



DR. GERALD POLLACK  
THE 4TH PHASE OF WATER IN NATURE, HEALTH, & ENERGY  
PRESENTED BY THE HIGHERSIDE CHATS



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1  
00:00:04,010 --> 00:00:02,240  
embrace yourself because you're about to

2  
00:00:06,170 --> 00:00:04,020  
dive into another free first hour

3  
00:00:07,369 --> 00:00:06,180  
episode of the higher side chats and we

4  
00:00:08,780 --> 00:00:07,379  
just want to let you know that whether

5  
00:00:10,820 --> 00:00:08,790  
you're looking for a companion through

6  
00:00:12,350 --> 00:00:10,830  
your paranoid insomnia entertaining

7  
00:00:14,360 --> 00:00:12,360  
yourself through one of life's mundane

8  
00:00:16,039 --> 00:00:14,370  
activities or trying to ward off the

9  
00:00:18,680 --> 00:00:16,049  
internal scream to all those sad

10  
00:00:20,420 --> 00:00:18,690  
smothered Souls around the office THC is

11  
00:00:22,099 --> 00:00:20,430  
here and you should know that every

12  
00:00:24,109 --> 00:00:22,109  
episode of the higher side chats has an

13  
00:00:26,509 --> 00:00:24,119

entire second hour four plus members

14

00:00:29,000 --> 00:00:26,519

sign up at the higher side chats plus

15

00:00:31,880 --> 00:00:29,010

calm and you get years of plus show

16

00:00:33,590 --> 00:00:31,890

archives lifetime forum access a special

17

00:00:37,130 --> 00:00:33,600

invite to Greg Carl woods monthly joint

18

00:00:40,549 --> 00:00:37,140

sessions mp3s of THC music bonus

19

00:00:42,590 --> 00:00:40,559

episodes for videos and 10% off t-shirts

20

00:00:44,600 --> 00:00:42,600

grinders and whatever else ends up in

21

00:00:46,580 --> 00:00:44,610

the higher side store it's eight dollars

22

00:00:48,440 --> 00:00:46,590

a month that you won't miss so become a

23

00:00:50,810 --> 00:00:48,450

plus member and treat yourself in these

24

00:00:52,490 --> 00:00:50,820

troubled times always action-packed and

25

00:01:00,400 --> 00:00:52,500

commercial for you which means you'll

26

00:01:05,620 --> 00:01:03,670

in the 1930s President Franklin Delano

27

00:01:08,230 --> 00:01:05,630

Roosevelt addressed the nation through a

28

00:01:11,170 --> 00:01:08,240

series of radio broadcast known as the

29

00:01:13,150 --> 00:01:11,180

fireside chats his aim was to reassure

30

00:01:15,040 --> 00:01:13,160

the common man that our society would

31

00:01:17,650 --> 00:01:15,050

recover from its troubled times

32

00:01:20,410 --> 00:01:17,660

well we're far from 1930 and I deal with

33

00:01:21,820 --> 00:01:20,420

a different kind of buyer new era of

34

00:01:24,820 --> 00:01:21,830

worldly frustration

35

00:01:27,850 --> 00:01:24,830

we offer a fresh conversation I'm Greg

36

00:01:31,480 --> 00:01:27,860

Carl wood and these are the higher side

37

00:01:33,820 --> 00:01:31,490

chat ladies and gentlemen boys and girls

38

00:01:36,310 --> 00:01:33,830

children of the revolution let me just

39

00:01:39,460 --> 00:01:36,320

say today is a real treat and I rarely

40

00:01:42,430 --> 00:01:39,470

do this sort of pre-show pre intro intro

41

00:01:44,499 --> 00:01:42,440

thing anymore but I am today just to let

42

00:01:47,680 --> 00:01:44,509

you know we did have to deviate from our

43

00:01:50,650 --> 00:01:47,690

normal two-hour format a bit on this one

44

00:01:52,990 --> 00:01:50,660

dr. [h\_\_h] is in the midst of several

45

00:01:55,719 --> 00:01:53,000

professional and personal situations

46

00:01:57,910 --> 00:01:55,729

that demand attention and I feel lucky

47

00:02:00,850 --> 00:01:57,920

to have spent any time with him at all

48

00:02:02,920 --> 00:02:00,860

but I asked if you'd come talk to me he

49

00:02:04,660 --> 00:02:02,930

asked if we could make it an hour and I

50

00:02:06,850 --> 00:02:04,670

said if you can meet me in the middle at

51  
00:02:09,130 --> 00:02:06,860  
an hour and a half I can make it work

52  
00:02:11,710 --> 00:02:09,140  
without stretching things too thin and

53  
00:02:15,250 --> 00:02:11,720  
he was kind enough to agree so we have

54  
00:02:18,190 --> 00:02:15,260  
more of a 45 45 split rather than two

55  
00:02:20,680 --> 00:02:18,200  
hours and it's fine by me because I can

56  
00:02:23,440 --> 00:02:20,690  
be flexible I can have interviews that

57  
00:02:25,990 --> 00:02:23,450  
we might not otherwise have it all by

58  
00:02:27,550 --> 00:02:26,000  
being flexible and the things we get

59  
00:02:30,520 --> 00:02:27,560  
into today once we get past the

60  
00:02:34,059 --> 00:02:30,530  
introductory stuff is to me really

61  
00:02:35,890 --> 00:02:34,069  
fascinating and honestly surprising big

62  
00:02:38,530 --> 00:02:35,900  
thanks to our friend Shema engineer for

63  
00:02:40,780 --> 00:02:38,540

bringing some pretty advanced and exotic

64

00:02:43,990 --> 00:02:40,790

questions to the table because they did

65

00:02:46,000 --> 00:02:44,000

open up some pretty wild doors and the

66

00:02:48,220 --> 00:02:46,010

subject of easy water and its behavior

67

00:02:50,559 --> 00:02:48,230

as well as its role in the body and how

68

00:02:52,990 --> 00:02:50,569

important it is to just understand in

69

00:02:54,520 --> 00:02:53,000

the context of health it's so

70

00:02:56,650 --> 00:02:54,530

revolutionary that we could have easily

71

00:02:59,320 --> 00:02:56,660

spent the time just trying to explain

72

00:03:01,150 --> 00:02:59,330

the 101 stuff and I didn't want to do

73

00:03:03,910 --> 00:03:01,160

that there are countless interviews with

74

00:03:05,710 --> 00:03:03,920

dr. [h\_\_h] that do and he's got several

75

00:03:09,670 --> 00:03:05,720

great presentations you can find online

76

00:03:11,800 --> 00:03:09,680

and that is all important context of

77

00:03:13,780 --> 00:03:11,810

course his book the fourth face of water

78

00:03:16,990 --> 00:03:13,790

is about as good as you could ask for

79

00:03:19,899 --> 00:03:17,000

it's well illustrated it's in a sort of

80

00:03:22,210 --> 00:03:19,909

casual textbook format and it gives you

81

00:03:24,580 --> 00:03:22,220

all the data from all their experiments

82

00:03:27,759 --> 00:03:24,590

and everything you'd want to know about

83

00:03:30,910 --> 00:03:27,769

this structured water and we first heard

84

00:03:33,460 --> 00:03:30,920

about dr. Pollux work in shâm engineers

85

00:03:35,289 --> 00:03:33,470

water alchemy episode where he pulled

86

00:03:38,649 --> 00:03:35,299

together some of the best paradigm

87

00:03:39,849 --> 00:03:38,659

busting holistic fringe science we

88

00:03:43,210 --> 00:03:39,859

should say I guess for lack of a better

89

00:03:45,849 --> 00:03:43,220

term may be rejected natural science or

90

00:03:49,330 --> 00:03:45,859

so mind-blowing the system can't take it

91

00:03:50,349 --> 00:03:49,340

science whatever you want to say but

92

00:03:53,020 --> 00:03:50,359

I've been thinking about it ever since

93

00:03:55,479 --> 00:03:53,030

and I see these conferences dr. Pollock

94

00:03:56,979 --> 00:03:55,489

speaks at and of course the speaker

95

00:03:59,430 --> 00:03:56,989

doesn't sign off and everything the

96

00:04:02,470 --> 00:03:59,440

other speakers say and places like that

97

00:04:05,670 --> 00:04:02,480

but I would just say that the spirit of

98

00:04:08,800 --> 00:04:05,680

nikola tesla and viktor schauburger and

99

00:04:10,960 --> 00:04:08,810

mineral alchemists and ether physics

100

00:04:13,509 --> 00:04:10,970

advocates is very much alive today

101  
00:04:15,399 --> 00:04:13,519  
yes overshadowed and outgunned by the

102  
00:04:17,560 --> 00:04:15,409  
big machine of economic interest and

103  
00:04:20,830 --> 00:04:17,570  
paradigm controlling pre-approved boxes

104  
00:04:23,200 --> 00:04:20,840  
of so-called scientific inquiry but it's

105  
00:04:26,379 --> 00:04:23,210  
there nonetheless and I hope this serves

106  
00:04:28,900 --> 00:04:26,389  
as an inspiration to explore that world

107  
00:04:31,689 --> 00:04:28,910  
more while it's thought leaders of today

108  
00:04:34,089 --> 00:04:31,699  
are still with us but let's do the damn

109  
00:04:35,920 --> 00:04:34,099  
thing buy the ticket take the ride and

110  
00:04:38,379 --> 00:04:35,930  
let's surf that easy wave to the

111  
00:04:41,560 --> 00:04:38,389  
promised land with the man himself dr.

112  
00:04:45,570 --> 00:04:41,570  
Gerald [h\_\_h] it's the higher side

113  
00:04:48,550 --> 00:04:45,580

chats podcast you can call it CAC

114

00:04:52,270 --> 00:04:48,560

always talking French I guess

115

00:04:55,560 --> 00:04:52,280

enough to piracies stuff they don't want

116

00:05:00,290 --> 00:04:55,570

you to know it's this stuff we wanna see

117

00:05:03,420 --> 00:05:00,300

that's Larry here on the higher side

118

00:05:05,100 --> 00:05:03,430

all right higher side Cheddar's how are

119

00:05:07,650 --> 00:05:05,110

we doing out there from sunny San Diego

120

00:05:09,810 --> 00:05:07,660

I'm Greg Carwood and as we all know the

121

00:05:11,970 --> 00:05:09,820

world is awash with mysteries and damn

122

00:05:13,380 --> 00:05:11,980

near magical qualities that bright minds

123

00:05:15,690 --> 00:05:13,390

throughout history have tried to

124

00:05:17,430 --> 00:05:15,700

highlight only to be pushed the margins

125

00:05:20,640 --> 00:05:17,440

of their disciplines and oftentimes the

126

00:05:22,770 --> 00:05:20,650

margins of society itself Nikola Tesla

127

00:05:25,200 --> 00:05:22,780

Thomas Townsend Brown Rudolf Steiner

128

00:05:27,270 --> 00:05:25,210

Wilhelm Reich Jacques benveniste and

129

00:05:29,820 --> 00:05:27,280

viktor schauberger just to name a few

130

00:05:31,920 --> 00:05:29,830

and it seems it upsetting the scientific

131

00:05:33,780 --> 00:05:31,930

applecart has repercussions that just

132

00:05:35,550 --> 00:05:33,790

don't seem worth the risk and you might

133

00:05:36,930 --> 00:05:35,560

ask yourself when the last time we had a

134

00:05:39,510 --> 00:05:36,940

radical new scientific breakthrough

135

00:05:43,050 --> 00:05:39,520

outside of the technological space even

136

00:05:45,990 --> 00:05:43,060

was sadly our scientific system supplies

137

00:05:48,930 --> 00:05:46,000

an unfortunate soup of egos assumptions

138

00:05:50,850 --> 00:05:48,940

skepticism tradition financial interests

139

00:05:53,040 --> 00:05:50,860

fear and doctrine ation corporate

140

00:05:55,980 --> 00:05:53,050

sponsorship and a pre-approved paradigm

141

00:05:57,840 --> 00:05:55,990

that is simply sometimes wrong which

142

00:06:00,150 --> 00:05:57,850

brings me to today's topic the

143

00:06:02,880 --> 00:06:00,160

life-giving fundamental element of water

144

00:06:05,400 --> 00:06:02,890

it covers over 70% of the earth makes up

145

00:06:07,170 --> 00:06:05,410

over 60% of our bodies but there is

146

00:06:09,720 --> 00:06:07,180

still so much about it we don't

147

00:06:12,000 --> 00:06:09,730

understand but luckily the work of

148

00:06:13,740 --> 00:06:12,010

today's guest dr. Gerald [h\_\_h] has

149

00:06:16,010 --> 00:06:13,750

definitely moved the needle probably

150

00:06:18,570 --> 00:06:16,020

more so than anyone I know living today

151

00:06:21,180 --> 00:06:18,580

dr. [h\_\_h] is known for his work on the

152

00:06:24,030 --> 00:06:21,190

fourth phase of water also known as easy

153

00:06:26,790 --> 00:06:24,040

or structured water where he found that

154

00:06:28,980 --> 00:06:26,800

h<sub>2</sub>o placed near a hydrophilic surface

155

00:06:31,080 --> 00:06:28,990

builds up layers of this gel like

156

00:06:35,340 --> 00:06:31,090

negatively charged structured water

157

00:06:37,230 --> 00:06:35,350

better described as h<sub>3</sub>o - as his work

158

00:06:39,690 --> 00:06:37,240

has progressed it's turned the world of

159

00:06:41,190 --> 00:06:39,700

cell biology on its head clarified the

160

00:06:43,200 --> 00:06:41,200

interaction between water and light

161

00:06:44,940 --> 00:06:43,210

shown that just these two simple

162

00:06:47,670 --> 00:06:44,950

components can provide free energy

163

00:06:50,130 --> 00:06:47,680

taught us so much about the water in our

164

00:06:52,290 --> 00:06:50,140

bodies and has opened the doors for many

165

00:06:54,990 --> 00:06:52,300

new applications and health energy and

166

00:06:57,150 --> 00:06:55,000

beyond you can find dr. [h\_\_h]

