --> 00:27:36,110

book here how the hippie saved physics

677

00:27:41,350 --> 00:27:39,200

science counterculture and the quantum

678

00:27:44,620 --> 00:27:41,360

revival and right now he's talking about

679

00:27:46,930 --> 00:27:44,630

this culture of this group of scientists

680

00:27:49,090 --> 00:27:46,940

who couldn't get a job because the

681

00:27:51,210 --> 00:27:49,100

bottom had fallen out I guess of the

682

00:27:54,880 --> 00:27:51,220

business and we recall also people like

683

00:27:57,010 --> 00:27:54,890

Stanton Friedman nuclear physicists he

684

00:27:59,530 --> 00:27:57,020

reached situation where he couldn't find

685

00:28:03,160 --> 00:27:59,540

employment except as a UFO investigator

686

00:28:06,549 --> 00:28:03,170

so David Kiser you couldn't become a UFO

687

00:28:08,020 --> 00:28:06,559

investigator you didn't know not this

688

00:28:11,080 --> 00:28:08,030

time around not in this life anyway

689

00:28:13,419 --> 00:28:11,090

but it's true the folks I focus on for

690

00:28:14,770 --> 00:28:13,429

the book you they were they had to make

691

00:28:16,330 --> 00:28:14,780

a different way in the world so they

692

00:28:18,190 --> 00:28:16,340

couldn't just do what their teachers

693

00:28:20,200 --> 00:28:18,200

generation had done in terms of you know

694

00:28:22,090 --> 00:28:20,210

the the expected routine you get your

695

00:28:24,160 --> 00:28:22,100

PhD from a good place you get a good job

696

00:28:26,049 --> 00:28:24,170

you do your mainstream research through

697

00:28:28,150 --> 00:28:26,059

no fault of their own this is this

698

00:28:29,620 --> 00:28:28,160

generation then members like this

699

00:28:31,600 --> 00:28:29,630

birthday group they were really just

700

00:28:33,669 --> 00:28:31,610

caught off guard and so what amazed me

701
00:28:34,840 --> 00:28:33,679
about the story they found each other

702
00:28:37,180 --> 00:28:34,850
through different ways it kind of

703
00:28:40,270 --> 00:28:37,190
bumbled along and the roads led them to

704
00:28:41,350 --> 00:28:40,280
Berkeley I always joke is it's 1973 you

705
00:28:43,450 --> 00:28:41,360
got time on your hands my little go to

706
00:28:45,040 --> 00:28:43,460
Berkeley was an amazing place to be as

707
00:28:46,060 --> 00:28:45,050
I'm sure we'll talk about and once they

708
00:28:47,710 --> 00:28:46,070
got there through different ways

709
00:28:49,360 --> 00:28:47,720
different things that brought them there

710
00:28:51,310 --> 00:28:49,370
they pretty quickly found each other and

711
00:28:53,680 --> 00:28:51,320
they found kind of like-minded people

712
00:28:55,930 --> 00:28:53,690
who are incredibly passionate about

713
00:28:58,360 --> 00:28:55,940

about modern physics about what it might

714

00:29:00,130 --> 00:28:58,370

imply but where it might lead who who

715

00:29:01,930 --> 00:29:00,140

had seen those questions really kind of

716

00:29:03,790 --> 00:29:01,940

denigrated in their formal training so

717

00:29:05,350 --> 00:29:03,800

they were trained to be extremely good

718

00:29:06,970 --> 00:29:05,360

with their calculations like they could

719

00:29:08,980 --> 00:29:06,980

slung the equations around with the best

720

00:29:10,600 --> 00:29:08,990

of them but they hadn't been encouraged

721

00:29:13,000 --> 00:29:10,610

and in fact their coursework it really

722

00:29:15,520 --> 00:29:13,010

had really just discouraged any other

723

00:29:17,049 --> 00:29:15,530

kind of philosophical interpretive what

724

00:29:18,730 --> 00:29:17,059

does it all mean kind of stuff you know

725

00:29:20,080 --> 00:29:18,740

and that's what this group was really

726

00:29:21,730 --> 00:29:20,090

hungry for and they figured they had

727

00:29:23,110 --> 00:29:21,740

time on her hands they weren't punching

728

00:29:25,120 --> 00:29:23,120

the clock anymore they found each other

729

00:29:27,100 --> 00:29:25,130

they had this kind of shared interest as

730

00:29:29,500 --> 00:29:27,110

they formed this very informal but very

731

00:29:30,820 --> 00:29:29,510

kind of spirited group the fundamental

732

00:29:33,640 --> 00:29:30,830

physics group and they met together

733

00:29:34,990 --> 00:29:33,650

every Friday afternoon made a range for

734

00:29:37,360 --> 00:29:35,000

some speakers that have kind of

735

00:29:38,950 --> 00:29:37,370

brainstorming sessions and sometimes

736

00:29:40,600 --> 00:29:38,960

they would truck on down

737

00:29:42,970 --> 00:29:40,610

bring the whole show down to the Esalen

738

00:29:45,519 --> 00:29:42,980

Institute in Big Sur California about

739

00:29:47,440 --> 00:29:45,529

150 miles south of San Francisco right

740

00:29:49,690 --> 00:29:47,450

on the coast you'll breathtakingly

741

00:29:51,970 --> 00:29:49,700

beautiful setting and as long as I'm

742

00:29:54,430 --> 00:29:51,980

sure you know is famous even at the time

743

00:29:57,100 --> 00:29:54,440

for a kind of incubator of the new age

744

00:29:59,350 --> 00:29:57,110

right all things new age or a cult

745

00:30:01,779 --> 00:29:59,360

whether it was Eastern mysticism or

746

00:30:04,000 --> 00:30:01,789

psychedelic drugs or yoga which once

747

00:30:04,990 --> 00:30:04,010

seemed very radical vegetarianism things

748

00:30:06,760 --> 00:30:05,000

that you know some of which now seem

749

00:30:08,289 --> 00:30:06,770

actually pretty straightforward and it

750

00:30:10,600 --> 00:30:08,299

turns out the single longest-running

751

00:30:12,669 --> 00:30:10,610

seminar series in Epsilon's history was

752

00:30:14,019 --> 00:30:12,679

actually on quantum mechanics and the

753

00:30:15,340 --> 00:30:14,029

nature of reality these got through

754

00:30:18,250 --> 00:30:15,350

physicists that I'm that I wrote about

755

00:30:20,470 --> 00:30:18,260

we're organizing every year for the

756

00:30:23,200 --> 00:30:20,480

better part of two decades it was that

757

00:30:25,180 --> 00:30:23,210

was it was was hot stuff at f1 around

758

00:30:27,100 --> 00:30:25,190

the hot tubs and all the rest so these

759

00:30:29,230 --> 00:30:27,110

these folks were carving out a kind of

760

00:30:30,880 --> 00:30:29,240

parallel universe for themselves to

761

00:30:33,130 --> 00:30:30,890

pursue these questions that had had

762

00:30:34,659 --> 00:30:33,140

really fallen out of favor or fallen out

763

00:30:37,060 --> 00:30:34,669

of the curriculum for mainstream critics

764

00:30:39,549 --> 00:30:37,070

so why don't you give us a sense of some

765

00:30:41,080 --> 00:30:39,559

of the early thinking that they they

766

00:30:43,299 --> 00:30:41,090

bounced around with each other and some

767

00:30:45,220 --> 00:30:43,309

of the early attempts at at creating

768

00:30:47,169 --> 00:30:45,230

hypotheses and then doing the work that

769

00:30:48,940 --> 00:30:47,179

it would take to to prove them and get

770

00:30:50,680 --> 00:30:48,950

published or so you know one of the

771

00:30:52,840 --> 00:30:50,690

things that really mesmerized the

772

00:30:54,159 --> 00:30:52,850

members the group was Belcher we're just

773

00:30:56,440 --> 00:30:54,169

talking about a moment ago this notion

774

00:30:57,850 --> 00:30:56,450

quite an entanglement of particles that

775

00:30:59,710 --> 00:30:57,860

could be separated in space but still

776

00:31:01,389 --> 00:30:59,720

share this kind of instant connection

777

00:31:03,490 --> 00:31:01,399

and they were among the earliest

778

00:31:04,659 --> 00:31:03,500

physicists anywhere in the world and

779

00:31:06,100 --> 00:31:04,669

take that seriously they weren't the

780

00:31:08,260 --> 00:31:06,110

only ones but they were they were we

781

00:31:09,789 --> 00:31:08,270

might say the early adopters go back and

782

00:31:12,100 --> 00:31:09,799

look at who published articles on Bell's

783

00:31:14,350 --> 00:31:12,110

Theorem during the first fifteen years

784

00:31:16,419 --> 00:31:14,360

after bells original publication and

785

00:31:19,120 --> 00:31:16,429

they dominated by members of this group

786

00:31:22,210 --> 00:31:19,130

so not exclusive but clearly you know in

787

00:31:23,950 --> 00:31:22,220

the game early and and these folks were

788

00:31:25,720 --> 00:31:23,960

worried about entanglement and

789

00:31:28,240 --> 00:31:25,730

nonlocality about how quantum theory

790

00:31:29,620 --> 00:31:28,250

violates our ordinary experience but

791

00:31:31,299 --> 00:31:29,630

they also some of them and we're also

792

00:31:34,210 --> 00:31:31,309

curious about would this help explain

793

00:31:35,590 --> 00:31:34,220

other kind of strange phenomena around

794

00:31:36,340 --> 00:31:35,600

them and this is where I think it

795

00:31:37,810 --> 00:31:36,350

matters a great deal

796

00:31:40,389 --> 00:31:37,820

that they were sitting in the Bay Area

797

00:31:43,210 --> 00:31:40,399

in the 70s as a lot of stuff was getting

798

00:31:46,180 --> 00:31:43,220

attention in kind of in the air and one

799

00:31:48,430 --> 00:31:46,190

topic was for example uri geller the

800

00:31:50,860 --> 00:31:48,440

israeli performer who then began to

801
00:31:52,570 --> 00:31:50,870
claim he had genuine psychic abilities

802
00:31:54,700 --> 00:31:52,580
he was whisked to the United States for

803
00:31:56,440 --> 00:31:54,710
careful scientific study one of the

804
00:31:58,690 --> 00:31:56,450
first places he went to her was brought

805
00:32:01,419 --> 00:31:58,700
to was in the Bay Area the Stanford

806
00:32:03,460 --> 00:32:01,429
Research Institute or as RI it was a

807
00:32:05,049 --> 00:32:03,470
defense contract and laboratory they had

808
00:32:06,220 --> 00:32:05,059
only recently been spun off from

809
00:32:07,659 --> 00:32:06,230
Stanford University

810
00:32:09,039 --> 00:32:07,669
so ordinarily they did you know tests

811
00:32:10,750 --> 00:32:09,049
for the Pentagon or some private

812
00:32:13,149 --> 00:32:10,760
industry and all of a sudden they were

813
00:32:14,620 --> 00:32:13,159

the group @sr I again sort of with time

814

00:32:17,289 --> 00:32:14,630

on their hands during this this low

815

00:32:18,879 --> 00:32:17,299

point in the physics profession and they

816

00:32:21,760 --> 00:32:18,889

began studying people like Geller in

817

00:32:23,620 --> 00:32:21,770

fact many other people that they had you

818

00:32:25,500 --> 00:32:23,630

know mind-reading abilities did they

819

00:32:28,180 --> 00:32:25,510

actually come to any conclusions

820

00:32:30,399 --> 00:32:28,190

positive or negative about these alleged

821

00:32:31,690 --> 00:32:30,409

abilities this is very important they

822

00:32:33,310 --> 00:32:31,700

did they came to the conclusion they

823

00:32:34,629 --> 00:32:33,320

didn't sway everyone who tried to listen

824

00:32:36,639 --> 00:32:34,639

to them but they were convinced these

825

00:32:37,779 --> 00:32:36,649

are physicists how to top and Russell

826

00:32:40,240 --> 00:32:37,789

Targ and in fact it's a whole group

827

00:32:42,039 --> 00:32:40,250

there at one point they got you know

828

00:32:43,840 --> 00:32:42,049

articles into some of the most

829

00:32:45,940 --> 00:32:43,850

prestigious peer-reviewed journals on

830

00:32:48,250 --> 00:32:45,950

the planet like the journal Nature

831

00:32:50,620 --> 00:32:48,260

Proceedings of the IEEE Tripoli the

832

00:32:52,450 --> 00:32:50,630

electric engineering Association where

833

00:32:54,789 --> 00:32:52,460

they they were conducting experimental

834

00:32:56,529 --> 00:32:54,799

tests laboratory tests under what they

835

00:32:58,930 --> 00:32:56,539

considered you know carefully controlled

836

00:33:00,610 --> 00:32:58,940

conditions for people like a Geller in

837

00:33:03,129 --> 00:33:00,620

fact I said many others names might not

838

00:33:05,159 --> 00:33:03,139

be well known today of things like we

839

00:33:07,450 --> 00:33:05,169

might casually call mind-reading

840

00:33:09,909 --> 00:33:07,460

telekinesis these kinds of things and so

841

00:33:11,879 --> 00:33:09,919

this was getting pressed not only in

842

00:33:14,740 --> 00:33:11,889

kind of a hip underground you know

843

00:33:15,970 --> 00:33:14,750

countercultures scene but also fun page

844

00:33:17,950 --> 00:33:15,980

news at the time and the San Francisco

845

00:33:20,019 --> 00:33:17,960

Chronicle and other kind of mainstream

846

00:33:22,210 --> 00:33:20,029

newspapers and so these physicists that

847

00:33:23,440 --> 00:33:22,220

I wrote about tor in Berkeley you know

848

00:33:25,810 --> 00:33:23,450

some of them were reading about this

849

00:33:27,700 --> 00:33:25,820

stuff they got incredibly excited it

850

00:33:30,519 --> 00:33:27,710

began they began to wonder whether this

851
00:33:33,460 --> 00:33:30,529
mind-reading or telepathy or you know

852
00:33:35,260 --> 00:33:33,470
ESP type stuff maybe that was an

853
00:33:37,720 --> 00:33:35,270
instance maybe that could be explained

854
00:33:40,419 --> 00:33:37,730
by this weird quantum thing like like

855
00:33:42,190 --> 00:33:40,429
not nonlocality or entanglement so maybe

856
00:33:44,200 --> 00:33:42,200
no they had an extra some of them had an

857
00:33:45,820 --> 00:33:44,210
extra impetus to worry about the kind of

858
00:33:47,560 --> 00:33:45,830
grand meaning of quantum theory because

859
00:33:49,480 --> 00:33:47,570
they thought it could account for even

860
00:33:51,820 --> 00:33:49,490
wider range of the phenomena like these

861
00:33:54,399 --> 00:33:51,830
tests at Fri they got really interested

862
00:33:57,460 --> 00:33:54,409
in that well at the time I mean phrases

863
00:33:59,649 --> 00:33:57,470

like counterfactual in definiteness and

864

00:34:01,690 --> 00:33:59,659

nonlocality ittan states these are

865

00:34:03,610 --> 00:34:01,700

really difficult subjects and in terms

866

00:34:05,070 --> 00:34:03,620

to communicate to people even even

867

00:34:07,700 --> 00:34:05,080

people with you know the

868

00:34:12,510 --> 00:34:07,710

sense of Education and these guys were

869

00:34:15,780 --> 00:34:12,520

they in in their own sort of I think

870

00:34:17,460 --> 00:34:15,790

unique way let's put it got involved in

871

00:34:19,560 --> 00:34:17,470

in in in in really trying to communicate

872

00:34:21,510 --> 00:34:19,570

these subjects and one of the things

873

00:34:24,960 --> 00:34:21,520

that I've it's always struck me is you

874

00:34:27,000 --> 00:34:24,970

know how s RI the Targ and Puthoff got

875

00:34:28,860 --> 00:34:27,010

started and of course the early

876

00:34:31,380 --> 00:34:28,870

experiments with Uri Geller and Pat

877

00:34:32,850 --> 00:34:31,390

price and then later Ingo Swann yeah you

878

00:34:35,010 --> 00:34:32,860

didn't mention this but this then

879

00:34:37,020 --> 00:34:35,020

gradually kind of morphed into the whole

880

00:34:38,970 --> 00:34:37,030

remote viewing project that then

881

00:34:40,860 --> 00:34:38,980

actually raised quite a lot of eyebrows

882

00:34:44,250 --> 00:34:40,870

especially in the intelligence community

883

00:34:46,200 --> 00:34:44,260

in the in the military and yeah and

884

00:34:48,389 --> 00:34:46,210

these guys seem to swirl around this

885

00:34:50,730 --> 00:34:48,399

whole sort of cauldron of creative

886

00:34:54,360 --> 00:34:50,740

thinking and ideas one of the one of the

887

00:34:56,580 --> 00:34:54,370

one of the real I think leading figures

888

00:35:00,870 --> 00:34:56,590

in this whole physics group was of

889

00:35:02,850 --> 00:35:00,880

course Jack Sarfati who is quite a

890

00:35:06,510 --> 00:35:02,860

character he's still out there

891

00:35:08,070 --> 00:35:06,520

I for a scientist who supposedly is

892

00:35:10,080 --> 00:35:08,080

doing you know some pretty heavy-duty

893

00:35:12,450 --> 00:35:10,090

physics works I don't know how the heck

894

00:35:15,180 --> 00:35:12,460

he has time to fire off several hundred

895

00:35:17,910 --> 00:35:15,190

emails every day I've unfortunately been

896

00:35:20,610 --> 00:35:17,920

the recipient of some rather strident

897

00:35:23,000 --> 00:35:20,620

emails from Jack we'd like to get Jack

898

00:35:24,960 --> 00:35:23,010

on the show at some point he has

899

00:35:27,090 --> 00:35:24,970

surprisingly agreed to come on the show

900

00:35:29,310 --> 00:35:27,100

so he can we can dig into some of his

901
00:35:30,900 --> 00:35:29,320
war stories but I mean these guys are

902
00:35:32,850 --> 00:35:30,910
really I mean they were walking the walk

903
00:35:34,200 --> 00:35:32,860
and talking the talk I mean several of

904
00:35:36,870 --> 00:35:34,210
them actually had jobs as like

905
00:35:39,150 --> 00:35:36,880
dishwashers and just you know they did

906
00:35:41,520 --> 00:35:39,160
anything they could to get by why don't

907
00:35:44,460 --> 00:35:41,530
you describe some of these figures of

908
00:35:45,810 --> 00:35:44,470
for us Nick Herbert of course Sarfati

909
00:35:47,310 --> 00:35:45,820
don't you give us a little thumbnail

910
00:35:48,810 --> 00:35:47,320
sketch on these guys because some of the

911
00:35:50,520 --> 00:35:48,820
photographs I've seen I mean they're

912
00:35:54,690 --> 00:35:50,530
they look like something out of Star

913
00:35:56,340 --> 00:35:54,700

Wars so each of the people I wrote about

914

00:35:58,740 --> 00:35:56,350

I guess almost all of them are still

915

00:36:00,480 --> 00:35:58,750

alive you mentioned Jack's Asadi Nick

916

00:36:02,130 --> 00:36:00,490

Herbert so the whole the whole group in

917

00:36:04,200 --> 00:36:02,140

fact I think they're flourishing and

918

00:36:05,700 --> 00:36:04,210

they were extremely generous with their

919

00:36:06,630 --> 00:36:05,710

time for me and I was working on this

920

00:36:07,920 --> 00:36:06,640

book so I

921

00:36:10,050 --> 00:36:07,930

I know them you know really pretty well

922

00:36:12,420 --> 00:36:10,060

did you get a chance to like hang out

923

00:36:14,730 --> 00:36:12,430

with em where is it mostly email and

924

00:36:16,020 --> 00:36:14,740

telephone I love it I mean so I had a I

925

00:36:18,390 --> 00:36:16,030

spent the better part of you know a

926

00:36:20,040 --> 00:36:18,400

really fun day in San Cisco with with

927

00:36:21,960 --> 00:36:20,050

the jax-ur Friday and Fred Alan wolf

928

00:36:24,090 --> 00:36:21,970

well working on the book you John

929

00:36:26,130 --> 00:36:24,100

clauser yeah had me over his house for a

930

00:36:28,440 --> 00:36:26,140

really very lovely whole long day and

931

00:36:30,060 --> 00:36:28,450

and you know follow-up interviews often

932

00:36:31,680 --> 00:36:30,070

by telephone and email and all the rest

933

00:36:33,540 --> 00:36:31,690

so these folks have really been very

934

00:36:35,580 --> 00:36:33,550

kind and other physicists I write about

935

00:36:37,500 --> 00:36:35,590

as well logic Zurich at Los Alamos

936

00:36:39,150 --> 00:36:37,510

laboratory and others who are not into

937

00:36:40,980 --> 00:36:39,160

the kind of counterculture Simo to play

938

00:36:42,750 --> 00:36:40,990

roles in the book and they also were you

939

00:36:45,960 --> 00:36:42,760

know just extremely generous so we have

940

00:36:48,900 --> 00:36:45,970

David Kaiser and the book is called how

941

00:36:50,310 --> 00:36:48,910

the hippie saved physics they've

942

00:36:51,870 --> 00:36:50,320

certainly did a lot of unusual things

943

00:36:54,180 --> 00:36:51,880

will learn more about them Chris

944

00:37:02,850 --> 00:36:54,190

O'Brien's the co-host I'm gene Steinberg

945

00:37:07,510 --> 00:37:04,980

[Music]

946

00:37:10,359 --> 00:37:07,520

so here's what happened I was placing an

947

00:37:12,760 --> 00:37:10,369

order online the site went down it just

948

00:37:14,410 --> 00:37:12,770

stopped responding it took hours before

949

00:37:16,029 --> 00:37:14,420

it returned but I'd already placed the

950

00:37:18,370 --> 00:37:16,039

order with another company if your site

951
00:37:19,809 --> 00:37:18,380
goes down you could lose business and if

952
00:37:21,970 --> 00:37:19,819
you have a business or personal site

953
00:37:25,359 --> 00:37:21,980
you'll want to know it's easy to run and

954
00:37:27,549 --> 00:37:25,369
it will stay online at iWeb your site is

955
00:37:30,130 --> 00:37:27,559
hosted on one of the most reliable

956
00:37:33,940 --> 00:37:30,140
networks in the world check it out

957
00:37:35,920 --> 00:37:33,950
I web comm that's iWeb comm for 58 years

958
00:37:37,870 --> 00:37:35,930
fate has provided true reports of a

959
00:37:39,970 --> 00:37:37,880
strange and unknown fate brings you the

960
00:37:41,620 --> 00:37:39,980
latest in all aspects of the paranormal

961
00:37:44,140 --> 00:37:41,630
like angels and miracles psychic

962
00:37:45,970 --> 00:37:44,150
phenomena ghosts UFOs and much much more

963
00:37:47,980 --> 00:37:45,980

to receive your complimentary fate

964

00:37:50,859 --> 00:37:47,990

magazine call now at one eight hundred

965

00:37:53,640 --> 00:37:50,869

seven two eight two seven three oh or

966

00:37:56,079 --> 00:37:53,650

visit their website at WWF at medCom

967

00:37:58,329 --> 00:37:56,089

that's one eight hundred seven two eight

968

00:37:58,960 --> 00:37:58,339

two seven three zero what are you

969

00:38:02,170 --> 00:37:58,970

waiting for

970

00:38:04,359 --> 00:38:02,180

your fate awaits local army navy surplus

971

00:38:06,400 --> 00:38:04,369

stores are hard to find these days but

972

00:38:09,250 --> 00:38:06,410

not military issue supplies they're

973

00:38:12,069 --> 00:38:09,260

right here online at main military comm

974

00:38:15,069 --> 00:38:12,079

that's right just like the state and a I

975

00:38:17,319 --> 00:38:15,079

and II military comm we have everything

976
00:38:19,510 --> 00:38:17,329
for true total preparedness main

977
00:38:22,150 --> 00:38:19,520
military comm is not a typical website

978
00:38:22,720 --> 00:38:22,160
it has much more than your old surplus

979
00:38:25,150 --> 00:38:22,730
store

980
00:38:28,120 --> 00:38:25,160
quality military issue survival gear

981
00:38:30,039 --> 00:38:28,130
like canteens mess kits utensils gas

982
00:38:31,930 --> 00:38:30,049
masks filters and chemical suits

983
00:38:34,329 --> 00:38:31,940
magnesium fire starting tools

984
00:38:36,490 --> 00:38:34,339
strike-anywhere waterproof and storm

985
00:38:39,579 --> 00:38:36,500
matches first aid kits splints

986
00:38:42,279 --> 00:38:39,589
tourniquets parachute 550 cord military

987
00:38:44,559 --> 00:38:42,289
manuals sandbags by the veil and a huge

988
00:38:45,490 --> 00:38:44,569

male assortment of vests and pouches for

989

00:38:48,069 --> 00:38:45,500

every need

990

00:38:50,380 --> 00:38:48,079

call 207 nine eight nine six seven eight

991

00:38:52,510 --> 00:38:50,390

three two oh seven nine eight nine six

992

00:38:57,309 --> 00:38:52,520

seven eight three or visit main military

993

00:39:00,269 --> 00:38:57,319

comm that's ma i n e military calm the

994

00:39:02,859 --> 00:39:00,279

main name in military supply

995

00:39:04,920 --> 00:39:02,869

opticsplanet.com is where discerning gun

996

00:39:06,970 --> 00:39:04,930

owners and outdoorsmen go to kira

997

00:39:08,880 --> 00:39:06,980

OpticsPlanet as the best selection of

998

00:39:11,630 --> 00:39:08,890

rifle scopes red dots night-vision

999

00:39:13,730 --> 00:39:11,640

holsters bags and tactical gear

1000

00:39:15,530 --> 00:39:13,740

planet with always low prices free

1001
00:39:17,870 --> 00:39:15,540
shipping on most orders an expert

1002
00:39:20,510 --> 00:39:17,880
customer service go to opticsplanet.com

1003
00:39:21,050 --> 00:39:20,520
slash GCN to get a free gift with

1004
00:39:24,110 --> 00:39:21,060
purchase

1005
00:39:30,110 --> 00:39:24,120
that's opticsplanet.com slash GCN or

1006
00:39:31,970 --> 00:39:30,120
call 833 to optics 833 2 6 7 8 4 hi this

1007
00:39:33,710 --> 00:39:31,980
is Ted Anderson have you ever wondered

1008
00:39:35,600 --> 00:39:33,720
why banks stockbrokers investment

1009
00:39:37,940 --> 00:39:35,610
advisors won't talk about gold IRAs

1010
00:39:39,710 --> 00:39:37,950
they've been available since 1986 yet

1011
00:39:41,600 --> 00:39:39,720
the financial industry won't recognize

1012
00:39:43,610 --> 00:39:41,610
the value of gold for your attire meant

1013
00:39:45,800 --> 00:39:43,620

gold has outperformed paper investments

1014

00:39:47,920 --> 00:39:45,810

yet no word about IRAs if you would like

1015

00:39:51,260 --> 00:39:47,930

to have gold for your retirement call

1016

00:40:10,930 --> 00:39:51,270

866 to 237 don't get left behind by

1017

00:40:28,220 --> 00:40:26,210

806-853-9949 fetch Elin a natural stair

1018

00:40:30,290 --> 00:40:28,230

all needed by every cell of the body and

1019

00:40:32,720 --> 00:40:30,300

healthy cells mean a healthy body and a

1020

00:40:35,090 --> 00:40:32,730

more powerful you no wonder it's known

1021

00:40:36,800 --> 00:40:35,100

as a king of all herbs experience real

1022

00:40:37,940 --> 00:40:36,810

energy and power like you've never

1023

00:40:40,160 --> 00:40:37,950

dreamed possible

1024

00:40:42,710 --> 00:40:40,170

take charge tea with wild birch bark

1025

00:40:45,200 --> 00:40:42,720

every day and Chaka max capsules to get

1026
00:40:47,240 --> 00:40:45,210
the energy you need you deserve it order

1027
00:40:49,310 --> 00:40:47,250
today by calling 87 seven eight one

1028
00:40:50,930 --> 00:40:49,320
seven nine eight two nine eight seven

1029
00:40:53,000 --> 00:40:50,940
seven eight one seven nine eight two

1030
00:40:54,380 --> 00:40:53,010
nine that's eight seven seven eight one

1031
00:40:55,460 --> 00:40:54,390
seven nine eight two nine

1032
00:40:56,330 --> 00:40:55,470
these statements have not been evaluated

1033
00:40:57,740 --> 00:40:56,340
by the Food and Drug Administration

1034
00:40:59,060 --> 00:40:57,750
these products are not intended to

1035
00:41:02,330 --> 00:40:59,070
diagnose treat cure or prevent any

1036
00:41:04,580 --> 00:41:02,340
disease the GZ and Radio Network

1037
00:41:07,940 --> 00:41:04,590
providing the world with hard-hitting

1038
00:41:13,650 --> 00:41:07,950

talk radio g.c

1039

00:41:19,570 --> 00:41:16,300

[Music]