167

00:06:58,890 --> 00:06:57,160

maintaining an active laboratory at the

168

00:07:01,380 --> 00:06:58,900

University of Washington and wet and

169

00:07:03,000 --> 00:07:01,390

wonderful Seattle he's also the founding

170

00:07:04,950 --> 00:07:03,010

editor in chief of water a

171

00:07:06,870 --> 00:07:04,960

multidisciplinary research journal

172

00:07:09,390 --> 00:07:06,880

director of the Institute of venture

173

00:07:11,580 --> 00:07:09,400

science co-founder of fourth phase Inc

174

00:07:13,330 --> 00:07:11,590

and the founder of the annual conference

175

00:07:15,879 --> 00:07:13,340

on the physics chemistry

176

00:07:17,620 --> 00:07:15,889

and biology of water we can't forget

177

00:07:20,290 --> 00:07:17,630

he's also written some very impressive

178

00:07:22,810 --> 00:07:20,300

books like cells gels and the engines of

179

00:07:25,120 --> 00:07:22,820

life water and the cell and of course

180

00:07:28,689 --> 00:07:25,130

the ever-popular fourth phase of water

181

00:07:30,490 --> 00:07:28,699

beyond solid liquid vapour it is a true

182

00:07:32,680 --> 00:07:30,500

honor to have him here today to quench

183

00:07:34,450 --> 00:07:32,690

our intellectual thirst so bend the knee

184

00:07:36,370 --> 00:07:34,460

folks the scientific activist

185

00:07:39,189 --> 00:07:36,380

extraordinaire and the structured water

186

00:07:42,610 --> 00:07:39,199

sage himself dr. Pollock welcome to the

187

00:07:45,580 --> 00:07:42,620

higher side thanks so much Greg for your

188

00:07:48,490 --> 00:07:45,590

ultra flattering introduction which

189

00:07:49,860 --> 00:07:48,500

surely I don't deserve but anyway thank

190

00:07:52,780 --> 00:07:49,870

you I'm flattered

191

00:07:54,670 --> 00:07:52,790

well it was the least I could do I mean

192

00:07:56,800 --> 00:07:54,680

this is a real treat to have you here

193

00:07:59,409 --> 00:07:56,810

thank you so much your work has come up

194

00:08:01,510 --> 00:07:59,419

with a lot of previous guests it's

195

00:08:04,210 --> 00:08:01,520

simple yet complex and as a whole

196

00:08:05,590 --> 00:08:04,220

Pandora's box of implications and I

197

00:08:08,290 --> 00:08:05,600

thought maybe we could start with a

198

00:08:09,879 --> 00:08:08,300

little water history 101 a big part of

199

00:08:12,879 --> 00:08:09,889

your book the fourth phase of water

200

00:08:16,600 --> 00:08:12,889

talks about this checkered past poly

201  
00:08:19,029 --> 00:08:16,610  
water the water memory debacle as well

202  
00:08:20,980 --> 00:08:19,039  
as the scientific culture that doesn't

203  
00:08:23,080 --> 00:08:20,990  
make it any easier to have these sorts

204  
00:08:25,360 --> 00:08:23,090  
of breakthroughs I think that's all

205  
00:08:27,040 --> 00:08:25,370  
useful context for people can you talk

206  
00:08:27,820 --> 00:08:27,050  
to us a bit about this history for the

207  
00:08:31,600 --> 00:08:27,830  
uninitiated

208  
00:08:36,390 --> 00:08:31,610  
oh yeah sure I'm happy to do so so you

209  
00:08:38,949 --> 00:08:36,400  
earlier mentioned poly water and also

210  
00:08:43,300 --> 00:08:38,959  
mentioned Jacque Valdez who was

211  
00:08:45,550 --> 00:08:43,310  
responsible for water memory and

212  
00:08:49,060 --> 00:08:45,560  
those two issues it really interesting

213  
00:08:51,990 --> 00:08:49,070

and they really do represent the concept

214

00:08:56,050 --> 00:08:52,000

that you opened with about the

215

00:08:58,990 --> 00:08:56,060

difficulty that people have with ideas

216

00:09:02,160 --> 00:08:59,000

that run counter to the mainstream view

217

00:09:04,890 --> 00:09:02,170

it's highly problematic and those who

218

00:09:08,130 --> 00:09:04,900

debacles and which I'll tell you about

219

00:09:10,630 --> 00:09:08,140

created an atmosphere that led

220

00:09:13,630 --> 00:09:10,640

scientists to shy away from water

221

00:09:18,010 --> 00:09:13,640

because these two led to the disruption

222

00:09:20,590 --> 00:09:18,020

pretty much of two careers and then many

223

00:09:23,590 --> 00:09:20,600

people thinking over these two giants in

224

00:09:26,890 --> 00:09:23,600

science were destroyed that way what

225

00:09:29,230 --> 00:09:26,900

about mere mortals like us and so people

226

00:09:32,079 --> 00:09:29,240

were really nervous about dipping their

227

00:09:34,090 --> 00:09:32,089

toes into water and so a lot of people

228

00:09:37,630 --> 00:09:34,100

stayed away from it and water became a

229

00:09:40,720 --> 00:09:37,640

an on-field is unimaginable that

230

00:09:43,360 --> 00:09:40,730

substance so critically important for

231

00:09:45,820 --> 00:09:43,370

life at the center of all life is a

232

00:09:47,980 --> 00:09:45,830

field that essentially didn't exist it's

233

00:09:50,290 --> 00:09:47,990

beginning to change now so let me back

234

00:09:53,220 --> 00:09:50,300

up and tell you about those two the

235

00:09:57,160 --> 00:09:53,230

first one was the so-called poly water

236

00:10:00,160 --> 00:09:57,170

debacle and it took place it actually

237

00:10:03,760 --> 00:10:00,170

started in Russia when someone came to

238

00:10:07,390 --> 00:10:03,770

the Moscow laboratory poorest air yaghan

239

00:10:09,579 --> 00:10:07,400

and Dragon was considered to be the most

240

00:10:12,490 --> 00:10:09,589

prominent physical chemist in all of

241

00:10:15,040 --> 00:10:12,500

Russia and Russia had no shortage of

242

00:10:16,810 --> 00:10:15,050

physical chemists Russian science was

243

00:10:19,140 --> 00:10:16,820

quite advanced but he was you might say

244

00:10:22,530 --> 00:10:19,150

the chief people looked up to him and

245

00:10:24,910 --> 00:10:22,540

someone came to his laboratory and

246

00:10:28,420 --> 00:10:24,920

demonstrated to him the very kind of

247

00:10:31,720 --> 00:10:28,430

peculiar observation that if you put

248

00:10:34,930 --> 00:10:31,730

water into a thin capillary tube clean

249

00:10:37,270 --> 00:10:34,940

obviously in water that had been

250

00:10:39,460 --> 00:10:37,280

vaporized and condemned so it shouldn't

251  
00:10:41,650 --> 00:10:39,470  
contain any contaminants

252  
00:10:43,650 --> 00:10:41,660  
and together they studied that water and

253  
00:10:47,380 --> 00:10:43,660  
their yaghan began to become interested

254  
00:10:49,960 --> 00:10:47,390  
obviously he was a super famous and well

255  
00:10:52,660 --> 00:10:49,970  
recognized scientist and he noticed that

256  
00:10:54,790 --> 00:10:52,670  
the water after it got inside that in

257  
00:10:57,280 --> 00:10:54,800  
capillary tube changed its properties

258  
00:11:00,070 --> 00:10:57,290  
enormous Li it has a different boiling

259  
00:11:04,030 --> 00:11:00,080  
point different freezing point the

260  
00:11:05,950 --> 00:11:04,040  
density was different and every property

261  
00:11:07,870 --> 00:11:05,960  
that they measure was different and he

262  
00:11:10,600 --> 00:11:07,880  
thought that this was a kind of

263  
00:11:13,140 --> 00:11:10,610

existence of maybe another kind of water

264

00:11:16,780 --> 00:11:13,150

type of water phase of water whatever

265

00:11:20,080 --> 00:11:16,790

during Cold War period this was in the

266

00:11:22,510 --> 00:11:20,090

1950s some of the papers began getting

267

00:11:24,400 --> 00:11:22,520

translated into English and Western

268

00:11:26,530 --> 00:11:24,410

scientists were really interested in

269

00:11:29,950 --> 00:11:26,540

this exotic sounding finding from a

270

00:11:33,280 --> 00:11:29,960

famous Russian scientist and they then

271

00:11:35,710 --> 00:11:33,290

had two choices one choice is to take it

272

00:11:37,960 --> 00:11:35,720

up and study it tomorrow and see if they

273

00:11:40,180 --> 00:11:37,970

could even leapfrog this famous

274

00:11:42,490 --> 00:11:40,190

scientist and come up with more and more

275

00:11:44,980 --> 00:11:42,500

interesting stuff that built on his

276

00:11:46,900 --> 00:11:44,990

observation and the other since it was

277

00:11:50,340 --> 00:11:46,910

the Cold War time in the West was

278

00:11:54,460 --> 00:11:50,350

obviously in confrontation with Russia

279

00:11:56,400 --> 00:11:54,470

Soviet scientists who the West was led

280

00:11:59,170 --> 00:11:56,410

to believe were completely incompetent

281

00:12:02,320 --> 00:11:59,180

which obviously wasn't true but a good

282

00:12:03,640 --> 00:12:02,330

propaganda and so some scientists at all

283

00:12:05,770 --> 00:12:03,650

this is impossible

284

00:12:08,950 --> 00:12:05,780

we're gonna demonstrate that it's wrong

285

00:12:11,740 --> 00:12:08,960

and so one group went ahead and there

286

00:12:14,530 --> 00:12:11,750

was in fact lead article in the journal

287

00:12:16,540 --> 00:12:14,540

science it was called poly water and it

288

00:12:18,970 --> 00:12:16,550

was about this particular finding and

289

00:12:20,980 --> 00:12:18,980

the authors thought that this was really

290

00:12:23,230 --> 00:12:20,990

interesting believed it was true and

291

00:12:26,920 --> 00:12:23,240

they said you know this kind of water

292

00:12:28,660 --> 00:12:26,930

that there yaghan found it behaves more

293

00:12:30,730 --> 00:12:28,670

like a polymer than a bunch of

294

00:12:33,580 --> 00:12:30,740

independent molecules so in other words

295

00:12:36,100 --> 00:12:33,590

the idea is that the water molecule who

296

00:12:38,830 --> 00:12:36,110

are somehow linked together in a way

297

00:12:41,350 --> 00:12:38,840

forming a polymer and therefore they

298

00:12:46,000 --> 00:12:41,360

decided to call it poly water and that's

299

00:12:47,950 --> 00:12:46,010

how poliwig ought its name meanwhile the

300

00:12:50,590 --> 00:12:47,960

press got hold of this and some of the

301

00:12:53,420 --> 00:12:50,600

people were expressed a kind of

302

00:12:56,120 --> 00:12:53,430

nervousness because one idea was that

303

00:12:58,250 --> 00:12:56,130

since this is a polymer if you throw it

304

00:13:02,330 --> 00:12:58,260

in water the water will continue to

305

00:13:04,820 --> 00:13:02,340

polymerize into one big solid mass and

306

00:13:07,700 --> 00:13:04,830

life would be extinct so this kind of

307

00:13:10,700 --> 00:13:07,710

journalism was very provocative and I

308

00:13:12,860 --> 00:13:10,710

think it inspired some scientists who

309

00:13:15,440 --> 00:13:12,870

look into it to demonstrate that in fact

310

00:13:17,900 --> 00:13:15,450

it was really wrong and the first one to

311

00:13:20,120 --> 00:13:17,910

do so the one that made the real impact

312

00:13:23,150 --> 00:13:20,130

was a group I'm sorry I can't remember

313

00:13:25,460 --> 00:13:23,160

where they were from and they repeated

314

00:13:28,130 --> 00:13:25,470

the same experiment and they found out

315

00:13:30,650 --> 00:13:28,140

that the so-called pure water was not

316

00:13:34,100 --> 00:13:30,660

really pure that when it was in the

317

00:13:37,670 --> 00:13:34,110

capillary tube it would leach some of

318

00:13:40,250 --> 00:13:37,680

the silica in other words the glass is

319

00:13:42,440 --> 00:13:40,260

somewhat soluble and some of those

320

00:13:44,930 --> 00:13:42,450

molecules were found inside the water

321

00:13:47,840 --> 00:13:44,940

and they wrote a paper saying this is

322

00:13:50,120 --> 00:13:47,850

all nonsense because the water that was

323

00:13:52,520 --> 00:13:50,130

considered to be pure water was not pure

324

00:13:56,570 --> 00:13:52,530

it had contaminants from the glass

325

00:13:59,240 --> 00:13:56,580

itself so that was devastating for Dario

326

00:14:02,780 --> 00:13:59,250

Gonzaga's a lot of people again thinking

327

00:14:05,840 --> 00:14:02,790

that Russian science is not to be paid

328

00:14:07,400 --> 00:14:05,850

serious attention to and therefore they

329

00:14:10,520 --> 00:14:07,410

were relieved to find that this is all

330

00:14:12,110 --> 00:14:10,530

nonsense fortifying their view that the

331

00:14:14,630 --> 00:14:12,120

Russians don't know what they're doing

332

00:14:17,780 --> 00:14:14,640

and then what really put the nails in

333

00:14:19,220 --> 00:14:17,790

the coffin of poly water was a group I

334

00:14:21,710 --> 00:14:19,230

can't remember I think it was from

335

00:14:23,690 --> 00:14:21,720

Australia they put some salt in the

336

00:14:26,480 --> 00:14:23,700

water and after they put salt in the

337

00:14:28,700 --> 00:14:26,490

water they found that the properties or

338

00:14:32,800 --> 00:14:28,710

some of the properties that dairy Augen

339

00:14:35,840 --> 00:14:32,810

had found and put into his papers were

340

00:14:37,730 --> 00:14:35,850

probably due to salt and he suggested or

341

00:14:39,530 --> 00:14:37,740

they suggested that the Russians were

342

00:14:41,390 --> 00:14:39,540

doing the experiments in the summertime

343

00:14:44,240 --> 00:14:41,400

and they were probably sweating in the

344

00:14:47,150 --> 00:14:44,250

water of course is it preposterous when

345

00:14:48,920 --> 00:14:47,160

you think about the number one physical

346

00:14:51,320 --> 00:14:48,930

chemist in all of Russia but you know

347

00:14:53,210 --> 00:14:51,330

the word got around and finally Polly

348

00:14:56,380 --> 00:14:53,220

water was dead not only dead but it

349

00:14:59,120 --> 00:14:56,390

became a scientific joke so to speak and

350

00:15:01,400 --> 00:14:59,130

what happened two years after that with

351

00:15:04,460 --> 00:15:01,410

dairy Augen himself wrote a paper

352

00:15:07,690 --> 00:15:04,470

essentially retracting everything and so

353

00:15:11,230 --> 00:15:07,700

Polly water was seemingly dead for

354

00:15:13,600 --> 00:15:11,240

however I met two people who work very

355

00:15:16,900 --> 00:15:13,610

closely with very AAG on one of my trips

356

00:15:19,570 --> 00:15:16,910

to Russia one of them with his last

357

00:15:22,180 --> 00:15:19,580

postdoc and the other one was a guy

358

00:15:25,420 --> 00:15:22,190

who's head of a sister Institute right

359

00:15:29,380 --> 00:15:25,430

near the one that dairy augen ran in a

360

00:15:31,870 --> 00:15:29,390

town called pushchino which is a science

361

00:15:33,760 --> 00:15:31,880

city these guys were both directors of

362

00:15:37,690 --> 00:15:33,770

different Institute's high-level daizen

363

00:15:39,790 --> 00:15:37,700

and my friend had coffee vodka whatever

364

00:15:41,830 --> 00:15:39,800

with him practically every evening and

365

00:15:43,690 --> 00:15:41,840

they would discuss science and they both

366

00:15:49,390 --> 00:15:43,700

independently told me the same story

367

00:15:52,080 --> 00:15:49,400

that gerry oginski a government into

368

00:15:54,790 --> 00:15:52,090

admitting that he made an error because

369

00:15:57,370 --> 00:15:54,800

by putting the blame on him the blame

370

00:15:59,890 --> 00:15:57,380

was therefore shifted from the soviet

371

00:16:02,200 --> 00:15:59,900

government they were very sensitive

372

00:16:05,410 --> 00:16:02,210

about these kind of issues shifted from

373

00:16:07,350 --> 00:16:05,420

the government to this one scientist and

374

00:16:10,210 --> 00:16:07,360

they were relieved of all so-called

375

00:16:12,850 --> 00:16:10,220

responsibility so he was in the hot spot

376

00:16:15,760 --> 00:16:12,860

and i guess he didn't have too much

377

00:16:18,790 --> 00:16:15,770

choice because his choice was either to

378

00:16:21,310 --> 00:16:18,800

write that retractor paper or probably

379

00:16:23,740 --> 00:16:21,320

find himself somewhere in Siberia he

380

00:16:26,380 --> 00:16:23,750

knew quite well about the situation so

381

00:16:29,590 --> 00:16:26,390

that was the first and of course many

382

00:16:32,020 --> 00:16:29,600

scientists not knowing what I just

383

00:16:34,210 --> 00:16:32,030

relayed to you thinking that the

384

00:16:37,690 --> 00:16:34,220

scientists of such stature could make

385

00:16:39,640 --> 00:16:37,700

such a blunder led them to kind of shy

386

00:16:41,870 --> 00:16:39,650

away from doing any kind of research

387

00:16:45,530 --> 00:16:41,880

into water

388

00:16:47,570 --> 00:16:45,540

that attitude held for 10-15 years or

389

00:16:50,150 --> 00:16:47,580

something like that and then Along Came

390

00:16:52,880 --> 00:16:50,160

Jacques Ben Venus and you know about him

391

00:16:55,040 --> 00:16:52,890

but I don't know how much your listeners

392

00:16:57,890 --> 00:16:55,050

know about Jacques pépin Venus to some

393

00:17:01,100 --> 00:16:57,900

he's a hero to others he's a villain

394

00:17:04,130 --> 00:17:01,110

and Jacques at one time was absolutely a

395

00:17:06,440 --> 00:17:04,140

hero in the area of immunology became

396

00:17:09,530 --> 00:17:06,450

very famous in France after doing a

397

00:17:12,620 --> 00:17:09,540

stint I think in San Diego for a while

398

00:17:14,330 --> 00:17:12,630

and became famous for some techniques it

399

00:17:17,120 --> 00:17:14,340

means a logical technique that he

400

00:17:19,580 --> 00:17:17,130

developed and he came back to France and

401  
00:17:22,820 --> 00:17:19,590  
he had a laboratory of something like 50

402  
00:17:26,090 --> 00:17:22,830  
people very major scientist who was

403  
00:17:28,130 --> 00:17:26,100  
connected with so many other important

404  
00:17:31,430 --> 00:17:28,140  
people in France and throughout the

405  
00:17:34,790 --> 00:17:31,440  
world and along came some guy who I

406  
00:17:36,740 --> 00:17:34,800  
leave was a homeopathy and wanted to

407  
00:17:40,010 --> 00:17:36,750  
demonstrate something to him in the lab

408  
00:17:44,450 --> 00:17:40,020  
so Jacques had been working with certain

409  
00:17:47,150 --> 00:17:44,460  
cells that secrete histamine and if he

410  
00:17:49,910 --> 00:17:47,160  
would expose those cells to a solution

411  
00:17:52,280 --> 00:17:49,920  
containing antibodies the cells would

412  
00:17:55,970 --> 00:17:52,290  
secrete and this guy came along with a

413  
00:17:58,340 --> 00:17:55,980

background in homeopathy he said you

414

00:18:00,100 --> 00:17:58,350

know I can take your antibodies and

415

00:18:02,210 --> 00:18:00,110

instead of using them as you use them

416

00:18:04,400 --> 00:18:02,220

concentrated I can dilute them and

417

00:18:06,380 --> 00:18:04,410

dilute them and dilute them until it

418

00:18:08,690 --> 00:18:06,390

effectively - no antibodies left only

419

00:18:11,330 --> 00:18:08,700

the water that held the antibodies I can

420

00:18:14,000 --> 00:18:11,340

get the same response in Jaques response

421

00:18:16,070 --> 00:18:14,010

was I don't believe it however being an

422

00:18:18,050 --> 00:18:16,080

open-minded guy he said well I've got

423

00:18:19,970 --> 00:18:18,060

this big laboratory there's a space in

424

00:18:22,100 --> 00:18:19,980

the corner why don't you take that space

425

00:18:24,680 --> 00:18:22,110

and show us your result and the guy

426

00:18:27,760 --> 00:18:24,690

proceeded to do these serial dilutions

427

00:18:29,950 --> 00:18:27,770

with shaking in between the same as

428

00:18:32,750 --> 00:18:29,960

essentially as the homeopathy do

429

00:18:35,080 --> 00:18:32,760

diluting and diluting and diluting to

430

00:18:38,390 --> 00:18:35,090

the point where essentially only water

431

00:18:40,550 --> 00:18:38,400

remained the water that had been exposed

432

00:18:42,170 --> 00:18:40,560

to the antibodies and they did the

433

00:18:45,290 --> 00:18:42,180

experiment in voila

434

00:18:47,510 --> 00:18:45,300

it worked he got same result and Jacques

435

00:18:49,790 --> 00:18:47,520

was flabbergasted by this and they

436

00:18:51,860 --> 00:18:49,800

continued to do experiments pretty much

437

00:18:53,930 --> 00:18:51,870

the same as what happened to Jerry Augen

438

00:18:55,340 --> 00:18:53,940

who became entranced by the guy who came

439

00:18:58,010 --> 00:18:55,350  
to his laboratory

440

00:19:01,070 --> 00:18:58,020  
demonstrate and experiment so having

441

00:19:03,799 --> 00:19:01,080  
obtained a positive result he thought

442

00:19:05,900 --> 00:19:03,809  
well where should I publish and the

443

00:19:07,549 --> 00:19:05,910  
obvious answer was this is so important

444

00:19:11,029 --> 00:19:07,559  
that we're going to publish in nature

445

00:19:14,330 --> 00:19:11,039  
which still is against nature in science

446

00:19:17,900 --> 00:19:14,340  
being the preeminent scientific journals

447

00:19:21,039 --> 00:19:17,910  
so he sent in a manuscript and what came

448

00:19:24,830 --> 00:19:21,049  
back from the editor John Maddox

449

00:19:27,110 --> 00:19:24,840  
actually Sir John Maddox was a kind of

450

00:19:29,270 --> 00:19:27,120  
blistering letter saying how we're not

451

00:19:31,190 --> 00:19:29,280

even going to review this because if

452

00:19:32,960 --> 00:19:31,200

you're right everybody else is wrong and

453

00:19:36,080 --> 00:19:32,970

I refuse to believe that everybody else

454

00:19:37,549 --> 00:19:36,090

is wrong therefore we won't send it to

455

00:19:41,779 --> 00:19:37,559

the reviewers even for their

456

00:19:43,640 --> 00:19:41,789

consideration so being a student I shock

457

00:19:46,250 --> 00:19:43,650

has been with his thought about it and

458

00:19:48,770 --> 00:19:46,260

decided well instead of fighting with

459

00:19:51,320 --> 00:19:48,780

the editor the best thing to do is to

460

00:19:54,320 --> 00:19:51,330

ask a bunch of colleagues to repeat his

461

00:19:56,840 --> 00:19:54,330

protocols exactly and see what results

462

00:19:58,940 --> 00:19:56,850

they get Jacque obviously had friends

463

00:20:01,310 --> 00:19:58,950

around the world and recruited them and

464

00:20:03,350 --> 00:20:01,320

it turned out that by repeating

465

00:20:05,510 --> 00:20:03,360

precisely the same protocols they got

466

00:20:08,659 --> 00:20:05,520

the same result and they sent it again

467

00:20:10,940 --> 00:20:08,669

to nature with multiple authors and they

468

00:20:12,649 --> 00:20:10,950

said in their paper that they couldn't

469

00:20:14,299 --> 00:20:12,659

do it every time about the number of

470

00:20:17,860 --> 00:20:14,309

times they could get the positive result

471

00:20:20,690 --> 00:20:17,870

was easily highly statistically

472

00:20:22,940 --> 00:20:20,700

significant despite an occasional

473

00:20:27,020 --> 00:20:22,950

failure which they didn't understand but

474

00:20:29,990 --> 00:20:27,030

it was real so what came back is much

475

00:20:32,740 --> 00:20:30,000

the same response it doesn't matter how

476

00:20:36,049 --> 00:20:32,750

many people repeat it it can't be and

477

00:20:40,130 --> 00:20:36,059

obviously this is not the sort of thing

478

00:20:42,799 --> 00:20:40,140

that endears scientists to the editors

479

00:20:44,570 --> 00:20:42,809

of scientific journals it's just

480

00:20:46,640 --> 00:20:44,580

incredible to receive a response like

481

00:20:49,399 --> 00:20:46,650

that and by the way the stories I'm

482

00:20:51,470 --> 00:20:49,409

telling you are in books and journals

483

00:20:53,750 --> 00:20:51,480

and such and there's more detail is

484

00:20:56,980 --> 00:20:53,760

there but it's just so interesting so

485

00:20:59,899 --> 00:20:56,990

finally there was a lot of push from

486

00:21:02,299 --> 00:20:59,909

antara there quite a few homeopathy and

487

00:21:04,340 --> 00:21:02,309

they recognized Jacque benveniste

488

00:21:06,770 --> 00:21:04,350

as being their hero because he

489

00:21:08,600 --> 00:21:06,780

demonstrated that what they do in an

490

00:21:11,090 --> 00:21:08,610

everyday basis the deluge

491

00:21:13,659 --> 00:21:11,100

to produce homeopathy that he

492

00:21:16,029 --> 00:21:13,669

demonstrated his famous scientist

493

00:21:19,370 --> 00:21:16,039

demonstrated that it actually works and

494

00:21:22,250 --> 00:21:19,380

they're justified in the kinds of things

495

00:21:24,500 --> 00:21:22,260

that they do so the feedback got back to

496

00:21:26,659 --> 00:21:24,510

London the headquarters of nature and

497

00:21:28,549 --> 00:21:26,669

they were under a lot of pressure do

498

00:21:30,710 --> 00:21:28,559

something because they certainly didn't

499

00:21:32,990 --> 00:21:30,720

want the reputation of being arbitrary

500

00:21:34,509 --> 00:21:33,000

and rejecting a paper simply because it

501  
00:21:37,759 --> 00:21:34,519  
didn't agree with the status quo

502  
00:21:40,220 --> 00:21:37,769  
so they made it compromise and when I

503  
00:21:42,320 --> 00:21:40,230  
visited too late shocked been with this

504  
00:21:45,139 --> 00:21:42,330  
he showed me he said I got a call right

505  
00:21:46,850 --> 00:21:45,149  
on that telephone right there from John

506  
00:21:50,419 --> 00:21:46,860  
Maddox and he said I'll make a deal with

507  
00:21:52,730 --> 00:21:50,429  
you so what's the deal the deal was I'll

508  
00:21:56,539 --> 00:21:52,740  
publish your paper in the next week's

509  
00:21:58,549 --> 00:21:56,549  
issue of nature however I'll do it only

510  
00:22:02,210 --> 00:21:58,559  
under the condition that you allow a

511  
00:22:05,180 --> 00:22:02,220  
committee of peers scientific peers to

512  
00:22:06,560 --> 00:22:05,190  
come to Paris from wherever and look

513  
00:22:08,600 --> 00:22:06,570

over your shoulder and see what you're

514

00:22:12,500 --> 00:22:08,610

doing and then report back to the

515

00:22:14,570 --> 00:22:12,510

readers of nature so Jacques agreed I

516

00:22:16,850 --> 00:22:14,580

guess you'd agree and I'd agree with

517

00:22:18,830 --> 00:22:16,860

sincere they have some findings and we

518

00:22:20,990 --> 00:22:18,840

don't mind somebody coming and watching

519

00:22:23,090 --> 00:22:21,000

us doing the experiment or doing it

520

00:22:25,580 --> 00:22:23,100

themselves so he agreed

521

00:22:29,720 --> 00:22:25,590

several peers would be coming to his

522

00:22:32,180 --> 00:22:29,730

laboratory few weeks later they came so

523

00:22:34,580 --> 00:22:32,190

who was on the committee of peers the

524

00:22:38,690 --> 00:22:34,590

first was the editor himself who had an

525

00:22:42,289 --> 00:22:38,700

axe to grind the second was the amazing

526

00:22:45,169 --> 00:22:42,299

Randi a magician of the highest order

527

00:22:46,519 --> 00:22:45,179

who is famous for debunking the tricks

528

00:22:49,159 --> 00:22:46,529

of other magicians

529

00:22:50,930 --> 00:22:49,169

it was obvious who they were thinking of

530

00:22:52,310 --> 00:22:50,940

some kind of trick or some kind of

531

00:22:54,620 --> 00:22:52,320

cheating and they brought him along

532

00:22:57,379 --> 00:22:54,630

because he's expert at finding out what

533

00:23:00,560 --> 00:22:57,389

the tricks are and the third one was a

534

00:23:02,419 --> 00:23:00,570

guy named Walter Stewart he came from

535

00:23:04,990 --> 00:23:02,429

the National Institutes of Health and

536

00:23:07,759 --> 00:23:05,000

they have a group there that

537

00:23:10,279 --> 00:23:07,769

investigates fraud in science and he was

538

00:23:11,720 --> 00:23:10,289

in that group so by the makeup of the

539

00:23:14,570 --> 00:23:11,730

committee this was not exactly a

540

00:23:17,090 --> 00:23:14,580

committee of peers but a commando

541

00:23:19,070 --> 00:23:17,100

committee to figure out what kind of

542

00:23:20,810 --> 00:23:19,080

trick or what kind of fraud was being

543

00:23:23,720 --> 00:23:20,820

perpetrated

544

00:23:25,700 --> 00:23:23,730

and so they came to Paris and the first

545

00:23:28,520 --> 00:23:25,710

meeting or the first demonstration I

546

00:23:30,980 --> 00:23:28,530

should say the technician who

547

00:23:33,200 --> 00:23:30,990

consistently did the experiments did the

548

00:23:35,180 --> 00:23:33,210

experiments again and right in front of