1040

00:41:22,360 --> 00:41:19,580

this is heroes have I told you do the

1041

00:41:27,300 --> 00:41:22,370

list in the para cast because he will

1042

00:41:32,350 --> 00:41:29,770

Chrissa Brian's the co-host I'm Jean

1043

00:41:36,100 --> 00:41:32,360

Steinberg on the para cast David Kiser

1044

00:41:38,800 --> 00:41:36,110

who's a professor at MIT and is talking

1045

00:41:42,040 --> 00:41:38,810

about a group of people who hung out

1046

00:41:44,830 --> 00:41:42,050

together in San Francisco the hippies

1047

00:41:48,490 --> 00:41:44,840

how the hippies saved physics now the

1048

00:41:51,040 --> 00:41:48,500

title saved physics is it because of the

1049

00:41:54,400 --> 00:41:51,050

cutting-edge research they discussed how

1050

00:41:56,110 --> 00:41:54,410

did they save physics I mean I intended

1051
00:41:58,500 --> 00:41:56,120
the title to be actually kind of playful

1052
00:42:00,970 --> 00:41:58,510
a bit ironic kind of tongue-in-cheek

1053
00:42:02,680 --> 00:42:00,980
which is I don't think any small group

1054
00:42:04,510 --> 00:42:02,690
of P of individuals you know safe the

1055
00:42:07,450 --> 00:42:04,520
entire discipline oh yes it's not to be

1056
00:42:09,790 --> 00:42:07,460
playful nonetheless I mean this group on

1057
00:42:11,320 --> 00:42:09,800
the margins and really as you said down

1058
00:42:13,000 --> 00:42:11,330
and out some of them living

1059
00:42:15,580 --> 00:42:13,010
hand-to-mouth incredibly passionate

1060
00:42:16,840 --> 00:42:15,590
about their work and they really did you

1061
00:42:18,880 --> 00:42:16,850
know stir some pretty amazing

1062
00:42:20,560 --> 00:42:18,890
developments all the more amazing given

1063
00:42:22,570 --> 00:42:20,570

their kind of you know professional

1064

00:42:24,010 --> 00:42:22,580

platform at the time and so I don't

1065

00:42:25,810 --> 00:42:24,020

think it saves all of physics but they

1066

00:42:28,090 --> 00:42:25,820

did a bunch of stuff that is that has

1067

00:42:29,260 --> 00:42:28,100

had laughing value to this day and when

1068

00:42:31,990 --> 00:42:29,270

I started piecing those things together

1069

00:42:33,130 --> 00:42:32,000

so there's really a book here and so we

1070

00:42:34,900 --> 00:42:33,140

were starting to talk before you know

1071

00:42:37,180 --> 00:42:34,910

who are these characters people like

1072

00:42:39,100 --> 00:42:37,190

Nick Herbert and JAXA Fadi and Fred Alan

1073

00:42:41,290 --> 00:42:39,110

wolf might be known names known to some

1074

00:42:43,840 --> 00:42:41,300

of your listeners Elizabeth Rauscher was

1075

00:42:47,410 --> 00:42:43,850

at the time a graduate student a young

1076
00:42:49,300 --> 00:42:47,420
mom raising her son was just able to go

1077
00:42:50,170 --> 00:42:49,310
back to finish a PhD when her child was

1078
00:42:51,790 --> 00:42:50,180
old enough you know to go to

1079
00:42:54,100 --> 00:42:51,800
kindergarten really you know not easy

1080
00:42:57,010 --> 00:42:54,110
times and she was subject to really

1081
00:42:59,130 --> 00:42:57,020
quite horrible gender discrimination of

1082
00:43:02,200 --> 00:42:59,140
very very few women physics students

1083
00:43:04,600 --> 00:43:02,210
even as recently in the 1970s and so she

1084
00:43:07,810 --> 00:43:04,610
had she didn't have an easy time saw

1085
00:43:10,690 --> 00:43:07,820
Paul sir rag who's a amazing fellow he

1086
00:43:12,070 --> 00:43:10,700
was basically a I'm not a conic a member

1087
00:43:13,480 --> 00:43:12,080
he finished his undergraduate degree or

1088
00:43:15,130 --> 00:43:13,490

not he did not go on for graduate

1089

00:43:16,750 --> 00:43:15,140

training hardly but he dropped out of

1090

00:43:18,430 --> 00:43:16,760

Berkeley to go pursue theater he was

1091

00:43:20,560 --> 00:43:18,440

cast in the original Broadway production

1092

00:43:23,170 --> 00:43:20,570

of hair if you can think back to that

1093

00:43:25,060 --> 00:43:23,180

couldn't we sprout up the cash to meet

1094

00:43:26,350 --> 00:43:25,070

the Actors Equity fee went back to

1095

00:43:28,510 --> 00:43:26,360

Berkeley to study more physics I mean

1096

00:43:29,670 --> 00:43:28,520

these are amazing people and pretty cool

1097

00:43:31,559 --> 00:43:29,680

characters

1098

00:43:33,690 --> 00:43:31,569

Sault all through basically self-study

1099

00:43:35,400 --> 00:43:33,700

managed had published several physics

1100

00:43:37,440 --> 00:43:35,410

articles and again the most prestigious

1101
00:43:40,260 --> 00:43:37,450
peer-reviewed journals in the land so

1102
00:43:41,730 --> 00:43:40,270
these really people combined an amazing

1103
00:43:43,799 --> 00:43:41,740
passion for quantum theory and

1104
00:43:45,299 --> 00:43:43,809
aesthetics kind of weirdnesses with an

1105
00:43:48,059 --> 00:43:45,309
interest in all the kind of buzzing

1106
00:43:50,130 --> 00:43:48,069
blooming the cult New Age stuff that was

1107
00:43:52,799 --> 00:43:50,140
getting especially a lot of play in San

1108
00:43:54,960 --> 00:43:52,809
Francisco in the Bay Area in in the 70s

1109
00:43:56,430 --> 00:43:54,970
and they were playful they were they

1110
00:43:58,829 --> 00:43:56,440
didn't take themselves too seriously at

1111
00:44:01,260 --> 00:43:58,839
times and he was pretty pretty amazing

1112
00:44:03,900 --> 00:44:01,270
punchy well to have have seminars at

1113
00:44:06,299 --> 00:44:03,910

Esalen naked in hot tubs you know that's

1114

00:44:08,430 --> 00:44:06,309

just kind of that's kind of wacky you

1115

00:44:10,530 --> 00:44:08,440

know just listening to me say that but

1116

00:44:12,569 --> 00:44:10,540

one of the things that you really you

1117

00:44:14,609 --> 00:44:12,579

spend a a bit of time in the book

1118

00:44:16,799 --> 00:44:14,619

talking about Nick Herbert and Jax are

1119

00:44:19,290 --> 00:44:16,809

fadis attempted at faster-than-light

1120

00:44:21,329 --> 00:44:19,300

communication and this was fascinating

1121

00:44:23,250 --> 00:44:21,339

to me because basically what they were

1122

00:44:24,900 --> 00:44:23,260

trying to do is take the principles that

1123

00:44:27,120 --> 00:44:24,910

Bell laid out in his billion in his

1124

00:44:31,220 --> 00:44:27,130

theorem and take nonlocality and

1125

00:44:33,809 --> 00:44:31,230

actually utilize it as an approach to

1126

00:44:35,370 --> 00:44:33,819

faster-than-light communication let's

1127

00:44:37,920 --> 00:44:35,380

talk about that a little bit because it

1128

00:44:38,880 --> 00:44:37,930

was an incredibly difficult process that

1129

00:44:41,430 --> 00:44:38,890

they went through and I know Nick

1130

00:44:43,710 --> 00:44:41,440

Herbert spent years attempting to to

1131

00:44:45,450 --> 00:44:43,720

prove his hypothesis and and why don't

1132

00:44:47,400 --> 00:44:45,460

you give us a kind of a thumbnail on

1133

00:44:49,589 --> 00:44:47,410

that and maybe where you answer the

1134

00:44:51,990 --> 00:44:49,599

question David consider the phrase it

1135

00:44:54,079 --> 00:44:52,000

came out of Star Trek sub space

1136

00:44:56,280 --> 00:44:54,089

communications is that what it was about

1137

00:44:58,380 --> 00:44:56,290

I'm not sure what that would be action

1138

00:45:00,660 --> 00:44:58,390

less sure that was the concept in the

1139

00:45:03,089 --> 00:45:00,670

Star Trek universe in the stripe

1140

00:45:04,740 --> 00:45:03,099

universe in the 1960s how did they

1141

00:45:06,809 --> 00:45:04,750

communicate with people light-years away

1142

00:45:09,150 --> 00:45:06,819

well of course they didn't have to

1143

00:45:11,309 --> 00:45:09,160

explain it it was all subspace they see

1144

00:45:13,140 --> 00:45:11,319

well maybe that was the inspiration I

1145

00:45:14,700 --> 00:45:13,150

don't know but it certainly is it's

1146

00:45:17,099 --> 00:45:14,710

equally strange I mean what these folks

1147

00:45:19,109 --> 00:45:17,109

were up to what we're after and so I

1148

00:45:21,299 --> 00:45:19,119

mean just a just a pause because I can

1149

00:45:23,640 --> 00:45:21,309

say faster-than-light communication what

1150

00:45:24,359 --> 00:45:23,650

that really would imply if one could

1151

00:45:26,339 --> 00:45:24,369

make it work

1152

00:45:27,960 --> 00:45:26,349

would be receiving a message before it

1153

00:45:30,030 --> 00:45:27,970

was sent we're talking about all the

1154

00:45:31,650 --> 00:45:30,040

causal paradoxes all the kind of

1155

00:45:33,990 --> 00:45:31,660

troubles with relativity that that would

1156

00:45:35,910 --> 00:45:34,000

imply and so what what certain members

1157

00:45:37,349 --> 00:45:35,920

of this Berkeley group especially at the

1158

00:45:39,359 --> 00:45:37,359

time Jack Sarfatti

1159

00:45:42,940 --> 00:45:39,369

Nick Herbert they were really intrigued

1160

00:45:44,980 --> 00:45:42,950

by the possibility which is to say now

1161

00:45:47,140 --> 00:45:44,990

theorem this incredibly beautiful

1162

00:45:49,089 --> 00:45:47,150

results from quantum theory not getting

1163

00:45:50,829 --> 00:45:49,099

much attention yet except from folks

1164

00:45:52,599 --> 00:45:50,839

like like the ones I write about it

1165

00:45:57,460 --> 00:45:52,609

seems watertight in fact the group

1166

00:45:59,049 --> 00:45:57,470

member jonclark2000 tangle in seemed to

1167

00:46:01,450 --> 00:45:59,059

be a real thing it wasn't just you know

1168

00:46:03,640 --> 00:46:01,460

flights of fancy and it implied this

1169

00:46:05,559 --> 00:46:03,650

this instantaneous faster-than-light

1170

00:46:07,599 --> 00:46:05,569

connection between two particles and

1171

00:46:09,640 --> 00:46:07,609

that seems to butt up against that is

1172

00:46:10,990 --> 00:46:09,650

really to sit poorly with the other

1173

00:46:12,460 --> 00:46:11,000

great pillar of modern physics

1174

00:46:14,410 --> 00:46:12,470

Einstein's relativity which seems to put

1175

00:46:16,720 --> 00:46:14,420

an absolute speed limit an upper limit

1176
00:46:19,030 --> 00:46:16,730
on how fast anything like information or

1177
00:46:20,140 --> 00:46:19,040
force anything else could travel so here

1178
00:46:21,849 --> 00:46:20,150
you have the great here the great

1179
00:46:23,890 --> 00:46:21,859
Smackdown at modern physics right is

1180
00:46:25,870 --> 00:46:23,900
quantum theory going to be incompatible

1181
00:46:28,750 --> 00:46:25,880
with relativity or will there be some

1182
00:46:30,280 --> 00:46:28,760
some unusual and kind of hidden union

1183
00:46:32,829 --> 00:46:30,290
between them and that's the kind of

1184
00:46:35,319 --> 00:46:32,839
thing that these folks are after people

1185
00:46:37,450 --> 00:46:35,329
like Nick Herbert and sanjak Sarfati and

1186
00:46:39,940 --> 00:46:37,460
so they came up with increasingly really

1187
00:46:42,039 --> 00:46:39,950
quite ingenious designs so thought

1188
00:46:44,740 --> 00:46:42,049

experiments for devices that maybe

1189

00:46:46,780 --> 00:46:44,750

really could use quantum theory to today

1190

00:46:48,160 --> 00:46:46,790

who violate relativity to send messages

1191

00:46:49,660 --> 00:46:48,170

before they could be which I should say

1192

00:46:51,910 --> 00:46:49,670

to receive messages before they were

1193

00:46:53,230 --> 00:46:51,920

sent to go faster than light and so you

1194

00:46:54,940 --> 00:46:53,240

laid in the book I have a launch after

1195

00:46:56,970 --> 00:46:54,950

the kind of cat-and-mouse game as I

1196

00:46:59,589 --> 00:46:56,980

think of it you know the the two of them

1197

00:47:01,900 --> 00:46:59,599

would would come up with what hammer had

1198

00:47:04,420 --> 00:47:01,910

a cool idea they would often get you

1199

00:47:06,549 --> 00:47:04,430

hashed out first in these informal crude

1200

00:47:08,500 --> 00:47:06,559

discussions by the phone has croup and

1201

00:47:10,900 --> 00:47:08,510

they'd put them down on paper Jack even

1202

00:47:12,039 --> 00:47:10,910

filed patent disclosure forms at one

1203

00:47:14,069 --> 00:47:12,049

point thought it can maybe patent a

1204

00:47:16,210 --> 00:47:14,079

device Nick Herbert wrote up his own

1205

00:47:19,299 --> 00:47:16,220

preprints and set them on their way and

1206

00:47:21,190 --> 00:47:19,309

then a small number of other physicists

1207

00:47:22,870 --> 00:47:21,200

all around the world some of them in the

1208

00:47:24,880 --> 00:47:22,880

United States some dotted throughout

1209

00:47:26,799 --> 00:47:24,890

Western Europe would get their hands on

1210

00:47:28,720 --> 00:47:26,809

these kind of underground preprints or

1211

00:47:31,240 --> 00:47:28,730

all kinds of interesting way they were

1212

00:47:33,280 --> 00:47:31,250

connected and they would think hard

1213

00:47:34,930 --> 00:47:33,290

about them and then some of them would

1214

00:47:36,789 --> 00:47:34,940

find a loopholes they'd find this go to

1215

00:47:39,579 --> 00:47:36,799

no-go theorem why that actually would

1216

00:47:41,470 --> 00:47:39,589

not be able to operate as has claimed

1217

00:47:43,660 --> 00:47:41,480

and this went on for as you said for

1218

00:47:46,900 --> 00:47:43,670

years in fact for you know increasingly

1219

00:47:48,490 --> 00:47:46,910

ingenious patterns are planned and then

1220

00:47:50,109 --> 00:47:48,500

increasingly subtle reasons why they

1221

00:47:52,120 --> 00:47:50,119

actually would fall and with each of

1222

00:47:54,520 --> 00:47:52,130

those these were kind of revelations

1223

00:47:55,839 --> 00:47:54,530

that had not been known before about the

1224

00:47:56,680 --> 00:47:55,849

deep structure of quantum theory

1225

00:47:58,540 --> 00:47:56,690

physicists were

1226

00:48:00,790 --> 00:47:58,550

learning about things they didn't even

1227

00:48:03,490 --> 00:48:00,800

know about from in the in the effort to

1228

00:48:06,460 --> 00:48:03,500

kind of debunk or or poke holes in these

1229

00:48:08,140 --> 00:48:06,470

in these cool designs and so and and

1230

00:48:10,150 --> 00:48:08,150

from that's partly where the the saving

1231

00:48:14,050 --> 00:48:10,160

physics and the title comes from out of

1232

00:48:16,690 --> 00:48:14,060

that really quite playful spirited back

1233

00:48:19,390 --> 00:48:16,700

and forth came some absolutely critical

1234

00:48:20,770 --> 00:48:19,400

insights into physics that better assets

1235

00:48:22,870 --> 00:48:20,780

that have paid one of our textbooks

1236

00:48:25,059 --> 00:48:22,880

today they go by names like the no

1237

00:48:27,450 --> 00:48:25,069

cloning theorem the no signaling theorem

1238

00:48:29,950 --> 00:48:27,460

quantum uh that's on amplifiers neither

1239

00:48:31,390 --> 00:48:29,960

foundational results that are now at the

1240

00:48:33,579 --> 00:48:31,400

bedrock of a multi-billion dollar

1241

00:48:35,859 --> 00:48:33,589

industry like quantum encryption and

1242

00:48:38,980 --> 00:48:35,869

they they were discovered by the kind of

1243

00:48:42,640 --> 00:48:38,990

constant playful smart prodding and hard

1244

00:48:44,829 --> 00:48:42,650

thinking by people like Jack Sarfati and

1245

00:48:46,780 --> 00:48:44,839

Nick Herbert and then the handful of

1246

00:48:48,579 --> 00:48:46,790

they're kind of interlocked it is people

1247

00:48:51,280 --> 00:48:48,589

like whoa jaques Erick and Bill looters

1248

00:48:53,490 --> 00:48:51,290

and Dennis Deeks and others Giancarlo

1249

00:48:56,200 --> 00:48:53,500

Girardi so there was this kind of really

1250

00:48:59,680 --> 00:48:56,210

attenuated communication pattern between

1251

00:49:01,359 --> 00:48:59,690

the kind of really hit playful berkeley

1252

00:49:04,210 --> 00:49:01,369

group and a few other kind of

1253

00:49:05,770 --> 00:49:04,220

increasingly mainstream business to work

1254

00:49:08,589 --> 00:49:05,780

or paying attention cutting to the chase

1255

00:49:10,890 --> 00:49:08,599

david is it possible to have what we

1256

00:49:12,910 --> 00:49:10,900

call subspace communications or

1257

00:49:15,550 --> 00:49:12,920

communications at faster-than-light

1258

00:49:17,650 --> 00:49:15,560

speeds so someone who's exploring

1259

00:49:19,690 --> 00:49:17,660

another star system can call home and

1260

00:49:23,170 --> 00:49:19,700

they get an answer right away not fifty

1261

00:49:25,329 --> 00:49:23,180

ya know when 80 calls up so to the best

1262

00:49:27,970 --> 00:49:25,339

of my knowledge the answer is no I think

1263

00:49:29,530 --> 00:49:27,980

most physicists would say no on the

1264

00:49:31,900 --> 00:49:29,540

other hand I'm not going to endorse

1265

00:49:34,210 --> 00:49:31,910

these plans but serious people you know

1266

00:49:36,700 --> 00:49:34,220

have had given serious thought to they

1267

00:49:38,500 --> 00:49:36,710

continue to to that question and so it

1268

00:49:40,690 --> 00:49:38,510

could it wouldn't surprise me if the

1269

00:49:44,770 --> 00:49:40,700

effort to get even even more wacky cool

1270

00:49:46,809 --> 00:49:44,780

ideas today would a not work but BP sort

1271

00:49:50,650 --> 00:49:46,819

of clarifying in the quest much like it

1272

00:49:52,359 --> 00:49:50,660

happened before and so quantum theory if

1273

00:49:54,220 --> 00:49:52,369

as we now understand it seems not to

1274

00:49:55,839 --> 00:49:54,230

allow these things to happen is quantum

1275

00:49:57,819 --> 00:49:55,849

theory the last word you know there are

1276

00:49:59,890 --> 00:49:57,829

all kinds of legitimate reasons to ask

1277

00:50:01,900 --> 00:49:59,900

about extensions beyond quanta theory or

1278

00:50:03,520 --> 00:50:01,910

for that matter relativity so given what

1279

00:50:05,230 --> 00:50:03,530

we know now I think the answer really is

1280

00:50:07,210 --> 00:50:05,240

no we can't do it do I think that'll

1281

00:50:09,339 --> 00:50:07,220

never ever ever be possible you know

1282

00:50:11,469 --> 00:50:09,349

that that's a much harder bet

1283

00:50:14,469 --> 00:50:11,479

of course I have to ask then about the

1284

00:50:16,689 --> 00:50:14,479

logical connection warp drive

1285

00:50:20,019 --> 00:50:16,699

hyper drive our as they used to say

1286

00:50:22,150 --> 00:50:20,029

engage so can we engage warp drive

1287

00:50:24,160 --> 00:50:22,160

they're talking about that aren't they

1288

00:50:25,839 --> 00:50:24,170

some of the folks are today so as for

1289

00:50:29,769 --> 00:50:25,849

example people like Jackson are Fadi

1290

00:50:32,019 --> 00:50:29,779

have been working very hard on sort of

1291

00:50:34,029 --> 00:50:32,029

we might call them exotic theories of

1292

00:50:35,709 --> 00:50:34,039

space-time or worrying about work or

1293

00:50:38,049 --> 00:50:35,719

even design Stein's general relativity

1294

00:50:41,170 --> 00:50:38,059

allow for exotic states and so on so

1295

00:50:43,059 --> 00:50:41,180

again it's not that I at least haven't

1296

00:50:43,989 --> 00:50:43,069

seen a winning example yet but that

1297

00:50:45,609 --> 00:50:43,999

doesn't mean that they shouldn't be

1298

00:50:47,349 --> 00:50:45,619

working on it and that's that's I think

1299

00:50:48,999 --> 00:50:47,359

the larger point of the book is that we

1300

00:50:51,160 --> 00:50:49,009

need these people we need all kinds of

1301

00:50:53,019 --> 00:50:51,170

people to be pushing and pushing on the

1302

00:50:55,239 --> 00:50:53,029

boundaries what seems what seem to just

1303

00:50:56,949 --> 00:50:55,249

may be barely possible because just in

1304

00:50:58,420 --> 00:50:56,959

clarifying even if it's impossible

1305

00:51:00,099 --> 00:50:58,430

you know we're gonna learn something and

1306

00:51:01,930 --> 00:51:00,109

off we'll learn pretty surprising and

1307

00:51:04,390 --> 00:51:01,940

amazing things but isn't that part of

1308

00:51:07,089 --> 00:51:04,400

doing scientific research that today

1309

00:51:09,039 --> 00:51:07,099

something is impossible but tomorrow we

1310

00:51:09,549 --> 00:51:09,049

find a way to do it that's the way it's

1311

00:51:11,259 --> 00:51:09,559

always been

1312

00:51:13,180 --> 00:51:11,269

hasn't it that's exactly right like one

1313

00:51:14,769 --> 00:51:13,190

of the favored examples that these folks

1314

00:51:18,130 --> 00:51:14,779

used to trot out even back in the day

1315

00:51:21,039 --> 00:51:18,140

was at one point John Wheeler a very

1316

00:51:22,930 --> 00:51:21,049

very prominent eminent physicists who

1317

00:51:25,569 --> 00:51:22,940

was in very frequent contact with the

1318

00:51:28,329 --> 00:51:25,579

Berkeley group and one point he's called

1319

00:51:29,289 --> 00:51:28,339

one of their ideas moonshine and they

1320

00:51:31,059 --> 00:51:29,299

thought that was great cuz that's

1321

00:51:33,189 --> 00:51:31,069

exactly the word he was used before

1322

00:51:34,539 --> 00:51:33,199

World War two to explain to it to

1323

00:51:36,969 --> 00:51:34,549

dismiss the notion of what would become

1324

00:51:38,769 --> 00:51:36,979

an atomic bomb you know Nobel laureate

1325

00:51:40,930 --> 00:51:38,779

nuclear physicist it said that you know

1326
00:51:43,239 --> 00:51:40,940
uranium fission is just moonshine and

1327
00:51:44,799 --> 00:51:43,249
today what we'll drink more moonshine or

1328
00:51:46,749 --> 00:51:44,809
the kool-aid or whatever it is with

1329
00:51:48,939 --> 00:51:46,759
David Kaiser I'm gene Steinberg the

1330
00:51:52,480 --> 00:51:48,949
co-host is Chris O'Brien you're in the

1331
00:51:57,609 --> 00:51:55,079
[Music]

1332
00:51:59,500 --> 00:51:57,619
hi this is Ted Anderson if you'd like to

1333
00:52:01,599 --> 00:51:59,510
listen to GCN programs on the goal I

1334
00:52:03,579 --> 00:52:01,609
have great news gzn has created a Droid

1335
00:52:05,920 --> 00:52:03,589
and iPhone application and it's free

1336
00:52:07,779 --> 00:52:05,930
just as easy as going to GC and live.com

1337
00:52:09,069 --> 00:52:07,789
click on the banner and download before

1338
00:52:11,140 --> 00:52:09,079

you know it you'll be listening to your

1339

00:52:12,579 --> 00:52:11,150

favorite hard-hitting GCN shows live

1340

00:52:15,099 --> 00:52:12,589

around two men right on your drawing or

1341

00:52:16,779 --> 00:52:15,109

iPhone 24/7 and on the goal so download

1342

00:52:18,760 --> 00:52:16,789

the Droid and iPhone app free by

1343

00:52:20,260 --> 00:52:18,770

clicking on the banner at GCN live.com

1344

00:52:22,660 --> 00:52:20,270

thanks again for listening to GC and

1345

00:52:24,490 --> 00:52:22,670

live.com again that's juicy and live.com

1346

00:52:26,380 --> 00:52:24,500

we the people grow cotton wheat fabric

1347

00:52:27,849 --> 00:52:26,390

engraving can bed strips and fibers to

1348

00:52:29,440 --> 00:52:27,859

protect from counterfeit than carding to

1349

00:52:29,859 --> 00:52:29,450

a private bank having a led back at

1350

00:52:31,480 --> 00:52:29,869

interest

1351

00:52:33,160 --> 00:52:31,490

forcing taxes to service debt this

1352

00:52:34,480 --> 00:52:33,170

capitalism was jefferson correct when

1353

00:52:35,980 --> 00:52:34,490

stating a central bank issuing the

1354

00:52:37,000 --> 00:52:35,990

public currency is a greater menace to

1355

00:52:38,260 --> 00:52:37,010

the liberties of the people than a

1356

00:52:39,549 --> 00:52:38,270

standing army today understand i'm

1357

00:52:41,230 --> 00:52:39,559

placing a free silver dollar in a book

1358

00:52:42,789 --> 00:52:41,240

that explains our monetary system call

1359

00:52:44,440 --> 00:52:42,799

for your copy of eight hundred six eight

1360

00:52:47,260 --> 00:52:44,450

six two two thirty-seven it's time to

1361

00:52:48,880 --> 00:52:47,270

understand the system call 866 to 237

1362

00:52:56,410 --> 00:52:48,890

that's eight hundred six eight six two

1363

00:52:59,019 --> 00:52:56,420

two three seven welcome back to the pair

1364

00:53:05,890 --> 00:52:59,029

cast the gold standard of paranormal

1365

00:53:10,900 --> 00:53:07,769

[Music]