549

00:23:37,790 --> 00:23:35,190

their eyes and it worked just exactly as

550

00:23:40,400 --> 00:23:37,800

they had reported positive results the

551  
00:23:42,680 --> 00:23:40,410  
second day the same technician did the

552  
00:23:44,450 --> 00:23:42,690  
experiment and it was a kind of little

553  
00:23:47,390 --> 00:23:44,460  
trick played by the committee they

554  
00:23:49,370 --> 00:23:47,400  
actually they themselves coded each one

555  
00:23:52,220 --> 00:23:49,380  
of the vials and only they knew how to

556  
00:23:54,890 --> 00:23:52,230  
decode and when they finally decoded it

557  
00:23:56,810 --> 00:23:54,900  
still worked and the third day was it

558  
00:24:00,050 --> 00:23:56,820  
Walter steward from the fraud department

559  
00:24:02,030 --> 00:24:00,060  
at scientific division or something of

560  
00:24:05,210 --> 00:24:02,040  
scientific integrity what it's called

561  
00:24:07,400 --> 00:24:05,220  
and this guy did the delusions and when

562  
00:24:09,860 --> 00:24:07,410  
he did the delusions they didn't get the

563  
00:24:11,930 --> 00:24:09,870

expected result and so they huddled in

564

00:24:14,660 --> 00:24:11,940

their hotel they decided that well is

565

00:24:17,540 --> 00:24:14,670

obvious since the French when they do it

566

00:24:19,910 --> 00:24:17,550

they got the so-called correct result

567

00:24:22,460 --> 00:24:19,920

but when it was done by one of the

568

00:24:26,840 --> 00:24:22,470

visitors they got the opposite result

569

00:24:29,120 --> 00:24:26,850

and so despite  $N$  equals one they decided

570

00:24:29,870 --> 00:24:29,130

that it must be some kind of fraud some

571

00:24:31,640 --> 00:24:29,880

kind of trick

572

00:24:34,730 --> 00:24:31,650

which they couldn't find out by the way

573

00:24:36,980 --> 00:24:34,740

kind of surprising because this is James

574

00:24:39,410 --> 00:24:36,990

Randi the amazing Randi is probably

575

00:24:41,920 --> 00:24:39,420

worth leading expert on debunking the

576  
00:24:44,720 --> 00:24:41,930  
tricks of other magicians who are

577  
00:24:47,570 --> 00:24:44,730  
predestiny what they're doing and he was

578  
00:24:51,410 --> 00:24:47,580  
unable to figure out what was going on

579  
00:24:54,260 --> 00:24:51,420  
with Ben Venus so they wrote a paper in

580  
00:24:56,570 --> 00:24:54,270  
nature and they said well this whole

581  
00:24:58,970 --> 00:24:56,580  
thing is a water memory which is what

582  
00:25:00,980 --> 00:24:58,980  
they refer to it as because the water

583  
00:25:03,350 --> 00:25:00,990  
that was diluted seemed to have memory

584  
00:25:07,670 --> 00:25:03,360  
of the molecules with which it had been

585  
00:25:09,950 --> 00:25:07,680  
in contact before the dilution so the

586  
00:25:12,200 --> 00:25:09,960  
title was something like water memory is

587  
00:25:15,350 --> 00:25:12,210  
a delusion in other words it's magic

588  
00:25:17,090 --> 00:25:15,360

trick and his career went south it went

589

00:25:19,460 --> 00:25:17,100

so far south that he couldn't get any

590

00:25:22,430 --> 00:25:19,470

more support his lab essentially closed

591

00:25:25,430 --> 00:25:22,440

down at the height of his career and he

592

00:25:27,320 --> 00:25:25,440

became a scientific joke the joke run

593

00:25:29,690 --> 00:25:27,330

something like you're having trouble

594

00:25:31,520 --> 00:25:29,700

with memory drink some of Ben Venus

595

00:25:34,250 --> 00:25:31,530

water it will come back

596

00:25:37,780 --> 00:25:34,260

no anyway those

597

00:25:40,220 --> 00:25:37,790

to the poly water and water memory had

598

00:25:44,300 --> 00:25:40,230

devastating effects on water research

599

00:25:47,840 --> 00:25:44,310

because although water research was a

600

00:25:50,060 --> 00:25:47,850

rather prominent field before the 1950s

601  
00:25:52,310 --> 00:25:50,070  
as you could imagine it's quite natural

602  
00:25:54,740 --> 00:25:52,320  
that it should be it kind of vanished

603  
00:25:57,230 --> 00:25:54,750  
from the field with a few exceptions for

604  
00:26:00,680 --> 00:25:57,240  
several decades and so there was almost

605  
00:26:03,380 --> 00:26:00,690  
no continuity in the field and some of

606  
00:26:06,830 --> 00:26:03,390  
us crazy people found the subject to be

607  
00:26:10,220 --> 00:26:06,840  
of interest in my own particular case it

608  
00:26:11,850 --> 00:26:10,230  
was following a scientist who is now 100

609  
00:26:15,290 --> 00:26:11,860  
years old

610  
00:26:18,000 --> 00:26:15,300  
this very year Gilbert link for me

611  
00:26:21,270 --> 00:26:18,010  
starting my career in the field of

612  
00:26:23,850 --> 00:26:21,280  
muscle contraction with nobody coming to

613  
00:26:26,670 --> 00:26:23,860

the realization that water being

614

00:26:29,910 --> 00:26:26,680

two-thirds of muscle all the theories

615

00:26:32,790 --> 00:26:29,920

ignore water and series are based on

616

00:26:35,760 --> 00:26:32,800

proteins alone on how they interact to

617

00:26:38,100 --> 00:26:35,770

produce force and motion presuming that

618

00:26:41,190 --> 00:26:38,110

the water doesn't exist is like proteins

619

00:26:44,370 --> 00:26:41,200

in a vacuum and so I being in the field

620

00:26:47,100 --> 00:26:44,380

and not being happy with the current

621

00:26:48,990 --> 00:26:47,110

theory of muscle contraction because it

622

00:26:51,420 --> 00:26:49,000

didn't fit the evidence and looking

623

00:26:54,110 --> 00:26:51,430

around for alternatives the idea that

624

00:26:56,820 --> 00:26:54,120

water might play some role became

625

00:26:59,970 --> 00:26:56,830

potentially really interesting so that's

626

00:27:02,790 --> 00:26:59,980

how I got into the area of water but I

627

00:27:05,250 --> 00:27:02,800

think I'm giving a monologue and I need

628

00:27:07,590 --> 00:27:05,260

to stop and ask you of course follow-up

629

00:27:09,750 --> 00:27:07,600

question no worries no worries

630

00:27:12,510 --> 00:27:09,760

that's an excellent breakdown clearly

631

00:27:13,860 --> 00:27:12,520

people have had hunches about water and

632

00:27:16,920 --> 00:27:13,870

there being some properties worth

633

00:27:18,930 --> 00:27:16,930

exploring and the result hasn't been

634

00:27:22,410 --> 00:27:18,940

great for them when they've taken a peek

635

00:27:24,060 --> 00:27:22,420

but of course that brings us up to kind

636

00:27:26,550 --> 00:27:24,070

of your work and the fourth phase of

637

00:27:27,990 --> 00:27:26,560

water and so the three phases of water

638

00:27:30,540 --> 00:27:28,000

that we learn about in school are pretty

639

00:27:33,390 --> 00:27:30,550

easy to see in everyday life are there

640

00:27:36,120 --> 00:27:33,400

places where people can look to see this

641

00:27:38,370 --> 00:27:36,130

negatively charged gel like fourth phase

642

00:27:40,980 --> 00:27:38,380

to maybe help their understanding of it

643

00:27:44,160 --> 00:27:40,990

how do you break people in how do you

644

00:27:47,010 --> 00:27:44,170

break people in it's a good question and

645

00:27:49,560 --> 00:27:47,020

I'm tempted to respond by saying that

646

00:27:51,359 --> 00:27:49,570

it's possible to take that water

647

00:27:53,759 --> 00:27:51,369

which is kind of like a liquid crystal

648

00:27:56,399 --> 00:27:53,769

it's not quite as solid and not quite a

649

00:27:59,249 --> 00:27:56,409

liquid it's like a gel and we're now

650

00:28:02,219 --> 00:27:59,259

able to actually repeat what an Italian

651  
00:28:06,349 --> 00:28:02,229  
group has done and that is make a solid

652  
00:28:09,180 --> 00:28:06,359  
of it you can take that water extracted

653  
00:28:11,369 --> 00:28:09,190  
dehydrated by some standard technique

654  
00:28:13,680 --> 00:28:11,379  
and what you get out is solid ez water

655  
00:28:14,969 --> 00:28:13,690  
and you can see it you can touch it you

656  
00:28:17,969 --> 00:28:14,979  
can play with it you can do what you

657  
00:28:20,489 --> 00:28:17,979  
want so it is tangible now that's not

658  
00:28:22,759 --> 00:28:20,499  
the easiest way to deal because you need

659  
00:28:25,440 --> 00:28:22,769  
the right equipment and it's rather

660  
00:28:28,019 --> 00:28:25,450  
demanding to do those experiments but

661  
00:28:30,119 --> 00:28:28,029  
that is a you might take a glib answer

662  
00:28:33,599 --> 00:28:30,129  
you can touch it feel it look at it it

663  
00:28:36,690 --> 00:28:33,609

looks like a kind of thread a kind of

664

00:28:39,389 --> 00:28:36,700

golden brown color that winds itself

665

00:28:41,789 --> 00:28:39,399

around and we're beginning to explore

666

00:28:45,089 --> 00:28:41,799

the properties of it to see if it has

667

00:28:48,359 --> 00:28:45,099

the same properties as the original that

668

00:28:50,129 --> 00:28:48,369

exists more naturally so how do you

669

00:28:52,710 --> 00:28:50,139

introduce this to a person who knows

670

00:28:54,389 --> 00:28:52,720

nothing about it and one thing I could

671

00:28:56,879 --> 00:28:54,399

say is that your body is filled with it

672

00:28:59,119 --> 00:28:56,889

so we all learn that our body is

673

00:29:02,190 --> 00:28:59,129

two-thirds water actually it's not it's

674

00:29:02,909 --> 00:29:02,200

the fraction the percent diminishes with

675

00:29:07,200 --> 00:29:02,919

age

676

00:29:10,200 --> 00:29:07,210

so newborn might be 80% 85% water by

677

00:29:13,259 --> 00:29:10,210

volume the embryo probably even higher

678

00:29:15,299 --> 00:29:13,269

and as we get long in the tooth the

679

00:29:18,080 --> 00:29:15,309

volume percent of water tends to

680

00:29:21,419 --> 00:29:18,090

diminish and when you get to be my age

681

00:29:24,479 --> 00:29:21,429

it's probably down to 70 percent or even

682

00:29:26,639 --> 00:29:24,489

65 percent or something like that so we

683

00:29:28,769 --> 00:29:26,649

keep getting progressively dehydrated

684

00:29:32,039 --> 00:29:28,779

but most of the water that's in our body

685

00:29:34,919 --> 00:29:32,049

is not ordinary h<sub>2</sub>o liquid water it's

686

00:29:38,249 --> 00:29:34,929

the fourth phase of water how do we know

687

00:29:40,409 --> 00:29:38,259

that well there are many reasons I guess

688

00:29:42,330 --> 00:29:40,419

I don't want to go into all of the

689

00:29:44,359 --> 00:29:42,340

different reasons because it takes too

690

00:29:46,560 --> 00:29:44,369

long but let me just summarize by saying

691

00:29:49,859 --> 00:29:46,570

anyone has gone through high school

692

00:29:52,560 --> 00:29:49,869

biology who has played with sales giant

693

00:29:56,009 --> 00:29:52,570

sales or tissues and inadvertently cut

694

00:29:58,619 --> 00:29:56,019

open one of them so with the liquid you

695

00:30:00,599 --> 00:29:58,629

expect it to pour out just like a

696

00:30:02,490 --> 00:30:00,609

balloon that's filled with water you

697

00:30:03,990 --> 00:30:02,500

puncture it and all the water comes out

698

00:30:06,779 --> 00:30:04,000

but the water doesn't come out of the

699

00:30:08,220 --> 00:30:06,789

cell a little bit may leak out but the

700

00:30:09,419 --> 00:30:08,230

rest of the water inside the cell

701

00:30:10,860 --> 00:30:09,429

remains as it was

702

00:30:13,710 --> 00:30:10,870

so it's not a liquid and certainly it's

703

00:30:16,289 --> 00:30:13,720

not a solid because you can compress the

704

00:30:18,810 --> 00:30:16,299

cell so it's somewhere in between and

705

00:30:21,690 --> 00:30:18,820

other evidence points to the fact that

706

00:30:23,490 --> 00:30:21,700

it's actually fourth phase water it

707

00:30:27,440 --> 00:30:23,500

makes a lot of sense because this water

708

00:30:30,360 --> 00:30:27,450

forms next to surfaces particularly

709

00:30:32,909 --> 00:30:30,370

hydrophilic or water-loving surfaces

710

00:30:36,210 --> 00:30:32,919

that is tons of surfaces if you can

711

00:30:37,980 --> 00:30:36,220

imagine like take your desk and drop a

712

00:30:40,250 --> 00:30:37,990

droplet of water on your desk

713

00:30:42,450 --> 00:30:40,260

if the water spreads out then a

714

00:30:45,049 --> 00:30:42,460

hydrophilic or water-loving

715

00:30:47,159 --> 00:30:45,059

if it beads up like Teflon then it's

716

00:30:49,799 --> 00:30:47,169

hydrophobic and this phenomenon doesn't

717

00:30:52,140 --> 00:30:49,809

occur next to hydrophobic surfaces only

718

00:30:55,200 --> 00:30:52,150

next to hydrophilic not everyone but

719

00:30:57,960 --> 00:30:55,210

most of them and your tail is just

720

00:31:00,960 --> 00:30:57,970

totally packed with hydrophilic surfaces

721

00:31:04,289 --> 00:31:00,970

all of the proteins and the other

722

00:31:07,799 --> 00:31:04,299

macromolecules that failure cell the

723

00:31:10,020 --> 00:31:07,809

solids are roughly 70% protein there are

724

00:31:12,630 --> 00:31:10,030

nucleic acids and other solids the

725

00:31:16,380 --> 00:31:12,640

surfaces of these that about the water

726

00:31:19,440 --> 00:31:16,390

they're essentially all peppers small

727

00:31:21,230 --> 00:31:19,450

pockets hydrophilic or charged surfaces

728

00:31:23,880 --> 00:31:21,240

that just the kind of surfaces that

729

00:31:27,510 --> 00:31:23,890

organize the water into this fourth

730

00:31:31,700 --> 00:31:27,520

phase so that's one point of recognition

731

00:31:34,640 --> 00:31:31,710

that this fourth phase is not merely

732

00:31:38,610 --> 00:31:34,650

laboratory phenomenon or peculiarities

733

00:31:41,279 --> 00:31:38,620

it fills your body and also fills the

734

00:31:44,760 --> 00:31:41,289

body of all animals and plants as well

735

00:31:47,580 --> 00:31:44,770

I'm not suggesting there's no h<sub>2</sub>o in any

736

00:31:51,360 --> 00:31:47,590

one of there is but it's mostly easy or

737

00:31:53,100 --> 00:31:51,370

for space water mm-hmm yes that's helped

738

00:31:54,990 --> 00:31:53,110