1366

00:53:13,660 --> 00:53:10,910

we continue amazingly even though it

1367

00:53:15,669 --> 00:53:13,670

seems like only 30-40 minutes have

1368

00:53:18,339 --> 00:53:15,679

passed we are in the second hour of the

1369

00:53:21,339 --> 00:53:18,349

para cast with David Kaiser we're taking

1370

00:53:23,589 --> 00:53:21,349

a quantum leap through time and space

1371

00:53:25,599 --> 00:53:23,599

the co-host is Chris O'Brien I'm Jean

1372

00:53:27,880 --> 00:53:25,609

Steinberg you're in the para cast so

1373

00:53:30,219 --> 00:53:27,890

looking here at what these hippies

1374

00:53:30,819 --> 00:53:30,229

discovered what were you doing by the

1375

00:53:33,130 --> 00:53:30,829

way

1376

00:53:37,089 --> 00:53:33,140

parenthetically what was David Kiser

1377

00:53:38,679 --> 00:53:37,099

doing in the 1970s mostly watching

1378

00:53:41,799 --> 00:53:38,689

Saturday morning cartoons that was

1379

00:53:43,989 --> 00:53:41,809

pretty young kid so you know I joke and

1380

00:53:45,759 --> 00:53:43,999

in the book I guess and acknowledge the

1381

00:53:47,439 --> 00:53:45,769

fact my memories of the seventies are

1382

00:53:48,880 --> 00:53:47,449

hazy but nah cuz they were clouded you

1383

00:53:52,689 --> 00:53:48,890

know by psyckadelis because I was you

1384

00:53:54,339 --> 00:53:52,699

know like a toddler so I was slowly you

1385

00:53:55,839 --> 00:53:54,349

know trying to learn about the world but

1386

00:53:57,519 --> 00:53:55,849

in a different way than the folks I

1387

00:53:59,410 --> 00:53:57,529

write about so I guess if you remember

1388

00:54:01,989 --> 00:53:59,420

the 70s you're you're either too young

1389

00:54:05,709 --> 00:54:01,999

or had spent too much time in the

1390

00:54:08,289 --> 00:54:05,719

sixties an interesting little side note

1391

00:54:11,109 --> 00:54:08,299

here is Jack Sarfati is gonna be at the

1392

00:54:12,939 --> 00:54:11,119

DARPA NASA stardrive symposium in

1393

00:54:15,249 --> 00:54:12,949

October and I believe he's going to be

1394

00:54:17,439 --> 00:54:15,259

presenting some sort of paper addressing

1395

00:54:20,859 --> 00:54:17,449

his concept of negative energy powered

1396

00:54:23,229 --> 00:54:20,869

starships so he's still mr. outrageous

1397

00:54:25,689 --> 00:54:23,239

he's still out there pushing the

1398

00:54:29,890 --> 00:54:25,699

envelope so kind of keep your keep your

1399

00:54:31,630 --> 00:54:29,900

eyes open listeners for word on his

1400

00:54:33,669 --> 00:54:31,640

paper and if we can get him on the show

1401

00:54:35,769 --> 00:54:33,679

he's agreed to get on will maybe get

1402

00:54:38,049 --> 00:54:35,779

into that a little bit the whole concept

1403

00:54:39,999 --> 00:54:38,059

of negative energy to me I mean you know

1404

00:54:41,769 --> 00:54:40,009

you yes your average new agent would

1405

00:54:45,519 --> 00:54:41,779

cringe thinking oh my god negative

1406

00:54:47,469 --> 00:54:45,529

energy powering the starship yeah so by

1407

00:54:50,890 --> 00:54:47,479

the way is that antimatter negative any

1408

00:54:55,209 --> 00:54:50,900

good no it's not it's it's different we

1409

00:55:00,099 --> 00:54:55,219

can't we can't build dilithium crystals

1410

00:55:01,900 --> 00:55:00,109

I'm so sad metamaterials and you says

1411

00:55:04,179 --> 00:55:01,910

I'm here with Andrew Paul Freeman who is

1412

00:55:06,519 --> 00:55:04,189

a software engineer for many years at

1413

00:55:08,169 --> 00:55:06,529

Cisco he was one of those rare

1414

00:55:10,660 --> 00:55:08,179

individuals that was actually accepted

1415

00:55:14,189 --> 00:55:10,670

into Oxford University when he was 16 so

1416

00:55:16,390 --> 00:55:14,199

he's he's a bright guy and he's busy

1417

00:55:17,470 --> 00:55:16,400

writing down up a couple of questions

1418

00:55:20,440 --> 00:55:17,480

and in comments

1419

00:55:22,599 --> 00:55:20,450

as we as he's listening to us do the

1420

00:55:23,890 --> 00:55:22,609

show here we should bring him on for a

1421

00:55:25,870 --> 00:55:23,900

few minutes I'll see if I could twist

1422

00:55:28,420 --> 00:55:25,880

his arm and get him on here but like

1423

00:55:31,510 --> 00:55:28,430

he's been working for 12 over 12 years

1424

00:55:33,400 --> 00:55:31,520

with on the Woodward effect are are you

1425

00:55:36,599 --> 00:55:33,410

familiar with that at all David

1426

00:55:40,270 --> 00:55:36,609

the maquis and general relativity and

1427

00:55:43,180 --> 00:55:40,280

Mayer melissa's see was it's a BB our

1428

00:55:44,620 --> 00:55:43,190

number one choice so I'm familiar with

1429

00:55:46,660 --> 00:55:44,630

some of the work on machs principle and

1430

00:55:49,750 --> 00:55:46,670

relativity and some efforts into uh to

1431

00:55:51,670 --> 00:55:49,760

explain the origin of inertia well I'm

1432

00:55:53,530 --> 00:55:51,680

not familiar with with with the things

1433

00:55:55,480 --> 00:55:53,540

you mentioned just now though yeah so

1434

00:55:57,550 --> 00:55:55,490

what's what words first name and yeah

1435

00:56:00,070 --> 00:55:57,560

James T Woodward at Cal State Fullerton

1436

00:56:01,980 --> 00:56:00,080

and who's been working with him really

1437

00:56:04,990 --> 00:56:01,990

closely for quite a number of years on

1438

00:56:07,720 --> 00:56:05,000

it's called frictionless propulsion I

1439

00:56:11,050 --> 00:56:07,730

think propellant 'list propulsion so

1440

00:56:12,970 --> 00:56:11,060

maybe Woodward and Sarfati might compare

1441

00:56:15,400 --> 00:56:12,980

notes at one time but let's get back to

1442

00:56:17,859 --> 00:56:15,410

to our physics group and and we were

1443

00:56:20,200 --> 00:56:17,869

talking about Nick Herbert's multi-year

1444

00:56:22,180 --> 00:56:20,210

attempt and with Sarfaraz help in the

1445

00:56:24,160 --> 00:56:22,190

physics groups helped to come up with a

1446

00:56:26,349 --> 00:56:24,170

design for faster-than-light

1447

00:56:28,030 --> 00:56:26,359

communication which ultimately was shot

1448

00:56:30,580 --> 00:56:28,040

down even though he did get a paper

1449

00:56:33,130 --> 00:56:30,590

published so if I remember correctly it

1450

00:56:36,420 --> 00:56:33,140

was as you alluded to it was sort of

1451
00:56:38,680 --> 00:56:36,430
proven to not be a workable a workable

1452
00:56:40,480 --> 00:56:38,690
hypothesis what what was some of the

1453
00:56:42,609 --> 00:56:40,490
other early experiments that these guys

1454
00:56:45,070 --> 00:56:42,619
were doing before we had of course the

1455
00:56:46,599 --> 00:56:45,080
famous success of the Dow physics and

1456
00:56:48,220 --> 00:56:46,609
the dancing Willy masters from two of

1457
00:56:50,980 --> 00:56:48,230
the members of the group I want you to

1458
00:56:52,810 --> 00:56:50,990
kind of give us another sense of what

1459
00:56:56,380 --> 00:56:52,820
some of the other areas that they were

1460
00:56:58,359 --> 00:56:56,390
working in you know one device that you

1461
00:57:00,220 --> 00:56:58,369
really did build Nick Herbert built with

1462
00:57:03,460 --> 00:57:00,230
another friend and colleague they call

1463
00:57:05,410 --> 00:57:03,470

the metaphase typewriter it was just a

1464

00:57:07,540 --> 00:57:05,420

modern example of the kind of

1465

00:57:10,450 --> 00:57:07,550

playfulness built on some real earnest

1466

00:57:13,359 --> 00:57:10,460

serious thinking and it's you know look

1467

00:57:14,770 --> 00:57:13,369

at the light to learn about so part of

1468

00:57:16,180 --> 00:57:14,780

what really intrigued these members of

1469

00:57:17,859 --> 00:57:16,190

group was this question of consciousness

1470

00:57:20,260 --> 00:57:17,869

that's a lot of what they were after

1471

00:57:22,090 --> 00:57:20,270

and one question particular was whether

1472

00:57:24,310 --> 00:57:22,100

consciousness could have an effect on

1473

00:57:26,710 --> 00:57:24,320

sort of steering quantum events that's

1474

00:57:29,230 --> 00:57:26,720

to say and that goes back in some sense

1475

00:57:31,000 --> 00:57:29,240

at least inspired by some ideas the

1476
00:57:33,670 --> 00:57:31,010
speculations by Nobel laureate

1477
00:57:35,710 --> 00:57:33,680
like Eugene Wigner which again and and

1478
00:57:37,210 --> 00:57:35,720
john mueller which has not really been

1479
00:57:39,130 --> 00:57:37,220
getting much play in the mainstream

1480
00:57:40,390 --> 00:57:39,140
physics world but these folks really

1481
00:57:42,700 --> 00:57:40,400
wrestled with them they picked up on

1482
00:57:43,840 --> 00:57:42,710
them and the idea was could could human

1483
00:57:46,450 --> 00:57:43,850
consciousness or in maybe any

1484
00:57:48,030 --> 00:57:46,460
consciousness kind of steer couldn't

1485
00:57:50,410 --> 00:57:48,040
alter the underlying probability

1486
00:57:53,770 --> 00:57:50,420
distribution for seemingly random

1487
00:57:55,660 --> 00:57:53,780
quantum events and victor had ideas to

1488
00:57:58,000 --> 00:57:55,670

suggest that maybe consciousness is what

1489

00:57:59,650 --> 00:57:58,010

he would have said collapses the quantum

1490

00:58:01,900 --> 00:57:59,660

wave function or it plays some crucial

1491

00:58:04,000 --> 00:58:01,910

role in quantum measurement and that was

1492

00:58:06,100 --> 00:58:04,010

you know it's it's a legitimate thing to

1493

00:58:08,650 --> 00:58:06,110

be asking about and these folks were

1494

00:58:10,450 --> 00:58:08,660

curious about that and so nick realized

1495

00:58:12,550 --> 00:58:10,460

if it's really consciousness and not say

1496

00:58:14,560 --> 00:58:12,560

brain chemistry in a physical fleshy

1497

00:58:15,940 --> 00:58:14,570

brain then it needn't be restricted to

1498

00:58:17,410 --> 00:58:15,950

the person sitting next to you what if

1499

00:58:19,600 --> 00:58:17,420

it could be spirits you know from the

1500

00:58:23,380 --> 00:58:19,610

other side and so on so basically these

1501
00:58:26,380 --> 00:58:23,390
guys wired up a pretty cool device in

1502
00:58:28,300 --> 00:58:26,390
the 1970s for a kind of 1870s new

1503
00:58:31,240 --> 00:58:28,310
phenomenon to worry about spiritualism

1504
00:58:33,430 --> 00:58:31,250
or getting using a kind of spirit medium

1505
00:58:35,380 --> 00:58:33,440
to hear from from spirits up from beyond

1506
00:58:37,120 --> 00:58:35,390
so they did this and they did it many

1507
00:58:39,790 --> 00:58:37,130
times and among my favorite examples

1508
00:58:42,190 --> 00:58:39,800
they had a big party on the centennial

1509
00:58:43,000 --> 00:58:42,200
of the birth of Harry Houdini famous

1510
00:58:44,800 --> 00:58:43,010
magician

1511
00:58:47,170 --> 00:58:44,810
and they wanted to see if Houdini's

1512
00:58:48,930 --> 00:58:47,180
spirit could come how the consciousness

1513
00:58:51,250 --> 00:58:48,940

could could steer the kind of

1514

00:58:53,560 --> 00:58:51,260

probabilities for quantum events in

1515

00:58:56,560 --> 00:58:53,570

particular if it's say like the the

1516

00:58:58,900 --> 00:58:56,570

radioactive decay of a valium sample so

1517

00:59:01,480 --> 00:58:58,910

the each decay should be a random event

1518

00:59:03,910 --> 00:59:01,490

but with an average half-life and so the

1519

00:59:06,250 --> 00:59:03,920

question was could a consciousness like

1520

00:59:07,960 --> 00:59:06,260

say the spirit of Harry Houdini start

1521

00:59:10,690 --> 00:59:07,970

you know sort of speeding up or slowing

1522

00:59:13,300 --> 00:59:10,700

down changing from the average

1523

00:59:14,680 --> 00:59:13,310

likelihood a given radioactive decay and

1524

00:59:16,930 --> 00:59:14,690

if so could that be used to sort of

1525

00:59:18,820 --> 00:59:16,940

rat-tat-tat out like a Morse code

1526

00:59:21,550 --> 00:59:18,830

message so they hooked this detector

1527

00:59:24,820 --> 00:59:21,560

geiger counter up to a teletype machine

1528

00:59:26,860 --> 00:59:24,830

and they got a paper from the National

1529

00:59:28,780 --> 00:59:26,870

Security Agency on the letter

1530

00:59:30,550 --> 00:59:28,790

frequencies in the English language how

1531

00:59:32,380 --> 00:59:30,560

common is letter e how often does it

1532

00:59:34,030 --> 00:59:32,390

appear with the letter D and so on and

1533

00:59:36,250 --> 00:59:34,040

so they want to do really very carefully

1534

00:59:38,080 --> 00:59:36,260

in scientifically and they wondered you

1535

00:59:39,820 --> 00:59:38,090

know could when they hooked up the

1536

00:59:42,130 --> 00:59:39,830

Geiger counter to the teletype but they

1537

00:59:44,050 --> 00:59:42,140

only get random noise just jumbles of

1538

00:59:44,740 --> 00:59:44,060

letters or did the intelligible messages

1539

00:59:46,300 --> 00:59:44,750

in there

1540

00:59:47,980 --> 00:59:46,310

and they called that the metaphase type

1541

00:59:51,130 --> 00:59:47,990

interest so that's an example of among

1542

00:59:52,359 --> 00:59:51,140

many the way these folks were as Nick I

1543

00:59:53,859 --> 00:59:52,369

think later called who was at the very

1544

00:59:56,620 --> 00:59:53,869

least a good excuse for a really good

1545

00:59:58,630 --> 00:59:56,630

party and and there was a way to

1546

01:00:00,370 --> 00:59:58,640

celebrate Harry Houdini think hard about

1547

01:00:03,190 --> 01:00:00,380

quantum theory in consciousness and has

1548

01:00:04,630 --> 01:00:03,200

you know have a good time so they were

1549

01:00:05,920 --> 01:00:04,640

you know that's I think that captures

1550

01:00:07,480 --> 01:00:05,930

the spirit of the group it but this was

1551
01:00:09,849 --> 01:00:07,490
not a throwaway and they were worried

1552
01:00:11,080 --> 01:00:09,859
about alternative explanations for the

1553
01:00:12,849 --> 01:00:11,090
measurement problem in quantum theory

1554
01:00:15,130 --> 01:00:12,859
which is like you know in their manes a

1555
01:00:17,140 --> 01:00:15,140
huge big deal problem even for for

1556
01:00:19,510 --> 01:00:17,150
mainstream physicists and they wanted to

1557
01:00:21,820 --> 01:00:19,520
sort of show highlights just how weird

1558
01:00:23,980 --> 01:00:21,830
the quantum universe really is within a

1559
01:00:26,580 --> 01:00:23,990
very playful very evocative way well

1560
01:00:29,050 --> 01:00:26,590
what did what a Houdini have to say

1561
01:00:30,940 --> 01:00:29,060
opinions different so it's all Paul

1562
01:00:33,099 --> 01:00:30,950
serac and I mentioned earlier wrote a

1563
01:00:34,810 --> 01:00:33,109

really lovely kind of fictionalized

1564

01:00:36,970 --> 01:00:34,820

account a short story about the

1565

01:00:40,000 --> 01:00:36,980

metaphase typewriter it appeared in a

1566

01:00:42,099 --> 01:00:40,010

magazine called spit in the ocean which

1567

01:00:42,880 --> 01:00:42,109

was at a time edited by Ken K Z's and

1568

01:00:44,890 --> 01:00:42,890

Merry Pranksters

1569

01:00:46,750 --> 01:00:44,900

is it a special issue edited by Timothy

1570

01:00:49,480 --> 01:00:46,760

Leary and so in Sawle paul's

1571

01:00:50,890 --> 01:00:49,490

fictionalized account they see this

1572

01:00:53,230 --> 01:00:50,900

string of letters to the fact that says

1573

01:00:55,510 --> 01:00:53,240

basically and in an infinite time as if

1574

01:00:57,370 --> 01:00:55,520

Harry Houdini was too frustrated it was

1575

01:00:59,170 --> 01:00:57,380

this was too slow and advice to get his

1576

01:01:00,790 --> 01:00:59,180

thoughts across it's like when I try to

1577

01:01:02,620 --> 01:01:00,800

text on my cell phone taking an hour and

1578

01:01:05,109 --> 01:01:02,630

a half so I guess they'd be in the story

1579

01:01:06,370 --> 01:01:05,119

the Houdini's spirit was saying I'd love

1580

01:01:08,410 --> 01:01:06,380

to chat with you fellows but isn't gonna

1581

01:01:09,880 --> 01:01:08,420

take too long that was fictionalized

1582

01:01:12,910 --> 01:01:09,890

however some people who were there

1583

01:01:14,950 --> 01:01:12,920

claimed that there was a string of

1584

01:01:16,300 --> 01:01:14,960

characters that that was recognizable in

1585

01:01:19,120 --> 01:01:16,310

the mystery you're gonna kind of random

1586

01:01:20,829 --> 01:01:19,130

noise or a jumble of letters and that

1587

01:01:24,280 --> 01:01:20,839

was the letters that would spell out by

1588

01:01:26,950 --> 01:01:24,290

young by Jeanne and some claim that

1589

01:01:29,140 --> 01:01:26,960

was just as a lab tech was walking by

1590

01:01:31,240 --> 01:01:29,150

with a copy of the portable young you

1591

01:01:33,010 --> 01:01:31,250

know in her inner pocket so you know

1592

01:01:35,260 --> 01:01:33,020

some of them will say look you see how

1593

01:01:36,640 --> 01:01:35,270

does we say you know monkeys on

1594

01:01:38,500 --> 01:01:36,650

typewriters little type out Shakespeare

1595

01:01:39,700 --> 01:01:38,510

that's just a random fluctuation but you

1596

01:01:42,099 --> 01:01:39,710

know at the very least they were they

1597

01:01:43,810 --> 01:01:42,109

were never explore the foundations of

1598

01:01:44,500 --> 01:01:43,820

quantum theory and you know it like I'd

1599

01:01:46,750 --> 01:01:44,510

have a good time

1600

01:01:48,609 --> 01:01:46,760

one question I have here which is

1601
01:01:50,920 --> 01:01:48,619
something we can explore as we continue

1602
01:01:52,900 --> 01:01:50,930
with this episode and we are going to

1603
01:01:55,230 --> 01:01:52,910
have to our break very shortly the

1604
01:01:58,229 --> 01:01:55,240
question I have here is for regular

1605
01:02:01,239 --> 01:01:58,239
normal people what

1606
01:02:02,979 --> 01:02:01,249
technology did these people develop in

1607
01:02:04,690 --> 01:02:02,989
the seventies that we could recognize

1608
01:02:07,120 --> 01:02:04,700
today I'm not talking necessarily about

1609
01:02:10,479 --> 01:02:07,130
quantum entanglements but things that

1610
01:02:12,460 --> 01:02:10,489
people to buy in the store anything well

1611
01:02:13,870 --> 01:02:12,470
sure and one technology was the popular

1612
01:02:15,450 --> 01:02:13,880
book I mean some of these the

1613
01:02:17,700 --> 01:02:15,460

best-selling books of that generation

1614

01:02:19,930 --> 01:02:17,710

were written by members of that group

1615

01:02:22,120 --> 01:02:19,940

like the data physics and I mentioned

1616

01:02:24,880 --> 01:02:22,130

like the dancing woolly masters by Gary

1617

01:02:26,890 --> 01:02:24,890

Zhukov Jack Sarfatti and Fred Alan wolf

1618

01:02:28,450 --> 01:02:26,900

Row one with their friends Bob Tobin

1619

01:02:31,120 --> 01:02:28,460

they really helped jumpstart the whole

1620

01:02:32,140 --> 01:02:31,130

genre called space ton and beyond and in

1621

01:02:33,969 --> 01:02:32,150

fact there were you know about a dozen

1622

01:02:35,140 --> 01:02:33,979

of these books that came out so that's

1623

01:02:37,299 --> 01:02:35,150

one way that they were getting the

1624

01:02:38,859 --> 01:02:37,309

message out literally into the hands of

1625

01:02:41,019 --> 01:02:38,869

soon to be you know hundreds of

1626

01:02:42,759 --> 01:02:41,029

thousands if not millions of people I'm

1627

01:02:44,739 --> 01:02:42,769

going to ask you more to flesh that out

1628

01:02:47,170 --> 01:02:44,749

in our next segment with David Kaiser

1629

01:02:55,479 --> 01:02:47,180

the co-host is Chris O'Brien I'm gene

1630

01:02:57,400 --> 01:02:55,489

Steinberg you're in the para cast have

1631

01:02:58,960 --> 01:02:57,410

you been sitting on a few great domain

1632

01:03:00,969 --> 01:02:58,970

name ideas but haven't locked them in

1633

01:03:02,319 --> 01:03:00,979

for yourself good now you can buy them

1634

01:03:04,839 --> 01:03:02,329

through the number one domain name

1635

01:03:06,640 --> 01:03:04,849

registrar namecheap.com as voted by the

1636

01:03:08,920 --> 01:03:06,650

top tech blog life hacker just like the

1637

01:03:12,009 --> 01:03:08,930

name says you can buy domains cheap as

1638

01:03:14,019 --> 01:03:12,019

low as \$2.99 and every new domain comes

1639

01:03:16,029 --> 01:03:14,029

with who is guard our special privacy

1640

01:03:17,769 --> 01:03:16,039

service free for the first year now that

1641

01:03:19,120 --> 01:03:17,779

you know it's time to grab those domain

1642

01:03:22,839 --> 01:03:19,130

names before someone else does

1643

01:03:24,849 --> 01:03:22,849

namecheap.com go now namecheap.com fate

1644

01:03:26,380 --> 01:03:24,859

magazine provides true reports of the

1645

01:03:28,450 --> 01:03:26,390

strange and unknown keep up with the

1646

01:03:31,150 --> 01:03:28,460

latest on angels and miracle psychic

1647

01:03:31,989 --> 01:03:31,160

phenomena ghosts UFOs life after death

1648

01:03:33,880 --> 01:03:31,999

and much much more

1649

01:03:36,130 --> 01:03:33,890

to receive your free issue of fate

1650

01:03:39,130 --> 01:03:36,140

magazine call now at one eight hundred

1651
01:03:43,359 --> 01:03:39,140
seven two eight two seven three zero or

1652
01:03:45,880 --> 01:03:43,369
visit their website at wwlp.com that's

1653
01:03:47,920 --> 01:03:45,890
one eight hundred seven two eight twenty

1654
01:03:51,190 --> 01:03:47,930
seven thirty what are you waiting for

1655
01:03:52,749 --> 01:03:51,200
your fate awaits again the Congressional

1656
01:03:55,150 --> 01:03:52,759
Budget Office sounds the alarm

1657
01:03:57,640 --> 01:03:55,160
this time warns of greek-style US debt

1658
01:03:59,319 --> 01:03:57,650
crisis you heard me right the GAO is

1659
01:04:01,539 --> 01:03:59,329
drawing a parallel between the US

1660
01:04:04,269 --> 01:04:01,549
economy its debt and the current Greek

1661
01:04:06,009 --> 01:04:04,279
economic meltdown with a debt to GDP

1662
01:04:08,680 --> 01:04:06,019
chart climbing into unfamiliar territory

1663
01:04:11,109 --> 01:04:08,690

the growing budget deficit will rise to

1664

01:04:11,589 --> 01:04:11,119

unsupportable levels hi this is Ted

1665

01:04:13,839 --> 01:04:11,599

Anderson

1666

01:04:16,660 --> 01:04:13,849

the federal debt and risk of financial

1667

01:04:18,849 --> 01:04:16,670

crises document the CBO has published is

1668

01:04:20,799 --> 01:04:18,859

a must-read for every American

1669

01:04:22,539 --> 01:04:20,809

covering the risk of continued deficit

1670

01:04:24,729 --> 01:04:22,549

spending coupled with an aging

1671

01:04:27,339 --> 01:04:24,739

population and the rising interest rates

1672

01:04:29,319 --> 01:04:27,349

spell economic disaster it's imperative

1673

01:04:47,430 --> 01:04:29,329

that you get a copy of this document and

1674

01:05:09,999 --> 01:05:07,930

806-853-9949 teen 72-hour volunteer

1675

01:05:11,680 --> 01:05:10,009

group of researchers and educators have

1676

01:05:14,650 --> 01:05:11,690

successfully taught how to escape

1677

01:05:16,779 --> 01:05:14,660

tickets by law and it works escape

1678

01:05:18,579 --> 01:05:16,789

harassment has three different steps to

1679

01:05:20,469 --> 01:05:18,589

follow depending on where you are in the

1680

01:05:23,589 --> 01:05:20,479

ticket process learn how to escape

1681

01:05:26,079 --> 01:05:23,599

tickets IRS or court proceedings before

1682

01:05:28,809 --> 01:05:26,089

you go to court for free three-minute

1683

01:05:31,269 --> 01:05:28,819

pre-recorded information and fa Q's call

1684

01:05:33,880 --> 01:05:31,279

this toll-free number one eight seven

1685

01:05:36,789 --> 01:05:33,890

seven four five seven nine zero zero

1686

01:05:40,569 --> 01:05:36,799

nine that's eight seven seven four five

1687

01:05:43,150 --> 01:05:40,579

seven nine double o nine or go to escape

1688

01:05:46,089 --> 01:05:43,160

harassment comm and see our money-back

1689

01:05:50,380 --> 01:05:46,099

guarantee that's escaped harassment calm

1690

01:05:52,180 --> 01:05:50,390

remember escape harassment works the

1691

01:05:55,180 --> 01:05:52,190

food storage industry leader has done it

1692

01:05:57,370 --> 01:05:55,190

again introducing FDG clubs and Survival

1693

01:05:59,620 --> 01:05:57,380

bucks from the freeze-dry guy for over

1694

01:06:01,180 --> 01:05:59,630

thirty nine years the freeze-dry guy has

1695

01:06:02,979 --> 01:06:01,190

served various government agencies and

1696

01:06:04,930 --> 01:06:02,989

the private sector with the finest in

1697

01:06:06,640 --> 01:06:04,940

storable foods and emergency rations if

1698

01:06:08,349 --> 01:06:06,650

you've wanted to build emergency food

1699

01:06:10,779 --> 01:06:08,359

supplies but couldn't afford it now you

1700

01:06:12,459 --> 01:06:10,789

can go to freeze-dry guide.com

1701

01:06:14,319 --> 01:06:12,469

click on products and look for the

1702

01:06:16,089 --> 01:06:14,329

freeze dry guy clubs to pay as you go

1703

01:06:17,270 --> 01:06:16,099

now you can build food storage without

1704

01:06:20,120 --> 01:06:17,280

going into debt to chew

1705

01:06:20,420 --> 01:06:20,130

from a payment range of \$95 to \$450 per

1706

01:06:22,040 --> 01:06:20,430

month

1707

01:06:24,320 --> 01:06:22,050

our clubs work with everyone's budget

1708

01:06:26,030 --> 01:06:24,330

plus when you join freeze dry guy clubs

1709

01:06:28,010 --> 01:06:26,040

you'll get additional rewards for

1710

01:06:29,870 --> 01:06:28,020

example this month get 10% back in

1711

01:06:31,790 --> 01:06:29,880

survival bucks on all purchases in the

1712

01:06:33,650 --> 01:06:31,800

freeze dry guy product line plus free

1713

01:06:35,840 --> 01:06:33,660

shipping within the lower 48 states on

1714

01:06:38,420 --> 01:06:35,850

any order amount hurry go to freeze drag

1715

01:06:40,460 --> 01:06:38,430

guy calm or call eight six six four zero

1716

01:06:42,680 --> 01:06:40,470

four three six six three let's freeze

1717

01:06:45,230 --> 01:06:42,690

dry guy calm or call eight six six four

1718

01:06:47,850 --> 01:06:45,240

zero four three six six three the freeze

1719

01:06:49,700 --> 01:06:47,860

dry guy the best you can buy

1720

01:06:52,130 --> 01:06:49,710

[Music]

1721

01:06:55,880 --> 01:06:52,140

America's number one source for

1722

01:07:06,840 --> 01:06:55,890

independent authoring for over a decade

1723

01:07:08,940 --> 01:07:06,850

we are the gcn radio network we want to

1724

01:07:10,890 --> 01:07:08,950

hear from you if you have a comment or

1725

01:07:15,120 --> 01:07:10,900

question about the para cast sent it to

1726

01:07:16,680 --> 01:07:15,130

news at the para cast com that's news at

1727

01:07:18,150 --> 01:07:16,690

the para cast com

1728

01:07:20,550 --> 01:07:18,160

but if you want to catch up on past

1729

01:07:22,770 --> 01:07:20,560

episodes we have hundreds of shows for

1730

01:07:26,810 --> 01:07:22,780

you to download direct from the para

1731

01:07:31,400 --> 01:07:26,820

cast com that's the para cast calm or

1732

01:07:37,050 --> 01:07:34,110

we have David Kiser and he is a

1733

01:07:41,550 --> 01:07:37,060

professor over at MIT we're talking

1734

01:07:44,310 --> 01:07:41,560

about those wacky physicists hippie type

1735

01:07:46,740 --> 01:07:44,320

people from the 70s with gene and Chris

1736

01:07:48,300 --> 01:07:46,750

and the para casts of the other part of

1737

01:07:50,700 --> 01:07:48,310

the question is of course they came out

1738

01:07:52,860 --> 01:07:50,710

with books best-selling books what about

1739

01:07:55,140 --> 01:07:52,870

consumer electronics other products that

1740

01:07:56,640 --> 01:07:55,150

we could buy in the store is anything

1741

01:07:58,560 --> 01:07:56,650

they developed from all this research

1742

01:07:59,910 --> 01:07:58,570

you none that I know of the main one

1743

01:08:02,340 --> 01:07:59,920

like I said that a trace of the book is

1744

01:08:04,950 --> 01:08:02,350

it's helping to lay the theoretical

1745

01:08:06,330 --> 01:08:04,960

groundwork for these very very fancy

1746

01:08:08,130 --> 01:08:06,340

devices today like quantum encryption

1747

01:08:09,720 --> 01:08:08,140

but those are the ones that I know of I

1748

01:08:11,940 --> 01:08:09,730

remember most these members of the group

1749

01:08:13,650 --> 01:08:11,950

were theoretical physicists how they

1750

01:08:16,200 --> 01:08:13,660

worked with some laser physicists like

1751

01:08:17,550 --> 01:08:16,210

how boots off and Russell Targ but for

1752

01:08:19,079 --> 01:08:17,560

the most part they were theorists who

1753

01:08:20,520 --> 01:08:19,089

worried about the kind of structure the

1754

01:08:22,140 --> 01:08:20,530

equations and and what it might mean

1755

01:08:24,300 --> 01:08:22,150

about the universe and so they were

1756

01:08:26,550 --> 01:08:24,310

their thoughts were going more to the we

1757

01:08:28,620 --> 01:08:26,560

might say ethereal realm you know well I

1758

01:08:29,930 --> 01:08:28,630

have a question here now no we're

1759

01:08:31,950 --> 01:08:29,940

talking about their influence and

1760

01:08:34,410 --> 01:08:31,960

impossible developments that were

1761

01:08:36,390 --> 01:08:34,420

inspired by these guys and who mentioned

1762

01:08:39,410 --> 01:08:36,400

that the perhaps a premier quantum

1763

01:08:42,329 --> 01:08:39,420

mechanics researcher is Anton Zeilinger

1764

01:08:44,070 --> 01:08:42,339

who's an Austrian physicist to what

1765

01:08:47,550 --> 01:08:44,080

extent do you think you know modern

1766

01:08:50,160 --> 01:08:47,560

cannot cutting-edge physicists or have

1767

01:08:52,260 --> 01:08:50,170

work influenced by these guys and do we

1768

01:08:53,970 --> 01:08:52,270

see some sort of influence now in the

1769

01:08:55,800 --> 01:08:53,980

modern physics world did they help

1770

01:08:57,690 --> 01:08:55,810

loosen up the field a little bit get

1771

01:08:59,490 --> 01:08:57,700

people thinking more creatively or what

1772

01:09:01,769 --> 01:08:59,500

what is their legacy really now in

1773

01:09:04,049 --> 01:09:01,779

modern physics so I think in

1774

01:09:06,660 --> 01:09:04,059

sort of tight focus they do have a

1775

01:09:07,890 --> 01:09:06,670

legacy in these very specific results on

1776

01:09:09,660 --> 01:09:07,900

that I mentioned before like the

1777

01:09:11,519 --> 01:09:09,670

no-cloning theorem no signalling and

1778

01:09:13,169 --> 01:09:11,529

quantum limits to amplifiers and those

1779

01:09:14,910 --> 01:09:13,179

are technical developments that really

1780

01:09:17,279 --> 01:09:14,920

are kind of bedrock for a whole

1781

01:09:18,450 --> 01:09:17,289

flourishing field today and again it's

1782

01:09:20,279 --> 01:09:18,460

not that the folks I write about

1783

01:09:22,709 --> 01:09:20,289

uniquely found those things but they

1784

01:09:25,470 --> 01:09:22,719

really had a major hand in pushing that

1785

01:09:27,809 --> 01:09:25,480

whole program forward and often you're

1786

01:09:29,669 --> 01:09:27,819

designing the the devices in the

1787

01:09:31,079 --> 01:09:29,679

debunking of which these insights would

1788

01:09:32,819 --> 01:09:31,089

appear so they were there clearly there

1789

01:09:33,899 --> 01:09:32,829

and those I think are you know they're

1790

01:09:35,370 --> 01:09:33,909

they're incredibly important

1791

01:09:36,870 --> 01:09:35,380

developments that that we just didn't

1792

01:09:38,370 --> 01:09:36,880

know about before these folks got in the

1793

01:09:40,319 --> 01:09:38,380

game and then if we zoom out a little

1794

01:09:42,299 --> 01:09:40,329

bit you know these folks were the early

1795

01:09:43,649 --> 01:09:42,309

adopters on Bell's Theorem more broadly

1796

01:09:46,379 --> 01:09:43,659

I mean they were the ones who said

1797

01:09:48,089 --> 01:09:46,389

before long before this is at all common

1798

01:09:50,999 --> 01:09:48,099

for physicists even paying attention to

1799

01:09:53,249 --> 01:09:51,009

the quantum entanglement is baffling and

1800

01:09:54,839 --> 01:09:53,259

probably really really important they as

1801

01:09:57,450 --> 01:09:54,849

I write in the book they rescued that

1802

01:09:59,279 --> 01:09:57,460

topic from a decade of obscurity they

1803

01:10:00,810 --> 01:09:59,289

forced it on the agenda for at least a

1804

01:10:02,459 --> 01:10:00,820

few other physicists in addition to

1805

01:10:04,799 --> 01:10:02,469

their own and so they helped to kind of

1806

01:10:06,450 --> 01:10:04,809

get it back into the mainstream or or or

1807

01:10:08,220 --> 01:10:06,460

get a few people really excited about it

1808

01:10:09,750 --> 01:10:08,230

and then if we zoom out further yeah

1809

01:10:12,930 --> 01:10:09,760

they wrote those books like I mentioned

1810

01:10:14,850 --> 01:10:12,940

they really inspired a whole genre of

1811

01:10:16,529 --> 01:10:14,860

popular physics writing and getting a

1812

01:10:18,629 --> 01:10:16,539

lot of this stuff out into into the

1813

01:10:20,310 --> 01:10:18,639

public some of which in fact this really

1814

01:10:22,799 --> 01:10:20,320

surprised me actually some which got

1815

01:10:26,160 --> 01:10:22,809

used in formal physics classes in the

1816

01:10:28,319 --> 01:10:26,170

classroom as a kind of proxy textbook

1817

01:10:29,879 --> 01:10:28,329

before the regular old textbooks caught

1818

01:10:31,049 --> 01:10:29,889

up with the new stuff about quantum

1819

01:10:32,640 --> 01:10:31,059

theory like Bell's Theorem

1820

01:10:34,410 --> 01:10:32,650

it looks like the lucky ones we

1821

01:10:36,899 --> 01:10:34,420

mentioned written by these folks or

1822

01:10:38,549 --> 01:10:36,909

formal lesson plans that were published

1823

01:10:40,379 --> 01:10:38,559

inspired by those books new by

1824

01:10:42,859 --> 01:10:40,389

physicists who were we're talking with

1825

01:10:45,120 --> 01:10:42,869

them pretty regularly they had a kind of

1826

01:10:47,370 --> 01:10:45,130

direct pedagogical impact in the

1827

01:10:49,529 --> 01:10:47,380

classroom that you know that it was

1828

01:10:51,209 --> 01:10:49,539

important in the era before these sort

1829

01:10:53,310 --> 01:10:51,219

of slow-moving textbooks could catch up

1830

01:10:54,839 --> 01:10:53,320

so if we consider the zoom out from a

1831

01:10:56,640 --> 01:10:54,849

tight focus to get broader and broader

1832

01:10:58,109 --> 01:10:56,650

and again it's not like these folks

1833

01:11:00,120 --> 01:10:58,119

single-handedly changed the world out of

1834

01:11:01,379 --> 01:11:00,130

the gate a small group ever does but

1835

01:11:02,939 --> 01:11:01,389

they were they were really having an

1836

01:11:04,620 --> 01:11:02,949

impact they have a legacy that if we

1837

01:11:06,000 --> 01:11:04,630

know where to look for it we can start

1838

01:11:07,709 --> 01:11:06,010

seeing some of that signs of it even

1839

01:11:09,359 --> 01:11:07,719

today now one of the topics often

1840

01:11:12,750 --> 01:11:09,369

discussed when we talk about the word

1841

01:11:14,640 --> 01:11:12,760

quantum is quantum computing now is this

1842

01:11:14,840 --> 01:11:14,650

such a thing possible we're all living

1843

01:11:16,700 --> 01:11:14,850

in the

1844

01:11:19,700 --> 01:11:16,710

world of ones and zeroes the digital

1845

01:11:22,400 --> 01:11:19,710

world is this really the next stage of

1846

01:11:23,990 --> 01:11:22,410

computing I you know I have a feeling it

1847

01:11:25,550 --> 01:11:24,000

really is it's not the area of physics

1848

01:11:26,990 --> 01:11:25,560

that I work indirectly I have a number

1849

01:11:30,320 --> 01:11:27,000

of colleagues who do they're really

1850

01:11:31,820 --> 01:11:30,330

smart and they make a good case and I

1851

01:11:34,190 --> 01:11:31,830

think there is I mean there are working

1852

01:11:36,200 --> 01:11:34,200

prototypes of sort of low capacity

1853

01:11:38,180 --> 01:11:36,210

compared to and it was laptop on their

1854

01:11:40,010 --> 01:11:38,190

desktop right now an attack but these

1855

01:11:41,840 --> 01:11:40,020

things are taking advantage of this

1856

01:11:43,910 --> 01:11:41,850

fundamental quantum property things like

1857

01:11:45,710 --> 01:11:43,920

superposition or indeed entanglement and

1858

01:11:47,630 --> 01:11:45,720

Bell's Theorem that are being you know

1859

01:11:49,400 --> 01:11:47,640

literally wired in from the start and

1860

01:11:50,900 --> 01:11:49,410

these folks can keep these things you

1861

01:11:52,400 --> 01:11:50,910

know they have to put him in cryogenic

1862

01:11:54,740 --> 01:11:52,410

coolers after treatment was great

1863

01:11:56,450 --> 01:11:54,750

nimbleness so far but nonetheless

1864

01:11:57,740 --> 01:11:56,460

they've built a few of these things as

1865

01:11:59,510 --> 01:11:57,750

well as worked out incredibly

1866

01:12:01,520 --> 01:11:59,520

complicated and sophisticated

1867

01:12:03,260 --> 01:12:01,530

you know the theoretical descriptions

1868

01:12:05,510 --> 01:12:03,270

it's not something that I can buy at the

1869

01:12:07,160 --> 01:12:05,520

Apple store next year not yet no it's

1870

01:12:10,670 --> 01:12:07,170

not it's not going to be in the iPhone 5

1871

01:12:12,680 --> 01:12:10,680

are these things practical that we see

1872

01:12:14,810 --> 01:12:12,690

that 5 10 years from now if we can

1873

01:12:16,910 --> 01:12:14,820

figure how to get a handle on it and we

1874

01:12:19,130 --> 01:12:16,920

don't have to live in cyber genic

1875

01:12:21,320 --> 01:12:19,140

laboratories and stuff that we can take

1876

01:12:24,050 --> 01:12:21,330

this stuff and actually use it in

1877

01:12:25,820 --> 01:12:24,060

products for Space Exploration and then

1878

01:12:27,260 --> 01:12:25,830

ultimately the consumer world yeah

1879

01:12:29,600 --> 01:12:27,270

that's definitely the intention and so

1880

01:12:31,130 --> 01:12:29,610

again it's I'm not an expert on the

1881

01:12:32,750 --> 01:12:31,140

nitty-gritty of it these days but I know

1882

01:12:34,220 --> 01:12:32,760

that's that's certainly what's driving a

1883

01:12:36,590 --> 01:12:34,230

lot of his excitement whether it's gonna

1884

01:12:38,450 --> 01:12:36,600

be 10 years from now or 20 or 50 I think

1885

01:12:39,950 --> 01:12:38,460

it's certainly you know odds are good

1886

01:12:41,480 --> 01:12:39,960

it's gonna be coming well what direction

1887

01:12:44,000 --> 01:12:41,490

is quantum physics going in right now

1888

01:12:46,130 --> 01:12:44,010

what are the exciting papers that are

1889

01:12:48,230 --> 01:12:46,140

being you know published and what's

1890

01:12:50,000 --> 01:12:48,240

what's the buzz going around the field

1891

01:12:51,440 --> 01:12:50,010

right now I think there's a lot I mean

1892

01:12:53,270 --> 01:12:51,450

by now quantum physics is central to

1893

01:12:54,560 --> 01:12:53,280

virtually everything that physicists

1894

01:12:56,360 --> 01:12:54,570

want to work on so there are different

1895

01:12:58,400 --> 01:12:56,370

aspects of quantum theory which shows up

1896

01:13:00,080 --> 01:12:58,410

as relevant in different ways so whether

1897

01:13:01,640 --> 01:13:00,090

it's nanotechnology which is actually

1898

01:13:04,010 --> 01:13:01,650

pushing a single atoms around that's

1899

01:13:06,140 --> 01:13:04,020

clearly deeply involved in quantum

1900

01:13:07,910 --> 01:13:06,150

theory which was the subject Coruscant

1901

01:13:09,860 --> 01:13:07,920

areas first designed for understanding

1902

01:13:12,260 --> 01:13:09,870

single atoms or just a small number of

1903

01:13:14,120 --> 01:13:12,270

atoms so the entire you know humongous

1904

01:13:15,500 --> 01:13:14,130

elephant of the rules nanotech it's

1905

01:13:17,360 --> 01:13:15,510

basically putting quantum theory to work

1906

01:13:19,040 --> 01:13:17,370

in one way and then go from there all

1907

01:13:21,080 --> 01:13:19,050

the way to the opposite scale and look

1908

01:13:22,640 --> 01:13:21,090

at quantum cosmology closer to an area I

1909

01:13:23,840 --> 01:13:22,650

actually work in it physics

1910

01:13:25,670 --> 01:13:23,850

you're the excitement about string

1911

01:13:27,440 --> 01:13:25,680

theory or trying to quantize general

1912

01:13:28,279 --> 01:13:27,450

relativity the excitement about the

1913

01:13:30,529 --> 01:13:28,289

universe and

1914

01:13:32,859 --> 01:13:30,539

multiverse are we one bubble among an

1915

01:13:35,599 --> 01:13:32,869

infinitude those are all making you know

1916

01:13:36,529 --> 01:13:35,609

taking advantage of weird properties of

1917

01:13:37,399 --> 01:13:36,539

quantum theory sort of in a different

1918

01:13:39,199 --> 01:13:37,409

direction

1919

01:13:41,239 --> 01:13:39,209

so I think pretty much anywhere you look

1920

01:13:43,250 --> 01:13:41,249

these days quantities can be incredibly

1921

01:13:45,289 --> 01:13:43,260

central and and it's sort of inherent

1922

01:13:48,919 --> 01:13:45,299

wackiness it's coming to light well we

1923

01:13:51,020 --> 01:13:48,929

know in ufology for instance we do we do

1924

01:13:53,059 --> 01:13:51,030

cover that subject quite extensively you

1925

01:13:55,819 --> 01:13:53,069

know on our show one of the things that

1926

01:13:58,069 --> 01:13:55,829

you occasionally walk here is someone

1927

01:13:59,569 --> 01:13:58,079

that does not buy in lock stock and

1928

01:14:01,819 --> 01:13:59,579

barrel into an extraterrestrial

1929

01:14:03,979 --> 01:14:01,829

hypothesis for you know what's behind

1930

01:14:06,909 --> 01:14:03,989

the UFO phenomenon and you hear

1931

01:14:09,889 --> 01:14:06,919

buzzwords like that they're

1932

01:14:12,679 --> 01:14:09,899

multi-dimensional is based on our

1933

01:14:14,329 --> 01:14:12,689

knowledge right now which is probably in

1934

01:14:16,339 --> 01:14:14,339

a dimensional sense pretty limited but

1935

01:14:19,579 --> 01:14:16,349

do you think that there's a possibility

1936

01:14:21,409 --> 01:14:19,589

that we may be visited by the denizens

1937

01:14:23,719 --> 01:14:21,419

of some other dimension is that is that

1938

01:14:25,009 --> 01:14:23,729

a possibility you as a scientist you

1939

01:14:26,599 --> 01:14:25,019

know I wouldn't discount her as a

1940

01:14:28,189 --> 01:14:26,609

possibility I also wouldn't rate it has

1941

01:14:29,959 --> 01:14:28,199

a very high possibility but that's just

1942

01:14:32,719 --> 01:14:29,969

a good very well be living here my own

1943

01:14:34,339 --> 01:14:32,729

limited imagination or knowledge so we

1944

01:14:36,049 --> 01:14:34,349

could we could unpack that I think about

1945

01:14:37,849 --> 01:14:36,059

doing like a Drake Equation for the

1946

01:14:39,259 --> 01:14:37,859

version you just described what's the

1947

01:14:41,989 --> 01:14:39,269

likelihood that the universe that we

1948

01:14:43,579 --> 01:14:41,999

live in has extra spatial dimensions you

1949

01:14:45,619 --> 01:14:43,589

have the likelihood of that is actually

1950

01:14:47,479 --> 01:14:45,629

I was a higher better reason to believe

1951

01:14:48,979 --> 01:14:47,489

that now than even you know 20 or 30

1952

01:14:50,629 --> 01:14:48,989

years ago so that's a pretty big change

1953

01:14:52,219 --> 01:14:50,639

or at least better reasons to worry

1954

01:14:53,809 --> 01:14:52,229

about it to think of that it has very

1955

01:14:56,239 --> 01:14:53,819

specific motivations that put it on the

1956

01:14:57,709 --> 01:14:56,249

table now and so if that increases the

1957

01:14:59,270 --> 01:14:57,719

overall likelihood for the rest of your

1958

01:15:00,829 --> 01:14:59,280

scenario you know that's it that's sort

1959

01:15:03,020 --> 01:15:00,839

of how the science has to it seems to me

1960

01:15:05,569 --> 01:15:03,030

what would go along and and more

1961

01:15:08,719 --> 01:15:05,579

importantly if there are ways to to get

1962

01:15:10,339 --> 01:15:08,729

experimental observational input on are

1963

01:15:12,379 --> 01:15:10,349

there extra dimensions whatever how are

1964

01:15:14,389 --> 01:15:12,389

they characterized and you know people

1965

01:15:16,609 --> 01:15:14,399

are hoping they might have some glimpse

1966

01:15:18,349 --> 01:15:16,619

to long shot maybe chemical in something

1967

01:15:21,020 --> 01:15:18,359

like that in the Large Hadron Collider

1968

01:15:22,639 --> 01:15:21,030

that's now spinning up in CERN or maybe

1969

01:15:25,250 --> 01:15:22,649

by a different sort of mechanism

1970

01:15:27,079 --> 01:15:25,260

mechanism might affect the very subtle

1971

01:15:28,909 --> 01:15:27,089

bumps and Wiggles in the Cosmic

1972

01:15:30,139 --> 01:15:28,919

Microwave Background I mean there that's

1973

01:15:32,089 --> 01:15:30,149

again have to kind of cutting-edge

1974

01:15:34,009 --> 01:15:32,099

research questions who are there extra

1975

01:15:35,599 --> 01:15:34,019

dimensions and if so how do we

1976

01:15:37,069 --> 01:15:35,609

understand them what and then what my

1977

01:15:39,559 --> 01:15:37,079

what else might they imply what are they

1978

01:15:40,700 --> 01:15:39,569

open up know do you think that this is

1979

01:15:44,040 --> 01:15:40,710

one of them works

1980

01:15:46,169 --> 01:15:44,050

right dimensional speaking we have David

1981

01:15:51,620 --> 01:15:46,179

Kiser Chrissa Brian's the co-host I'm

1982

01:15:58,020 --> 01:15:54,830

[Music]