it definitely helps I think that's a

739

00:31:56,340 --> 00:31:55,000

great primer of course I don't want to

740

00:31:58,680 --> 00:31:56,350

get too fundamental because then we'll

741

00:32:00,510 --> 00:31:58,690

never get to the advanced stuff but it

742

00:32:02,399 --> 00:32:00,520

is good for context though and your

743

00:32:05,220 --> 00:32:02,409

studies of course as you said show that

744

00:32:07,230 --> 00:32:05,230

water in our cells is not simple h<sub>2</sub>o but

745

00:32:09,750 --> 00:32:07,240

rather this easy water and also that

746

00:32:13,200 --> 00:32:09,760

simple sunlight can increase the easy

747

00:32:15,870 --> 00:32:13,210

zone or the layers of easy water between

748

00:32:16,350 --> 00:32:15,880

the bulk water and that hydrophilic

749

00:32:18,960 --> 00:32:16,360

surface

750

00:32:22,200 --> 00:32:18,970

and infrared and ultraviolet light in

751

00:32:24,780 --> 00:32:22,210

particular are helpful in growing this

752

00:32:26,340 --> 00:32:24,790

easy zone or the layers of it which is

753

00:32:28,890 --> 00:32:26,350

why it's good for us to get out in the

754

00:32:30,990 --> 00:32:28,900

Sun and why infrared saunas have such

755

00:32:33,780 --> 00:32:31,000

health benefits but can you elaborate on

756

00:32:37,410 --> 00:32:33,790

this relationship between easy water and

757

00:32:37,800 --> 00:32:37,420

sunlight in general sure happy to do

758

00:32:40,500 --> 00:32:37,810

that

759

00:32:41,430 --> 00:32:40,510

it's really important because first of

760

00:32:44,520 --> 00:32:41,440

all I just want to straighten out

761

00:32:46,680 --> 00:32:44,530

something that yeah I our infrared and

762

00:32:48,780 --> 00:32:46,690

ultraviolet definitely have effects but

763

00:32:51,150 --> 00:32:48,790

the effects are different in the case of

764

00:32:53,670 --> 00:32:51,160

ultraviolet it actually we found

765

00:32:55,680 --> 00:32:53,680

experimentally it doesn't expand the

766

00:32:58,020 --> 00:32:55,690

exclusion zone but we have preliminary

767

00:33:00,840 --> 00:32:58,030

not conclusive evidence that when you

768

00:33:05,370 --> 00:33:00,850

add ultraviolet light it gets absorbed

769

00:33:08,130 --> 00:33:05,380

by the fourth phase and we think it

770

00:33:10,530 --> 00:33:08,140

increases the negative charge contained

771

00:33:12,390 --> 00:33:10,540

in the fourth phase or in the easy as

772

00:33:14,310 --> 00:33:12,400

you say that the two requirements I just

773

00:33:19,270 --> 00:33:14,320

wanted to straighten out but let me go

774

00:33:20,860 --> 00:33:19,280

back to like an effective life so

775

00:33:23,140 --> 00:33:20,870

I think to mention is what we're talking

776

00:33:25,600 --> 00:33:23,150

about is very similar to the first step

777

00:33:28,180 --> 00:33:25,610

in photosynthesis you know in the first

778

00:33:31,540 --> 00:33:28,190

step of photosynthesis light is absorbed

779

00:33:35,470 --> 00:33:31,550

and the light splits the water step 1

780

00:33:36,690 --> 00:33:35,480

into h plus and o h minus this is well

781

00:33:39,370 --> 00:33:36,700

known to be the first step in

782

00:33:42,580 --> 00:33:39,380

photosynthesis it's also what we've

783

00:33:44,050 --> 00:33:42,590

observed and that's the start of the

784

00:33:46,930 --> 00:33:44,060

action with light so I just want to make

785

00:33:50,860 --> 00:33:46,940

a point before going on that what we've

786

00:33:52,660 --> 00:33:50,870

observed in water is very similar to

787

00:33:54,730 --> 00:33:52,670

what people know exists in

788

00:33:57,700 --> 00:33:54,740

photosynthesis where light breaks the

789

00:33:59,860 --> 00:33:57,710

water into negative and positive

790

00:34:02,830 --> 00:33:59,870

components so it's not really so exotic

791

00:34:05,770 --> 00:34:02,840

it's almost predictable because plants

792

00:34:08,800 --> 00:34:05,780

are mostly water so if what happens

793

00:34:11,460 --> 00:34:08,810

known to happen in plant also happens in

794

00:34:14,290 --> 00:34:11,470

water that we've seen with other

795

00:34:16,480 --> 00:34:14,300

hydrophilic next to other hydrophilic

796

00:34:19,240 --> 00:34:16,490

surfaces instead of say chlorophyll in

797

00:34:22,510 --> 00:34:19,250

plants then it's reassuring that there's

798

00:34:24,700 --> 00:34:22,520

precedent for it okay so we couldn't

799

00:34:27,909 --> 00:34:24,710

figure out at first where the energy

800

00:34:29,110 --> 00:34:27,919

came from to build this zone so the zone

801  
00:34:32,290 --> 00:34:29,120  
is negatively charged

802  
00:34:35,680 --> 00:34:32,300  
typically negatively charged with an

803  
00:34:38,740 --> 00:34:35,690  
equal positive charge beyond the zone of

804  
00:34:41,080 --> 00:34:38,750  
fourth phase or the EZ this is like a

805  
00:34:43,720 --> 00:34:41,090  
battery you have negative and the

806  
00:34:46,300 --> 00:34:43,730  
negative is built from those Oh H minus

807  
00:34:49,149 --> 00:34:46,310  
units that can build up the form it

808  
00:34:51,550 --> 00:34:49,159  
actually forms a hexagonal structure all

809  
00:34:54,419 --> 00:34:51,560  
those Oh H minuses linking together in

810  
00:34:56,830 --> 00:34:54,429  
some way may be beyond the scope of the

811  
00:34:59,200 --> 00:34:56,840  
conversation because I need to show some

812  
00:35:03,010 --> 00:34:59,210  
diagrams but it's a battery that's

813  
00:35:05,650 --> 00:35:03,020

formed and batteries have energy but you

814

00:35:07,120 --> 00:35:05,660

can't create a battery from nothing you

815

00:35:09,040 --> 00:35:07,130

need to put in energies just like

816

00:35:10,630 --> 00:35:09,050

charging your cell phone battery you

817

00:35:13,210 --> 00:35:10,640

plug it in and then you can use the

818

00:35:15,100 --> 00:35:13,220

battery again so the principle applies

819

00:35:17,530 --> 00:35:15,110

to everything and in order to achieve

820

00:35:20,290 --> 00:35:17,540

this kind of separation of charge or

821

00:35:21,850 --> 00:35:20,300

battery like effect you need energy we

822

00:35:24,930 --> 00:35:21,860

can figure out where on earth the energy

823

00:35:29,290 --> 00:35:24,940

came from it took us a while and also

824

00:35:31,420 --> 00:35:29,300

the EZ is ordered this is an ordered

825

00:35:32,089 --> 00:35:31,430

phase it's the best we understand it's a

826

00:35:35,059 --> 00:35:32,099

stack

827

00:35:38,809 --> 00:35:35,069

of hexagonal sheets that form adjacent

828

00:35:41,359 --> 00:35:38,819

to the hydrophilic surface once she

829

00:35:44,170 --> 00:35:41,369

built upon another so this is highly

830

00:35:47,630 --> 00:35:44,180

ordered if you start from chaos like

831

00:35:50,450 --> 00:35:47,640

ordinary h<sub>2</sub>o with molecules randomly

832

00:35:52,910 --> 00:35:50,460

disposed and bouncing around a huge

833

00:35:56,269 --> 00:35:52,920

number of times every second there's not

834

00:35:58,549 --> 00:35:56,279

much order so if you go from disorder to

835

00:36:00,999 --> 00:35:58,559

order you also need to put in energy

836

00:36:04,150 --> 00:36:01,009

it's a fundamental thermodynamic

837

00:36:06,680 --> 00:36:04,160

principle that if you want to create a

838

00:36:09,049 --> 00:36:06,690

order out of chaos you need to put

839

00:36:11,359 --> 00:36:09,059

energy so both that and the battery

840

00:36:14,539 --> 00:36:11,369

recharging the battery both of them

841

00:36:17,329 --> 00:36:14,549

require energy so where on earth does

842

00:36:19,700 --> 00:36:17,339

the energy come from so we were

843

00:36:21,319 --> 00:36:19,710

scratching our heads for two or three

844

00:36:23,739 --> 00:36:21,329

years because it had to come from

845

00:36:26,930 --> 00:36:23,749

somewhere but we couldn't figure it out

846

00:36:29,569 --> 00:36:26,940

maybe because of my dense brain or

847

00:36:31,819 --> 00:36:29,579

something like that but one day a

848

00:36:35,029 --> 00:36:31,829

student who is doing what he was not

849

00:36:39,079 --> 00:36:35,039

supposed to do actually led to our

850

00:36:41,569 --> 00:36:39,089

figuring it out and what he did was he

851  
00:36:43,549 --> 00:36:41,579  
had an experiment where he had some

852  
00:36:45,559 --> 00:36:43,559  
hydrophilic material I think it was

853  
00:36:48,339 --> 00:36:45,569  
nappy on which we often use but not

854  
00:36:52,249 --> 00:36:48,349  
always nappy on sitting in water and

855  
00:36:55,549 --> 00:36:52,259  
next to the nappy on we had an exclusion

856  
00:36:58,450 --> 00:36:55,559  
zone easy or portrays water and beyond

857  
00:37:01,219 --> 00:36:58,460  
that we had little particles fears

858  
00:37:04,400 --> 00:37:01,229  
microspheres that are excluded from this

859  
00:37:06,469 --> 00:37:04,410  
liquid crystalline easy area and so we

860  
00:37:09,529 --> 00:37:06,479  
could easily identify the easy as being

861  
00:37:11,509 --> 00:37:09,539  
the area between the hydrophilic surface

862  
00:37:13,489 --> 00:37:11,519  
and where the microspheres were so we

863  
00:37:15,229 --> 00:37:13,499

can watch it in the microscope so the

864

00:37:18,229 --> 00:37:15,239

student that was doing the experiment

865

00:37:19,910 --> 00:37:18,239

and he found a gooseneck lamp sitting

866

00:37:21,859 --> 00:37:19,920

next to it and picked up the gooseneck

867

00:37:25,160 --> 00:37:21,869

lamp and shined it on the chamber and

868

00:37:28,579 --> 00:37:25,170

called me over and said hey take a look

869

00:37:30,829 --> 00:37:28,589

and I could see that the region of the

870

00:37:34,729 --> 00:37:30,839

chamber that was illuminated with that

871

00:37:37,279 --> 00:37:34,739

lamp was much bigger than other regions

872

00:37:39,650 --> 00:37:37,289

of the EZ and the longer he has a lamp

873

00:37:42,640 --> 00:37:39,660

there the more it would grow and when it

874

00:37:44,780 --> 00:37:42,650

took the lamp away it receded back to

875

00:37:48,230 --> 00:37:44,790

original size so

876  
00:37:51,340 --> 00:37:48,240  
from his quote experiment unquote we got

877  
00:37:54,890 --> 00:37:51,350  
the idea well you know if photons light

878  
00:37:57,080 --> 00:37:54,900  
was important in expanding the easy

879  
00:37:59,030 --> 00:37:57,090  
maybe it's actually photons that are

880  
00:38:01,820 --> 00:37:59,040  
responsible for even the original

881  
00:38:05,090 --> 00:38:01,830  
buildup of the EZ and we tested this

882  
00:38:07,190 --> 00:38:05,100  
using a formal experimental protocol and

883  
00:38:08,960 --> 00:38:07,200  
we publish the results and we looked at

884  
00:38:12,620 --> 00:38:08,970  
different wavelengths to see which ones

885  
00:38:14,810 --> 00:38:12,630  
are the most effective in doing this so

886  
00:38:17,570 --> 00:38:14,820  
we started with the ultraviolet the

887  
00:38:21,230 --> 00:38:17,580  
shortest wavelength and we found little

888  
00:38:24,290 --> 00:38:21,240

or no expansion of the EZ and as the

889

00:38:27,170 --> 00:38:24,300

wavelength moved to the longer ones into

890

00:38:30,200 --> 00:38:27,180

the visible range starting with violet

891

00:38:32,750 --> 00:38:30,210

and blue and green and so on we could

892

00:38:35,750 --> 00:38:32,760

see that longer the wavelength the

893

00:38:39,650 --> 00:38:35,760

larger the effect but when we got the

894

00:38:42,830 --> 00:38:39,660

very longest ones into the infrared we

895

00:38:45,050 --> 00:38:42,840

saw huge effect much much larger by an

896

00:38:47,330 --> 00:38:45,060

order or even almost two orders of

897

00:38:50,480 --> 00:38:47,340

magnitude than any visible wavelength

898

00:38:54,620 --> 00:38:50,490

especially at the wavelength of 3.0

899

00:38:57,650 --> 00:38:54,630

micrometers that had a huge effect on

900

00:39:00,440 --> 00:38:57,660

expanding the exclusion zone and if we

901  
00:39:02,510 --> 00:39:00,450  
left that very feeble light that came

902  
00:39:05,870 --> 00:39:02,520  
from the LED that we use if we let it

903  
00:39:08,120 --> 00:39:05,880  
stay on we could get increases up to ten

904  
00:39:11,810 --> 00:39:08,130  
times the size so the effect is

905  
00:39:15,260 --> 00:39:11,820  
absolutely huge with a really small low

906  
00:39:19,130 --> 00:39:15,270  
intensity of light so it became clear

907  
00:39:21,370 --> 00:39:19,140  
that yeah there is energy and the energy

908  
00:39:24,680 --> 00:39:21,380  
is natural it comes from the environment

909  
00:39:28,580 --> 00:39:24,690  
or you can add it yourself you can turn

910  
00:39:31,670 --> 00:39:28,590  
on you and I our infrared lamp and watch

911  
00:39:34,070 --> 00:39:31,680  
the occlusion zone grow or you could

912  
00:39:37,280 --> 00:39:34,080  
just do nothing there's plenty of

913  
00:39:39,770 --> 00:39:37,290

infrared energy out there although most

914

00:39:43,040 --> 00:39:39,780

people including myself I must admit

915

00:39:44,620 --> 00:39:43,050

early on don't realize where it comes

916

00:39:47,020 --> 00:39:44,630

from actually

917

00:39:49,270 --> 00:39:47,030

if you put the bagel in the toaster and

918

00:39:52,810 --> 00:39:49,280

look inside the toaster you see the

919

00:39:55,540 --> 00:39:52,820

coils glowing bright orange and it's hot

920

00:39:58,180 --> 00:39:55,550

and you say oh yeah well it's generating

921

00:40:00,730 --> 00:39:58,190

heat and heat is pretty much the same as

922

00:40:02,980 --> 00:40:00,740

infrared light or infrared energy so

923

00:40:05,950 --> 00:40:02,990

it's generating infrared the same with

924

00:40:09,640 --> 00:40:05,960

the oven electric oven and that's true

925

00:40:12,370 --> 00:40:09,650

but it's also true that infrared energy

926  
00:40:14,800 --> 00:40:12,380  
is coming from everywhere so if you're

927  
00:40:16,420 --> 00:40:14,810  
sitting in the room and you're dark in

928  
00:40:19,270 --> 00:40:16,430  
the room turn off all the lights and

929  
00:40:22,390 --> 00:40:19,280  
shades are closed curtains drawn

930  
00:40:24,760 --> 00:40:22,400  
whatever it's dark in there you can't

931  
00:40:27,490 --> 00:40:24,770  
see anything and if you take out your

932  
00:40:29,200 --> 00:40:27,500  
cell phone and try to photograph it

933  
00:40:32,140 --> 00:40:29,210  
you'll get nothing but if you take out a

934  
00:40:35,320 --> 00:40:32,150  
camera that has an infrared sensor

935  
00:40:36,640 --> 00:40:35,330  
instead of a visible light sensor just

936  
00:40:38,920 --> 00:40:36,650  
replace it and there are lots of

937  
00:40:41,110 --> 00:40:38,930  
infrared cameras out there you'll get a

938  
00:40:43,270 --> 00:40:41,120

beautiful image of everything at night

939

00:40:45,700 --> 00:40:43,280

for example or in a darkened room

940

00:40:47,500 --> 00:40:45,710

because everything is generating

941

00:40:50,260 --> 00:40:47,510

infrared energy to capture that energy

942

00:40:53,590 --> 00:40:50,270

you get an image the military of course

943

00:40:56,490 --> 00:40:53,600

uses it for looking at images at night

944

00:40:59,620 --> 00:40:56,500

and it can be particularly useful

945

00:41:02,680 --> 00:40:59,630

astronomers use it as well so it's all

946

00:41:05,860 --> 00:41:02,690

over which means it's free energy which

947

00:41:07,870 --> 00:41:05,870

means is unlike what you read about in a

948

00:41:10,540 --> 00:41:07,880

chemistry textbook about free energy

949

00:41:12,220 --> 00:41:10,550

this is literally free it's free for the

950

00:41:15,040 --> 00:41:12,230

taking it costs you not even a nickel

951  
00:41:17,640 --> 00:41:15,050  
and you get it and because this energy

952  
00:41:20,530 --> 00:41:17,650  
is always around you need to go to

953  
00:41:23,560 --> 00:41:20,540  
absolute zero to get rid of it which is

954  
00:41:25,690 --> 00:41:23,570  
not highly practical if there and

955  
00:41:28,510 --> 00:41:25,700  
because the energy is there to build

956  
00:41:30,310 --> 00:41:28,520  
easy water you always have easy water

957  
00:41:33,700 --> 00:41:30,320  
whenever you have the correct conditions

958  
00:41:37,090 --> 00:41:33,710  
and that is right hydrophilic surface

959  
00:41:39,220 --> 00:41:37,100  
and ordinary water you have infrared

960  
00:41:39,790 --> 00:41:39,230  
energy in the infrared we'll build it

961  
00:41:45,220 --> 00:41:39,800  
easy

962  
00:41:48,910 --> 00:41:45,230  
and the funny thing is finding out that

963  
00:41:51,100 --> 00:41:48,920

light is the driver you know it took us

964

00:41:53,080 --> 00:41:51,110

at least a couple of years to scratch

965

00:41:56,650 --> 00:41:53,090

our heads and figure out being unable

966

00:41:58,480 --> 00:41:56,660

until that student found it so I do some

967

00:42:01,300 --> 00:41:58,490

teaching here at the University wash

968

00:42:02,650 --> 00:42:01,310

and I had a class and I was explaining

969

00:42:05,020 --> 00:42:02,660

through the class something about our

970

00:42:06,730 --> 00:42:05,030

findings and instead of telling them the

971

00:42:09,099 --> 00:42:06,740

energy source I asked a question can

972

00:42:11,980 --> 00:42:09,109

anybody figure out where the energy

973

00:42:13,599 --> 00:42:11,990

might come from and a student sitting in

974

00:42:17,079 --> 00:42:13,609

the class raised his hand rather

975

00:42:19,930 --> 00:42:17,089

tentatively and he said he's almost

976  
00:42:22,870 --> 00:42:19,940  
embarrassed to offer his suggestion he

977  
00:42:24,400 --> 00:42:22,880  
said light I grabbed that student

978  
00:42:25,780 --> 00:42:24,410  
quickly and got him to work in our

979  
00:42:28,210 --> 00:42:25,790  
laboratory he can figure it out right

980  
00:42:30,880 --> 00:42:28,220  
away it took us two years so there we go

981  
00:42:33,130 --> 00:42:30,890  
Wow Wow anyway it's light and that's how

982  
00:42:35,980 --> 00:42:33,140  
we came to understand and of course it

983  
00:42:37,750 --> 00:42:35,990  
has a lot of implications hmm not just

984  
00:42:39,730 --> 00:42:37,760  
that the situation is similar to the

985  
00:42:42,120 --> 00:42:39,740  
first step of photosynthesis but a lot

986  
00:42:44,560 --> 00:42:42,130  
of applications especially for health

987  
00:42:47,050 --> 00:42:44,570  
absolutely that's such an impressive

988  
00:42:48,640 --> 00:42:47,060

discovery and you have shown that when

989

00:42:50,980 --> 00:42:48,650

you have this water where the charge is

990

00:42:54,070 --> 00:42:50,990

separated you can actually use that

991

00:42:56,140 --> 00:42:54,080

energy to power a clock or light a light

992

00:42:58,329 --> 00:42:56,150

bulb to read a little from your book you

993

00:43:00,370 --> 00:42:58,339

write we have shown that ez batteries

994

00:43:02,470 --> 00:43:00,380

can supply charges and that they can

995

00:43:04,450 --> 00:43:02,480

store charges for substantial periods of

996

00:43:07,089 --> 00:43:04,460

time further they can deliver a

997

00:43:09,370 --> 00:43:07,099

significant fraction of that charge that

998

00:43:11,620 --> 00:43:09,380

charge can provide energy for driving

999

00:43:14,410 --> 00:43:11,630

diverse processes ranging from chemical

1000

00:43:16,390 --> 00:43:14,420

reactions to hydraulic flows indeed the

1001

00:43:18,510 --> 00:43:16,400

easy battery could be a versatile

1002

00:43:21,370 --> 00:43:18,520

supplier for much of nature's energy

1003

00:43:23,170 --> 00:43:21,380

well I'm no scientist but that sounds

1004

00:43:24,760 --> 00:43:23,180

pretty exciting how far can you take

1005

00:43:27,190 --> 00:43:24,770

this because this ever be a real factor

1006

00:43:29,220 --> 00:43:27,200

in society's energy needs or could it

1007

00:43:32,109 --> 00:43:29,230

power an engine or something like that

1008

00:43:32,470 --> 00:43:32,119

well it struck us that the answer was

1009

00:43:35,859 --> 00:43:32,480

yes

1010

00:43:38,920 --> 00:43:35,869

and one of my students who was actually

1011

00:43:41,300 --> 00:43:38,930

working on that project and demonstrated

1012

00:43:43,010 --> 00:43:41,310

it was PhD thesis

1013

00:43:46,670 --> 00:43:43,020

that you can actually light a light bulb

1014

00:43:48,980 --> 00:43:46,680

with that energy a small light bulb so

1015

00:43:50,710 --> 00:43:48,990

he demonstrated possibility he didn't

1016

00:43:53,600 --> 00:43:50,720

demonstrate practicality because

1017

00:43:55,400 --> 00:43:53,610

demonstrated practicality you need a lot

1018

00:43:58,640 --> 00:43:55,410

of energy otherwise you know it's just a

1019

00:44:01,850 --> 00:43:58,650

laboratory phenomenon and he convinced

1020

00:44:04,850 --> 00:44:01,860

me that we should form a company to

1021

00:44:07,160 --> 00:44:04,860

develop this and we did it was not my

1022

00:44:09,710 --> 00:44:07,170

idea but I think was his idea let's call

1023

00:44:12,770 --> 00:44:09,720

it fourth phase incorporated we did and

1024

00:44:15,770 --> 00:44:12,780

we now have a company that set up and

1025

00:44:18,230 --> 00:44:15,780

pursuing several of the findings in our

1026

00:44:20,840 --> 00:44:18,240

laboratory to see if they can serve to

1027

00:44:22,820 --> 00:44:20,850

benefit the world that's one of them but

1028

00:44:25,880 --> 00:44:22,830

we put it on the back burner because at

1029

00:44:27,590 --> 00:44:25,890

first we thought filtration was more

1030

00:44:29,630 --> 00:44:27,600

critical you know our waters are just

1031

00:44:32,960 --> 00:44:29,640

filled with all kinds of trash and

1032

00:44:35,660 --> 00:44:32,970

chemicals and pharmaceuticals and it's

1033

00:44:39,320 --> 00:44:35,670

becoming a problem so serious that it's

1034

00:44:41,930 --> 00:44:39,330

having a really major impact on people's

1035

00:44:45,050 --> 00:44:41,940

health and incidents of chronic

1036

00:44:47,180 --> 00:44:45,060

illnesses are increasing so you can take

1037

00:44:49,270 --> 00:44:47,190

water and you can actually put it

1038

00:44:52,790 --> 00:44:49,280

through a process called reverse osmosis

1039

00:44:55,030 --> 00:44:52,800

get rid of pretty much all the junk but

1040

00:44:58,940 --> 00:44:55,040

the cost of doing that it's highly

1041

00:45:00,380 --> 00:44:58,950

energy intensive and well it's possible

1042

00:45:02,450 --> 00:45:00,390

to do something like that in Saudi

1043

00:45:04,520 --> 00:45:02,460

Arabia which in fact is what they do to

1044

00:45:06,050 --> 00:45:04,530

get essentially all their water because

1045

00:45:08,810 --> 00:45:06,060

they have no other resources

1046

00:45:10,250 --> 00:45:08,820

apart from them it's not so feasible for

1047

00:45:12,620 --> 00:45:10,260

the rest of the world because it's so

1048

00:45:14,930 --> 00:45:12,630

expensive to do it you can take salt

1049

00:45:17,390 --> 00:45:14,940

water and get drinking water out of this

1050

00:45:20,240 --> 00:45:17,400

process so we know that since the

1051  
00:45:23,810 --> 00:45:20,250  
exclusion zone by definition it excludes

1052  
00:45:25,910 --> 00:45:23,820  
it excludes essentially all or almost

1053  
00:45:29,930 --> 00:45:25,920  
all of these pharmaceuticals and

1054  
00:45:32,000 --> 00:45:29,940  
bacteria and viruses and the only energy

1055  
00:45:34,550 --> 00:45:32,010  
that's required is the energy of the Sun

1056  
00:45:36,200 --> 00:45:34,560  
you just capture the easy water and you

1057  
00:45:39,260 --> 00:45:36,210  
can get energy and company has been

1058  
00:45:39,850 --> 00:45:39,270  
working on this and we're still working

1059  
00:45:42,950 --> 00:45:39,860  
on it

1060  
00:45:45,950 --> 00:45:42,960  
also in the back burner we're limited

1061  
00:45:48,560 --> 00:45:45,960  
basically by resources we're looking for

1062  
00:45:51,620 --> 00:45:48,570  
more investment and there's such a

1063  
00:45:53,420 --> 00:45:51,630

bright future for this but in order to

1064

00:45:54,590 --> 00:45:53,430

do it to hire the people to make it

1065

00:45:57,440 --> 00:45:54,600

happen you

1066

00:45:59,270 --> 00:45:57,450

the right personnel so we have some we

1067

00:46:01,340 --> 00:45:59,280

need more and we need more investments

1068

00:46:04,060 --> 00:46:01,350

because there's so much that has come

1069

00:46:07,790 --> 00:46:04,070

out of our lab that can be exploited for

1070

00:46:10,940 --> 00:46:07,800

societal use the benefit of society also

1071

00:46:14,240 --> 00:46:10,950

drinking water the water that contains

1072

00:46:16,760 --> 00:46:14,250

easy in it as a you know reasonable

1073

00:46:18,890 --> 00:46:16,770

fraction of drinking water also has

1074

00:46:21,980 --> 00:46:18,900

health benefits because this easy water

1075

00:46:24,620 --> 00:46:21,990

is essential for cell function and we're

1076  
00:46:27,020 --> 00:46:24,630  
working on developing that but we've

1077  
00:46:29,450 --> 00:46:27,030  
learned that going from a laboratory

1078  
00:46:33,110 --> 00:46:29,460  
demonstration to building the technology

1079  
00:46:34,340 --> 00:46:33,120  
is a giant step it's it's not so simple

1080  
00:46:36,710 --> 00:46:34,350  
to do it to make something that's

1081  
00:46:38,870 --> 00:46:36,720  
actually practical for people to use so

1082  
00:46:40,790 --> 00:46:38,880  
we're working hard on all of these and

1083  
00:46:43,790 --> 00:46:40,800  
just going rounding back to your

1084  
00:46:46,700 --> 00:46:43,800  
question about practical use yes we do

1085  
00:46:48,710 --> 00:46:46,710  
think so but we've been limited in our

1086  
00:46:52,040 --> 00:46:48,720  
ability to work on and develop these

1087  
00:46:54,670 --> 00:46:52,050  
outcomes mmm we're looking hard for

1088  
00:46:57,830 --> 00:46:54,680

investment we have a really wonderful

1089

00:47:01,700 --> 00:46:57,840

board which includes I'm not sure if you

1090

00:47:04,490 --> 00:47:01,710

know Robert Kennedy jr. done so much for

1091

00:47:06,920 --> 00:47:04,500

various health issues and he's on our

1092

00:47:09,620 --> 00:47:06,930

board and several of people including

1093

00:47:11,210 --> 00:47:09,630

our distinguished CEO and the company

1094

00:47:13,850 --> 00:47:11,220

people who know their way around but

1095

00:47:15,500 --> 00:47:13,860

we're now trying to build our investment

1096

00:47:17,540 --> 00:47:15,510

to make some of these things happen

1097

00:47:19,910 --> 00:47:17,550

we're really excited about it hmm

1098

00:47:21,610 --> 00:47:19,920

so they were say yes I'm sorry I gave a

1099

00:47:24,650 --> 00:47:21,620

long answer to a short question

1100

00:47:27,380 --> 00:47:24,660

practicality we think so and we're

1101  
00:47:29,360 --> 00:47:27,390  
working on it yes indeed and well here's

1102  
00:47:32,030 --> 00:47:29,370  
an interesting one so you found out that

1103  
00:47:33,800 --> 00:47:32,040  
water in a hydrophilic tube can kind of

1104  
00:47:36,290 --> 00:47:33,810  
flow on its own the negative charge

1105  
00:47:37,670 --> 00:47:36,300  
pushes it along without any kind of pump

1106  
00:47:40,310 --> 00:47:37,680  
really maybe this is the mechanism

1107  
00:47:43,460 --> 00:47:40,320  
behind blood flow in the body more so

1108  
00:47:47,060 --> 00:47:43,470  
than the heart being the sole pump but

1109  
00:47:49,010 --> 00:47:47,070  
that knowledge alone could be used to do

1110  
00:47:50,780 --> 00:47:49,020  
something like maybe upgrade our entire

1111  
00:47:52,940 --> 00:47:50,790  
plumbing infrastructure I guess in a

1112  
00:47:55,250 --> 00:47:52,950  
perfect world we would have hydrophilic

1113  
00:47:58,610 --> 00:47:55,260

vortexing pipes that can absorb sunlight

1114

00:48:00,710 --> 00:47:58,620

above the ground as they flow yeah I

1115

00:48:03,250 --> 00:48:00,720

don't know I mean I'm sure there's huge

1116

00:48:05,440 --> 00:48:03,260

infrastructural possibilities there

1117

00:48:07,089 --> 00:48:05,450