1983

01:16:00,479 --> 01:15:58,030

Ray Perkins a reclusive veteran burned

1984

01:16:02,450 --> 01:16:00,489

out from the Gulf War lives tortured by

1985

01:16:04,709 --> 01:16:02,460

relentless perplexing nightmares

1986

01:16:06,450 --> 01:16:04,719

nightmares of a horrific battle in deep

1987

01:16:08,520 --> 01:16:06,460

space and of a mysterious woman

1988

01:16:11,370 --> 01:16:08,530

suffering an agony for her devastated

1989

01:16:14,930 --> 01:16:11,380

world a woman not yet born calling

1990

01:16:17,399 --> 01:16:14,940

across centuries to him then a

1991

01:16:20,640 --> 01:16:17,409

coincidence leads him to his destiny his

1992

01:16:22,740 --> 01:16:20,650

chance to alter the universe attack of

1993

01:16:24,450 --> 01:16:22,750

the rocket the former fiction editor for

1994

01:16:26,550 --> 01:16:24,460

Star Wars and Indiana Jones Robert

1995

01:16:28,229 --> 01:16:26,560

Simpson writes the soul of the novel

1996

01:16:29,550 --> 01:16:28,239

attack of the rock Owens lies in its

1997

01:16:31,379 --> 01:16:29,560

heart and passion for building a

1998

01:16:34,140 --> 01:16:31,389

convincing tale of a love that spans the

1999

01:16:36,750 --> 01:16:34,150

galaxy a thrilling story attack of the

2000

01:16:38,370 --> 01:16:36,760

rocket is available now read a simple

2001

01:16:40,020 --> 01:16:38,380

chapter and get a special discount off

2002

01:16:44,760 --> 01:16:40,030

of the cover price at our website

2003

01:16:48,120 --> 01:16:44,770

Rocko is calm that's our Ock o IDs calm

2004

01:16:50,729 --> 01:16:48,130

attack of the rod a novel in the grand

2005

01:16:52,979 --> 01:16:50,739

science-fiction tradition hey Brian if

2006

01:16:55,709 --> 01:16:52,989

you could do just one thing today to

2007

01:16:56,100 --> 01:16:55,719

ensure your family's food security what

2008

01:16:58,740 --> 01:16:56,110

would it be

2009

01:17:01,860 --> 01:16:58,750

that's easy bill I the head straight to

2010

01:17:03,959 --> 01:17:01,870

soup bean survival calm soupy and

2011

01:17:06,240 --> 01:17:03,969

survival calm I know bill it sounds

2012

01:17:09,000 --> 01:17:06,250

crazy but this ancient secret has been

2013

01:17:12,899 --> 01:17:09,010

around for over eight thousand years and

2014

01:17:15,419 --> 01:17:12,909

it truly is nature's super survival food

2015

01:17:16,919 --> 01:17:15,429

really Brian the number one survival

2016

01:17:19,350 --> 01:17:16,929

food well certainly the Forgotten

2017

01:17:22,620 --> 01:17:19,360

survival food absolutely bill the folks

2018

01:17:25,160 --> 01:17:22,630

at soup bean survival dot-com scoured

2019

01:17:28,439 --> 01:17:25,170

our planet to find the very best

2020

01:17:31,050 --> 01:17:28,449

heirloom seeds to truly find nature's

2021

01:17:32,760 --> 01:17:31,060

super survival food Brian these aren't

2022

01:17:34,350 --> 01:17:32,770

grocery store beans are they the whole

2023

01:17:36,510 --> 01:17:34,360

way bill you're not gonna find these

2024

01:17:39,030 --> 01:17:36,520

beans in any grocery store these are the

2025

01:17:42,240 --> 01:17:39,040

absolute highest quality beans in the

2026
01:17:45,330 --> 01:17:42,250
world visit soup being survival com that

2027
01:17:47,220 --> 01:17:45,340
soup being survival dot-com for all the

2028
01:17:49,800 --> 01:17:47,230
information you're gonna need for

2029
01:17:51,770 --> 01:17:49,810
nature's super survival food big berkey

2030
01:17:53,690 --> 01:17:51,780
water filters are in high demand

2031
01:17:56,270 --> 01:17:53,700
storable foods are also in high demand

2032
01:17:57,830 --> 01:17:56,280
big berkey water filters calm has always

2033
01:17:59,990 --> 01:17:57,840
kept our focus on the berkey water

2034
01:18:02,060 --> 01:18:00,000
filter products but increasingly our

2035
01:18:04,220 --> 01:18:02,070
customers have been asking for storable

2036
01:18:06,530 --> 01:18:04,230
foods after months of research big

2037
01:18:09,260 --> 01:18:06,540
berkey water filters calm now offers

2038
01:18:11,300 --> 01:18:09,270

great tasting long-lasting storable

2039

01:18:13,460 --> 01:18:11,310

foods these ready-to-eat meals are

2040

01:18:15,530 --> 01:18:13,470

packed in airtight nitrogen pouches all

2041

01:18:17,390 --> 01:18:15,540

you do is just add water and because

2042

01:18:19,910 --> 01:18:17,400

they're sealed so well they come with a

2043

01:18:21,530 --> 01:18:19,920

25 year shelf life combined our berkey

2044

01:18:23,840 --> 01:18:21,540

water filters which are powerful enough

2045

01:18:25,910 --> 01:18:23,850

to purify treated untreated or even

2046

01:18:27,980 --> 01:18:25,920

stagnant pond water with our storable

2047

01:18:30,140 --> 01:18:27,990

foods and you have a winning combination

2048

01:18:32,990 --> 01:18:30,150

remember we offer free shipping on every

2049

01:18:34,820 --> 01:18:33,000

order over \$50 and GCN listeners receive

2050

01:18:38,720 --> 01:18:34,830

five percent off all ceramic filter

2051

01:18:42,530 --> 01:18:38,730

systems visit big ber Kei water filters

2052

01:18:46,160 --> 01:18:42,540

com or call 877 99 Berkey that's big

2053

01:18:50,270 --> 01:18:46,170

berkey water filters calm or call 877 99

2054

01:18:52,190 --> 01:18:50,280

ber K ey today you know that drinking

2055

01:18:53,690 --> 01:18:52,200

pure high alkaline water is one of the

2056

01:18:55,700 --> 01:18:53,700

most important factors in maintaining

2057

01:18:57,200 --> 01:18:55,710

high energy and vibrant health and most

2058

01:18:59,200 --> 01:18:57,210

experts agree that the water you drink

2059

01:19:01,760 --> 01:18:59,210

should be at a pH level of 8 or higher

2060

01:19:04,190 --> 01:19:01,770

alkylation plasma pH drops available

2061

01:19:05,840 --> 01:19:04,200

only at Alka vision com combine a unique

2062

01:19:08,000 --> 01:19:05,850

formula of most alkaline minerals

2063

01:19:10,130 --> 01:19:08,010

available Alka vision plasma pH drops

2064

01:19:11,930 --> 01:19:10,140

alkalis your water reading the body of

2065

01:19:13,910 --> 01:19:11,940

harmful toxins and acid helping you to

2066

01:19:15,710 --> 01:19:13,920

regain your energy and health alkalizing

2067

01:19:18,050 --> 01:19:15,720

your water by simply adding 10 drops of

2068

01:19:20,300 --> 01:19:18,060

alkaviva plasma pH drops helps the body

2069

01:19:22,670 --> 01:19:20,310

to rid itself of acidic waste increases

2070

01:19:24,920 --> 01:19:22,680

oxygen and raises the pH of your body to

2071

01:19:26,900 --> 01:19:24,930

optimal levels and bacteria and viruses

2072

01:19:28,700 --> 01:19:26,910

cannot survive in an alkaline high pH

2073

01:19:31,070 --> 01:19:28,710

environment order your bottle of

2074

01:19:31,700 --> 01:19:31,080

alkaviva plasma pH drops for only twenty

2075

01:19:35,810 --> 01:19:31,710

nine ninety-five

2076

01:19:42,220 --> 01:19:35,820

@ Alka vision com that's al ke a vision

2077

01:19:45,860 --> 01:19:42,230

calm or call 269 4 0 9 1776 269 4 0 9

2078

01:19:50,900 --> 01:19:45,870

1776 alkalize your body supercharge your

2079

01:19:53,200 --> 01:19:50,910

health at Alka vision calm are you tired

2080

01:19:55,540 --> 01:19:53,210

of searching for great talk-radio

2081

01:20:02,080 --> 01:19:55,550

commute more important

2082

01:20:05,260 --> 01:20:02,090

Snover we are the gcn radio network hi

2083

01:20:08,050 --> 01:20:05,270

this is Don Ecker and you are tuned in

2084

01:20:10,660 --> 01:20:08,060

to the para CASP let me tell you what

2085

01:20:15,960 --> 01:20:10,670

you're gonna hear stuff here that you

2086

01:20:20,770 --> 01:20:18,880

we're back with David Kiser talking

2087

01:20:23,800 --> 01:20:20,780

about I guess cutting-edge physics

2088

01:20:27,070 --> 01:20:23,810

quantum mechanics all that stuff that

2089

01:20:29,260 --> 01:20:27,080

way out there stuff with David Kaiser

2090

01:20:31,270 --> 01:20:29,270

I'm Jean Steinberg the co-host is Chris

2091

01:20:34,510 --> 01:20:31,280

O'Brien Chris before we did our break

2092

01:20:36,850 --> 01:20:34,520

you had started a question well you know

2093

01:20:39,400 --> 01:20:36,860

I've just been seeing so much in the

2094

01:20:43,270 --> 01:20:39,410

news lately spokespeople like Michio

2095

01:20:46,120 --> 01:20:43,280

Kaku is a just a such and a good writer

2096

01:20:48,220 --> 01:20:46,130

and and and there are other writers in

2097

01:20:49,690 --> 01:20:48,230

it similar to the books in the early

2098

01:20:51,580 --> 01:20:49,700

seventies it came out in fact that's

2099

01:20:53,350 --> 01:20:51,590

where I first learned about quantum

2100

01:20:55,540 --> 01:20:53,360

quantum physics it was in the DAO

2101
01:20:56,920 --> 01:20:55,550
physics and the dancing would leave

2102
01:20:57,790 --> 01:20:56,930
masses there there were several other

2103
01:21:00,160 --> 01:20:57,800
books as well

2104
01:21:02,200 --> 01:21:00,170
people like Michio Kaku now I think are

2105
01:21:04,800 --> 01:21:02,210
they're so accessible and there's

2106
01:21:07,240 --> 01:21:04,810
they're elegantly able to relay such

2107
01:21:10,780 --> 01:21:07,250
mind-boggling information to lay people

2108
01:21:13,270 --> 01:21:10,790
I get a sense that quantum physics is in

2109
01:21:15,340 --> 01:21:13,280
a real is in a real up period right now

2110
01:21:18,190 --> 01:21:15,350
how would you rate this time period now

2111
01:21:19,960 --> 01:21:18,200
in terms of excitement in the field I

2112
01:21:22,600 --> 01:21:19,970
definitely agree and I agree both about

2113
01:21:24,430 --> 01:21:22,610

the talented writers now like Michio

2114

01:21:26,290 --> 01:21:24,440

Kaku like Brian Greene it's like lots of

2115

01:21:29,050 --> 01:21:26,300

people I think they are they are really

2116

01:21:31,090 --> 01:21:29,060

good at that and even even when they're

2117

01:21:33,490 --> 01:21:31,100

not trying to necessarily write engaging

2118

01:21:35,020 --> 01:21:33,500

books for for non-specialists you know

2119

01:21:36,790 --> 01:21:35,030

in their own offices I think you're

2120

01:21:38,920 --> 01:21:36,800

right it is an exciting time you know

2121

01:21:42,280 --> 01:21:38,930

one like my colleagues at MIT is Max

2122

01:21:44,200 --> 01:21:42,290

tegmark and he you know he I think he'd

2123

01:21:46,090 --> 01:21:44,210

share that as sort of wild giddy

2124

01:21:47,980 --> 01:21:46,100

enthusiasm for Seth Lloyd or all these

2125

01:21:49,480 --> 01:21:47,990

folks and I think it partly for the

2126
01:21:51,190 --> 01:21:49,490
reason I said before I mean when we go

2127
01:21:53,500 --> 01:21:51,200
to the hyper small to the

2128
01:21:55,690 --> 01:21:53,510
mind-bogglingly large in each direction

2129
01:21:58,000 --> 01:21:55,700
we're getting to new insights into

2130
01:21:59,470 --> 01:21:58,010
quantum theory it's it's leading some

2131
01:22:01,960 --> 01:21:59,480
new questions and often to some really

2132
01:22:04,030 --> 01:22:01,970
very fancy new experiments as well so I

2133
01:22:06,820 --> 01:22:04,040
you know I the the subtitle for my book

2134
01:22:07,870 --> 01:22:06,830
was the quantum revival and I think that

2135
01:22:08,899 --> 01:22:07,880
that was really meant to say there's

2136
01:22:10,699 --> 01:22:08,909
there's an exciting

2137
01:22:13,370 --> 01:22:10,709
going on now and I think a lot of

2138
01:22:15,080 --> 01:22:13,380

physicists you will feel that let me ask

2139

01:22:16,609 --> 01:22:15,090

you a question that kind of arises from

2140

01:22:17,839 --> 01:22:16,619

that we're looking at all this

2141

01:22:20,779 --> 01:22:17,849

cutting-edge science

2142

01:22:22,609 --> 01:22:20,789

how does organized religion handle all

2143

01:22:24,020 --> 01:22:22,619

these developments or can they well I

2144

01:22:26,390 --> 01:22:24,030

don't know I mean to be honest is not

2145

01:22:27,500 --> 01:22:26,400

the area of my expertise I think there

2146

01:22:29,359 --> 01:22:27,510

might be different responses from

2147

01:22:31,640 --> 01:22:29,369

different you know traditions and

2148

01:22:33,169 --> 01:22:31,650

religious communities one thing I will

2149

01:22:35,659 --> 01:22:33,179

say psych take us off track one thing

2150

01:22:38,140 --> 01:22:35,669

that was interesting to me was seeing

2151
01:22:41,000 --> 01:22:38,150
the rise of a kind of anti Big Bang

2152
01:22:42,259 --> 01:22:41,010
fervor from some corners of a kind of

2153
01:22:43,159 --> 01:22:42,269
creationist or intelligent design

2154
01:22:44,540 --> 01:22:43,169
science

2155
01:22:46,459 --> 01:22:44,550
so some folks seemed not very

2156
01:22:47,659 --> 01:22:46,469
comfortable and very happy with the

2157
01:22:50,359 --> 01:22:47,669
picture we have of a Big Bang

2158
01:22:51,919 --> 01:22:50,369
inflationary cosmology the sort of

2159
01:22:54,020 --> 01:22:51,929
mainstream view of how the universe

2160
01:22:55,069 --> 01:22:54,030
began and so some of the folks who would

2161
01:22:56,870 --> 01:22:55,079
otherwise be spending a lot of time

2162
01:22:59,299 --> 01:22:56,880
critiquing you know Darwinian natural

2163
01:23:00,529 --> 01:22:59,309

selection biology classrooms some of

2164

01:23:01,699 --> 01:23:00,539

them turned have turned their sights on

2165

01:23:03,439 --> 01:23:01,709

to the Big Bang so that's one example

2166

01:23:05,179 --> 01:23:03,449

it's certainly not the only one example

2167

01:23:06,379 --> 01:23:05,189

of you know kind of religion or

2168

01:23:08,239 --> 01:23:06,389

spirituality and couching these

2169

01:23:09,379 --> 01:23:08,249

questions just to say there's gonna be a

2170

01:23:11,330 --> 01:23:09,389

mixed bag and I don't know

2171

01:23:13,009 --> 01:23:11,340

you know who's giving the most serious

2172

01:23:15,589 --> 01:23:13,019

thought to that I haven't been it's not

2173

01:23:18,979 --> 01:23:15,599

where I would really be an expert was

2174

01:23:21,319 --> 01:23:18,989

the impact to religion anything that

2175

01:23:23,239 --> 01:23:21,329

they thought about when all those hippy

2176

01:23:24,290 --> 01:23:23,249

scientists were getting together all

2177

01:23:27,919 --> 01:23:24,300

those years ago

2178

01:23:31,009 --> 01:23:27,929

I think some more than others so people

2179

01:23:34,279 --> 01:23:31,019

like Fritjof Capra I think we're really

2180

01:23:36,409 --> 01:23:34,289

earnestly genuinely interested in into

2181

01:23:38,750 --> 01:23:36,419

the eastern worldview a very religious

2182

01:23:42,109 --> 01:23:38,760

spiritual worldview Hinduism Buddhism

2183

01:23:44,839 --> 01:23:42,119

you know Confucius and that whole dowas

2184

01:23:46,640 --> 01:23:44,849

and all the rest and so so Fritjof was

2185

01:23:48,379 --> 01:23:46,650

you became the kind of devoted student

2186

01:23:49,819 --> 01:23:48,389

to that he was reading everything it

2187

01:23:51,140 --> 01:23:49,829

could he'd go to all the seminars in the

2188

01:23:53,000 --> 01:23:51,150

Bay Area he could and even when he

2189

01:23:55,310 --> 01:23:53,010

wanted left at the area so for some

2190

01:23:57,350 --> 01:23:55,320

people yes I think religion or at least

2191

01:23:58,959 --> 01:23:57,360

some kind of spirituality was central

2192

01:24:01,129 --> 01:23:58,969

was absolutely central to that ongoing

2193

01:24:02,449 --> 01:24:01,139

evolving set of questions I'm not sure

2194

01:24:04,370 --> 01:24:02,459

it played the same role or had the same

2195

01:24:06,109 --> 01:24:04,380

impact even for all members just as that

2196

01:24:08,089 --> 01:24:06,119

tiny group let alone for other folks you

2197

01:24:09,500 --> 01:24:08,099

know at the time so for some of them

2198

01:24:11,629 --> 01:24:09,510

yeah you can definitely see that was an

2199

01:24:14,359 --> 01:24:11,639

important feature okay so looking

2200

01:24:17,870 --> 01:24:14,369

further at the impact what about the

2201

01:24:20,000 --> 01:24:17,880

fact that our space program has been cut

2202

01:24:21,799 --> 01:24:20,010

down in a large way especially at the

2203

01:24:25,790 --> 01:24:21,809

end of the shuttle program

2204

01:24:27,770 --> 01:24:25,800

that hurt this kind of research I don't

2205

01:24:29,359 --> 01:24:27,780

know if it'll hurt in a direct way I

2206

01:24:31,160 --> 01:24:29,369

think it might hurt more in the sense of

2207

01:24:32,959 --> 01:24:31,170

who's asking the big weird out their

2208

01:24:35,899 --> 01:24:32,969

questions and who's gonna be inspired by

2209

01:24:37,790 --> 01:24:35,909

amazing things you know I don't think

2210

01:24:39,919 --> 01:24:37,800

there was much of a budget spill over at

2211

01:24:41,959 --> 01:24:39,929

least done that I know of I don't think

2212

01:24:44,419 --> 01:24:41,969

we cash it out nickels and dimes from

2213

01:24:46,220 --> 01:24:44,429

one appropriation line to another but I

2214

01:24:48,319 --> 01:24:46,230

think you know the larger question of

2215

01:24:50,450 --> 01:24:48,329

what's our place in the universe what

2216

01:24:52,700 --> 01:24:50,460

does it all mean I think a lot of people

2217

01:24:55,580 --> 01:24:52,710

for decades have found you know deep

2218

01:24:57,589 --> 01:24:55,590

deep inspiration from the space program

2219

01:24:58,459 --> 01:24:57,599

and you know so we want to work we want

2220

01:25:00,229 --> 01:24:58,469

to look at those we might say

2221

01:25:01,790 --> 01:25:00,239

second-order effects you know where

2222

01:25:05,299 --> 01:25:01,800

there are we might we might indeed see

2223

01:25:06,890 --> 01:25:05,309

an impact now what is your personal

2224

01:25:09,740 --> 01:25:06,900

opinion about this do you think they

2225

01:25:11,330 --> 01:25:09,750

went about all wrong and cutting back on

2226

01:25:13,669 --> 01:25:11,340

the space program yeah kind of think

2227

01:25:16,700 --> 01:25:13,679

that the promise that was realized with

2228

01:25:19,839 --> 01:25:16,710

the moon landing in 1969 you know it was

2229

01:25:22,910 --> 01:25:19,849

never really followed up in a huge way I

2230

01:25:24,799 --> 01:25:22,920

was a kid I was completely enamored of

2231

01:25:27,080 --> 01:25:24,809

the space whenever my walls were covered

2232

01:25:29,000 --> 01:25:27,090

till my president had you know like rock

2233

01:25:30,709 --> 01:25:29,010

star posters up and I was had you know

2234

01:25:33,620 --> 01:25:30,719

astronaut and the Space Shuttle posted

2235

01:25:35,419 --> 01:25:33,630

so so you know I I grew up with that

2236

01:25:36,740 --> 01:25:35,429

stuff I build model rockets and I'm

2237

01:25:38,720 --> 01:25:36,750

gonna try to get my kids into that now

2238

01:25:41,660 --> 01:25:38,730

and so you know yeah I was definitely a

2239

01:25:43,729 --> 01:25:41,670

kind of space junkie and so it is pretty

2240

01:25:45,799 --> 01:25:43,739

pretty sad for me just personally to

2241

01:25:49,189 --> 01:25:45,809

realize that you know the last shuttle

2242

01:25:50,870 --> 01:25:49,199

launch has now passed and so on you know

2243

01:25:52,580 --> 01:25:50,880

on the other hand who knows maybe some

2244

01:25:55,279 --> 01:25:52,590

other you know exciting cool thing will

2245

01:25:57,020 --> 01:25:55,289

will start to take its place and so you

2246

01:25:58,700 --> 01:25:57,030

know where I put my historians cap back

2247

01:26:00,830 --> 01:25:58,710

on even even at the height of the Apollo

2248

01:26:03,470 --> 01:26:00,840

program you know there was a lot of

2249

01:26:05,569 --> 01:26:03,480

concern in this country about budget

2250

01:26:07,760 --> 01:26:05,579

priorities not unlike today you know

2251
01:26:10,100 --> 01:26:07,770
cities were crumbling horrible you know

2252
01:26:12,169 --> 01:26:10,110
challenges and a lot of critics that

2253
01:26:13,520 --> 01:26:12,179
even back then said you know there has

2254
01:26:15,410 --> 01:26:13,530
to be some kind of cost-benefit trade

2255
01:26:17,330 --> 01:26:15,420
off and I can only sympathize with those

2256
01:26:19,339 --> 01:26:17,340
concerns it's you know there's a limit

2257
01:26:20,450 --> 01:26:19,349
to what we can try to do and we're here

2258
01:26:22,669 --> 01:26:20,460
about these limits all the time these

2259
01:26:25,040 --> 01:26:22,679
days financially you know economically

2260
01:26:26,629 --> 01:26:25,050
in this country so it's tricky I mean

2261
01:26:29,779 --> 01:26:26,639
what do we do to accomplish great things

2262
01:26:31,250 --> 01:26:29,789
to inspire just absolute euphoria in

2263
01:26:32,720 --> 01:26:31,260

people what I think is incredibly

2264

01:26:35,050 --> 01:26:32,730

important for asking big questions

2265

01:26:36,340 --> 01:26:35,060

people keeping people excited

2266

01:26:38,770 --> 01:26:36,350

you know we don't have unlimited

2267

01:26:40,570 --> 01:26:38,780

resources so you know that's your

2268

01:26:41,710 --> 01:26:40,580

wishy-washy answer there I wish we could

2269

01:26:44,770 --> 01:26:41,720

do more I can understand why they're

2270

01:26:47,110 --> 01:26:44,780

living another question here is can we

2271

01:26:50,320 --> 01:26:47,120

relate any of this research to the

2272

01:26:53,170 --> 01:26:50,330

sources for new forms of energy running

2273

01:26:56,350 --> 01:26:53,180

out of oil high price of oil looking at

2274

01:26:59,080 --> 01:26:56,360

all the alternatives electric cars

2275

01:27:01,150 --> 01:26:59,090

whatever is there anything in physics

2276

01:27:03,390 --> 01:27:01,160

that we could look to maybe an unlimited

2277

01:27:06,070 --> 01:27:03,400

source of energy free energy whatever

2278

01:27:07,720 --> 01:27:06,080

well you know so that's an idea where it

2279

01:27:10,630 --> 01:27:07,730

does get kicked around I would say sort

2280

01:27:11,620 --> 01:27:10,640

of on the margin still I'm not convinced

2281

01:27:13,420 --> 01:27:11,630

of that I'm not gonna say that's

2282

01:27:16,720 --> 01:27:13,430

definitely right or wrong but it's I

2283

01:27:18,700 --> 01:27:16,730

think most mainstream physicists are not

2284

01:27:19,750 --> 01:27:18,710

you know convinced by that but again

2285

01:27:21,190 --> 01:27:19,760

that doesn't mean people shouldn't

2286

01:27:24,220 --> 01:27:21,200

should necessarily you know keep keep

2287

01:27:26,590 --> 01:27:24,230

pushing on it so people often will there

2288

01:27:29,080 --> 01:27:26,600

are all kinds of you know terms and

2289

01:27:31,420 --> 01:27:29,090

jargon and look at you know pass around

2290

01:27:33,250 --> 01:27:31,430

on that and again I'll just say that I

2291

01:27:34,660 --> 01:27:33,260

haven't seen enough yet to be convinced

2292

01:27:36,220 --> 01:27:34,670

but that could be my fault and not the

2293

01:27:39,550 --> 01:27:36,230

fault of the folks you know we're

2294

01:27:41,350 --> 01:27:39,560

working on it now looking at the crazy

2295

01:27:43,570 --> 01:27:41,360

quilt stuff that we deal with on the

2296

01:27:47,040 --> 01:27:43,580

power cast obviously you covered some of

2297

01:27:49,930 --> 01:27:47,050

that with the investigations at

2298

01:27:51,970 --> 01:27:49,940

universities of people who claim to have

2299

01:27:55,480 --> 01:27:51,980

various extrasensory powers

2300

01:27:58,930 --> 01:27:55,490

now if et is out there 50 light-years

2301

01:28:02,980 --> 01:27:58,940

from here does he or she or in have to

2302

01:28:05,020 --> 01:28:02,990

spend 50 years getting here how do they

2303

01:28:07,720 --> 01:28:05,030

come here or do you think they have come

2304

01:28:10,150 --> 01:28:07,730

here well that's again that's a great

2305

01:28:12,100 --> 01:28:10,160

question so the first response would be

2306

01:28:13,840 --> 01:28:12,110

to say they would probably take a lot

2307

01:28:15,730 --> 01:28:13,850

more than 50 years because they probably

2308

01:28:17,230 --> 01:28:15,740

couldn't travel even close to the actual

2309

01:28:19,150 --> 01:28:17,240

speed of light so if they're 50 light

2310

01:28:20,470 --> 01:28:19,160

years away they think it would take 50

2311

01:28:21,610 --> 01:28:20,480

years if they're because as you know if

2312

01:28:23,770 --> 01:28:21,620

they're traveling at the speed of light

2313

01:28:25,480 --> 01:28:23,780

if we believe eye signs relativity they

2314

01:28:27,790 --> 01:28:25,490

couldn't even get to that speed so okay

2315

01:28:29,530 --> 01:28:27,800

so we're looking at you know decades and

2316

01:28:35,340 --> 01:28:29,540

then on the other hand you know you can

2317

01:28:39,100 --> 01:28:35,350

you can ask about exam is is is really a

2318

01:28:40,330 --> 01:28:39,110

pretty weird fun thing to think about as

2319

01:28:42,280 --> 01:28:40,340

if you take Einstein's general

2320

01:28:43,570 --> 01:28:42,290

relativity seriously you know could

2321

01:28:46,300 --> 01:28:43,580

there be wormholes could there be

2322

01:28:48,430 --> 01:28:46,310

non-trivial structures because everybody

2323

01:28:49,720 --> 01:28:48,440

could do these typologies in space

2324

01:28:51,459 --> 01:28:49,730

time that we just aren't aware of yet

2325

01:28:53,500 --> 01:28:51,469

that could be like the ultimate shortcut

2326

01:28:55,750 --> 01:28:53,510

and you know lots of people lots of

2327

01:28:57,430 --> 01:28:55,760

straight-laced university professors had

2328

01:28:58,900 --> 01:28:57,440

thought about that very hard let alone

2329

01:29:00,670 --> 01:28:58,910

other folks who find it inspiring and

2330

01:29:02,860 --> 01:29:00,680

wacky and who might be more onto margins

2331

01:29:04,959 --> 01:29:02,870

so again I wouldn't say no it could

2332

01:29:06,130 --> 01:29:04,969

never ever ever be shown because you

2333

01:29:08,350 --> 01:29:06,140

know look people like Stephen Hawking

2334

01:29:10,750 --> 01:29:08,360

worried about closed timelike pads

2335

01:29:13,470 --> 01:29:10,760

people like Kip Thorne at Cal Tech I've

2336

01:29:15,790 --> 01:29:13,480

done incredibly sophisticated studies of

2337

01:29:17,200 --> 01:29:15,800

exotic structures and Einstein's

2338

01:29:19,570 --> 01:29:17,210

relativity and wormholes and all the

2339

01:29:22,780 --> 01:29:19,580

rest so you know if that's again I play

2340

01:29:25,060 --> 01:29:22,790

that that's a fair question and one that

2341

01:29:26,979 --> 01:29:25,070

even if the answer Altima still turns

2342

01:29:29,590 --> 01:29:26,989

out to be no we're going to learn a lot

2343

01:29:31,570 --> 01:29:29,600

in the process we have David Kaiser

2344

01:29:33,939 --> 01:29:31,580

learning a lot in the process this is

2345

01:29:36,729 --> 01:29:33,949

your science school where we're trying

2346

01:29:40,300 --> 01:29:36,739

to look at cutting-edge science in a way

2347

01:29:43,630 --> 01:29:40,310

that we can all relate to it we have a

2348

01:29:52,620 --> 01:29:43,640

co-host Chris O'Brien I'm gene Steinberg

2349

01:29:57,180 --> 01:29:54,980

[Music]

2350

01:29:59,310 --> 01:29:57,190

graphic converter is the image

2351

01:30:01,950 --> 01:29:59,320

manipulation tool for the rest of us it

2352

01:30:03,930 --> 01:30:01,960

does not use any database you get full

2353

01:30:06,150 --> 01:30:03,940

control of all your files want to view

2354

01:30:08,460 --> 01:30:06,160

the images of a folder drag it into

2355

01:30:10,920 --> 01:30:08,470

graphic converter and a powerful browser

2356

01:30:12,810 --> 01:30:10,930

opens up to show your image files you

2357

01:30:14,880 --> 01:30:12,820

could use it for slideshows you could

2358

01:30:17,010 --> 01:30:14,890

use it to import images from digital

2359

01:30:18,960 --> 01:30:17,020

cameras or from scanners need to do some

2360

01:30:21,060 --> 01:30:18,970

image editing you can do that too in

2361

01:30:23,190 --> 01:30:21,070

graphic converter also print catalogs

2362

01:30:25,200 --> 01:30:23,200

convert from so many formats

2363

01:30:27,420 --> 01:30:25,210

I can't even list them download now to

2364

01:30:30,240 --> 01:30:27,430

see if graphic converter is good for you

2365

01:30:32,280 --> 01:30:30,250

like one and a half million other users

2366

01:30:34,440 --> 01:30:32,290

guess what you could save money when you

2367

01:30:36,450 --> 01:30:34,450

buy graphic converter use the coupon

2368

01:30:38,550 --> 01:30:36,460

code night I'll use the coupon code

2369

01:30:41,460 --> 01:30:38,560

night how to get a special price for

2370

01:30:46,550 --> 01:30:41,470

graphic converter go to Lemke saath kaam

2371

01:30:52,590 --> 01:30:46,560

mets lem ke soft calm monkey soft calm

2372

01:30:54,540 --> 01:30:52,600

lem ke soft calm you owe the IRS money

2373

01:30:56,280 --> 01:30:54,550

you can't pay then listen carefully

2374

01:30:58,710 --> 01:30:56,290

because you already know that the

2375

01:31:00,360 --> 01:30:58,720

problem won't go away by itself you can

2376

01:31:03,000 --> 01:31:00,370

get help today from the leading tax

2377

01:31:04,800 --> 01:31:03,010

expert in the country dan pillow hi i'm

2378

01:31:07,020 --> 01:31:04,810

dan color the IRS isn't going to just

2379

01:31:08,940 --> 01:31:07,030

forget about you right now the IRS is

2380

01:31:10,470 --> 01:31:08,950

hiring thousands of tax collectors to go

2381

01:31:12,510 --> 01:31:10,480

after the link when it counts just like

2382

01:31:15,420 --> 01:31:12,520

yours that's why you need to take action

2383

01:31:17,220 --> 01:31:15,430

today and I can help I take a simple but

2384

01:31:19,620 --> 01:31:17,230

proven approach to solving your tax debt

2385

01:31:20,880 --> 01:31:19,630

problem first i stabilize collections so

2386

01:31:23,340 --> 01:31:20,890

you don't have to worry about waging

2387

01:31:25,020 --> 01:31:23,350

Bank levies next I built a detail plan

2388

01:31:26,850 --> 01:31:25,030

to get your debt reduced to the fullest

2389

01:31:29,310 --> 01:31:26,860

extent possible sometimes even

2390

01:31:30,390 --> 01:31:29,320

eliminated finally I work with you every

2391

01:31:32,370 --> 01:31:30,400

step of the way to get your problem

2392

01:31:34,980 --> 01:31:32,380

solved once and for all so call now for

2393

01:31:37,230 --> 01:31:34,990

a free consultation call 1-800

2394

01:31:39,000 --> 01:31:37,240

three four six six eight two nine dan

2395

01:31:41,040 --> 01:31:39,010

pillow will solve your tax problem

2396

01:31:42,600 --> 01:31:41,050

guaranteed he's helped thousands of

2397

01:31:46,140 --> 01:31:42,610

people and he can help you too

2398

01:31:48,720 --> 01:31:46,150

call us today at 834 six six eight to

2399

01:31:52,080 --> 01:31:48,730

nine that's eight hundred three for no

2400

01:31:55,590 --> 01:31:52,090

tax if you drive for a living you don't

2401

01:31:58,530 --> 01:31:55,600

get paid to stop or wait in line keep

2402

01:32:00,840 --> 01:31:58,540

your wheels moving with pre pass bypass

2403

01:32:03,510 --> 01:32:00,850

waystations flyby port of entry

2404

01:32:04,240 --> 01:32:03,520

facilities stay moving at highway speed

2405

01:32:10,030 --> 01:32:04,250

while

2406

01:32:12,660 --> 01:32:10,040

guy without prepass waits in large save

2407

01:32:16,960 --> 01:32:12,670

time save money call eight eight eight

2408

01:32:22,300 --> 01:32:16,970

401 pass to try pre pass free that's

2409

01:32:24,070 --> 01:32:22,310

eight eight eight 401 pass hi I'm mark

2410

01:32:25,930 --> 01:32:24,080

Craig head founder of crossbreed

2411

01:32:28,510 --> 01:32:25,940

holsters I designed our top-selling

2412

01:32:30,640 --> 01:32:28,520

holster the super tuck deluxe to solve

2413

01:32:32,980 --> 01:32:30,650

the problems of being poked pinched and

2414

01:32:34,660 --> 01:32:32,990

gouged while carrying concealed the

2415

01:32:36,970 --> 01:32:34,670

super tuck deluxe is the most

2416

01:32:39,070 --> 01:32:36,980

comfortable most concealable holster on

2417

01:32:41,470 --> 01:32:39,080

the market today we offer a two week

2418

01:32:45,280 --> 01:32:41,480

free trial and a lifetime warranty visit

2419

01:32:50,260 --> 01:32:45,290

us at crossbreed holsters dot-com don't

2420

01:32:52,090 --> 01:32:50,270

forget crossbreed holsters calm heart

2421

01:32:54,040 --> 01:32:52,100

and body extract continues to receive

2422

01:33:10,900 --> 01:32:54,050

positive testimonials from people who

2423

01:33:33,780 --> 01:33:10,910

have experienced amazing results read

2424

01:33:38,650 --> 01:33:36,160

order heart and body extract at eight

2425

01:33:41,710 --> 01:33:38,660

six six two nine five five three zero

2426

01:33:46,120 --> 01:33:41,720

five eight six six two nine five five

2427

01:33:48,400 --> 01:33:46,130

three zero five or HB extract calm heart

2428

01:33:52,990 --> 01:33:48,410

and body extract for a long and healthy

2429

01:33:57,600 --> 01:33:53,000

life the gcn radio network providing the

2430

01:34:05,970 --> 01:33:57,610

world with hard-hitting talk radio g c--

2431

01:34:08,910 --> 01:34:05,980

great talk radio starts here hi this is

2432

01:34:12,740 --> 01:34:08,920

nuclear physicist electors and Friedman

2433

01:34:19,560 --> 01:34:12,750

you are listening to the parrot get the

2434

01:34:21,870 --> 01:34:19,570

gold standard a paranormal radio we

2435

01:34:23,700 --> 01:34:21,880

continue with David Kiser discussing

2436

01:34:25,560 --> 01:34:23,710

cutting-edge science with Jean and Chris

2437

01:34:27,419 --> 01:34:25,570

some the power cast we're trying to keep

2438

01:34:30,629 --> 01:34:27,429

up with him okay because I didn't go to

2439

01:34:32,850 --> 01:34:30,639

MIT I didn't pretend to go at MIT I've

2440

01:34:35,070 --> 01:34:32,860

read the science literature but you know

2441

01:34:35,729 --> 01:34:35,080

we're trying to keep it at a sensible

2442

01:34:38,220 --> 01:34:35,739

level

2443

01:34:41,550 --> 01:34:38,230

okay David Kiser the other question is

2444

01:34:44,790 --> 01:34:41,560

were involved in all these things that

2445

01:34:46,919 --> 01:34:44,800

impact space and time so can we travel

2446

01:34:49,379 --> 01:34:46,929

to the future can we travel to the past

2447

01:34:52,649 --> 01:34:49,389

can we take that quantum leap as they

2448

01:34:54,090 --> 01:34:52,659

say on the TV show well you know look we

2449

01:34:55,950 --> 01:34:54,100

can certainly travel to the future which

2450

01:34:58,080 --> 01:34:55,960

is just by sitting still and letting the

2451
01:34:59,729 --> 01:34:58,090
clock tick by could we could we make a

2452
01:35:01,919 --> 01:34:59,739
great leap toward the future then then

2453
01:35:06,209 --> 01:35:01,929
it gets more tricky and likewise for the

2454
01:35:08,879 --> 01:35:06,219
past so again I'd say the mainstream

2455
01:35:12,479 --> 01:35:08,889
consensus seems to be no who's not yet

2456
01:35:14,879 --> 01:35:12,489
and yet you know relativity continues to

2457
01:35:16,350 --> 01:35:14,889
surprise it and so I wouldn't want to

2458
01:35:18,240 --> 01:35:16,360
say never ever never under those

2459
01:35:20,820 --> 01:35:18,250
circumstances I think I haven't seen it

2460
01:35:22,950 --> 01:35:20,830
yet and that again could just be much as

2461
01:35:24,810 --> 01:35:22,960
must be my own limited imagination but

2462
01:35:27,419 --> 01:35:24,820
you know well to general relativity even

2463
01:35:30,180 --> 01:35:27,429

even canonical even just Einsteins

2464

01:35:32,070 --> 01:35:30,190

version of relativity has all kinds of

2465

01:35:34,050 --> 01:35:32,080

amazing features and there's a

2466

01:35:35,970 --> 01:35:34,060

flourishing kind of industry of

2467

01:35:37,890 --> 01:35:35,980

scientists working on expansions beyond

2468

01:35:39,899 --> 01:35:37,900

eyes as relativity where even more sort

2469

01:35:43,260 --> 01:35:39,909

of exotic or unexpected things could be

2470

01:35:45,479 --> 01:35:43,270

possible at least in theory so I haven't

2471

01:35:48,750 --> 01:35:45,489

you know I haven't seen the great proof

2472

01:35:50,430 --> 01:35:48,760

yet but you know very smart and earnest

2473

01:35:51,979 --> 01:35:50,440

people are working on it all the time at

2474

01:35:54,870 --> 01:35:51,989

least I'm not trying to understand that

2475

01:35:56,910 --> 01:35:54,880

on the theoretical level even if maybe

2476

01:35:58,470 --> 01:35:56,920

not building you know their own time

2477

01:36:01,379 --> 01:35:58,480

machines just yet we were talking about

2478

01:36:04,470 --> 01:36:01,389

some of the current buzzwords and and in

2479

01:36:07,260 --> 01:36:04,480

aspects of quantum physics that are now

2480

01:36:09,120 --> 01:36:07,270

currently being answered about back in

2481

01:36:10,930 --> 01:36:09,130

the early 90s I seem to recall there was

2482

01:36:14,500 --> 01:36:10,940

a bit of a of

2483

01:36:16,330 --> 01:36:14,510

Lurie of interest in ColdFusion I

2484

01:36:19,420 --> 01:36:16,340

haven't heard anything about that

2485

01:36:22,410 --> 01:36:19,430

recently is this a dead area of inquiry

2486

01:36:26,439 --> 01:36:22,420

or study or where are we in that process

2487

01:36:28,060 --> 01:36:26,449

well you know I'm no expert in what's

2488

01:36:29,439 --> 01:36:28,070

going on most recently I do know it's

2489

01:36:31,000 --> 01:36:29,449

not dead and says that there are still

2490

01:36:32,860 --> 01:36:31,010

people looking at in fact as a

2491

01:36:35,350 --> 01:36:32,870

sociologist decide to coined as the

2492

01:36:38,530 --> 01:36:35,360

undead side it's like a zombie thing

2493

01:36:40,450 --> 01:36:38,540

that she won't see not to die and some

2494

01:36:43,360 --> 01:36:40,460

people at least there's a good

2495

01:36:45,670 --> 01:36:43,370

description and again I'm not I'm not

2496

01:36:46,900 --> 01:36:45,680

gonna cast aspersions on those who are

2497

01:36:47,650 --> 01:36:46,910

doing it now I just don't I'm not

2498

01:36:49,479 --> 01:36:47,660

following you

2499

01:36:51,580 --> 01:36:49,489

I dunno they're you know the numbers

2500

01:36:53,740 --> 01:36:51,590

followed you now I think if dwindled

2501
01:36:57,100 --> 01:36:53,750
even from the heyday that you described

2502
01:36:58,420 --> 01:36:57,110
but it's not zero and so you know some

2503
01:37:00,850 --> 01:36:58,430
people are convinced there's still

2504
01:37:03,160 --> 01:37:00,860
something there how about building

2505
01:37:05,740 --> 01:37:03,170
machines based on dark matter I've I've

2506
01:37:07,300 --> 01:37:05,750
been seeing somebody lately that there's

2507
01:37:11,740 --> 01:37:07,310
some question whether dark matter is

2508
01:37:13,750 --> 01:37:11,750
even real obviously theoretically you

2509
01:37:15,520 --> 01:37:13,760
know I know how put off is very

2510
01:37:19,270 --> 01:37:15,530
interested in it I know Sarfati has been

2511
01:37:21,490 --> 01:37:19,280
very interested in it in others but what

2512
01:37:22,930 --> 01:37:21,500
is this current this new development in

2513
01:37:26,530 --> 01:37:22,940

there where now the whole concept is

2514

01:37:27,850 --> 01:37:26,540

being being questioned well I'm not sure

2515

01:37:30,880 --> 01:37:27,860

the specific that you're referring to I

2516

01:37:33,060 --> 01:37:30,890

do know in general either been a lot of

2517

01:37:35,410 --> 01:37:33,070

efforts you know dark matter is so

2518

01:37:37,479 --> 01:37:35,420

troubling right - most astrophysicists

2519

01:37:39,310 --> 01:37:37,489

because it's like who ordered that we

2520

01:37:41,410 --> 01:37:39,320

don't we don't want that stuff right it

2521

01:37:43,240 --> 01:37:41,420

means that again as I'm sure you even

2522

01:37:47,380 --> 01:37:43,250

listeners know means on the order of a

2523

01:37:49,510 --> 01:37:47,390

quarter about truff ly 25% of the energy

2524

01:37:51,100 --> 01:37:49,520

balance of the entire universe is stuff

2525

01:37:52,720 --> 01:37:51,110

that we don't have any idea what it is

2526

01:37:54,160 --> 01:37:52,730

and we've never detected it we can't

2527

01:37:56,020 --> 01:37:54,170

smell it we can't catch it in our

2528

01:37:58,870 --> 01:37:56,030

laboratory we haven't yet it despite

2529

01:38:01,120 --> 01:37:58,880

some very good tries and we have no

2530

01:38:03,520 --> 01:38:01,130

clear idea of what it might be a lots of

2531

01:38:04,810 --> 01:38:03,530

competing hypotheses and so it'll be

2532

01:38:06,760 --> 01:38:04,820

great if there were no need for talk

2533

01:38:10,000 --> 01:38:06,770

matter at all if it was just one grand

2534

01:38:11,950 --> 01:38:10,010

mistake but that's been hard too I mean

2535

01:38:14,140 --> 01:38:11,960

again I won't discount every effort but

2536

01:38:16,330 --> 01:38:14,150

we think we understand Einstein's

2537

01:38:18,430 --> 01:38:16,340

relativity really really well with from

2538

01:38:22,660 --> 01:38:18,440

lots of angles with lots of sensitive

2539

01:38:24,250 --> 01:38:22,670

tests and if - relativity is to hold and

2540

01:38:24,810 --> 01:38:24,260

it really exceeded to my understanding

2541

01:38:27,210 --> 01:38:24,820

we

2542

01:38:29,250 --> 01:38:27,220

really do need this mysterious missing

2543

01:38:31,470 --> 01:38:29,260

matters dark matter to make sense of the

2544

01:38:34,260 --> 01:38:31,480

behavior of galaxies the way they rotate

2545

01:38:36,810 --> 01:38:34,270

the way they behave gravitationally and

2546

01:38:38,490 --> 01:38:36,820

so it could be that Einstein's

2547

01:38:40,260 --> 01:38:38,500

relativity is just wrong and there's

2548

01:38:41,850 --> 01:38:40,270

some other theory we don't know yet it's

2549

01:38:44,730 --> 01:38:41,860

so that's always possible right and

2550

01:38:45,870 --> 01:38:44,740

maybe that would make get away from the

2551

01:38:47,790 --> 01:38:45,880

need for dark matter it's a

2552

01:38:50,130 --> 01:38:47,800

gravitational interaction itself would

2553

01:38:52,590 --> 01:38:50,140

would give the same result without this

2554

01:38:54,330 --> 01:38:52,600

mysterious stuff but but that's I think

2555

01:38:56,760 --> 01:38:54,340

that would be fairly called a longshot

2556

01:38:58,560 --> 01:38:56,770

not impossible but a longshot and if we

2557

01:39:00,240 --> 01:38:58,570

and if gravity if galaxy's are behaving

2558

01:39:01,890 --> 01:39:00,250

the way we think they are the way we

2559

01:39:03,510 --> 01:39:01,900

think we understand they should then I

2560

01:39:05,310 --> 01:39:03,520

think we're largely stuck with this

2561

01:39:08,070 --> 01:39:05,320

missing you know this mystery of what is

2562

01:39:09,360 --> 01:39:08,080

this stuff and so before we can build

2563

01:39:11,310 --> 01:39:09,370

machines out of it let's just go out

2564

01:39:14,220 --> 01:39:11,320

let's it detects them first let's go to

2565

01:39:15,750 --> 01:39:14,230

the lab yeah and then you then you can

2566

01:39:17,520 --> 01:39:15,760

play with it first you gotta prove you

2567

01:39:20,730 --> 01:39:17,530

know kind of figure out what what

2568

01:39:23,100 --> 01:39:20,740

exactly it is because that's a heck of a

2569

01:39:25,470 --> 01:39:23,110

lot of I mean the universe is pretty

2570

01:39:28,410 --> 01:39:25,480

pretty big place in 25% of it just still

2571

01:39:30,330 --> 01:39:28,420

being an unknown as that must perplex a

2572

01:39:32,580 --> 01:39:30,340

lot of people here's another one now

2573

01:39:34,950 --> 01:39:32,590

Andrew kind of mentioned this one to me

2574

01:39:37,710 --> 01:39:34,960

before he was wondering if the Higgs

2575

01:39:39,930 --> 01:39:37,720

boson particle is not found at the Large

2576

01:39:43,680 --> 01:39:39,940

Hadron Collider what happens to the

2577

01:39:44,940 --> 01:39:43,690

standard model yeah find that for our

2578

01:39:50,820 --> 01:39:44,950

listeners because their eyes are just

2579

01:39:52,320 --> 01:39:50,830

glazed over so so a couple things

2580

01:39:53,730 --> 01:39:52,330

there's it the Higgs boson I guess

2581

01:39:56,340 --> 01:39:53,740

realist just might now it's often in the

2582

01:39:58,560 --> 01:39:56,350

news these days it's a so far still

2583

01:40:01,370 --> 01:39:58,570

hypothetical particle no one's had the

2584

01:40:04,020 --> 01:40:01,380

definitive you know observational

2585

01:40:05,880 --> 01:40:04,030

measurements of it yet despite lots of

2586

01:40:07,560 --> 01:40:05,890

trying so trying now so it's a

2587

01:40:09,780 --> 01:40:07,570

hypothetical particle that really is

2588

01:40:12,570 --> 01:40:09,790

central to our understanding of the

2589

01:40:15,150 --> 01:40:12,580

basic forces between parts of atoms

2590

01:40:17,280 --> 01:40:15,160

between subatomic particles it's it's

2591

01:40:19,350 --> 01:40:17,290

one of the main mechanisms is that

2592

01:40:20,910 --> 01:40:19,360

actually gives rise to math as they why

2593

01:40:22,770 --> 01:40:20,920

do you see an electron has a certain

2594

01:40:25,860 --> 01:40:22,780

mass instead of having no mass at all

2595

01:40:28,110 --> 01:40:25,870

and so it's it's um it's sort of it

2596

01:40:30,810 --> 01:40:28,120

conceptually it seems to literally hold

2597

01:40:33,780 --> 01:40:30,820

the whole the whole picture together

2598

01:40:35,220 --> 01:40:33,790

it's the only particle from that entire

2599

01:40:36,930 --> 01:40:35,230

what's called the standard model from

2600

01:40:38,040 --> 01:40:36,940

our understanding of the basic forces of

2601

01:40:39,959 --> 01:40:38,050

nature that is

2602

01:40:42,450 --> 01:40:39,969

been seen every other piece of the

2603

01:40:44,520 --> 01:40:42,460

center model by now has been seen we can

2604

01:40:46,229 --> 01:40:44,530

you know captured in our labs you can

2605

01:40:48,600 --> 01:40:46,239

mess around and measure them carefully

2606

01:40:51,540 --> 01:40:48,610

build stuff out of them in many cases

2607

01:40:52,799 --> 01:40:51,550

and the one ms the one missing component

2608

01:40:55,410 --> 01:40:52,809

the one piece that we just have never

2609

01:40:59,280 --> 01:40:55,420

ever seen directly is this this Higgs

2610

01:41:00,720 --> 01:40:59,290

particle so if it is not there at all

2611

01:41:02,600 --> 01:41:00,730

then you can play the usual game saying

2612

01:41:06,060 --> 01:41:02,610

well it must be in some different you

2613

01:41:08,160 --> 01:41:06,070

might have a different mass and we

2614

01:41:09,959 --> 01:41:08,170

thought a must lie outside the range we

2615

01:41:11,399 --> 01:41:09,969

need a bigger out of the Smasher but you

2616

01:41:13,910 --> 01:41:11,409

can only do that so far because then

2617

01:41:16,140 --> 01:41:13,920

other things start becoming you know and

2618

01:41:18,750 --> 01:41:16,150

inconsistent and so you can't play the

2619

01:41:20,310 --> 01:41:18,760

game too much more otherwise you could

2620

01:41:22,680 --> 01:41:20,320

say maybe there just is no Higgs

2621

01:41:24,149 --> 01:41:22,690

particle and it and it's it's kinda back

2622

01:41:25,530 --> 01:41:24,159

to the drawing board in that case so

2623

01:41:27,299 --> 01:41:25,540

that's both exciting because we'll have

2624

01:41:29,790 --> 01:41:27,309

lots more to do and apply for y'all for

2625

01:41:32,010 --> 01:41:29,800

grants but but it's that would be that

2626

01:41:34,049 --> 01:41:32,020

would be a real big I think the word

2627

01:41:36,359 --> 01:41:34,059

shock would not be inappropriate that

2628

01:41:38,069 --> 01:41:36,369

would be a big big deal if they're just

2629

01:41:40,379 --> 01:41:38,079

honestly no Higgs we've been thinking

2630

01:41:41,609 --> 01:41:40,389

about this thing and drunk inclusions

2631

01:41:44,850 --> 01:41:41,619

about what struck what property that

2632

01:41:46,830 --> 01:41:44,860

must have since the early 60s and it

2633

01:41:48,839 --> 01:41:46,840

really isn't they are 50 years later you

2634

01:41:51,510 --> 01:41:48,849

know back that's gonna be a big deal

2635

01:41:52,830 --> 01:41:51,520

yeah that's a big deal you know well you

2636

01:41:57,149 --> 01:41:52,840

know I've been I've been reading some

2637

01:41:59,970 --> 01:41:57,159

rather alarmist blogs and articles about

2638

01:42:03,810 --> 01:41:59,980

people really being in a place of fear

2639

01:42:05,700 --> 01:42:03,820

about what's going on at CERN and you

2640

01:42:08,160 --> 01:42:05,710

know you hear things bannered about like

2641

01:42:09,720 --> 01:42:08,170

oh they're gonna create a wormhole or

2642

01:42:11,250 --> 01:42:09,730

they're gonna create something that's

2643

01:42:13,439 --> 01:42:11,260

gonna eat the earth and you know there's

2644

01:42:16,979 --> 01:42:13,449

a lot of alarmism out there and do you

2645

01:42:19,319 --> 01:42:16,989

think that that kind of thinking somehow

2646

01:42:22,319 --> 01:42:19,329

relates to the fact that science has

2647

01:42:24,660 --> 01:42:22,329

left ahead so far away from the common

2648

01:42:26,549 --> 01:42:24,670

you know your average Joe out there Joe

2649

01:42:28,979 --> 01:42:26,559

Sixpack is sitting there you know

2650

01:42:31,290 --> 01:42:28,989

watching the news and and do you think

2651

01:42:33,930 --> 01:42:31,300

that there's a really increasing gap

2652

01:42:36,270 --> 01:42:33,940

between between the ivory towers of

2653

01:42:38,100 --> 01:42:36,280

science and and the average person and

2654

01:42:40,859 --> 01:42:38,110

do you think that this somehow

2655

01:42:43,200 --> 01:42:40,869

can relate to what appears to be a real

2656

01:42:46,979 --> 01:42:43,210

upsurge in interest in the last couple

2657

01:42:48,569 --> 01:42:46,989

of decades in areas of in subjects that

2658

01:42:51,780 --> 01:42:48,579

most scientists just roll their eyes

2659

01:42:54,990 --> 01:42:51,790

whether it's you know all these ghosts

2660

01:42:58,140 --> 01:42:55,000

shows and in UFO shows and in this

2661

01:42:59,790 --> 01:42:58,150

interest in in more magical mystical

2662

01:43:02,070 --> 01:42:59,800

things do you think that that's a direct

2663

01:43:05,100 --> 01:43:02,080

result of this this increasing gap

2664

01:43:08,340 --> 01:43:05,110

between cutting-edge science quantum

2665

01:43:10,770 --> 01:43:08,350

theory and just these wonderful you know

2666

01:43:12,180 --> 01:43:10,780

leaps ahead that we're doing in terms of

2667

01:43:15,120 --> 01:43:12,190

our scientific knowledge do you think

2668

01:43:16,500 --> 01:43:15,130

that there's a relation there you know I

2669

01:43:17,910 --> 01:43:16,510

bet there isn't I bet there's other

2670

01:43:19,590 --> 01:43:17,920

things going on you know in the mix as

2671

01:43:20,820 --> 01:43:19,600

well but I wouldn't discount her I think

2672

01:43:22,920 --> 01:43:20,830

I think you're right and I certainly

2673

01:43:25,710 --> 01:43:22,930

agree that this sort of increasing gap

2674

01:43:27,150 --> 01:43:25,720

between what sort of most people can be

2675

01:43:29,400 --> 01:43:27,160

expected to know or understand about

2676

01:43:31,050 --> 01:43:29,410

science and the kind of cutting edge I

2677

01:43:34,200 --> 01:43:31,060

think that I think that gap is getting

2678

01:43:38,340 --> 01:43:34,210

pretty wide and I think is also you know

2679

01:43:40,020 --> 01:43:38,350

there's you know the kind of late 60s if

2680

01:43:41,850 --> 01:43:40,030

I say the Watergate era you know in this

2681

01:43:43,680 --> 01:43:41,860

country there's been a lot less

2682

01:43:44,790 --> 01:43:43,690

inclination to just believe what the

2683

01:43:47,610 --> 01:43:44,800

experts are telling you no matter who

2684

01:43:49,770 --> 01:43:47,620

the experts are and so I think there's a

2685

01:43:52,050 --> 01:43:49,780

change in a kind of political culture or

2686

01:43:53,790 --> 01:43:52,060

maybe a media culture so it's not only

2687

01:43:55,230 --> 01:43:53,800

we don't understand that stuff but you

2688

01:43:57,090 --> 01:43:55,240

know who are you to tell me what what I

2689

01:43:58,410 --> 01:43:57,100

shouldn't even worry about like you know

2690

01:44:00,990 --> 01:43:58,420

like and I'm just done that has

2691

01:44:02,400 --> 01:44:01,000

something behind it you know with just

2692

01:44:03,930 --> 01:44:02,410

having fancy letters after name doesn't

2693

01:44:05,550 --> 01:44:03,940

mean you know everything and we've been

2694

01:44:07,950 --> 01:44:05,560

surprised all the time before so there

2695

01:44:10,710 --> 01:44:07,960

can be a kind of concern you know are

2696

01:44:13,650 --> 01:44:10,720

the experts not telling us stuff might

2697

01:44:15,360 --> 01:44:13,660

be might not be what can I say that

2698

01:44:17,040 --> 01:44:15,370

might not be a real cause for concern it

2699

01:44:19,050 --> 01:44:17,050

might not be vast conspiracies of evil

2700

01:44:20,910 --> 01:44:19,060

scientists behind the curtain but I can

2701

01:44:22,680 --> 01:44:20,920

understand why why people might be

2702

01:44:24,360 --> 01:44:22,690

worried you know do we know everything

2703

01:44:26,100 --> 01:44:24,370

we need to know they can tell me not to

2704

01:44:27,570 --> 01:44:26,110

worry but we've heard that before I'll

2705

01:44:29,280 --> 01:44:27,580

tell you though we have to do this break

2706

01:44:32,810 --> 01:44:29,290

we have David Kaiser the book is called

2707

01:44:35,370 --> 01:44:32,820

how the hippy saved physics science

2708

01:44:37,350 --> 01:44:35,380

counterculture and the quantum revival

2709

01:44:42,760 --> 01:44:37,360

the co-host is Chris O'Brien I'm gene

2710

01:44:47,479 --> 01:44:44,830

[Music]

2711

01:44:49,520 --> 01:44:47,489

hi Ted Anderson announcing a great way

2712

01:44:51,529 --> 01:44:49,530

to listen to radio on the telephone by

2713

01:44:53,419 --> 01:44:51,539

calling seven six oh five six nine

2714

01:44:55,910 --> 01:44:53,429

seventy seven hundred you'll be hearing

2715

01:44:58,279 --> 01:44:55,920

juicy and live.com programs in seconds

2716

01:45:00,379 --> 01:44:58,289

come to GCN live.com find your favorite

2717

01:45:03,020 --> 01:45:00,389

host dedicated phone number and hear

2718

01:45:05,689 --> 01:45:03,030

them 24/7 you heard me right every show

2719

01:45:07,669 --> 01:45:05,699

has a dedicated phone number stop by GC

2720

01:45:10,069 --> 01:45:07,679

and live.com and bookmark their number

2721

01:45:12,739 --> 01:45:10,079

today and again that's seven six oh five

2722

01:45:14,330 --> 01:45:12,749

six nine seventy seven hundred hi this

2723

01:45:15,859 --> 01:45:14,340

is Ted Anderson have you ever wondered

2724

01:45:17,540 --> 01:45:15,869

why banks star Parker's investment

2725

01:45:19,009 --> 01:45:17,550

advisors won't talk about gold IRAs

2726
01:45:20,600 --> 01:45:19,019
they've been available since nineteen

2727
01:45:22,279 --> 01:45:20,610
eighty six yet the financial industry

2728
01:45:22,969 --> 01:45:22,289
won't recognize the value of gold for

2729
01:45:24,709 --> 01:45:22,979
your retirement

2730
01:45:26,660 --> 01:45:24,719
gold has outperformed paper investments

2731
01:45:38,259 --> 01:45:26,670
yet no word about IRAs if you would like

2732
01:45:55,390 --> 01:45:39,570
806-853-9949

2733
01:46:00,929 --> 01:45:57,169
[Music]