that's really creative you touched on so

1118

00:48:10,319 --> 00:48:07,099

many issues and let me first just

1119

00:48:14,380 --> 00:48:10,329

respond in a practical way to your

1120

00:48:16,900 --> 00:48:14,390

hypothesis about using it in major pipes

1121

00:48:18,550 --> 00:48:16,910

to promote flow I think it won't be

1122

00:48:21,609 --> 00:48:18,560

practical for that although I might

1123

00:48:23,440 --> 00:48:21,619

actually be wrong because the driving

1124

00:48:26,740 --> 00:48:23,450

phenomenon starts at the hydrophilic

1125

00:48:28,720 --> 00:48:26,750

surface and if you have a narrow tube

1126

00:48:31,180 --> 00:48:28,730

the hydrophilic surface is a major

1127

00:48:33,819 --> 00:48:31,190

fraction of the opening in the - of the

1128

00:48:35,770 --> 00:48:33,829

lumen it might be 10 20 percent of the

1129

00:48:37,780 --> 00:48:35,780

diameter and it works beautifully in

1130

00:48:40,420 --> 00:48:37,790

situations like that if the tube

1131

00:48:42,910 --> 00:48:40,430

material is hydrophilic if you have a

1132

00:48:47,410 --> 00:48:42,920

giant tube like some of the underground

1133

00:48:49,300 --> 00:48:47,420

tubes that take water from some Glacial

1134

00:48:51,849 --> 00:48:49,310

males for example as a conduit to the

1135

00:48:54,700 --> 00:48:51,859

city these are huge tubes and because

1136

00:48:56,980 --> 00:48:54,710

their diameters are really large the EZ

1137

00:49:00,250 --> 00:48:56,990

is a very small fraction the EZ that

1138

00:49:02,589 --> 00:49:00,260

forms just inside the tube material is a

1139

00:49:05,200 --> 00:49:02,599

very small fraction of the tube diameter

1140

00:49:07,750 --> 00:49:05,210

and it won't work so effectively I'm not

1141

00:49:10,540 --> 00:49:07,760

suggesting that it's impossible but I'm

1142

00:49:13,540 --> 00:49:10,550

suggesting that it may not be practical

1143

00:49:15,880 --> 00:49:13,550

in the manner that you suggested if you

1144

00:49:18,609 --> 00:49:15,890

on the other hand put a lot of small

1145

00:49:21,190 --> 00:49:18,619

tubes in parallel yes then it can work

1146

00:49:24,069 --> 00:49:21,200

and it can work effectively but

1147

00:49:25,900 --> 00:49:24,079

returning to the heart just before this

1148

00:49:27,550 --> 00:49:25,910

interview I was speaking to my students

1149

00:49:29,530 --> 00:49:27,560

has been working on that project and

1150

00:49:32,680 --> 00:49:29,540

we're putting together a couple of

1151

00:49:35,760 --> 00:49:32,690

papers just before his PhD which is

1152

00:49:39,640 --> 00:49:35,770

about to receive and we did indeed find

1153

00:49:42,700 --> 00:49:39,650

that in the cardiovascular system this

1154

00:49:44,890 --> 00:49:42,710

mechanism the slow mechanism that you

1155

00:49:47,319 --> 00:49:44,900

eluded to is actually working probably

1156

00:49:49,780 --> 00:49:47,329

at the level of the capillaries and so

1157

00:49:51,670 --> 00:49:49,790

you don't actually need the heart to get

1158

00:49:53,890 --> 00:49:51,680

flow let me explain

1159

00:49:57,400 --> 00:49:53,900

they're having experiments not only my

1160

00:49:59,260 --> 00:49:57,410

student doing it but people maybe four

1161

00:50:01,470 --> 00:49:59,270

or five different investigators over the

1162

00:50:03,640 --> 00:50:01,480

last half century published papers

1163

00:50:06,970 --> 00:50:03,650

demonstrating that if the heart is

1164

00:50:08,640 --> 00:50:06,980

either blocked or stopped for some

1165

00:50:11,710 --> 00:50:08,650

reason the heart is not functioning the

1166

00:50:15,980 --> 00:50:11,720

blood flow doesn't go to zero something

1167

00:50:17,810 --> 00:50:15,990

else is involved in persisting

1168

00:50:19,520 --> 00:50:17,820

and it doesn't flow at the same rate by

1169

00:50:22,520 --> 00:50:19,530

any means it's much slower but it keeps

1170

00:50:24,820 --> 00:50:22,530

going and in the case of my student

1171

00:50:28,370 --> 00:50:24,830

studying the flow and the chick embryo

1172

00:50:30,860 --> 00:50:28,380

when the heart is stopped by injecting

1173

00:50:32,570 --> 00:50:30,870

potassium chloride flow continues he

1174

00:50:34,880 --> 00:50:32,580

demonstrated the same as what other

1175

00:50:37,820 --> 00:50:34,890

people demonstrated it keeps going is

1176  
00:50:40,130 --> 00:50:37,830  
kind of surprised because we expect the

1177  
00:50:42,410 --> 00:50:40,140  
heart stops you're dead and there's no

1178  
00:50:45,530 --> 00:50:42,420  
flow but it's not true the flow persists

1179  
00:50:47,870 --> 00:50:45,540  
for say an hour in his case or more than

1180  
00:50:48,980 --> 00:50:47,880  
an hour and as I said is reported in

1181  
00:50:51,440 --> 00:50:48,990  
other labs but nobody pays attention

1182  
00:50:53,900 --> 00:50:51,450  
because it seems too exotic to be true

1183  
00:50:56,210 --> 00:50:53,910  
but you have clear evidence that it's

1184  
00:50:59,150 --> 00:50:56,220  
true so there's got to be some mechanism

1185  
00:51:02,660 --> 00:50:59,160  
that drives it and when we first found

1186  
00:51:04,790 --> 00:51:02,670  
this phenomenon of flow in tubes let me

1187  
00:51:07,040 --> 00:51:04,800  
explain how we found this was also a

1188  
00:51:11,330 --> 00:51:07,050

kind of student who is maybe being

1189

00:51:13,790 --> 00:51:11,340

slightly disobedient and well maybe

1190

00:51:16,400 --> 00:51:13,800

that's not the right word his eyes were

1191

00:51:18,590 --> 00:51:16,410

open so he had an experiment where he

1192

00:51:20,480 --> 00:51:18,600

was using the same material that I

1193

00:51:22,970 --> 00:51:20,490

mention is called Navion and it deals

1194

00:51:26,210 --> 00:51:22,980

very nice exclusion zones next to it and

1195

00:51:28,340 --> 00:51:26,220

we found that nafion comes not only in

1196

00:51:31,250 --> 00:51:28,350

the sheets that we had used but also a

1197

00:51:33,140 --> 00:51:31,260

tubes so it's like a straw and the

1198

00:51:35,300 --> 00:51:33,150

material was made of nappy on and his

1199

00:51:37,970 --> 00:51:35,310

job was to look in the microscope and

1200

00:51:40,340 --> 00:51:37,980

see if he put this tube in water that

1201  
00:51:41,990 --> 00:51:40,350  
contained microspheres could he

1202  
00:51:44,810 --> 00:51:42,000  
absolutely detect and easy and we

1203  
00:51:48,050 --> 00:51:44,820  
expected an easy as an annular region

1204  
00:51:50,000 --> 00:51:48,060  
just inside the tube inside the wall of

1205  
00:51:52,340 --> 00:51:50,010  
the tube and just outside the wall of

1206  
00:51:53,570 --> 00:51:52,350  
the tube running along the length and he

1207  
00:51:56,630 --> 00:51:53,580  
could confirm that but he found

1208  
00:51:58,160 --> 00:51:56,640  
something else I distinctly will

1209  
00:51:59,780 --> 00:51:58,170  
remember that day because it's

1210  
00:52:02,960 --> 00:51:59,790  
unforgettable to me because of the

1211  
00:52:04,070 --> 00:52:02,970  
magnitude of his accidental discovery so

1212  
00:52:05,720 --> 00:52:04,080  
I'm sitting in my office

1213  
00:52:08,660 --> 00:52:05,730

same office from which I'm speaking

1214

00:52:10,460 --> 00:52:08,670

right now I had a visitor I can't

1215

00:52:13,190 --> 00:52:10,470

remember who the visitor was but

1216

00:52:15,650 --> 00:52:13,200

obviously it must have been a kind of

1217

00:52:17,690 --> 00:52:15,660

non impacting visitor otherwise I might

1218

00:52:19,730 --> 00:52:17,700

have remembered and I was sitting and

1219

00:52:21,950 --> 00:52:19,740

talking and the student comes barging in

1220

00:52:25,820 --> 00:52:21,960

and usually the students don't do that

1221

00:52:27,020 --> 00:52:25,830

they have a modicum of politeness you

1222

00:52:28,849 --> 00:52:27,030

know especially if I'm sitting with

1223

00:52:31,190 --> 00:52:28,859

somebody else poke their head

1224

00:52:32,479 --> 00:52:31,200

or something he came in and practically

1225

00:52:34,099 --> 00:52:32,489

in the middle of a sentence I was

1226

00:52:35,479 --> 00:52:34,109

talking to the guys you know I just

1227

00:52:38,269 --> 00:52:35,489

discovered something and I thought it's

1228

00:52:40,099 --> 00:52:38,279

important enough for me to tell you so

1229

00:52:42,650 --> 00:52:40,109

he goes on to tell me he said no the

1230

00:52:44,930 --> 00:52:42,660

tube is sitting horizontally at the

1231

00:52:47,329 --> 00:52:44,940

bottom of the chamber and he's looking

1232

00:52:49,549 --> 00:52:47,339

inside the tube with a lens of a

1233

00:52:51,920 --> 00:52:49,559

microscope and he said you know there's

1234

00:52:53,779 --> 00:52:51,930

flow inside the tube and the flow just

1235

00:52:56,779 --> 00:52:53,789

keeps going it won't stop and I thought

1236

00:52:58,699 --> 00:52:56,789

this might be important I thought if

1237

00:53:01,160 --> 00:52:58,709

this is really true and we checked it

1238

00:53:04,130 --> 00:53:01,170

out next few days and it was clearly

1239

00:53:07,519 --> 00:53:04,140

true it is true is really important

1240

00:53:08,930 --> 00:53:07,529

because usually in order to have flow

1241

00:53:11,329 --> 00:53:08,940

inside the tube you need pressure

1242

00:53:13,400 --> 00:53:11,339

typically for example your heart is

1243

00:53:15,079 --> 00:53:13,410

developing the pressure which pushes the

1244

00:53:17,809 --> 00:53:15,089

blood through the tube through your

1245

00:53:19,459 --> 00:53:17,819

large arteries and such but he found in

1246

00:53:21,650 --> 00:53:19,469

these narrow tubes

1247

00:53:23,539 --> 00:53:21,660

he said the flow is no pressure gradient

1248

00:53:25,339 --> 00:53:23,549

no difference of pressure no high

1249

00:53:27,019 --> 00:53:25,349

pressure at one end and low pressure at

1250

00:53:29,299 --> 00:53:27,029

the other as you'd find in the

1251  
00:53:31,430 --> 00:53:29,309  
cardiovascular system but the tool is

1252  
00:53:32,930 --> 00:53:31,440  
just lying there horizontally he's

1253  
00:53:35,660 --> 00:53:32,940  
looking with the microscope and the flow

1254  
00:53:38,329 --> 00:53:35,670  
just continues we actually we could have

1255  
00:53:40,339 --> 00:53:38,339  
it going for up to a day and a half

1256  
00:53:42,859 --> 00:53:40,349  
before it slowed down for reasons that

1257  
00:53:44,509 --> 00:53:42,869  
we actually understand but I thought if

1258  
00:53:47,900 --> 00:53:44,519  
it's really true since you need energy

1259  
00:53:49,549 --> 00:53:47,910  
to drive flow and we know that the water

1260  
00:53:52,759 --> 00:53:49,559  
is absorbing energy from the environment

1261  
00:53:55,910 --> 00:53:52,769  
as I pointed out a few moments ago this

1262  
00:53:57,559 --> 00:53:55,920  
could be confirming evidence that this

1263  
00:53:59,359 --> 00:53:57,569

energy that's coming and really does

1264

00:54:01,130 --> 00:53:59,369

come it really does get absorbed is

1265

00:54:04,069 --> 00:54:01,140

actually put to use in some way because

1266

00:54:06,829 --> 00:54:04,079

it's driving flow so I was really

1267

00:54:09,079 --> 00:54:06,839

excited about this finding and then then

1268

00:54:11,509 --> 00:54:09,089

I went to Russia to see a colleague of

1269

00:54:15,499 --> 00:54:11,519

mine after we had found this and studied

1270

00:54:17,749 --> 00:54:15,509

it we found that again light was the

1271

00:54:21,249 --> 00:54:17,759

energy that was driving this because we

1272

00:54:23,359 --> 00:54:21,259

had more light we get faster flow so I

1273

00:54:26,449 --> 00:54:23,369

went to visit my friend

1274

00:54:28,789 --> 00:54:26,459

Vladimir via coffin Moscow University

1275

00:54:31,519 --> 00:54:28,799

and as I went to his lab but the first

1276

00:54:33,199 --> 00:54:31,529

thing he's an old friend of mine first

1277

00:54:36,109 --> 00:54:33,209

thing is I want you to meet my colleague

1278

00:54:38,689 --> 00:54:36,119

in the next laboratory and Colleen the

1279

00:54:40,999 --> 00:54:38,699

next laboratory came over sat down with

1280

00:54:43,130 --> 00:54:41,009

his assistant and they started talking

1281

00:54:44,959 --> 00:54:43,140

to me unfortunately I couldn't

1282

00:54:46,969 --> 00:54:44,969

understand the Russian but it was

1283

00:54:48,829 --> 00:54:46,979

translated by my friend and what they

1284

00:54:51,289 --> 00:54:48,839

were telling me is that there's a big

1285

00:54:55,130 --> 00:54:51,299

problem in the cardiovascular system and

1286

00:54:59,289 --> 00:54:55,140

I'm thinking what kind of big problem

1287

00:55:03,620 --> 00:54:59,299

can there be I did my PhD thesis

1288

00:55:05,569 --> 00:55:03,630

simulating the dynamics of flow and

1289

00:55:08,299 --> 00:55:05,579

pressure in the cardiovascular system

1290

00:55:11,539 --> 00:55:08,309

and quite arrogantly I thought we had

1291

00:55:14,359 --> 00:55:11,549

all the answers until I spoke to him at

1292

00:55:17,420 --> 00:55:14,369

greater length and he convinced me of

1293

00:55:19,519 --> 00:55:17,430

the serious problem within 15 minutes

1294

00:55:21,650 --> 00:55:19,529

and so what's the problem the problem is

1295

00:55:24,920 --> 00:55:21,660

that the capillaries the smallest

1296

00:55:28,969 --> 00:55:24,930

capillaries in healthy young adults the

1297

00:55:30,439 --> 00:55:28,979

diameter is 3 to 4 micrometers and the

1298

00:55:34,219 --> 00:55:30,449

red blood cells that need to pass

1299

00:55:36,920 --> 00:55:34,229

through are 6 or 7 micrometers so it's

1300

00:55:39,799 --> 00:55:36,930

kind of like stuffing a basketball

1301  
00:55:43,099 --> 00:55:39,809  
through a narrow hoop ok you got to push

1302  
00:55:45,680 --> 00:55:43,109  
it through or as I like to say sometimes

1303  
00:55:47,569 --> 00:55:45,690  
it's like stuffing up your toilet and in

1304  
00:55:49,670 --> 00:55:47,579  
order to drive the stuff through to

1305  
00:55:51,410 --> 00:55:49,680  