2734
01:46:03,479 --> 01:46:00,939
this takes us to the final four of the

2735
01:46:05,939 --> 01:46:03,489
para cast David Kiser I cast I'm Jean

2736
01:46:08,759 --> 01:46:05,949
Chris O'Brien's with me you're in the

2737
01:46:11,669 --> 01:46:08,769
power cast I'm gonna ask you kind of

2738
01:46:13,459 --> 01:46:11,679

far-reaching question here which may or

2739

01:46:16,620 --> 01:46:13,469

may not relate to everything this

2740

01:46:19,770 --> 01:46:16,630

renewed emphasis in some quarters of the

2741

01:46:22,259 --> 01:46:19,780

political spectrum on what we didn't

2742

01:46:25,199 --> 01:46:22,269

consider science such as creationism

2743

01:46:27,750 --> 01:46:25,209

other things is there an anti science

2744

01:46:30,060 --> 01:46:27,760

movement going on trying to conserve

2745

01:46:31,830 --> 01:46:30,070

what we knew before and forget about

2746

01:46:36,060 --> 01:46:31,840

what we know now and what we hope to

2747

01:46:39,509 --> 01:46:36,070

know in the future us I hope not Jean I

2748

01:46:41,909 --> 01:46:39,519

think there are I think we find

2749

01:46:43,799 --> 01:46:41,919

tendencies like that I'm not sure so

2750

01:46:46,290 --> 01:46:43,809

much to sort of keep us from discovering

2751

01:46:48,060 --> 01:46:46,300

new things - I don't think that's what's

2752

01:46:50,279 --> 01:46:48,070

driving it I think it's you know I think

2753

01:46:52,169 --> 01:46:50,289

it's politics like like most politics if

2754

01:46:54,479 --> 01:46:52,179

people don't like a particular outcome

2755

01:46:57,299 --> 01:46:54,489

or policy then there could be efforts to

2756

01:46:59,520 --> 01:46:57,309

to use that to decide what legitimate to

2757

01:47:01,080 --> 01:46:59,530

- to study or to get funding for and all

2758

01:47:03,419 --> 01:47:01,090

the rest I think we saw a lot of that I

2759

01:47:06,270 --> 01:47:03,429

mean real sort of obvious bare

2760

01:47:08,879 --> 01:47:06,280

partisanship around science quite

2761

01:47:10,379 --> 01:47:08,889

frankly in the earlier years of this of

2762

01:47:12,689 --> 01:47:10,389

the 20th century in the United States

2763

01:47:13,919 --> 01:47:12,699

and I think independent ones politics I

2764

01:47:15,509 --> 01:47:13,929

think we can all agree there was a lot

2765

01:47:17,129 --> 01:47:15,519

of political meddling in a way that we

2766

01:47:20,100 --> 01:47:17,139

maybe hadn't been accustomed to seeing

2767

01:47:22,290 --> 01:47:20,110

for in quite so extreme ways in earlier

2768

01:47:24,509 --> 01:47:22,300

times so yeah I think as I mentioned

2769

01:47:26,580 --> 01:47:24,519

before you know I have a some modest

2770

01:47:28,500 --> 01:47:26,590

interest in following this kind of

2771

01:47:30,419 --> 01:47:28,510

intelligent design or creationism stuff

2772

01:47:32,850 --> 01:47:30,429

partly just because it sometimes it

2773

01:47:35,759 --> 01:47:32,860

impacts you know ideas about cosmology

2774

01:47:37,379 --> 01:47:35,769

or there's a kind of pushback around

2775

01:47:39,330 --> 01:47:37,389

what I consider actually really very

2776

01:47:40,649 --> 01:47:39,340

well-established ideas and other people

2777

01:47:41,549 --> 01:47:40,659

say you know that's just your opinion

2778

01:47:42,810 --> 01:47:41,559

and you have no right to teach our

2779

01:47:45,239 --> 01:47:42,820

children and all that kind of thing and

2780

01:47:47,189 --> 01:47:45,249

so you know that cut that's still around

2781

01:47:48,540 --> 01:47:47,199

it'll be integrally you know how that

2782

01:47:50,939 --> 01:47:48,550

settles out in the coming years

2783

01:47:52,889 --> 01:47:50,949

time one can't help but be reminded of

2784

01:47:55,529 --> 01:47:52,899

Pat Robertson's rather disturbing

2785

01:47:57,659 --> 01:47:55,539

comment about ten years ago where he

2786

01:48:00,569 --> 01:47:57,669

said that UFO believers should be stoned

2787

01:48:03,540 --> 01:48:00,579

that the heavens are for God the

2788

01:48:04,560 --> 01:48:03,550

firmament is for man yet he bounces the

2789

01:48:07,680 --> 01:48:04,570

700 club

2790

01:48:10,320 --> 01:48:07,690

satellites all over the whole Burkle I

2791

01:48:12,750 --> 01:48:10,330

guess I guess you want your cake and you

2792

01:48:15,110 --> 01:48:12,760

want to eat it too in that regard where

2793

01:48:17,970 --> 01:48:15,120

are we going now I mean what sort of

2794

01:48:20,790 --> 01:48:17,980

breakthroughs duh I mean I know you're

2795

01:48:24,000 --> 01:48:20,800

you have your own area of expertise and

2796

01:48:27,060 --> 01:48:24,010

cosmology do you see anything on the

2797

01:48:29,820 --> 01:48:27,070

near horizon there might be some just

2798

01:48:31,650 --> 01:48:29,830

amazing breakthrough are there any areas

2799

01:48:33,360 --> 01:48:31,660

that are particularly exciting right now

2800

01:48:35,310 --> 01:48:33,370

in science I think there are a lot of

2801
01:48:37,440 --> 01:48:35,320
areas that are really exciting you know

2802
01:48:39,270 --> 01:48:37,450
in my own little little universe so to

2803
01:48:41,970 --> 01:48:39,280
speak my little domain

2804
01:48:44,640 --> 01:48:41,980
I think cosmology is again just an

2805
01:48:46,080 --> 01:48:44,650
amazing place right now when I was

2806
01:48:48,840 --> 01:48:46,090
starting out as a student not all that

2807
01:48:51,090 --> 01:48:48,850
long ago we could basically say with

2808
01:48:51,870 --> 01:48:51,100
confidence that certain basic parameters

2809
01:48:53,580 --> 01:48:51,880
of our universe

2810
01:48:55,380 --> 01:48:53,590
we're known to within a factor of two

2811
01:48:58,050 --> 01:48:55,390
awfully to within a factor of 10

2812
01:49:00,390 --> 01:48:58,060
that's not very precise right and now a

2813
01:49:02,820 --> 01:49:00,400

lot of the same parameters are known to

2814

01:49:05,610 --> 01:49:02,830

better than 1% accuracy and it's better

2815

01:49:07,710 --> 01:49:05,620

than 99% residual errors are incredibly

2816

01:49:10,500 --> 01:49:07,720

small and that happen in the space of 10

2817

01:49:12,690 --> 01:49:10,510

or 20 years and that has ruled out

2818

01:49:14,730 --> 01:49:12,700

certain ideas that has honed others that

2819

01:49:16,710 --> 01:49:14,740

pushed new ideas to the forefront and

2820

01:49:18,150 --> 01:49:16,720

that's only sort of still building up

2821

01:49:19,710 --> 01:49:18,160

steam there new satellites and

2822

01:49:21,810 --> 01:49:19,720

incredible instance being launched and

2823

01:49:23,760 --> 01:49:21,820

designed all the time so in that sense I

2824

01:49:25,620 --> 01:49:23,770

think cosmology is a growth area I think

2825

01:49:27,450 --> 01:49:25,630

it's incredibly exciting we have these

2826

01:49:29,280 --> 01:49:27,460

stubborn questions like dark matter or

2827

01:49:31,110 --> 01:49:29,290

like dark energy like all the exotic

2828

01:49:32,970 --> 01:49:31,120

notions from Einstein's relativity we

2829

01:49:34,650 --> 01:49:32,980

still haven't fully explored and so

2830

01:49:36,930 --> 01:49:34,660

there's there's there's plenty of room

2831

01:49:38,730 --> 01:49:36,940

for really fun and intriguing stuff in

2832

01:49:40,500 --> 01:49:38,740

cosmology and that's just one area I

2833

01:49:43,560 --> 01:49:40,510

think I think lots of people would have

2834

01:49:45,510 --> 01:49:43,570

similar excitement you know around as a

2835

01:49:46,920 --> 01:49:45,520

nanotech or certainly quantum computing

2836

01:49:49,050 --> 01:49:46,930

or all kinds of areas within the

2837

01:49:50,970 --> 01:49:49,060

physical sciences well we have a new

2838

01:49:52,860 --> 01:49:50,980

telescope going up which I'm sure is

2839

01:49:55,080 --> 01:49:52,870

real exciting for you and your work the

2840

01:49:57,750 --> 01:49:55,090

James Webb telescope which would be kind

2841

01:50:00,960 --> 01:49:57,760

of the next generation Hubble what do

2842

01:50:02,550 --> 01:50:00,970

cosmologists in and astrophysicists what

2843

01:50:04,590 --> 01:50:02,560

are they expecting to be able to

2844

01:50:07,920 --> 01:50:04,600

determine that's new and exciting with

2845

01:50:10,440 --> 01:50:07,930

this incredible leap forward in space

2846

01:50:11,460 --> 01:50:10,450

born technology so a lot of time with

2847

01:50:14,490 --> 01:50:11,470

these satellites what you're worrying

2848

01:50:16,230 --> 01:50:14,500

about increasing resolution on the sky

2849

01:50:17,550 --> 01:50:16,240

how finally can you just can you

2850

01:50:18,150 --> 01:50:17,560

distinguish between the objects and

2851

01:50:19,830 --> 01:50:18,160

that's partly why

2852

01:50:21,480 --> 01:50:19,840

Hubbell was such an amazing leap forward

2853

01:50:24,150 --> 01:50:21,490

to be able to see things that that

2854

01:50:26,010 --> 01:50:24,160

simply had not been seeable before and

2855

01:50:27,600 --> 01:50:26,020

the latest version is like you say you

2856

01:50:30,750 --> 01:50:27,610

should should do that you know better by

2857

01:50:32,430 --> 01:50:30,760

factors 10 or 20 or 100 same thing with

2858

01:50:34,500 --> 01:50:32,440

these more cosmologically oriented

2859

01:50:36,240 --> 01:50:34,510

satellites as a plonk satellite named

2860

01:50:38,400 --> 01:50:36,250

for max o'clock you know the quality

2861

01:50:41,400 --> 01:50:38,410

revolutionary that's already in orbit

2862

01:50:43,230 --> 01:50:41,410

it's not it's not to reporting data yet

2863

01:50:45,090 --> 01:50:43,240

but it's taking data and that again

2864

01:50:47,610 --> 01:50:45,100

would do for understanding the very

2865

01:50:49,830 --> 01:50:47,620

earliest moments of our universe about

2866

01:50:52,410 --> 01:50:49,840

you know 10 to 30 times better than the

2867

01:50:54,420 --> 01:50:52,420

best we have today and as we start being

2868

01:50:56,490 --> 01:50:54,430

able to really say is this how the

2869

01:50:58,710 --> 01:50:56,500

universe began or is that and you can

2870

01:50:59,970 --> 01:50:58,720

really start distinguishing is that it

2871

01:51:01,530 --> 01:50:59,980

is saying well all our ideas are

2872

01:51:04,020 --> 01:51:01,540

compatible with what we can know because

2873

01:51:05,370 --> 01:51:04,030

we have fuzzed out data you really get

2874

01:51:07,500 --> 01:51:05,380

down to the nitty-gritty and you start

2875

01:51:09,330 --> 01:51:07,510

getting surprises well also there's a

2876

01:51:13,140 --> 01:51:09,340

possibility of actually optically being

2877

01:51:17,370 --> 01:51:13,150

able to to see extrasolar planets as

2878

01:51:20,160 --> 01:51:17,380

well with so X X or you know astronomy

2879

01:51:22,710 --> 01:51:20,170

the exoplanet stuff is incredible and

2880

01:51:23,910 --> 01:51:22,720

getting more so all the time that's you

2881

01:51:26,580 --> 01:51:23,920

know certainly aided by each of these

2882

01:51:28,200 --> 01:51:26,590

leaps in technology as well as you know

2883

01:51:29,520 --> 01:51:28,210

period these these things are you're

2884

01:51:32,100 --> 01:51:29,530

also a time machines these are things

2885

01:51:34,530 --> 01:51:32,110

appearing back in time of almost 14

2886

01:51:36,540 --> 01:51:34,540

billion years ago and we can still take

2887

01:51:38,430 --> 01:51:36,550

a like a Polaroid you can take a

2888

01:51:40,890 --> 01:51:38,440

snapshot of this baby universe and

2889

01:51:41,970 --> 01:51:40,900

puzzle over it that's pretty amazing so

2890

01:51:43,680 --> 01:51:41,980

we're not going to be able to see all

2891

01:51:45,240 --> 01:51:43,690

the way back to the Big Bang obviously

2892

01:51:48,030 --> 01:51:45,250

but we're going to get pretty close I

2893

01:51:50,970 --> 01:51:48,040

would think within probably less than a

2894

01:51:53,760 --> 01:51:50,980

billion years if if memory serves me

2895

01:51:56,120 --> 01:51:53,770

correctly I'm not I am no scientist

2896

01:51:59,270 --> 01:51:56,130

listeners do not try this at home

2897

01:52:02,130 --> 01:51:59,280

in fact we'll get back to to roughly

2898

01:52:05,130 --> 01:52:02,140

400,000 years after the Big Bang which

2899

01:52:07,530 --> 01:52:05,140

is say about 13.7 billion years ago it's

2900

01:52:10,320 --> 01:52:07,540

a long time 13.3 years oh yeah the big

2901

01:52:12,240 --> 01:52:10,330

concern here is of course how all this

2902

01:52:13,710 --> 01:52:12,250

cutting-edge research is being treated

2903

01:52:16,620 --> 01:52:13,720

especially now where we've reached the

2904

01:52:18,210 --> 01:52:16,630

point here where once again science

2905

01:52:20,370 --> 01:52:18,220

isn't getting the grants they used to

2906

01:52:22,470 --> 01:52:20,380

get we're so busy cutting spending we

2907

01:52:25,170 --> 01:52:22,480

don't think about the practical effect

2908

01:52:28,440 --> 01:52:25,180

well that's true and and it it is

2909

01:52:29,730 --> 01:52:28,450

worrying if there was you know I mean

2910

01:52:31,260 --> 01:52:29,740

there are budget battles all the time

2911

01:52:32,020 --> 01:52:31,270

our most recent budget battles have been

2912

01:52:34,360 --> 01:52:32,030

more severe

2913

01:52:35,680 --> 01:52:34,370

course than than average and you know

2914

01:52:37,390 --> 01:52:35,690

every now and then there are efforts to

2915

01:52:38,680 --> 01:52:37,400

cut whole wings out of the National

2916

01:52:41,290 --> 01:52:38,690

Science Foundation just close them down

2917

01:52:43,270 --> 01:52:41,300

for example and so far at least those

2918

01:52:45,040 --> 01:52:43,280

those battles have been more heat than

2919

01:52:46,750 --> 01:52:45,050

light and they were I think a lot of

2920

01:52:49,270 --> 01:52:46,760

kind of political jockeying but maybe

2921

01:52:51,130 --> 01:52:49,280

not a maybe not quite as serious a

2922

01:52:52,630 --> 01:52:51,140

threat as a scene but who knows and you

2923

01:52:54,190 --> 01:52:52,640

know these days the congressional

2924

01:52:57,190 --> 01:52:54,200

battles are just getting quite frankly

2925

01:52:59,130 --> 01:52:57,200

more more difficult to understand I'll

2926
01:53:02,350 --> 01:52:59,140
put it that way and just more and more

2927
01:53:06,010 --> 01:53:02,360
uncertainty so yeah I think it is a kind

2928
01:53:07,360 --> 01:53:06,020
of a difficult time now we're in a cycle

2929
01:53:08,950 --> 01:53:07,370
by cycle you know if you could if

2930
01:53:10,540 --> 01:53:08,960
they'll even be the foundation to apply

2931
01:53:12,130 --> 01:53:10,550
for your quick little you will you get

2932
01:53:13,990 --> 01:53:12,140
your grant but will there even be the

2933
01:53:15,910 --> 01:53:14,000
edifice there and again so far it's made

2934
01:53:19,180 --> 01:53:15,920
it through previous battles but it's

2935
01:53:22,630 --> 01:53:19,190
it's eerie stuff in your particular case

2936
01:53:24,700 --> 01:53:22,640
here and obviously you're teaching the

2937
01:53:27,160 --> 01:53:24,710
new generation the new generation of the

2938
01:53:29,200 --> 01:53:27,170

scientists the ones who will maybe

2939

01:53:34,150 --> 01:53:29,210

figure out whether we can get a handle

2940

01:53:37,180 --> 01:53:34,160

on time travel on unlimited power space

2941

01:53:38,950 --> 01:53:37,190

travel all this stuff do you find your

2942

01:53:40,530 --> 01:53:38,960

class is getting bigger smaller what

2943

01:53:43,300 --> 01:53:40,540

kind of things are we interested in

2944

01:53:44,620 --> 01:53:43,310

they're pretty big and I think they've

2945

01:53:46,930 --> 01:53:44,630

gotten pretty big and that's exciting

2946

01:53:50,410 --> 01:53:46,940

and these are you incredibly incredibly

2947

01:53:52,510 --> 01:53:50,420

gifted passionate you know students a

2948

01:53:54,550 --> 01:53:52,520

lot more energy and ideas that's and

2949

01:53:57,100 --> 01:53:54,560

that's a good thing and so you know I

2950

01:53:59,410 --> 01:53:57,110

think for example MIT graduated more

2951
01:54:01,690 --> 01:53:59,420
physics majors is here than we have in

2952
01:54:03,580 --> 01:54:01,700
something like 30 or more years so

2953
01:54:04,930 --> 01:54:03,590
that's clearly the trend is growing yeah

2954
01:54:10,570 --> 01:54:04,940
that's excellent

2955
01:54:12,880 --> 01:54:10,580
that's good news well one of these kids

2956
01:54:14,410 --> 01:54:12,890
what stuff what's you know I mean are

2957
01:54:16,630 --> 01:54:14,420
they jazzed by anything in particular

2958
01:54:19,060 --> 01:54:16,640
right now or is it just go discipline by

2959
01:54:22,000 --> 01:54:19,070
discipline by suppose I know there's a

2960
01:54:24,850 --> 01:54:22,010
lot of interest I am you know places

2961
01:54:26,860 --> 01:54:24,860
like India and China are producing just

2962
01:54:29,050 --> 01:54:26,870
amazing amounts of very very talented

2963
01:54:32,800 --> 01:54:29,060

scientists I mean you know obviously

2964

01:54:35,470 --> 01:54:32,810

this country has you know had a lead and

2965

01:54:37,630 --> 01:54:35,480

you you know in just all these ingenious

2966

01:54:40,600 --> 01:54:37,640

scientists that you know you can point

2967

01:54:43,270 --> 01:54:40,610

to and in in you know in the past are we

2968

01:54:43,680 --> 01:54:43,280

going to be losing our lead in the

2969

01:54:45,479 --> 01:54:43,690

scientist

2970

01:54:47,160 --> 01:54:45,489

disciplines because of the you know

2971

01:54:48,300 --> 01:54:47,170

increased educational levels of these

2972

01:54:50,130 --> 01:54:48,310

other countries do you think we're

2973

01:54:52,350 --> 01:54:50,140

falling behind further and further or

2974

01:54:54,720 --> 01:54:52,360

are we holding our own it sounds like

2975

01:54:57,479 --> 01:54:54,730

there may be a maybe some hope for this

2976

01:55:00,660 --> 01:54:57,489

country and you know I had a I think I

2977

01:55:02,189 --> 01:55:00,670

mentioned on a prior show I was taking

2978

01:55:05,100 --> 01:55:02,199

some measurements to put a grill on a

2979

01:55:07,380 --> 01:55:05,110

wall grading and this 22 year old kid

2980

01:55:09,689 --> 01:55:07,390

high school graduate I asked him to

2981

01:55:12,300 --> 01:55:09,699

write down some numbers for me and I

2982

01:55:14,220 --> 01:55:12,310

said 33 and 3/4 and he said what what's

2983

01:55:17,220 --> 01:55:14,230

what do you mean 3/4 and I said well

2984

01:55:19,110 --> 01:55:17,230

it's point seven-five he goes well what

2985

01:55:22,560 --> 01:55:19,120

do you mean how do you write that and I

2986

01:55:24,390 --> 01:55:22,570

just I mean I literally almost fell off

2987

01:55:26,030 --> 01:55:24,400

the ladder I just could not believe that

2988

01:55:27,750 --> 01:55:26,040

this high school graduate

2989

01:55:29,250 --> 01:55:27,760

twenty-something year old kid didn't

2990

01:55:31,680 --> 01:55:29,260

know what a fraction was it just

2991

01:55:33,630 --> 01:55:31,690

probably not unusual I've heard some

2992

01:55:35,880 --> 01:55:33,640

well you know yeah let's do the break

2993

01:55:38,010 --> 01:55:35,890

David Kaiser joins us Chris O'Brien's

2994

01:55:41,630 --> 01:55:38,020

the co-host I'm gene Steinberg you're in

2995

01:55:46,560 --> 01:55:44,000

[Music]

2996

01:55:48,420 --> 01:55:46,570

you expect professional service from

2997

01:55:49,980 --> 01:55:48,430

your doctor your accountant and even the

2998

01:55:52,140 --> 01:55:49,990

girl who takes your morning coffee order

2999

01:55:54,720 --> 01:55:52,150

why not from your domain registrar to

3000

01:55:56,250 --> 01:55:54,730

namecheap.com provides stellar service

3001

01:55:58,140 --> 01:55:56,260

with no sneaky upselling

3002

01:55:59,850 --> 01:55:58,150

we offer more features and security

3003

01:56:02,010 --> 01:55:59,860

options for your website then there are

3004

01:56:03,990 --> 01:56:02,020

ways to order a latte and new domains

3005

01:56:06,360 --> 01:56:04,000

come with Whois guard to protect your

3006

01:56:08,940 --> 01:56:06,370

personal info at namecheap.com you can

3007

01:56:10,470 --> 01:56:08,950

get your domain for as low as \$2.99 now

3008

01:56:13,770 --> 01:56:10,480

is a great time to get to know

3009

01:56:15,750 --> 01:56:13,780

namecheap.com 58 years fate has provided

3010

01:56:17,640 --> 01:56:15,760

true reports of the strange and unknown

3011

01:56:19,470 --> 01:56:17,650

fate brings you the latest in all

3012

01:56:21,810 --> 01:56:19,480

aspects of the paranormal I came to the

3013

01:56:24,090 --> 01:56:21,820

miracles psychic phenomena ghosts UFOs

3014

01:56:26,220 --> 01:56:24,100

and much much more to receive your

3015

01:56:28,770 --> 01:56:26,230

complimentary fate magazine call now at

3016

01:56:30,870 --> 01:56:28,780

one eight hundred seven two eight two

3017

01:56:48,690 --> 01:56:30,880

seven three oh or visit their website at

3018

01:56:50,520 --> 01:56:48,700

wwlp.com itis resources a team of

3019

01:56:52,680 --> 01:56:50,530

hand-picked financial specialists with

3020

01:56:53,910 --> 01:56:52,690

decades of financial experience who are

3021

01:56:55,680 --> 01:56:53,920

ready to provide you with

3022

01:56:58,020 --> 01:56:55,690

state-of-the-art up-to-date financial

3023

01:56:59,970 --> 01:56:58,030

services Midas resources offers a host

3024

01:57:01,920 --> 01:56:59,980

of services and stands behind their

3025

01:57:03,660 --> 01:57:01,930

products in fact if you call and order

3026

01:57:06,180 --> 01:57:03,670

they're free maitus report Midas

3027

01:57:07,980 --> 01:57:06,190

Resources will pay you this detailed

3028

01:57:09,210 --> 01:57:07,990

report will provide you with financial

3029

01:57:12,470 --> 01:57:09,220

history on the safest and most

3030

01:57:14,450 --> 01:57:12,480

profitable areas to invest in if you

3031

01:57:16,939 --> 01:57:14,460

Midas resources will send you a free

3032

01:57:18,770 --> 01:57:16,949

Walking Liberty silver half-dollar so

3033

01:57:21,649 --> 01:57:18,780

what are you waiting for get the facts

3034

01:57:26,060 --> 01:57:21,659

and Paul Midas resources toll-free at 8

3035

01:57:28,910 --> 01:57:26,070

8 8 to 9 to 2709 that's 8 8 8 to 9 to 2

3036

01:57:31,070 --> 01:57:28,920

709 and remember if you read the Midas

3037

01:57:38,980 --> 01:57:31,080

report you'll receive a free Walking

3038

01:57:42,140 --> 01:57:41,450

the food storage industry leader has

3039

01:57:45,020 --> 01:57:42,150

done it again

3040

01:57:47,720 --> 01:57:45,030

introducing FDG clubs and survival bugs

3041

01:57:49,460 --> 01:57:47,730

from the freeze-dry guy for over 39

3042

01:57:51,080 --> 01:57:49,470

years the freeze-dried guy has served

3043

01:57:52,610 --> 01:57:51,090

various government agencies and the

3044

01:57:54,500 --> 01:57:52,620

private sector with the finest in

3045

01:57:56,240 --> 01:57:54,510

storable foods and emergency rations

3046

01:57:57,950 --> 01:57:56,250

if you've wanted to build emergency food

3047

01:58:00,950 --> 01:57:57,960

supplies but couldn't afford it now you

3048

01:58:02,600 --> 01:58:00,960

can go to three dry guide.com click on

3049

01:58:04,730 --> 01:58:02,610

products and look for the freeze dry

3050

01:58:06,170 --> 01:58:04,740

guide clubs to pay as you go now you can

3051

01:58:08,480 --> 01:58:06,180

build food storage without going into

3052

01:58:09,620 --> 01:58:08,490

debt choose from a payment range of \$95

3053

01:58:11,450 --> 01:58:09,630

to four hundred and fifty dollars per

3054

01:58:13,550 --> 01:58:11,460

month our clubs work with everyone's

3055

01:58:15,620 --> 01:58:13,560

budget plus when you join freeze dry guy

3056

01:58:17,630 --> 01:58:15,630

clubs you'll get additional rewards for

3057

01:58:19,430 --> 01:58:17,640

example this month get 10% back in

3058

01:58:21,410 --> 01:58:19,440

survival bucks on all purchases in the

3059

01:58:23,240 --> 01:58:21,420

freeze drag guy product line plus free

3060

01:58:25,220 --> 01:58:23,250

shipping within the lower 48 states on

3061

01:58:26,180 --> 01:58:25,230

any order amount hurry go to freeze-dry

3062

01:58:28,040 --> 01:58:26,190

guy.com

3063

01:58:30,260 --> 01:58:28,050

or call eight six six four zero four

3064

01:58:32,300 --> 01:58:30,270

three six six three let's freeze dry

3065

01:58:34,850 --> 01:58:32,310

guys calm or call eight six six four

3066

01:58:38,070 --> 01:58:34,860

zero four three six six three the freeze

3067

01:58:40,140 --> 01:58:38,080

dry guy the best you can buy

3068

01:58:41,890 --> 01:58:40,150

we all know that berkey water

3069

01:58:44,379 --> 01:58:41,900

purification systems are the most

3070

01:58:46,419 --> 01:58:44,389

trusted name in water filtration as an

3071

01:58:48,129 --> 01:58:46,429

authorized Berkey dealer for over 6

3072

01:58:49,030 --> 01:58:48,139

years in serving thousands of satisfied

3073

01:58:51,430 --> 01:58:49,040

customers

3074

01:58:53,620 --> 01:58:51,440

the Berkey guy offers amazing specials

3075

01:58:55,240 --> 01:58:53,630

for berkey water filtration systems the

3076

01:58:57,280 --> 01:58:55,250

Berkey light systems include a set of

3077

01:58:59,260 --> 01:58:57,290

self-sterilizing and re cleanable black

3078

01:59:01,689 --> 01:58:59,270

purification elements that purify water

3079

01:59:03,910 --> 01:59:01,699

by removing chlorine pathogenic bacteria

3080

01:59:06,129 --> 01:59:03,920

cysts and parasites to non detectable

3081

01:59:08,169 --> 01:59:06,139

levels and remove harmful chemicals such

3082

01:59:10,030 --> 01:59:08,179

as herbicides and pesticides order the

3083

01:59:11,890 --> 01:59:10,040

Berkey light system today complete with

3084

01:59:13,479 --> 01:59:11,900

two black per key elements for only two

3085

01:59:15,280 --> 01:59:13,489

hundred and thirty one dollars and the

3086

01:59:17,080 --> 01:59:15,290

Berkey guide will ship your order free

3087

01:59:19,209 --> 01:59:17,090

of charge with the purchase of a Berkey

3088

01:59:21,340 --> 01:59:19,219

light the Berkey guy is also offering a

3089

01:59:24,160 --> 01:59:21,350

set of fluoride and arsenic filters for

3090

01:59:25,000 --> 01:59:24,170

only \$39.99 that's over 30 percent off

3091

01:59:27,100 --> 01:59:25,010

the retail price

3092

01:59:29,530 --> 01:59:27,110

call the Berkey guy at one eight seven

3093

01:59:31,720 --> 01:59:29,540

seven eight eight six three six five

3094

01:59:34,419 --> 01:59:31,730

three that's one eight seven seven eight

3095

01:59:36,280 --> 01:59:34,429

eight six three six five three or order

3096

01:59:40,060 --> 01:59:36,290

online at Gober Keep Calm

3097

01:59:42,729 --> 01:59:40,070

that's Gober Keep Calm today America's

3098

01:59:45,240 --> 01:59:42,739

number one source for independent talk

3099

01:59:52,609 --> 01:59:45,250

reveals for over a decade

3100

01:59:57,600 --> 01:59:55,620

we want to hear from you if you have a

3101
02:00:01,500 --> 01:59:57,610
comment or question about the pair cast

3102
02:00:05,760 --> 02:00:01,510
send it to News at Lapera cast calm

3103
02:00:07,470 --> 02:00:05,770
that's news at the Peres cast calm and

3104
02:00:10,410 --> 02:00:07,480
don't forget to visit our famous pair of

3105
02:00:14,129 --> 02:00:10,420
cast community forums at forum dot the

3106
02:00:21,600 --> 02:00:14,139
para cast com get all the action at

3107
02:00:24,240 --> 02:00:21,610
forum dot the para cast comm so consider

3108
02:00:27,000 --> 02:00:24,250
that riddle me this is our knowledge of

3109
02:00:29,250 --> 02:00:27,010
the basics of science math are we

3110
02:00:31,260 --> 02:00:29,260
depending so much on the computers the

3111
02:00:33,899 --> 02:00:31,270
calculators that we've lost some of our

3112
02:00:36,089 --> 02:00:33,909
abilities David Kiser I put that

3113
02:00:37,500 --> 02:00:36,099

question to you you know I like most

3114

02:00:39,750 --> 02:00:37,510

things I think it's a mixed bag I know

3115

02:00:41,760 --> 02:00:39,760

many of my colleagues at MIT have

3116

02:00:43,350 --> 02:00:41,770

worried very very strongly about that

3117

02:00:46,020 --> 02:00:43,360

especially say in physics or mathematics

3118

02:00:48,120 --> 02:00:46,030

do our students losing a kind of feel a

3119

02:00:50,310 --> 02:00:48,130

kind of intuition for the equations or

3120

02:00:52,169 --> 02:00:50,320

for a magnet order of magnitude near you

3121

02:00:54,060 --> 02:00:52,179

if you're not doing a lot of hands-on

3122

02:00:55,919 --> 02:00:54,070

stuff do you just if it's all just on a

3123

02:00:57,479 --> 02:00:55,929

computer screen India the same you feel

3124

02:00:59,339 --> 02:00:57,489

for it and you know I've heard pretty

3125

02:01:01,560 --> 02:00:59,349

convincing counter garments that the

3126

02:01:03,390 --> 02:01:01,570

computers you know can open up so many

3127

02:01:05,310 --> 02:01:03,400

more things enable these students to do

3128

02:01:07,260 --> 02:01:05,320

in ten minutes what a PhD would have had

3129

02:01:08,970 --> 02:01:07,270

to you know spend a monster before so

3130

02:01:11,310 --> 02:01:08,980

you know like all things I think it has

3131

02:01:12,540 --> 02:01:11,320

the pros and cons certainly you know it

3132

02:01:15,839 --> 02:01:12,550

is the case that a lot of these students

3133

02:01:17,669 --> 02:01:15,849

are such computer wizard in a very very

3134

02:01:19,229 --> 02:01:17,679

powerful productive way that they can

3135

02:01:21,479 --> 02:01:19,239

just you know I used to joke that I mean

3136

02:01:23,339 --> 02:01:21,489

I've almost no programming skills at all

3137

02:01:24,750 --> 02:01:23,349

so I just hire you know an eighteen year

3138

02:01:26,250 --> 02:01:24,760

old to do it in ten minutes it would

3139

02:01:28,080 --> 02:01:26,260

take me a semester to figure it out so

3140

02:01:30,000 --> 02:01:28,090

certainly there's a great amount of

3141

02:01:31,709 --> 02:01:30,010

skill and real enthusiasm there that I

3142

02:01:34,140 --> 02:01:31,719

think it's a great good thing is that at

3143

02:01:35,640 --> 02:01:34,150

the cost of you know other ways or older

3144

02:01:37,350 --> 02:01:35,650

ways of engaging with the material maybe

3145

02:01:38,760 --> 02:01:37,360

but I'm not sure if a net loss maybe

3146

02:01:40,260 --> 02:01:38,770

it's different so we're still holding

3147

02:01:42,660 --> 02:01:40,270

our own out there in the world with all

3148

02:01:44,310 --> 02:01:42,670

these I think what China is graduating

3149

02:01:46,830 --> 02:01:44,320

why I figure out what the figure was I

3150

02:01:49,200 --> 02:01:46,840

think twice as many scientists basically

3151

02:01:51,390 --> 02:01:49,210

than we are I much don't quote me on now

3152

02:01:52,890 --> 02:01:51,400

and I I remember reading an article and

3153

02:01:55,439 --> 02:01:52,900

seeing the figure and just being like a

3154

02:01:58,169 --> 02:01:55,449

gas that it seems like this country is

3155

02:02:00,149 --> 02:01:58,179

slowly falling behind but like you said

3156

02:02:02,220 --> 02:02:00,159

you've seen a real upsurge in interest

3157

02:02:04,379 --> 02:02:02,230

in class sizes and right kids coming up

3158

02:02:06,029 --> 02:02:04,389

so maybe there's hope or we used to

3159

02:02:08,310 --> 02:02:06,039

continue falling further behind

3160

02:02:10,919 --> 02:02:08,320

well I think there is open you know the

3161

02:02:12,450 --> 02:02:10,929

numbers game is is only part of it what

3162

02:02:14,629 --> 02:02:12,460

are those numbers represent and again

3163

02:02:16,890 --> 02:02:14,639

there are you know a very world class

3164

02:02:18,629 --> 02:02:16,900

universities and scientists in China for

3165

02:02:20,009 --> 02:02:18,639

example now training great great people

3166

02:02:21,990 --> 02:02:20,019

but when you hear these numbers like

3167

02:02:23,609 --> 02:02:22,000

four hundred thousand new graduates this

3168

02:02:25,169 --> 02:02:23,619

year that year you know it takes a

3169

02:02:27,060 --> 02:02:25,179

little more effort to sort of unpack

3170

02:02:28,770 --> 02:02:27,070

what's the nature of that training what

3171

02:02:30,509 --> 02:02:28,780

are they doing with those skills just

3172

02:02:32,040 --> 02:02:30,519

handing out degrees or just counting

3173

02:02:33,450 --> 02:02:32,050

degrees I should say should be sort of

3174

02:02:36,750 --> 02:02:33,460

the start of that discussion and a lot

3175

02:02:38,339 --> 02:02:36,760

of times I think that becomes the end of

3176

02:02:40,350 --> 02:02:38,349

discussion instead and it actually

3177

02:02:42,060 --> 02:02:40,360

harkens back to similar debates we had

3178

02:02:43,350 --> 02:02:42,070

in this country during the Cold War

3179

02:02:45,509 --> 02:02:43,360

where this was the Soviet Union

3180

02:02:46,979 --> 02:02:45,519

graduating more physicists or engineers

3181

02:02:48,540 --> 02:02:46,989

than we were and if so with that you

3182

02:02:50,580 --> 02:02:48,550

know gonna mean Armageddon the numbers

3183

02:02:51,720 --> 02:02:50,590

can become pretty political and I think

3184

02:02:53,189 --> 02:02:51,730

there's other questions or additional

3185

02:02:55,169 --> 02:02:53,199

questions be asking as well so that's

3186

02:02:57,029 --> 02:02:55,179

where I again I I don't get quite as

3187

02:02:59,609 --> 02:02:57,039

nervous there are other indicators it's

3188

02:03:01,859 --> 02:02:59,619

certainly obviously the potential to raw

3189

02:03:04,109 --> 02:03:01,869

talent in places like China for science

3190

02:03:05,669 --> 02:03:04,119

is growing rapidly look at the number of

3191

02:03:07,109 --> 02:03:05,679

your highly cited articles of the

3192

02:03:09,089 --> 02:03:07,119

literature those things are growing very

3193

02:03:10,740 --> 02:03:09,099

rapidly so the other ways to say there

3194

02:03:12,479 --> 02:03:10,750

things are changing I don't think we're

3195

02:03:15,089 --> 02:03:12,489

gonna figure out out of the count just

3196

02:03:16,950 --> 02:03:15,099

yet we have to look also about what we

3197

02:03:19,560 --> 02:03:16,960

need to do in the future to encourage

3198

02:03:23,100 --> 02:03:19,570

this kind of research maybe cover more

3199

02:03:24,810 --> 02:03:23,110

about what these guys are doing today in

3200

02:03:27,299 --> 02:03:24,820

terms of their cutting edge developments

3201

02:03:28,740 --> 02:03:27,309

what are these guys up to now we kind of

3202

02:03:30,029 --> 02:03:28,750

talked a little bit about Jack Sarfati

3203

02:03:33,259 --> 02:03:30,039

and I think Nick Herbert but how about

3204

02:03:35,459 --> 02:03:33,269

the other members of your fund your fun

3205

02:03:37,200 --> 02:03:35,469

fundamentalist physics group characters

3206

02:03:39,359 --> 02:03:37,210

sure you know they they've traveled lots

3207

02:03:42,089 --> 02:03:39,369

of different roads so where they went

3208

02:03:43,529 --> 02:03:42,099

from Berkeley was a sort of revealing to

3209

02:03:45,180 --> 02:03:43,539

me and as interesting as what brought

3210

02:03:47,430 --> 02:03:45,190

them there so as one of them have

3211

02:03:49,740 --> 02:03:47,440

remained in sort of mainstream physics

3212

02:03:51,509 --> 02:03:49,750

so Henry staff has been a senior staff

3213

02:03:53,220 --> 02:03:51,519

scientist this whole time at the

3214

02:03:55,169 --> 02:03:53,230

Lawrence Berkeley National Laboratory a

3215

02:03:57,390 --> 02:03:55,179

very well-respected kind of mainstream

3216

02:03:59,310 --> 02:03:57,400

scientist with broad interests and he's

3217

02:04:00,810 --> 02:03:59,320

not afraid to ask uncomfortable

3218

02:04:02,040 --> 02:04:00,820

questions about quantum theory in

3219

02:04:03,899 --> 02:04:02,050

consciousness but you know he's had a

3220

02:04:05,819 --> 02:04:03,909

paying job a publisher the right

3221

02:04:08,339 --> 02:04:05,829

journals he has a solid reputation

3222

02:04:10,109 --> 02:04:08,349

within the field you're John Clouser the

3223

02:04:12,569 --> 02:04:10,119

the experimental physicist who did that

3224

02:04:15,600 --> 02:04:12,579

very first laboratory test of Bell's

3225

02:04:17,279 --> 02:04:15,610

Theorem back in 1972 he also has done

3226

02:04:18,930 --> 02:04:17,289

he'll extremely well in terms of

3227

02:04:19,680 --> 02:04:18,940

reputation he just won is a prestigious

3228

02:04:22,050 --> 02:04:19,690

prize

3229

02:04:24,750 --> 02:04:22,060

year called The Wolf Prize in Physics he

3230

02:04:26,820 --> 02:04:24,760

shared with Anton Zeilinger and Ilana sa

3231

02:04:29,010 --> 02:04:26,830

from Paris and as often seen as a kind

3232

02:04:31,500 --> 02:04:29,020

of you know one step shy of the Nobel

3233

02:04:33,990 --> 02:04:31,510

Prize and really amazing and I think

3234

02:04:35,970 --> 02:04:34,000

very well deserved recognition on in

3235

02:04:37,350 --> 02:04:35,980

hand yet he's never had a regular sort

3236

02:04:39,900 --> 02:04:37,360

of academic position in physics this

3237

02:04:41,459 --> 02:04:39,910

whole time to this day he runs a very

3238

02:04:43,260 --> 02:04:41,469

sophisticated laboratory out of his

3239

02:04:45,780 --> 02:04:43,270

garage and he's able to get research

3240

02:04:47,340 --> 02:04:45,790

funding grants from nationalist suits of

3241

02:04:48,930 --> 02:04:47,350

health for example to do medical imaging

3242

02:04:51,390 --> 02:04:48,940

he's gotten happens and he's a brilliant

3243

02:04:53,790 --> 02:04:51,400

guy he's incredibly productive but he

3244

02:04:57,150 --> 02:04:53,800

had to make his own way you know others

3245

02:04:59,310 --> 02:04:57,160

still survive mostly or flourish on sort

3246

02:05:01,380 --> 02:04:59,320

of you know private donations I always

3247

02:05:03,270 --> 02:05:01,390

joke that they're like Galileo in the

3248

02:05:05,430 --> 02:05:03,280

Renaissance like the de Medicis will pay

3249

02:05:07,350 --> 02:05:05,440

them to have their very wealthy generous

3250

02:05:08,670 --> 02:05:07,360

patrons they'll do their their work and

3251

02:05:10,800 --> 02:05:08,680

will be on you know on someone else's

3252

02:05:12,930 --> 02:05:10,810

dime and and that's that's what a

3253

02:05:14,189 --> 02:05:12,940

private patrons model has worked yeah

3254

02:05:16,410 --> 02:05:14,199

for some of these folks for a long time

3255

02:05:17,880 --> 02:05:16,420

and others became best-selling authors

3256

02:05:20,010 --> 02:05:17,890

they were able to live off their kind of

3257

02:05:21,840 --> 02:05:20,020

royalties from the books that allowed

3258

02:05:24,060 --> 02:05:21,850

them to keep keeping up the flames going

3259

02:05:26,100 --> 02:05:24,070

keep the torch alive and so certainly

3260

02:05:27,930 --> 02:05:26,110

for Jeff Kapur you know has been I think

3261

02:05:30,450 --> 02:05:27,940

the most successful of an author of this

3262

02:05:32,100 --> 02:05:30,460

group he followed up the success of the

3263

02:05:34,470 --> 02:05:32,110

Dow physics with a series of other books

3264

02:05:36,120 --> 02:05:34,480

he's still writing still active and I

3265

02:05:37,800 --> 02:05:36,130

think some of those books became so

3266

02:05:40,380 --> 02:05:37,810

wildly successful that you know well

3267

02:05:42,810 --> 02:05:40,390

commercially that he was a kinda safe

3268

02:05:44,459 --> 02:05:42,820

spot and and you know Fred Alan wolf and

3269

02:05:46,979 --> 02:05:44,469

Nick Herbert have also been able to

3270

02:05:48,420 --> 02:05:46,989

basically stay afloat or more so largely

3271

02:05:50,070 --> 02:05:48,430

on the basis of their writing and the

3272

02:05:52,020 --> 02:05:50,080

two others became entrepreneurial to

3273

02:05:53,790 --> 02:05:52,030

start their own consulting companies one

3274

02:05:56,250 --> 02:05:53,800

of the founders of group George Weissman

3275

02:05:58,500 --> 02:05:56,260

actually began an import company for

3276

02:06:00,600 --> 02:05:58,510

Tibetan herbal remedies for a while and

3277

02:06:02,790 --> 02:06:00,610

that kind of thing so they've been

3278

02:06:05,760 --> 02:06:02,800

creative in other direction in the brain

3279

02:06:07,260 --> 02:06:05,770

brain tea yeah you know we all need some

3280

02:06:08,939 --> 02:06:07,270

rangy hey that's an interesting question

3281

02:06:10,920 --> 02:06:08,949

there about cutting-edge science one of

3282

02:06:13,560 --> 02:06:10,930

the things we're looking at some ways to

3283

02:06:15,540 --> 02:06:13,570

enhance our memory and not just to deal

3284

02:06:18,330 --> 02:06:15,550

with Alzheimer's and stuff like that but

3285

02:06:21,330 --> 02:06:18,340

enhance on memory kind of make the gray

3286

02:06:24,300 --> 02:06:21,340

matter more functional and some people

3287

02:06:25,650 --> 02:06:24,310

say there's only 10% of our brain power

3288

02:06:29,040 --> 02:06:25,660

now there was a movie out called

3289

02:06:31,790 --> 02:06:29,050

limitless where Bradley Cooper plays his

3290

02:06:33,709 --> 02:06:31,800

character that he takes this in Jack

3291

02:06:36,580 --> 02:06:33,719

chin and suddenly he's using 100% of his

3292

02:06:38,720 --> 02:06:36,590

brain power so is that real I don't know

3293

02:06:41,810 --> 02:06:38,730

I'd like to I like know where to get

3294

02:06:43,100 --> 02:06:41,820

them it's not like it meets on Planet of

3295

02:06:44,930 --> 02:06:43,110

the Apes movie as well might be pretty

3296

02:06:47,270 --> 02:06:44,940

similar in its premise at least that's

3297

02:06:49,790 --> 02:06:47,280

all about trying to deal with

3298

02:06:51,950 --> 02:06:49,800

Alzheimer's and a scientists tested on

3299

02:06:54,350 --> 02:06:51,960

the ape and that's the wrong thing to do

3300

02:06:58,250 --> 02:06:54,360

because rape is played by anti circus of

3301

02:07:00,140 --> 02:06:58,260

course is known as Gollum in rings

3302

02:07:03,260 --> 02:07:00,150

really is he was the performance artist

3303

02:07:03,979 --> 02:07:03,270

who actually created the first ape my

3304

02:07:05,680 --> 02:07:03,989

interested

3305

02:07:08,930 --> 02:07:05,690

well how about Cowboys and Aliens we

3306

02:07:10,100 --> 02:07:08,940

have you seen that yet gene or David you

3307

02:07:11,450 --> 02:07:10,110

know I have it I saw the preview only

3308

02:07:13,069 --> 02:07:11,460

they look like fun but I have attained

3309

02:07:14,959 --> 02:07:13,079

it it's interesting you know and you

3310

02:07:17,240 --> 02:07:14,969

pointed out to me that if you kind of

3311

02:07:19,459 --> 02:07:17,250

take an equation from what we consider

3312

02:07:21,439 --> 02:07:19,469

to be the time trade between the Big

3313

02:07:25,069 --> 02:07:21,449

Bang and now that some of the earliest

3314

02:07:27,770 --> 02:07:25,079

planets that Suns solar systems have had

3315

02:07:30,109 --> 02:07:27,780

about nine billion billion years to get

3316

02:07:32,330 --> 02:07:30,119

smart and to develop advanced

3317

02:07:34,430 --> 02:07:32,340

spacefaring technology well now he say

3318

02:07:36,200 --> 02:07:34,440

no no no here once you said okay so the

3319

02:07:38,240 --> 02:07:36,210

universe is high everybody the universe

3320

02:07:40,250 --> 02:07:38,250

is 13.7 billion years old give or take

3321

02:07:42,680 --> 02:07:40,260

we now know that the earliest stars

3322

02:07:45,169 --> 02:07:42,690

started to shine a fraction of a billion

3323

02:07:46,580 --> 02:07:45,179

years after the bang about 360 million I

3324

02:07:47,390 --> 02:07:46,590

think it was that David wouldn't know

3325

02:07:49,609 --> 02:07:47,400

for sure

3326

02:07:51,919 --> 02:07:49,619

it took us as Homo sapiens sapiens about

3327

02:07:54,140 --> 02:07:51,929

four billion years to get smart from

3328

02:07:55,640 --> 02:07:54,150

zero and so you put it all together with

3329

02:07:58,879 --> 02:07:55,650

the age of the universe you could say

3330

02:08:00,530 --> 02:07:58,889

that the oldest smart civilization and

3331

02:08:03,439 --> 02:08:00,540

that we could envisage would be about

3332

02:08:04,640 --> 02:08:03,449

nine billion years old and that's quite

3333

02:08:06,649 --> 02:08:04,650

an interesting number if you're

3334

02:08:10,669 --> 02:08:06,659

interested in UFOs and that sort of

3335

02:08:11,750 --> 02:08:10,679

thing is it not time to sort of get here

3336

02:08:13,700 --> 02:08:11,760

and back or something like that

3337

02:08:16,399 --> 02:08:13,710

or - I don't know totally manipulated

3338

02:08:18,080 --> 02:08:16,409

entire galaxies who knows the level of

3339

02:08:20,870 --> 02:08:18,090

technology that you could develop in

3340

02:08:23,359 --> 02:08:20,880

that that amount of time I think Michio

3341

02:08:28,459 --> 02:08:23,369

Kaku came up with a with a rating system

3342

02:08:31,520 --> 02:08:28,469

of sophistication and ability to I guess

3343

02:08:33,919 --> 02:08:31,530

impact their reality and go into the

3344

02:08:35,689 --> 02:08:33,929

rating system and the reality Kaiser

3345

02:08:41,010 --> 02:08:35,699

joins us Christopher Brian's the co-host

3346

02:08:41,020 --> 02:08:44,350

[Music]

3347

02:08:48,680 --> 02:08:46,550

graphic converter is the image

3348

02:08:51,320 --> 02:08:48,690

manipulation tool for the rest of us it

3349

02:08:53,300 --> 02:08:51,330

does not use any database you get full

3350

02:08:55,520 --> 02:08:53,310

control of all your files want to view

3351

02:08:57,770 --> 02:08:55,530

the images of a folder drag it into

3352

02:09:00,290 --> 02:08:57,780

graphic converter and a powerful browser

3353

02:09:02,180 --> 02:09:00,300

opens up to show your image files you

3354

02:09:04,250 --> 02:09:02,190

could use it for slideshows you could

3355

02:09:06,380 --> 02:09:04,260

use it to import images from digital

3356

02:09:08,330 --> 02:09:06,390

cameras or from scanners need to do some

3357

02:09:10,490 --> 02:09:08,340

image editing you can do that too in

3358

02:09:12,590 --> 02:09:10,500

graphic converter also print catalogs

3359

02:09:14,570 --> 02:09:12,600

convert from so many formats

3360

02:09:16,790 --> 02:09:14,580

I can't even list them download now to

3361

02:09:19,190 --> 02:09:16,800

see if graphic converter is good for you

3362

02:09:21,140 --> 02:09:19,200

like one and a half million of your

3363

02:09:23,420 --> 02:09:21,150

users guess what you could save money

3364

02:09:25,760 --> 02:09:23,430

when you buy graphic converter use the

3365

02:09:27,890 --> 02:09:25,770

coupon code night-owl use the coupon

3366

02:09:30,380 --> 02:09:27,900

code Night Out to get a special price

3367

02:09:34,940 --> 02:09:30,390

for graphic converter go to Lemke soft

3368

02:09:37,640 --> 02:09:34,950

calm that's Ellie MKE soft calm Weinke

3369

02:09:40,970 --> 02:09:37,650

soft calm I II Mk II

3370

02:09:43,550 --> 02:09:40,980

soft calm attention Gardner's this is an

3371

02:09:45,470 --> 02:09:43,560

urgent GC and self-reliance update GC

3372

02:09:47,330 --> 02:09:45,480

and has just discovered a new bioactive

3373

02:09:47,600 --> 02:09:47,340

superfood for garden plants flowers and

3374

02:09:49,100 --> 02:09:47,610

herbs

3375

02:09:50,600 --> 02:09:49,110

it's called proto grow and it's so

3376

02:09:52,070 --> 02:09:50,610

effective at producing rapid plant

3377

02:09:53,750 --> 02:09:52,080

growth that it seems to almost force

3378

02:09:55,130 --> 02:09:53,760

plants to grow like crazy under

3379

02:09:57,110 --> 02:09:55,140

practically any soil and light

3380

02:09:58,130 --> 02:09:57,120

conditions now here's the best part for

3381

02:10:00,260 --> 02:09:58,140

our listeners who garden for

3382

02:10:02,480 --> 02:10:00,270

self-reliance proto grows unique blend

3383

02:10:04,160 --> 02:10:02,490

of C nutrients maximizes mineral uptake

3384

02:10:06,290 --> 02:10:04,170

and dramatically increases bloom set

3385

02:10:07,850 --> 02:10:06,300

creating maximum plant growth in minimum

3386

02:10:09,470 --> 02:10:07,860

time proto girl works by providing

3387

02:10:11,090 --> 02:10:09,480

geometric keys which have the capacity

3388

02:10:12,650 --> 02:10:11,100

to actually unlock the genetic code for

3389

02:10:14,270 --> 02:10:12,660

nutritional have taken plants proto

3390

02:10:15,320 --> 02:10:14,280

grows full-spectrum plant fertility

3391

02:10:16,940 --> 02:10:15,330

means fruits and vegetables with

3392

02:10:18,830 --> 02:10:16,950

extraordinary taste of up to ten times

3393

02:10:20,450 --> 02:10:18,840

the nutritional value and if you want to

3394

02:10:22,370 --> 02:10:20,460

double or triple the potency of herbs or

3395

02:10:23,960 --> 02:10:22,380

wheatgrass you can if you want to grow

3396

02:10:26,240 --> 02:10:23,970

nutritional eyes superfoods with non

3397

02:10:27,620 --> 02:10:26,250

hybrids it's now easy GC and listeners

3398

02:10:29,240 --> 02:10:27,630

who want to grow dirt cheap superfood

3399

02:10:31,390 --> 02:10:29,250

should visit the proto girl website and

3400

02:10:44,480 --> 02:10:31,400

grow like crazy calm that's

3401

02:10:47,390 --> 02:10:44,490

www.groasis.com or wait in line keep

3402

02:10:48,689 --> 02:10:47,400

your wheels move in with pre pass bypass

3403

02:10:51,029 --> 02:10:48,699

weigh stations

3404

02:10:53,279 --> 02:10:51,039

fly-by port of entry facilities stay

3405

02:10:58,919 --> 02:10:53,289

moving at highway speed while the guy

3406

02:11:01,520 --> 02:10:58,929

without free pass waits in lord save

3407

02:11:05,790 --> 02:11:01,530

time save money call eight eight eight

3408

02:11:11,189 --> 02:11:05,800

401 pass to try pre pass free that's

3409

02:11:12,959 --> 02:11:11,199

eight eight eight 401 pass hi I'm mark

3410

02:11:14,879 --> 02:11:12,969

Craig head founder of crossbreed

3411

02:11:17,399 --> 02:11:14,889

holsters i designed our top-selling

3412

02:11:19,529 --> 02:11:17,409

holster the super tuck deluxe to solve

3413

02:11:21,870 --> 02:11:19,539

the problems of being poked pinched and

3414

02:11:23,520 --> 02:11:21,880

gouged while carrying concealed the

3415

02:11:25,859 --> 02:11:23,530

super tuck deluxe is the most

3416

02:11:27,959 --> 02:11:25,869

comfortable most concealable holster on

3417

02:11:30,359 --> 02:11:27,969

the market today we offer a two week

3418

02:11:33,209 --> 02:11:30,369

free trial and a lifetime warranty visit

3419

02:11:38,330 --> 02:11:33,219

us at crossbreed holsters dot-com

3420

02:11:40,529 --> 02:11:38,340

don't forget crossbreed holsters dot-com

3421

02:11:41,910 --> 02:11:40,539

you know that drinking pure high

3422

02:11:43,500 --> 02:11:41,920

alkaline water is one of the most

3423

02:11:45,239 --> 02:11:43,510

important factors in maintaining high

3424

02:11:46,770 --> 02:11:45,249

energy and vibrant health and most

3425

02:11:48,449 --> 02:11:46,780

experts agree that the water you drink

3426

02:11:51,299 --> 02:11:48,459

should be at a pH level of 8 or higher

3427

02:11:53,759 --> 02:11:51,309

how Covidien plasma pH drops available

3428

02:11:55,410 --> 02:11:53,769

only at Alka vision com combine a unique

3429

02:11:57,569 --> 02:11:55,420

formula of most alkaline minerals

3430

02:11:59,669 --> 02:11:57,579

available Alka vision plasma pH drops

3431

02:12:01,469 --> 02:11:59,679

alkalis your water reading the body of

3432

02:12:03,449 --> 02:12:01,479

harmful toxins and acid helping you to

3433

02:12:05,250 --> 02:12:03,459

regain your energy and health alkalizing

3434

02:12:07,589 --> 02:12:05,260

your water by simply adding 10 drops of

3435

02:12:09,870 --> 02:12:07,599

alkaviva plasma pH drops helps the body

3436

02:12:12,239 --> 02:12:09,880

to rid itself of acidic waste increases

3437

02:12:14,489 --> 02:12:12,249

oxygen and raises the pH of your body to

3438

02:12:16,379 --> 02:12:14,499

optimal levels and bacteria and viruses

3439

02:12:18,270 --> 02:12:16,389

cannot survive in an alkaline hi PA

3440

02:12:21,089 --> 02:12:18,280

environment order your bottle of

3441

02:12:25,379 --> 02:12:21,099

alkaviva plasma pH drops for only 29.95

3442

02:12:31,649 --> 02:12:25,389

at Alka vision com that's ALK a vision

3443

02:12:35,370 --> 02:12:31,659

calm or call 2 6 9 4 0 9 1776 to 69 4 0

3444

02:12:39,810 --> 02:12:35,380

9 1776 alkalize your body supercharge

3445

02:12:42,890 --> 02:12:39,820

your health at Alka vision calm are you

3446

02:12:45,470 --> 02:12:42,900

tired of searching for great talk radio

3447

02:12:52,120 --> 02:12:45,480

more important search

3448

02:12:58,850 --> 02:12:55,910

hi this is ted phillips listening to the

3449

02:13:06,590 --> 02:12:58,860

parrot cat and it's as good as it gets

3450

02:13:09,230 --> 02:13:06,600

believe me we continue with David Kiser

3451

02:13:11,840 --> 02:13:09,240

last two segments exploring cutting

3452

02:13:14,000 --> 02:13:11,850

edges of science and what all those

3453

02:13:16,250 --> 02:13:14,010

hippies did I'm Jean Steinberg the

3454

02:13:20,330 --> 02:13:16,260

co-host is Chris O'Brien some question

3455

02:13:22,940 --> 02:13:20,340

here could we have today a group of 2011

3456

02:13:24,770 --> 02:13:22,950

hippies who maybe even now are trying to

3457

02:13:27,290 --> 02:13:24,780

figure out what science will be like for

3458

02:13:29,270 --> 02:13:27,300

the next 50 years I think we could you

3459

02:13:32,270 --> 02:13:29,280

know I in the book in the epilogue by

3460

02:13:35,270 --> 02:13:32,280

saying is I think there's a wider safety

3461

02:13:38,930 --> 02:13:35,280

net this time around and then then in

3462

02:13:40,400 --> 02:13:38,940

the 70s for for people for ideas or just

3463

02:13:43,040 --> 02:13:40,410

a little bit further from from

3464

02:13:43,910 --> 02:13:43,050

mainstream their whole Institute's

3465

02:13:46,970 --> 02:13:43,920

they're kind of brick-and-mortar

3466

02:13:48,590 --> 02:13:46,980

Institute's that are devoted to I didn't

3467

02:13:51,830 --> 02:13:48,600

like the foundations of quantum theory

3468

02:13:54,170 --> 02:13:51,840

quantum cosmology and all the rest there

3469

02:13:56,030 --> 02:13:54,180

are also the internet-based funding

3470

02:13:57,410 --> 02:13:56,040

agencies for lack of a better word so

3471

02:13:59,090 --> 02:13:57,420

they're not even face to face but there

3472

02:14:01,280 --> 02:13:59,100

are you know private donations that

3473

02:14:04,100 --> 02:14:01,290

going to be parceled out there's a group

3474

02:14:06,980 --> 02:14:04,110

called fqx I have fundamental questions

3475

02:14:08,780 --> 02:14:06,990

Institute and they give grants basically

3476

02:14:10,820 --> 02:14:08,790

you know modest size grants to people

3477

02:14:12,410 --> 02:14:10,830

some of whom are university professors

3478

02:14:14,330 --> 02:14:12,420

others of whom are independent scholars

3479

02:14:16,960 --> 02:14:14,340

is the kind of euphemism for folks on

3480

02:14:19,610 --> 02:14:16,970

their own and you know there's a way to

3481

02:14:21,410 --> 02:14:19,620

get that stuff to keep it keep the

3482

02:14:24,440 --> 02:14:21,420

people asking the questions to make sure

3483

02:14:26,600 --> 02:14:24,450

they're not really kind of lost and also

3484

02:14:28,100 --> 02:14:26,610

of course in the Internet age to to to

3485

02:14:29,660 --> 02:14:28,110

get the stuff to circulate so a lot of

3486

02:14:32,240 --> 02:14:29,670

garbage can circulate on the internet

3487

02:14:35,510 --> 02:14:32,250

there's no way to stop that but it's not

3488

02:14:37,430 --> 02:14:35,520

impossible to get ideas circulating and

3489

02:14:39,770 --> 02:14:37,440

bouncing off other folks and interacting

3490

02:14:42,530 --> 02:14:39,780

there too so I think I think there there

3491

02:14:44,180 --> 02:14:42,540

is room for groups like the one I wrote

3492

02:14:46,670 --> 02:14:44,190

about these days and they might not be

3493

02:14:48,110 --> 02:14:46,680

quite as have quite as hard a time as it

3494

02:14:50,630 --> 02:14:48,120

quite frankly you know getting resources

3495

02:14:53,000 --> 02:14:50,640

getting the word out finding meeting up

3496

02:14:55,490 --> 02:14:53,010

even if only in cyberspace with

3497

02:14:58,370 --> 02:14:55,500

like-minded folks and so I think I think

3498

02:15:00,860 --> 02:14:58,380

is I think I think that continues

3499

02:15:02,419 --> 02:15:00,870

as a question here hold on yeah there's

3500

02:15:04,010 --> 02:15:02,429

been a recent paper I wanted you to

3501

02:15:06,649 --> 02:15:04,020

comment on it if you possibly could in

3502

02:15:08,600 --> 02:15:06,659

on the fundamentals of quantum mechanics

3503

02:15:10,160 --> 02:15:08,610

and I do please excuse me I cannot

3504

02:15:12,110 --> 02:15:10,170

remember the full names of the authors

3505

02:15:14,120 --> 02:15:12,120

but there's a Stephanie axe very

3506

02:15:15,800 --> 02:15:14,130

attractive young lady from Australia or

3507

02:15:17,300 --> 02:15:15,810

everything it is and a chap from

3508

02:15:18,860 --> 02:15:17,310

Cambridge again his name I don't

3509

02:15:21,350 --> 02:15:18,870

remember and the title of the paper is

3510

02:15:22,910 --> 02:15:21,360

something like nonlocality in quantum

3511

02:15:24,800 --> 02:15:22,920

uncertainty in the century they found a

3512

02:15:26,600 --> 02:15:24,810

very deep connection this was published

3513

02:15:29,180 --> 02:15:26,610

only in the last three to six months on

3514

02:15:30,620 --> 02:15:29,190

our Heath whether it'll make it to face

3515

02:15:32,750 --> 02:15:30,630

rev D lettuce or something I don't know

3516

02:15:35,419 --> 02:15:32,760

but it was called mana locality and

3517

02:15:37,490 --> 02:15:35,429

quantum uncertainty relating nonlocality

3518

02:15:39,770 --> 02:15:37,500

to Heisenberg's uncertainty you know

3519

02:15:41,240 --> 02:15:39,780

it's a very deep result which seems to

3520

02:15:42,890 --> 02:15:41,250

have been well received though I wonder

3521

02:15:44,270 --> 02:15:42,900

if you would comment on it do you think

3522

02:15:47,140 --> 02:15:44,280

it's pushed the the field of

3523

02:15:49,700 --> 02:15:47,150

understanding the the roots of quantum

3524

02:15:51,410 --> 02:15:49,710

mechanics further forward for us if

3525

02:15:53,180 --> 02:15:51,420

you're familiar with it well

3526

02:15:55,100 --> 02:15:53,190

unfortunately I don't know this paper in

3527

02:15:57,410 --> 02:15:55,110

particular sigh I can't say either way

3528

02:15:59,209 --> 02:15:57,420

but it certainly is an example of this

3529

02:16:02,030 --> 02:15:59,219

notion there are now lots and lots of

3530

02:16:03,680 --> 02:16:02,040

people all over the world who are you

3531

02:16:05,510 --> 02:16:03,690

know concerned as members of this group

3532

02:16:07,220 --> 02:16:05,520

that I write about we're concerned in

3533

02:16:08,810 --> 02:16:07,230

the past with this sort of deep

3534

02:16:11,540 --> 02:16:08,820

structure the deep foundations of

3535

02:16:13,160 --> 02:16:11,550

quantum theory and now adays you know

3536

02:16:14,419 --> 02:16:13,170

there it one can get those papers

3537

02:16:15,860 --> 02:16:14,429

published more readily they can

3538

02:16:17,390 --> 02:16:15,870

circulate pretty easily so I don't know

3539

02:16:18,979 --> 02:16:17,400

this particular one but it's an example

3540

02:16:20,720 --> 02:16:18,989

of that kind of activity that they

3541

02:16:22,879 --> 02:16:20,730

really have the kind of foothold back at

3542

02:16:26,810 --> 02:16:22,889

the table again it's no longer kind of

3543

02:16:27,950 --> 02:16:26,820

laughed out of court you know it almost

3544

02:16:29,959 --> 02:16:27,960

sounds like we're getting to a point

3545

02:16:33,410 --> 02:16:29,969

where we're starting to see unification

3546

02:16:36,350 --> 02:16:33,420

of theories that tend to be and then

3547

02:16:37,940 --> 02:16:36,360

almost like we're reweaving the the

3548

02:16:39,770 --> 02:16:37,950

strands of the rope and we're starting

3549

02:16:42,889 --> 02:16:39,780

to really get closer to some fundamental

3550

02:16:44,839 --> 02:16:42,899

fundamental science at the core you know

3551

02:16:48,620 --> 02:16:44,849

the connecting point between a lot of

3552

02:16:50,270 --> 02:16:48,630

these these questions and you know just

3553

02:16:51,620 --> 02:16:50,280

the whole idea of this urn

3554

02:16:54,650 --> 02:16:51,630

project and the Large Hadron Collider

3555

02:16:55,759 --> 02:16:54,660

and the success that they've had I think

3556

02:16:58,850 --> 02:16:55,769

now they're going to go up to full power

3557

02:17:00,259 --> 02:16:58,860

if I'm not mistaken I think you gotta be

3558

02:17:03,290 --> 02:17:00,269

in about a year

3559

02:17:06,379 --> 02:17:03,300

what any ideas what we could expect from

3560

02:17:09,379 --> 02:17:06,389

a full power test and of colliding

3561

02:17:11,719 --> 02:17:09,389

particles at CERN well I mean so again

3562

02:17:13,940 --> 02:17:11,729

one is certainly to be hoped for is

3563

02:17:16,190 --> 02:17:13,950

really definitive evidence if it's to be

3564

02:17:17,959 --> 02:17:16,200

had for this Higgs boson all we talked

3565

02:17:21,140 --> 02:17:17,969

about before this one sort of missing

3566

02:17:23,660 --> 02:17:21,150

characters one central but yet as yet

3567

02:17:26,000 --> 02:17:23,670

unseen piece of the puzzle in how the

3568

02:17:30,230 --> 02:17:26,010

mira matter goes together i'm so-called

3569

02:17:32,509 --> 02:17:30,240

yes so so that is i say pretty likely to

3570

02:17:35,419 --> 02:17:32,519

be hoped for development and then you

3571

02:17:37,429 --> 02:17:35,429

know it's all kinds of things so it

3572

02:17:40,870 --> 02:17:37,439

could be there are reasons to suspect

3573

02:17:43,520 --> 02:17:40,880

that one might be able to catch real

3574

02:17:45,110 --> 02:17:43,530

glance real evidence for extra

3575

02:17:46,850 --> 02:17:45,120

dimensions through exotic ways that

3576

02:17:49,129 --> 02:17:46,860

particles would behave momenta would be

3577

02:17:51,560 --> 02:17:49,139

measured and so on in these exotic

3578

02:17:53,780 --> 02:17:51,570

interactions so all of a sudden the LHC

3579

02:17:55,879 --> 02:17:53,790

could it's a long shot is not impossible

3580

02:17:58,129 --> 02:17:55,889

could be telling us about you know the

3581

02:17:59,540 --> 02:17:58,139

the most basic structure spacetime even

3582

02:18:02,540 --> 02:17:59,550

beyond the sort of little particles that

3583

02:18:04,040 --> 02:18:02,550

dance around within it or in an exciting

3584

02:18:06,379 --> 02:18:04,050

but maybe a little bit more mundane way

3585

02:18:08,390 --> 02:18:06,389

it could hopefully be finding candidates

3586

02:18:09,620 --> 02:18:08,400

for this dark matter stuff particles of

3587

02:18:11,509 --> 02:18:09,630

the sort we've never seen before

3588

02:18:13,400 --> 02:18:11,519

perhaps cuz you never were looking at

3589

02:18:16,870 --> 02:18:13,410

the right energy scale until we're able

3590

02:18:19,790 --> 02:18:16,880

to now or signs or other kind of exotic

3591

02:18:21,589 --> 02:18:19,800

symmetries or notions about how what

3592

02:18:23,509 --> 02:18:21,599

governs these these subatomic forces

3593

02:18:25,490 --> 02:18:23,519

that have so far really only been

3594

02:18:28,009 --> 02:18:25,500

hypothesized there's been no solid

3595

02:18:29,929 --> 02:18:28,019

evidence really either way for often for

3596

02:18:31,790 --> 02:18:29,939

decades and so a lot of people are

3597

02:18:32,900 --> 02:18:31,800

excited saying we should no matter what

3598

02:18:35,419 --> 02:18:32,910

we find it'll be new

3599

02:18:37,969 --> 02:18:35,429

it'll be beyond what we already know and

3600

02:18:39,799 --> 02:18:37,979

a lot of them could be hopefully could

3601

02:18:41,419 --> 02:18:39,809

be very you know very loaded pointers

3602

02:18:43,850 --> 02:18:41,429

they could say it's really this road and

3603

02:18:47,179 --> 02:18:43,860

not the other one for moving forward in

3604

02:18:49,549 --> 02:18:47,189

every era that we study science we kind

3605

02:18:52,040 --> 02:18:49,559

of think we've got it pretty well under

3606

02:18:53,780 --> 02:18:52,050

control now we know kind of what's going

3607

02:18:56,089 --> 02:18:53,790

on with the universe and then fifty

3608

02:19:02,060 --> 02:18:56,099

years later they seem like a bunch of

3609

02:19:06,379 --> 02:19:02,070

Neanderthals you know that's our gene

3610

02:19:08,419 --> 02:19:06,389

but pardon maybe maybe uh maybe homo

3611

02:19:11,660 --> 02:19:08,429

sapien not without the sapiens a peon

3612

02:19:14,000 --> 02:19:11,670

man wise the wise your being that we all

3613

02:19:15,830 --> 02:19:14,010

tend to think that we have a handle on

3614

02:19:19,040 --> 02:19:15,840

what's happening in science and then we

3615

02:19:21,980 --> 02:19:19,050

find something else that shows hey we

3616

02:19:23,690 --> 02:19:21,990

barely knew what was going on so do you

3617

02:19:24,679 --> 02:19:23,700

think there's a point where we could no

3618

02:19:26,719 --> 02:19:24,689

ever know

3619

02:19:28,939 --> 02:19:26,729

all that there is to know it's kind of a

3620

02:19:32,120 --> 02:19:28,949

simplistic question but one that people

3621

02:19:33,259 --> 02:19:32,130

do ask and I think the answer is no and

3622

02:19:35,509 --> 02:19:33,269

I think for the reason you were saying

3623

02:19:37,849 --> 02:19:35,519

before I mean I think you're right that

3624

02:19:40,069 --> 02:19:37,859

we have been I would say surprised and

3625

02:19:41,870 --> 02:19:40,079

maybe humbled maybe hadn't been humbled

3626

02:19:43,790 --> 02:19:41,880

enough given what we should have been

3627

02:19:45,319 --> 02:19:43,800

you know tied like it's a time to time

3628

02:19:48,049 --> 02:19:45,329

again you don't have to go back all that

3629

02:19:49,399 --> 02:19:48,059

far so it's not often it's not only then

3630

02:19:51,199 --> 02:19:49,409

we find out we were wrong about

3631

02:19:53,090 --> 02:19:51,209

something we deep deeply believed in

3632

02:19:54,199 --> 02:19:53,100

dearly held but then most of what we

3633

02:19:55,910 --> 02:19:54,209

were worried about was sort of becomes

3634

02:19:57,290 --> 02:19:55,920

irrelevant I mean it's not neither right

3635

02:19:59,239 --> 02:19:57,300

nor wrong so much as a different the

3636

02:20:01,309 --> 02:19:59,249

wrong question to be asking it's that

3637

02:20:04,460 --> 02:20:01,319

kind of upheaval that really does happen

3638

02:20:06,380 --> 02:20:04,470

it happens every few decades if not you

3639

02:20:09,319 --> 02:20:06,390

know century is that kind of scale at

3640

02:20:10,729 --> 02:20:09,329

the very least and you know on the one

3641

02:20:12,679 --> 02:20:10,739

hand that's incredibly exciting on the

3642

02:20:15,109 --> 02:20:12,689

other hand you say well what are we

3643

02:20:17,239 --> 02:20:15,119

worrying about so deeply now they might

3644

02:20:18,469 --> 02:20:17,249

turn out to be a non-problem nothing

3645

02:20:20,750 --> 02:20:18,479

will solve it it just won't even be a

3646

02:20:22,729 --> 02:20:20,760

problem anymore when seen from the

3647

02:20:25,250 --> 02:20:22,739

vantage point of some new later set of

3648

02:20:26,719 --> 02:20:25,260

ideas so yeah it's you know I wouldn't

3649

02:20:28,849 --> 02:20:26,729

want to be the one thing we look we've

3650

02:20:31,040 --> 02:20:28,859

got it we're done I don't think that was

3651

02:20:33,050 --> 02:20:31,050

ever gonna be a winning position that

3652

02:20:35,179 --> 02:20:33,060

one that reminds me of the the head of

3653

02:20:37,489 --> 02:20:35,189

the US Patent Office in the late 1890s

3654

02:20:39,080 --> 02:20:37,499

and the famous quote that everything

3655

02:20:43,639 --> 02:20:39,090

that can be invented has been invented

3656

02:20:45,019 --> 02:20:43,649

so I always wonder about the 6,000

3657

02:20:47,960 --> 02:20:45,029

patents that Apple and some other

3658

02:20:50,389 --> 02:20:47,970

companies just bought because they were

3659

02:20:52,429 --> 02:20:50,399

newly invented but I won't get into the

3660

02:20:55,370 --> 02:20:52,439

situation here whether patents are being

3661

02:20:57,679 --> 02:20:55,380

granted for trivial inventions or such

3662

02:21:00,080 --> 02:20:57,689

broad-based inventions that of course

3663

02:21:03,080 --> 02:21:00,090

anybody is in violation that gets to be

3664

02:21:05,779 --> 02:21:03,090

almost ridiculous but you know let's go

3665

02:21:07,399 --> 02:21:05,789

back since we mentioned Einstein and now

3666

02:21:10,819 --> 02:21:07,409

a lot of people looking to go beyond

3667

02:21:13,219 --> 02:21:10,829

Einstein and maybe he says yeah of

3668

02:21:15,290 --> 02:21:13,229

course the speed of light is supposedly

3669

02:21:19,010 --> 02:21:15,300

the maximum but we can find tricks

3670

02:21:23,960 --> 02:21:19,020

around that so after all these years how

3671

02:21:25,429 --> 02:21:23,970

good was Einstein's vision well I'd say

3672

02:21:27,949 --> 02:21:25,439

it was it was awfully good

3673

02:21:29,389 --> 02:21:27,959

and so I night it turns out was human he

3674

02:21:32,000 --> 02:21:29,399

was wrong a lot of the time like every

3675

02:21:34,849 --> 02:21:32,010

other human ever has been and I don't

3676

02:21:37,099 --> 02:21:34,859

think that's a great fault of his to

3677

02:21:38,120 --> 02:21:37,109

have to admit that on the other hand you

3678

02:21:42,020 --> 02:21:38,130

know

3679

02:21:43,639 --> 02:21:42,030

just about a century later or really you

3680

02:21:44,929 --> 02:21:43,649

know coming up on a century since

3681

02:21:47,450 --> 02:21:44,939

general relativity well over a century

3682

02:21:49,600 --> 02:21:47,460

since special relativity coming up on

3683

02:21:52,490 --> 02:21:49,610

the century in quantum theory I mean

3684

02:21:54,440 --> 02:21:52,500

we're still living in many ways in

3685

02:21:56,450 --> 02:21:54,450

Einstein's world and we still think

3686

02:21:59,179 --> 02:21:56,460

about things largely in ways that he had

3687

02:22:00,410 --> 02:21:59,189

encouraged or taught us to and there

3688

02:22:01,760 --> 02:22:00,420

aren't many other people for whom we can

3689

02:22:03,800 --> 02:22:01,770

sing that that's an amazing

3690

02:22:06,080 --> 02:22:03,810

accomplishment that we've been able to

3691

02:22:08,030 --> 02:22:06,090

find things in his ideas that he hadn't

3692

02:22:10,250 --> 02:22:08,040

even anticipated but that the structure

3693

02:22:11,840 --> 02:22:10,260

the you know the the fabric was there

3694

02:22:14,120 --> 02:22:11,850

and it's led us to discover even new

3695

02:22:16,940 --> 02:22:14,130

things that they were kind of latent and

3696

02:22:18,740 --> 02:22:16,950

you know it's he wasn't right about

3697

02:22:20,810 --> 02:22:18,750

every last thing no one is but but what

3698

02:22:24,710 --> 02:22:20,820

he gave us it has been well worth it

3699

02:22:26,630 --> 02:22:24,720

it's been an astonishing picture and I

3700

02:22:29,990 --> 02:22:26,640

think actually a very exciting one so

3701

02:22:32,000 --> 02:22:30,000

much to learn so little time David

3702

02:22:34,250 --> 02:22:32,010

Kaiser is our guests Chris O'Brien's the

3703

02:22:36,380 --> 02:22:34,260

co-host um Jean Steinberg you're in the

3704

02:22:42,310 --> 02:22:36,390

para cast

3705

02:22:46,650 --> 02:22:44,120

[Music]

3706

02:22:49,200 --> 02:22:46,660

so here's what happened I was placing an

3707

02:22:51,420 --> 02:22:49,210

order online the site went down they

3708

02:22:53,100 --> 02:22:51,430

just stopped responding it took hours

3709

02:22:54,690 --> 02:22:53,110

before it returned but I'd already

3710

02:22:56,460 --> 02:22:54,700

placed the order with another company if

3711

02:22:58,320 --> 02:22:56,470

your site goes down you could lose

3712

02:23:00,120 --> 02:22:58,330

business and if you have a business or

3713

02:23:02,850 --> 02:23:00,130

personal site you'll want to know it's

3714

02:23:06,030 --> 02:23:02,860

easy to run and it will stay online at

3715

02:23:08,010 --> 02:23:06,040

iWeb your site is hosted on one of the

3716

02:23:09,270 --> 02:23:08,020

most reliable networks in the world

3717

02:23:13,260 --> 02:23:09,280

check it out

3718

02:23:15,090 --> 02:23:13,270

I web comm that's iWeb comm for 58 years

3719

02:23:17,010 --> 02:23:15,100

fate has provided true reports of a

3720

02:23:19,110 --> 02:23:17,020

strange and unknown fate brings you the

3721

02:23:20,760 --> 02:23:19,120

latest in all aspects of the paranormal

3722

02:23:23,700 --> 02:23:20,770

like angels and miracles psychic

3723

02:23:25,110 --> 02:23:23,710

phenomena ghosts UFOs and much much more

3724

02:23:27,120 --> 02:23:25,120

to receive your complimentary fate

3725

02:23:30,000 --> 02:23:27,130

magazine call now at one eight hundred

3726

02:23:32,700 --> 02:23:30,010

seven two eight two seven three Oh or

3727

02:23:35,190 --> 02:23:32,710

visit their website at WWF eight mag

3728

02:23:37,469 --> 02:23:35,200

calm that's one eight hundred seven two

3729

02:23:39,929 --> 02:23:37,479

eight two seven three zero what are you

3730

02:23:41,510 --> 02:23:39,939

waiting for your fate awaits big berkey

3731

02:23:43,800 --> 02:23:41,520

water filters are in high demand

3732

02:23:46,380 --> 02:23:43,810

storable foods are also in high demand

3733

02:23:47,969 --> 02:23:46,390

big berkey water filters calm has always

3734

02:23:50,100 --> 02:23:47,979

kept our focus on the berkey water

3735

02:23:52,170 --> 02:23:50,110

filter products but increasingly our

3736

02:23:54,330 --> 02:23:52,180

customers have been asking for storable

3737

02:23:56,670 --> 02:23:54,340

foods after months of research big

3738

02:23:59,370 --> 02:23:56,680

berkey water filters calm now offers

3739

02:24:01,410 --> 02:23:59,380

great tasting long-lasting storable

3740

02:24:03,600 --> 02:24:01,420

foods these ready-to-eat meals are

3741

02:24:05,670 --> 02:24:03,610

packed in airtight nitrogen pouches all

3742

02:24:07,530 --> 02:24:05,680

you do is just add water and because

3743

02:24:10,020 --> 02:24:07,540

they're sealed so well they come with a

3744

02:24:11,670 --> 02:24:10,030

25 year shelf life combined our berkey

3745

02:24:13,980 --> 02:24:11,680

water filters which are powerful enough

3746

02:24:16,020 --> 02:24:13,990

to purify treated untreated or even

3747

02:24:18,120 --> 02:24:16,030

stagnant pond water with our storable

3748

02:24:20,250 --> 02:24:18,130

foods and you have a winning combination

3749

02:24:23,100 --> 02:24:20,260

remember we offer free shipping on every

3750

02:24:24,929 --> 02:24:23,110

order over \$50 and GCN listeners receive

3751

02:24:28,830 --> 02:24:24,939

five percent off all ceramic filter

3752

02:24:31,830 --> 02:24:28,840

systems visit big ber Kei water filters

3753

02:24:34,500 --> 02:24:31,840

calm or call 877 ninety nine Berkey

3754

02:24:36,900 --> 02:24:34,510

that's big berkey water filters calm or

3755

02:24:41,670 --> 02:24:36,910

call eight seven seven ninety nine BER

3756

02:24:43,980 --> 02:24:41,680

ky today congratulations to our friends

3757

02:24:46,290 --> 02:24:43,990

at he foods to reg calm in August they

3758

02:24:47,719 --> 02:24:46,300

celebrate 30 years in the long term

3759

02:24:49,849 --> 02:24:47,729

storable food business

3760

02:24:51,979 --> 02:24:49,859

to celebrate in foods direct calm is

3761

02:24:54,439 --> 02:24:51,989

offering the lowest price ever on their

3762

02:24:57,019 --> 02:24:54,449

one year freedom food supply even less

3763

02:25:00,170 --> 02:24:57,029

than the price in 1981 for a limited

3764

02:25:02,719 --> 02:25:00,180

time you get 30% off a one-year freedom

3765

02:25:05,000 --> 02:25:02,729

supply which provides three hearty meals

3766

02:25:07,370 --> 02:25:05,010

per day for one adult the freedom supply

3767

02:25:09,489 --> 02:25:07,380

includes a large variety of fruits and

3768

02:25:12,050 --> 02:25:09,499

vegetables dairy legumes grains

3769

02:25:14,239 --> 02:25:12,060

sprouting seeds and more plus you get a

3770

02:25:16,819 --> 02:25:14,249

generous supply of their quick fix meals

3771

02:25:18,979 --> 02:25:16,829

this is the most complete extensive and

3772

02:25:22,760 --> 02:25:18,989

affordable unit they have ever offered

3773

02:25:25,040 --> 02:25:22,770

call 800 for 095 633 or go to eat foods

3774

02:25:27,710 --> 02:25:25,050

direct comm forward slash Alex and get

3775

02:25:29,300 --> 02:25:27,720

30% off a one-year food supply if you

3776

02:25:32,450 --> 02:25:29,310

have ever considered getting a supply

3777

02:25:34,910 --> 02:25:32,460

now is the time call 800 or on ein five

3778

02:25:37,040 --> 02:25:34,920

six three three as 800 or oh nine five

3779

02:25:41,479 --> 02:25:37,050

six three three or evens direct comm

3780

02:25:42,979 --> 02:25:41,489

forward slash Alex fight back this cold

3781

02:25:45,649 --> 02:25:42,989

and flu season with a world's best

3782

02:25:47,290 --> 02:25:45,659

garlic extract ally see why Ally see

3783

02:25:50,029 --> 02:25:47,300

because it helps your body fight viruses

3784

02:25:51,800 --> 02:25:50,039

bacteria and fungi a lessee has been

3785

02:25:53,809 --> 02:25:51,810

scientifically proven in double-blind

3786

02:25:55,609 --> 02:25:53,819

studies using low doses to greatly

3787

02:25:58,519 --> 02:25:55,619

reduce the number severity and duration

3788

02:26:00,859 --> 02:25:58,529

of common colds Ally C contains 300

3789

02:26:02,899 --> 02:26:00,869

milligrams of stabilized Alison the

3790

02:26:04,910 --> 02:26:02,909

active ingredient in crushed garlic

3791

02:26:06,739 --> 02:26:04,920

studies show Ali C is effective against

3792

02:26:09,469 --> 02:26:06,749

merse bacterial fungal and viral

3793

02:26:11,689 --> 02:26:09,479

infections one tablet of a lessee has

3794

02:26:13,550 --> 02:26:11,699

the equivalent of 40 cloves of garlic a

3795

02:26:16,010 --> 02:26:13,560

lessee supports your body's resistance

3796

02:26:17,450 --> 02:26:16,020

to all types of conditions and can help

3797

02:26:18,050 --> 02:26:17,460

lower high blood pressure and high

3798

02:26:20,000 --> 02:26:18,060

cholesterol

3799

02:26:21,739 --> 02:26:20,010

so boost your body's resistance to

3800

02:26:24,200 --> 02:26:21,749

infection with nature's best garlic

3801
02:26:26,840 --> 02:26:24,210
extract Alesi for more information and

3802
02:26:29,569 --> 02:26:26,850
to order a Lisi call 877 eight eight

3803
02:26:31,819 --> 02:26:29,579
eight seven one two six or go to garlic

3804
02:26:33,439 --> 02:26:31,829
health products calm that's one eight

3805
02:26:35,870 --> 02:26:33,449
seven seven eight eight eight seven one

3806
02:26:40,460 --> 02:26:35,880
two six or go to garlic health products

3807
02:26:43,099 --> 02:26:40,470
calm for your ally see today the GZ and

3808
02:26:46,991 --> 02:26:43,109
Radio Network providing the world with

3809
02:26:54,990 --> 02:26:47,001
hard-hitting talk radio G C

3810
02:27:00,390 --> 02:26:57,650
[Music]

3811
02:27:02,320 --> 02:27:00,400
hi my name is Richard Dolan you're

3812
02:27:06,990 --> 02:27:02,330
listening to the Peres Cass

3813
02:27:10,050 --> 02:27:07,000

[Music]

3814

02:27:12,570 --> 02:27:10,060

we're back one more session with David

3815

02:27:14,519 --> 02:27:12,580

Kaiser I'm Jean Steinberg the co-host is

3816

02:27:17,490 --> 02:27:14,529

Chris O'Brien Chris is your friend have

3817

02:27:20,040 --> 02:27:17,500

any more questions yeah and you David I

3818

02:27:22,290 --> 02:27:20,050

think you think there's a sort of a

3819

02:27:25,650 --> 02:27:22,300

paradigm that's rather a bit matter

3820

02:27:26,550 --> 02:27:25,660

about physics you know is it is physics

3821

02:27:30,179 --> 02:27:26,560

fashion

3822

02:27:33,740 --> 02:27:30,189

by that I mean this if you really widen

3823

02:27:37,889 --> 02:27:33,750

it out to extra dimensions found by the

3824

02:27:40,050 --> 02:27:37,899

LHC if you say that I have something

3825

02:27:42,389 --> 02:27:40,060

that's even deeper than a mean earth is

3826
02:27:45,090 --> 02:27:42,399
symmetry theorem which says that for

3827
02:27:47,719 --> 02:27:45,100
every conservation law there's a

3828
02:27:50,340 --> 02:27:47,729
corresponding symmetry principle

3829
02:27:52,410 --> 02:27:50,350
absolutely fundamentally deep thing to

3830
02:27:54,510 --> 02:27:52,420
say about the universe somebody comes

3831
02:27:56,250 --> 02:27:54,520
along next week and says well I can

3832
02:27:58,920 --> 02:27:56,260
actually go deep with an emmy noether

3833
02:28:00,450 --> 02:27:58,930
and say and say something much more

3834
02:28:02,429 --> 02:28:00,460
fundamental than that you know which

3835
02:28:04,229 --> 02:28:02,439
sort of like undercuts the what we call

3836
02:28:06,990 --> 02:28:04,239
the fundamentals and goes even deeper

3837
02:28:09,330 --> 02:28:07,000
and sets out a substrate upon which a

3838
02:28:12,000 --> 02:28:09,340

lot more things can be understood it it

3839

02:28:15,479 --> 02:28:12,010

renders Newton even more archaic it

3840

02:28:18,030 --> 02:28:15,489

renders Einstein passe and so forth

3841

02:28:21,300 --> 02:28:18,040

seems to me that we do have this sort of

3842

02:28:23,880 --> 02:28:21,310

fashionable aspect of physics which you

3843

02:28:26,309 --> 02:28:23,890

know is our current that zeitgeist of

3844

02:28:28,380 --> 02:28:26,319

general relativity and quantum mechanics

3845

02:28:31,050 --> 02:28:28,390

do you really think that zeitgeist has

3846

02:28:33,479 --> 02:28:31,060

got any sense of true permanence in a

3847

02:28:35,099 --> 02:28:33,489

large sense fast forward five hundred

3848

02:28:37,080 --> 02:28:35,109

years and look at the exponential rate

3849

02:28:39,750 --> 02:28:37,090

of the increase of knowledge do we

3850

02:28:43,110 --> 02:28:39,760

really believe the QM and GR will will

3851

02:28:45,330 --> 02:28:43,120

be around as as as paradigms in say 500

3852

02:28:47,010 --> 02:28:45,340

years - well it's a great question and I

3853

02:28:48,780 --> 02:28:47,020

think the answer is no but that's not a

3854

02:28:50,670 --> 02:28:48,790

reason for despair at least as I see it

3855

02:28:52,500 --> 02:28:50,680

and it you know we still teach our

3856

02:28:54,540 --> 02:28:52,510

students Newton's mechanics right that's

3857

02:28:56,519 --> 02:28:54,550

you know not 500 years since Newton but

3858

02:28:59,099 --> 02:28:56,529

several hundred and so we no longer

3859

02:29:01,950 --> 02:28:59,109

think the universe runs exactly as

3860

02:29:03,750 --> 02:29:01,960

Newton had taught us but the way of

3861

02:29:05,660 --> 02:29:03,760

analyzing things we can observe that

3862

02:29:07,860 --> 02:29:05,670

Newton had bequeathed is still

3863

02:29:09,920 --> 02:29:07,870

unbelievably helpful and powerful and

3864

02:29:12,750 --> 02:29:09,930

our newer ideas have to you know kind of

3865

02:29:14,130 --> 02:29:12,760

incorporate those results even as they

3866

02:29:16,349 --> 02:29:14,140

move beyond them and I think that is

3867

02:29:18,030 --> 02:29:16,359

likely to be what's gonna happen with

3868

02:29:19,500 --> 02:29:18,040

both quantum mechanics and general to me

3869

02:29:20,820 --> 02:29:19,510

I don't think either them is necessary

3870

02:29:23,040 --> 02:29:20,830

final word certainly general tivity

3871

02:29:24,900 --> 02:29:23,050

there all kinds of reasons from from

3872

02:29:26,760 --> 02:29:24,910

within the structure of general tivity

3873

02:29:27,929 --> 02:29:26,770

say this probably isn't everything right

3874

02:29:30,809 --> 02:29:27,939

this might be pointing to where it

3875

02:29:33,690 --> 02:29:30,819

itself might break down but any other

3876

02:29:37,920 --> 02:29:33,700

grand next grander more amazing you know

3877

02:29:39,389 --> 02:29:37,930

strange concoction it is likely to

3878

02:29:41,760 --> 02:29:39,399

incorporate at least the things that we

3879

02:29:43,530 --> 02:29:41,770

have really wrestled with hard about

3880

02:29:46,050 --> 02:29:43,540

Einstein's relativity so they those

3881

02:29:49,200 --> 02:29:46,060

might not be anymore the fundamental you

3882

02:29:50,940 --> 02:29:49,210

know a bedrock answer for why things

3883

02:29:52,889 --> 02:29:50,950

behave the way they do but it would be a

3884

02:29:54,240 --> 02:29:52,899

pretty good account for why they do and

3885

02:29:56,670 --> 02:29:54,250

might have a kind of underneath

3886

02:29:58,650 --> 02:29:56,680

reasonings matter that would on which

3887

02:30:00,240 --> 02:29:58,660

that would rest much like we'd say with

3888

02:30:02,670 --> 02:30:00,250

say Newton's laws today or Maxwell's

3889

02:30:04,950 --> 02:30:02,680

equations for electricity magnetism and

3890

02:30:06,450 --> 02:30:04,960

we still you know MIT students still all

3891

02:30:08,550 --> 02:30:06,460

the time will buy t-shirts with

3892

02:30:10,050 --> 02:30:08,560

Maxwell's equations on the front which I

3893

02:30:13,050 --> 02:30:10,060

love they was wearing to my class and

3894

02:30:14,250 --> 02:30:13,060

you know we'd say Oh max equations do we

3895

02:30:16,260 --> 02:30:14,260

now know about quantum theory and

3896

02:30:17,639 --> 02:30:16,270

electrons and charges things that the

3897

02:30:19,830 --> 02:30:17,649

makkal didn't even know about

3898

02:30:21,780 --> 02:30:19,840

and yet the equations are both worth

3899

02:30:23,099 --> 02:30:21,790

putting on a t-shirt and worth teaching

3900

02:30:25,260 --> 02:30:23,109

four semesters at a time because they're

3901

02:30:26,639 --> 02:30:25,270

incredibly powerful and that captured

3902

02:30:28,830 --> 02:30:26,649

something about the world you even if

3903

02:30:30,719 --> 02:30:28,840

they're not the final final word I mean

3904

02:30:33,660 --> 02:30:30,729

indeed I mean we have this incredible

3905

02:30:35,490 --> 02:30:33,670

checks and balances on web in place now

3906

02:30:38,490 --> 02:30:35,500

that just wasn't there a hundred years

3907

02:30:40,440 --> 02:30:38,500

ago so every new thing that we posit has

3908

02:30:43,349 --> 02:30:40,450

to pass all the tests that we've thought

3909

02:30:45,480 --> 02:30:43,359

of since that time and as we go on in

3910

02:30:47,700 --> 02:30:45,490

time would you not agree that the checks

3911

02:30:50,099 --> 02:30:47,710

and balances are very very good guide to

3912

02:30:51,840 --> 02:30:50,109

where to go next but I see also a dark

3913

02:30:54,630 --> 02:30:51,850

side to that do you not also that

3914

02:30:56,700 --> 02:30:54,640

perhaps it might be inhibitory and in

3915

02:30:58,769 --> 02:30:56,710

terms of making large leaves well I see

3916

02:30:59,940 --> 02:30:58,779

what you mean and so uh that was part of

3917

02:31:01,679 --> 02:30:59,950

what I was interested in in writing this

3918

02:31:04,800 --> 02:31:01,689

book actually you know when does the

3919

02:31:07,500 --> 02:31:04,810

mainstream rule out questions or somehow

3920

02:31:09,510 --> 02:31:07,510

you know who trey is not not question is

3921

02:31:11,130 --> 02:31:09,520

worth asking I think that's that becomes

3922

02:31:12,420 --> 02:31:11,140

dangerous I do think that's right or at

3923

02:31:14,429 --> 02:31:12,430

least you know I wouldn't want to see

3924

02:31:16,559 --> 02:31:14,439

that that can be overdone and that's

3925

02:31:18,120 --> 02:31:16,569

what I think groups like the one I wrote

3926

02:31:20,639 --> 02:31:18,130

about in Berkeley in the 70s you know

3927

02:31:23,040 --> 02:31:20,649

they were no longer beholden to those

3928

02:31:25,410 --> 02:31:23,050

kind of we might say fashions or the

3929

02:31:26,849 --> 02:31:25,420

opinions of the mainstream they carved

3930

02:31:29,330 --> 02:31:26,859

out this parallel universe and and and

3931

02:31:31,950 --> 02:31:29,340

kind of crawled back in that level of

3932

02:31:33,211 --> 02:31:31,960

the out-of-the-box thinking that I think

3933

02:31:34,591 --> 02:31:33,221

is better support

3934

02:31:36,421 --> 02:31:34,601

now than back then that's why I say

3935

02:31:38,730 --> 02:31:36,431

there's there's a wider safety net now

3936

02:31:40,861 --> 02:31:38,740

for ideas that are not necessarily in

3937

02:31:42,720 --> 02:31:40,871

that sense fashionable or going along

3938

02:31:44,131 --> 02:31:42,730

with what most people already believe we

3939

02:31:46,020 --> 02:31:44,141

have I think really good reasons to

3940

02:31:47,251 --> 02:31:46,030

believe what we do but let's not you

3941

02:31:50,551 --> 02:31:47,261

know lose sight of the fact that these

3942

02:31:52,711 --> 02:31:50,561

are likely to be upended or these could

3943

02:31:54,031 --> 02:31:52,721

be upended as well and so in that sense

3944

02:31:56,310 --> 02:31:54,041

I think you're right that there can be a

3945

02:31:58,171 --> 02:31:56,320

kind of taste question that that doesn't

3946

02:31:59,730 --> 02:31:58,181

smell like a good topic they'll work on

3947

02:32:02,011 --> 02:31:59,740

it and that I think could be a very

3948

02:32:03,901 --> 02:32:02,021

difficult situation to overcome for

3949

02:32:06,421 --> 02:32:03,911

young scientists start it out let me

3950

02:32:08,791 --> 02:32:06,431

just ask a fast question here as we're

3951
02:32:11,821 --> 02:32:08,801
getting to the tail end of this program

3952
02:32:14,430 --> 02:32:11,831
and that is false research we hear about

3953
02:32:16,741 --> 02:32:14,440
occasionally where people either claim

3954
02:32:19,711 --> 02:32:16,751
to have scientific credentials or don't

3955
02:32:23,310 --> 02:32:19,721
or they falsify the research they try to

3956
02:32:25,441 --> 02:32:23,320
take shortcuts how do you have checks

3957
02:32:29,161 --> 02:32:25,451
and balances in the system to overcome

3958
02:32:31,111 --> 02:32:29,171
this tendency you're right I would say

3959
02:32:32,730 --> 02:32:31,121
at least as much now as in other periods

3960
02:32:34,261 --> 02:32:32,740
from from anyway that it's hard to get

3961
02:32:36,390 --> 02:32:34,271
good measures on the frequency of these

3962
02:32:38,791 --> 02:32:36,400
things but there is reason to believe it

3963
02:32:40,591 --> 02:32:38,801

and we haven't you know licks at system

3964

02:32:41,911 --> 02:32:40,601

the part of I think we can understand

3965

02:32:44,220 --> 02:32:41,921

some of the motivations for why it

3966

02:32:45,451 --> 02:32:44,230

happens and those motivations are

3967

02:32:48,001 --> 02:32:45,461

probably not gonna go away anytime soon

3968

02:32:50,551 --> 02:32:48,011

it has to do with things like you know

3969

02:32:52,531 --> 02:32:50,561

talked about before well ego but also I

3970

02:32:54,060 --> 02:32:52,541

would say even more mundane difficulty

3971

02:32:57,121 --> 02:32:54,070

of getting research grants you know the

3972

02:32:58,621 --> 02:32:57,131

kind of rat race of trying to get get

3973

02:33:00,211 --> 02:32:58,631

your get the resources you need to ask

3974

02:33:02,251 --> 02:33:00,221

the hard questions there can certainly

3975

02:33:03,541 --> 02:33:02,261

be temptations to cut quarters that

3976

02:33:05,220 --> 02:33:03,551

specific copy that doesn't make it right

3977

02:33:07,531 --> 02:33:05,230

it also can make it pretty hard to catch

3978

02:33:09,421 --> 02:33:07,541

with people will say oh so I on peer

3979

02:33:11,761 --> 02:33:09,431

review peer review of course is fallible

3980

02:33:13,470 --> 02:33:11,771

there was a famous case from just about

3981

02:33:15,361 --> 02:33:13,480

a decade ago at Bell Labs or a young

3982

02:33:17,041 --> 02:33:15,371

researcher had to retract I think at

3983

02:33:18,720 --> 02:33:17,051

least 20 articles that were published

3984

02:33:21,211 --> 02:33:18,730

not just in any old peer-reviewed

3985

02:33:23,281 --> 02:33:21,221

journals but in science nature Physical

3986

02:33:24,961 --> 02:33:23,291

Review Letters the most prestigious most

3987

02:33:26,970 --> 02:33:24,971

carefully vetted Journal on the planet

3988

02:33:28,621 --> 02:33:26,980

and these were not one or two but I

3989

02:33:30,211 --> 02:33:28,631

think on the order of 20 of them that

3990

02:33:32,071 --> 02:33:30,221

were formally retracted something like

3991

02:33:34,081 --> 02:33:32,081

that so it's not a peer review is

3992

02:33:36,121 --> 02:33:34,091

important but if that's not the panacea

3993

02:33:38,520 --> 02:33:36,131

on it so I think you know we can

3994

02:33:40,261 --> 02:33:38,530

understand the part of the kind of

3995

02:33:42,631 --> 02:33:40,271

sociology behind on how it might happen

3996

02:33:45,291 --> 02:33:42,641

and you know quite frankly I don't have

3997

02:33:47,100 --> 02:33:45,301

a good answer other than you know

3998

02:33:48,810 --> 02:33:47,110

obviously peer review

3999

02:33:51,270 --> 02:33:48,820

be careful vetting and a kind of

4000

02:33:52,831 --> 02:33:51,280

openness and in datasets and all that

4001
02:33:54,450 --> 02:33:52,841
which might go some part of the

4002
02:33:56,251 --> 02:33:54,460
way but it's I don't think we're gonna

4003
02:33:57,780 --> 02:33:56,261
lick it I think that's that's you know I

4004
02:33:59,430 --> 02:33:57,790
don't think is a huge problem I want an

4005
02:34:01,320 --> 02:33:59,440
exaggerated thing every it's behind

4006
02:34:03,301 --> 02:34:01,330
every corner but it's you know it's

4007
02:34:06,331 --> 02:34:03,311
there that hasn't gone away and by the

4008
02:34:08,791 --> 02:34:06,341
same token the availability of grants in

4009
02:34:10,410 --> 02:34:08,801
certain areas of research that kind of

4010
02:34:12,570 --> 02:34:10,420
precludes other areas unless there's

4011
02:34:14,671 --> 02:34:12,580
bunch of hippies sitting in a coffee

4012
02:34:17,700 --> 02:34:14,681
shop in San Francisco and thinking about

4013
02:34:20,581 --> 02:34:17,710

the future well I mean it goes back to

4014

02:34:22,501 --> 02:34:20,591

the question of fads and fashions and

4015

02:34:25,020 --> 02:34:22,511

you know there are kind of taste makers

4016

02:34:26,011 --> 02:34:25,030

in science believe it or not and so

4017

02:34:29,430 --> 02:34:26,021

you're right you want to make sure that

4018

02:34:31,770 --> 02:34:29,440

those are not sort of really cutting off

4019

02:34:33,331 --> 02:34:31,780

ideas or people who always have things

4020

02:34:35,940 --> 02:34:33,341

to contribute even if they might not be

4021

02:34:37,591 --> 02:34:35,950

in that same direction well what's in

4022

02:34:40,470 --> 02:34:37,601

the future for you I'm sure this book is

4023

02:34:42,120 --> 02:34:40,480

being well received and and do you have

4024

02:34:43,470 --> 02:34:42,130

any other books in the works or any

4025

02:34:45,421 --> 02:34:43,480

other literary projects that you're

4026

02:34:49,140 --> 02:34:45,431

working on or what's what's on your

4027

02:34:50,551 --> 02:34:49,150

event horizon though on the physics side

4028

02:34:52,110 --> 02:34:50,561

I'm indeed still working on the

4029

02:34:54,030 --> 02:34:52,120

cosmology actually trying to play with

4030

02:34:56,280 --> 02:34:54,040

an idea that might combine the Higgs

4031

02:34:57,780 --> 02:34:56,290

boson with a modification of Einstein's

4032

02:34:59,490 --> 02:34:57,790

relativity to understand the other

4033

02:35:02,041 --> 02:34:59,500

universe I don't think it's the best

4034

02:35:03,270 --> 02:35:02,051

answer it's it's intriguing and then in

4035

02:35:04,921 --> 02:35:03,280

terms of books you know there's a

4036

02:35:07,171 --> 02:35:04,931

project I'm working on that I've been

4037

02:35:09,001 --> 02:35:07,181

really enjoying it's a political history

4038

02:35:11,400 --> 02:35:09,011

of Einstein's gravity let's understand

4039

02:35:13,440 --> 02:35:11,410

general relativity like these hippies

4040

02:35:15,301 --> 02:35:13,450

has always embedded in times in places

4041

02:35:17,671 --> 02:35:15,311

the people who are spending their their

4042

02:35:20,190 --> 02:35:17,681

their lives studying it are you know

4043

02:35:21,450 --> 02:35:20,200

interrupted by war they're involved in

4044

02:35:22,950 --> 02:35:21,460

the Cold War they're involved in all

4045

02:35:24,390 --> 02:35:22,960

kinds of things and it's a way of

4046

02:35:26,810 --> 02:35:24,400

understanding heinous science and

4047

02:35:29,310 --> 02:35:26,820

context in a very kind of immediate

4048

02:35:31,680 --> 02:35:29,320

personal way and that stretches over

4049

02:35:32,520 --> 02:35:31,690

really the entire 20th century so that's

4050

02:35:34,650 --> 02:35:32,530

a book I've actually really been

4051
02:35:36,900 --> 02:35:34,660
enjoying as well another book on sort of

4052
02:35:38,430 --> 02:35:36,910
the politics of science policy and how

4053
02:35:41,400 --> 02:35:38,440
do we how do we handle things like

4054
02:35:43,171 --> 02:35:41,410
challenges from either the Soviet Union

4055
02:35:45,841 --> 02:35:43,181
or more recently China and India about

4056
02:35:47,430 --> 02:35:45,851
these numbers of degrees granted per

4057
02:35:49,410 --> 02:35:47,440
year and that kind of thing is there's a

4058
02:35:50,820 --> 02:35:49,420
how does that shape what we think

4059
02:35:52,650 --> 02:35:50,830
science should be like or what we want

4060
02:35:54,211 --> 02:35:52,660
to train our students to do so that's

4061
02:35:55,560 --> 02:35:54,221
another book that I'm shipping away an

4062
02:35:57,150 --> 02:35:55,570
excellent worthy worthy

4063
02:36:00,810 --> 02:35:57,160

topics

4064

02:36:02,850 --> 02:36:00,820

much luck in success in again if those

4065

02:36:04,679 --> 02:36:02,860

books are anything like how the hippies

4066

02:36:06,480 --> 02:36:04,689

say physics I'll be reading them that's

4067

02:36:08,850 --> 02:36:06,490

for sure I really did enjoy the book and

4068

02:36:11,940 --> 02:36:08,860

you know it was really kind of you to

4069

02:36:14,250 --> 02:36:11,950

come on a lowly paranormal show and and

4070

02:36:15,810 --> 02:36:14,260

talk some science and I was very

4071

02:36:18,060 --> 02:36:15,820

grateful to have Andrew Powe from in

4072

02:36:20,370 --> 02:36:18,070

here it was quite the scientist in his

4073

02:36:22,980 --> 02:36:20,380

own right and it's been a real pleasure

4074

02:36:24,929 --> 02:36:22,990

David and thank you so much for for

4075

02:36:27,150 --> 02:36:24,939

being on the show and I think gene will

4076

02:36:28,380 --> 02:36:27,160

agree that this this is going to be an

4077

02:36:30,780 --> 02:36:28,390

exciting episode and we're going to

4078

02:36:32,730 --> 02:36:30,790

generate quite a bit of banter I'm sure

4079

02:36:35,820 --> 02:36:32,740

on the pair of cast forums which is

4080

02:36:39,630 --> 02:36:35,830

located at forum dr. Peric ascom for all

4081

02:36:41,130 --> 02:36:39,640

you you know future posters let's get a

4082

02:36:43,260 --> 02:36:41,140

thread going on this show this is going

4083

02:36:45,389 --> 02:36:43,270

to be a lot of fun the book of course is

4084

02:36:47,969 --> 02:36:45,399

called how the hippies same physics

4085

02:36:50,010 --> 02:36:47,979

science counterculture and the quantum

4086

02:36:52,650 --> 02:36:50,020

revival the gas has been David Kiser

4087

02:36:54,960 --> 02:36:52,660

professor MIT David thanks for joining

4088

02:36:56,340 --> 02:36:54,970

us this week on the power cast well

4089

02:37:09,600 --> 02:36:56,350

thank you so much I really enjoyed it I

4090

02:37:16,031 --> 02:37:13,121

the para cast featuring gene Steinberg

4091

02:37:19,020 --> 02:37:16,041

and Christopher O'Brien is a copyrighted

4092

02:37:22,751 --> 02:37:19,030

presentation of making the impossible