clear your toilet bowl you need to get a

1306  
00:55:53,329 --> 00:55:51,420  
plunger and you need to apply a lot of

1307  
00:55:56,420 --> 00:55:53,339  
energy to kind of push and push and push

1308  
00:55:57,890 --> 00:55:56,430  
and finally it clears the situation is

1309  
00:56:00,109 --> 00:55:57,900  
pretty much the same in the capillary

1310  
00:56:03,949 --> 00:56:00,119  
and it looks like Mother Nature screwed

1311  
00:56:08,449 --> 00:56:03,959  
up because no engineer would do such a

1312  
00:56:10,549 --> 00:56:08,459  
thing as to have stuff that's twice the

1313  
00:56:12,709 --> 00:56:10,559

diameter of the tube it just simply

1314

00:56:14,900 --> 00:56:12,719

doesn't work and he said we calculated

1315

00:56:16,729 --> 00:56:14,910

how much energy is required I don't know

1316

00:56:19,729 --> 00:56:16,739

if his calculation was right or not but

1317

00:56:22,039 --> 00:56:19,739

he came up with something like it's a

1318

00:56:24,140 --> 00:56:22,049

heart were fully responsible for doing

1319

00:56:26,479 --> 00:56:24,150

all this pushing of the blood through

1320

00:56:28,309 --> 00:56:26,489

the small capillary the heart would need

1321

00:56:30,430 --> 00:56:28,319

to develop something like 1 million

1322

00:56:33,049 --> 00:56:30,440

times the pressure that it develops and

1323

00:56:33,849 --> 00:56:33,059

even if he's off by a factor of ten or a

1324

00:56:36,459 --> 00:56:33,859

hundred

1325

00:56:38,410 --> 00:56:36,469

still a very very major problem that you

1326

00:56:40,359 --> 00:56:38,420

could see intuitively is an issue and

1327

00:56:42,759 --> 00:56:40,369

actually if you watch the flow through

1328

00:56:45,039 --> 00:56:42,769

the capillaries we've done that you

1329

00:56:47,259 --> 00:56:45,049

don't see any pulsatilla T it looks like

1330

00:56:49,749 --> 00:56:47,269

the flow in the capillaries is smooth

1331

00:56:52,660 --> 00:56:49,759

and steady doesn't go push push push

1332

00:56:55,569 --> 00:56:52,670

like to the rhythm of the heart so it

1333

00:56:56,709 --> 00:56:55,579

seems disconnected and so he said

1334

00:56:59,109 --> 00:56:56,719

there's got to be something else that

1335

00:57:01,930 --> 00:56:59,119

some other energy is driving the flow

1336

00:57:05,410 --> 00:57:01,940

and of course immediately despite my

1337

00:57:08,109 --> 00:57:05,420

jetlag I could take ho you know we just

1338

00:57:10,479 --> 00:57:08,119

saw in the laboratory that you could get

1339

00:57:12,339 --> 00:57:10,489

flow through tubes and the energy that's

1340

00:57:14,949 --> 00:57:12,349

required is energy from the environment

1341

00:57:18,099 --> 00:57:14,959

from light especially infrared energy

1342

00:57:20,829 --> 00:57:18,109

now I'm thinking maybe this applies and

1343

00:57:23,109 --> 00:57:20,839

so I talk to my student who still didn't

1344

00:57:25,059 --> 00:57:23,119

have a project and I explained to him

1345

00:57:27,969 --> 00:57:25,069

that this is a possibility that maybe

1346

00:57:30,009 --> 00:57:27,979

this flow phenomenon that we saw in the

1347

00:57:32,319 --> 00:57:30,019

laboratory could be driving the flow in

1348

00:57:34,120 --> 00:57:32,329

capillaries and it's dependent on

1349

00:57:36,549 --> 00:57:34,130

infrared energy and inside the body

1350

00:57:39,819 --> 00:57:36,559

there's lots of infrared energy coming

1351  
00:57:42,130 --> 00:57:39,829  
from all the metabolic heat develops or

1352  
00:57:44,079 --> 00:57:42,140  
you can add some from outside too either

1353  
00:57:47,410 --> 00:57:44,089  
way and that could be put to use for

1354  
00:57:49,479 --> 00:57:47,420  
driving it so he admits to me three

1355  
00:57:52,150 --> 00:57:49,489  
years later that he thought my idea was

1356  
00:57:54,609 --> 00:57:52,160  
preposterous but he accepted it anyway

1357  
00:57:57,640 --> 00:57:54,619  
and after he began doing experiments

1358  
00:57:59,559 --> 00:57:57,650  
he's now absolutely convinced by his

1359  
00:58:03,279 --> 00:57:59,569  
evidence that this is true so the bottom

1360  
00:58:05,499 --> 00:58:03,289  
line is that for all of us if his

1361  
00:58:07,209 --> 00:58:05,509  
evidence holds up and I believe it

1362  
00:58:11,259 --> 00:58:07,219  
showed because it seems pretty clear

1363  
00:58:13,809 --> 00:58:11,269

that the heart is not the only supplier

1364

00:58:16,150 --> 00:58:13,819

of energy to push the blood through the

1365

00:58:18,969 --> 00:58:16,160

system there's another one an auxiliary

1366

00:58:22,089 --> 00:58:18,979

and that is in the small vessels perhaps

1367

00:58:24,670 --> 00:58:22,099

the capillary or maybe arterioles or

1368

00:58:27,339 --> 00:58:24,680

somewhere along the line there's another

1369

00:58:30,400 --> 00:58:27,349

mechanism and that mechanism is the one

1370

00:58:32,739 --> 00:58:30,410

that's based on the easy water and if

1371

00:58:34,209 --> 00:58:32,749

you wish I can tell you in about two or

1372

00:58:35,380 --> 00:58:34,219

three minutes I just don't want to I

1373

00:58:38,289 --> 00:58:35,390

know you have a lot of other questions

1374

00:58:40,689 --> 00:58:38,299

we know pretty much how it works so it's

1375

00:58:43,569 --> 00:58:40,699

in the book fourth phase book which as

1376

00:58:46,509 --> 00:58:43,579

you say it's gotten pretty popular yes

1377

00:58:47,170 --> 00:58:46,519

it has and rightfully so I really do

1378

00:58:49,569 --> 00:58:47,180

love it

1379

00:58:51,819 --> 00:58:49,579

all but I would like to spend the last

1380

00:58:54,099 --> 00:58:51,829

bit of time we have together trying to

1381

00:58:56,140 --> 00:58:54,109

get beyond what's in the book if you

1382

00:58:58,839 --> 00:58:56,150

don't mind but for the main event here I

1383

00:59:00,849 --> 00:58:58,849

think we can call that a wrap you've

1384

00:59:04,180 --> 00:59:00,859

been really generous with your time and

1385

00:59:07,480 --> 00:59:04,190

thank you so much yeah thank you very

1386

00:59:10,420 --> 00:59:07,490

much for the interesting question I

1387

00:59:12,220 --> 00:59:10,430

really appreciate that well the least I

1388

00:59:14,530 --> 00:59:12,230

could do is have some questions for you

1389

00:59:16,120 --> 00:59:14,540

but it was quite fun definitely an honor

1390

00:59:18,220 --> 00:59:16,130

and a pleasure I know you got to go I

1391

00:59:20,170 --> 00:59:18,230

will make sure to tell the people about

1392

00:59:22,390 --> 00:59:20,180

your books and website remind them of

1393

00:59:24,370 --> 00:59:22,400

all that good stuff keep doing the great

1394

00:59:29,880 --> 00:59:24,380

work you're doing and have a good one

1395

00:59:34,860 --> 00:59:32,320

rock me like a hurricane higher side

1396

00:59:38,920 --> 00:59:34,870

shatters how is that dr. Gerald [h\_\_h]

1397

00:59:41,440 --> 00:59:38,930

the water wizard himself again I'm sorry

1398

00:59:44,830 --> 00:59:41,450

it was a little short but that Plus show

1399

00:59:46,660 --> 00:59:44,840

where the respectable incredible dr.

1400

00:59:49,840 --> 00:59:46,670

[h\_\_h] goes on about his other

1401  
00:59:52,780 --> 00:59:49,850  
interests in weird science to me is

1402  
00:59:55,570 --> 00:59:52,790  
pretty amazing he's just such a nice

1403  
00:59:58,150 --> 00:59:55,580  
genuine guy I definitely wanted to be

1404  
01:00:00,490 --> 00:59:58,160  
respectful of his personal obligations

1405  
01:00:03,670 --> 01:00:00,500  
and not take up more time than I agreed

1406  
01:00:05,200 --> 01:00:03,680  
to so I cut him loose and said look I

1407  
01:00:07,330 --> 01:00:05,210  
can tell the people that they should

1408  
01:00:09,100 --> 01:00:07,340  
check out more on your website I can

1409  
01:00:10,690 --> 01:00:09,110  
tell them that the fourth phase of water

1410  
01:00:12,990 --> 01:00:10,700  
is the book they should pick up to get

1411  
01:00:15,970 --> 01:00:13,000  
started and that's what I'm doing now

1412  
01:00:18,730 --> 01:00:15,980  
please do support dr. Pollock promote

1413  
01:00:21,400 --> 01:00:18,740

him study his work and let him know that

1414

01:00:24,820 --> 01:00:21,410

you liked hearing from him and you want

1415

01:00:27,250 --> 01:00:24,830

to hear more on THC in particular

1416

01:00:29,650 --> 01:00:27,260

because I really pestered him for this

1417

01:00:32,110 --> 01:00:29,660

and I do want him to know that his time

1418

01:00:35,170 --> 01:00:32,120

was well spent his message received and

1419

01:00:39,400 --> 01:00:35,180

that it was an opportunity as much as it

1420

01:00:42,130 --> 01:00:39,410

was a granted courtesy to the guy who

1421

01:00:43,990 --> 01:00:42,140

wouldn't stop emailing as for the show

1422

01:00:46,030 --> 01:00:44,000

itself I definitely didn't want to

1423

01:00:48,220 --> 01:00:46,040

retread too much ground from dr.

1424

01:00:50,620 --> 01:00:48,230

Pollock's other interviews or why am I

1425

01:00:52,630 --> 01:00:50,630

even bothering the man so I thought I

1426

01:00:55,540 --> 01:00:52,640

would just hit two of those starter

1427

01:00:57,640 --> 01:00:55,550

questions the first being what chapters

1428

01:00:59,440 --> 01:00:57,650

in the history of water science are

1429

01:01:02,530 --> 01:00:59,450

worth telling as a way of setting the

1430

01:01:04,240 --> 01:01:02,540

stage for a how there could really be so

1431

01:01:07,300 --> 01:01:04,250

many fundamental aspects of water that

1432

01:01:09,910 --> 01:01:07,310

we haven't fully explored yet and be how

1433

01:01:12,010 --> 01:01:09,920

the scientific quarantine either imposed

1434

01:01:15,240 --> 01:01:12,020

by funding or self-imposed by

1435

01:01:17,440 --> 01:01:15,250

established bias which i think is

1436

01:01:20,800 --> 01:01:17,450

subconsciously encouraged but regardless

1437

01:01:22,330 --> 01:01:20,810

how that interferes as well you know I

1438

01:01:25,060 --> 01:01:22,340

like exploring that with things like

1439

01:01:27,040 --> 01:01:25,070

energy and transportation and medicine

1440

01:01:29,380 --> 01:01:27,050

it's important to know the road you're

1441

01:01:32,410 --> 01:01:29,390

on and you have to open people up to

1442

01:01:33,940 --> 01:01:32,420

their even being more to know before you

1443

01:01:37,180 --> 01:01:33,950

hit them with the paradigm changing

1444

01:01:39,460 --> 01:01:37,190

stuff and then the other intro question

1445

01:01:42,970 --> 01:01:39,470

was how do we summarize this work and

1446

01:01:46,570 --> 01:01:42,980

what easy water even is for people

1447

01:01:48,880 --> 01:01:46,580

who don't know you got a try but with

1448

01:01:51,760 --> 01:01:48,890

those two questions we were a third done

1449

01:01:54,190 --> 01:01:51,770

and I had a minor panic attack but

1450

01:01:56,170 --> 01:01:54,200

luckily for at least the larger THC

1451

01:01:58,180 --> 01:01:56,180

audience we talked about a lot of this

1452

01:02:00,099 --> 01:01:58,190

stuff with dr. Stephen Hussey in the

1453

01:02:02,770 --> 01:02:00,109

last episode especially on the health

1454

01:02:05,620 --> 01:02:02,780

side so I went straight to the energy

1455

01:02:07,270 --> 01:02:05,630

side because so many of dr. Pollock's

1456

01:02:10,120 --> 01:02:07,280

other interviews are dominated by the

1457

01:02:12,010 --> 01:02:10,130

health side and I get it we want to know

1458

01:02:15,220 --> 01:02:12,020

what we can do to increase the magic

1459

01:02:17,109 --> 01:02:15,230

elixir of the easy gods and yes easy

1460

01:02:20,109 --> 01:02:17,119

water is key to understanding the

1461

01:02:23,380 --> 01:02:20,119

infrared and juice cleanse healing

1462

01:02:25,780 --> 01:02:23,390

modalities homeopathy as well it

1463

01:02:29,130 --> 01:02:25,790

revolutionizes the concept of the heart

1464

01:02:31,510 --> 01:02:29,140

and blood flow it's no small thing and

1465

01:02:34,900 --> 01:02:31,520

I've heard people ask them about the

1466

01:02:37,480 --> 01:02:34,910

effects of fluoride glyphosate sugar and

1467

01:02:40,630 --> 01:02:37,490

heavy metals on structured water or the

1468

01:02:43,810 --> 01:02:40,640

ratio of easy water in our bodies and

1469

01:02:45,190 --> 01:02:43,820

surprise surprise it's not good we

1470

01:02:48,040 --> 01:02:45,200

already know these things aren't great

1471

01:02:50,770 --> 01:02:48,050

for us so let's talk about water engines

1472

01:02:52,960 --> 01:02:50,780

rather than a new understanding of why

1473

01:02:57,099 --> 01:02:52,970

poison in the food supply might be a

1474

01:02:59,830 --> 01:02:57,109

problem but I do find it all to be

1475

01:03:01,630 --> 01:02:59,840

pretty revolutionary and great evidence

1476

01:03:03,550 --> 01:03:01,640

that supports the elegance and

1477

01:03:05,530 --> 01:03:03,560

importance of our natural holistic

1478

01:03:08,200 --> 01:03:05,540

systems over the cold mechanical

1479

01:03:11,680 --> 01:03:08,210

ai-controlled cookie cutter life of

1480

01:03:14,790 --> 01:03:11,690

mundane numbness and I'm sorry the plus

1481

01:03:17,520 --> 01:03:14,800

show is so juicy and so private

1482

01:03:20,140 --> 01:03:17,530

obviously that's how we do the show and

1483

01:03:21,700 --> 01:03:20,150

the nature of a conversation is that it

1484

01:03:23,859 --> 01:03:21,710

gets deeper towards the end not the

1485

01:03:25,570 --> 01:03:23,869

beginning but in the Plus show dr.

1486

01:03:27,670 --> 01:03:25,580

[h\_\_\h] talked about the Earth's net

1487

01:03:31,960 --> 01:03:27,680

negative charge and how we might use

1488

01:03:34,859 --> 01:03:31,970

that and primarily engineers deep

1489

01:03:37,270 --> 01:03:34,869

questions on cavitation water

1490

01:03:41,410 --> 01:03:37,280

transmutation and the work of Mark

1491

01:03:44,140 --> 01:03:41,420

LeClair and also flight electrostatic

1492

01:03:46,900 --> 01:03:44,150

and rotation and I think you know what

1493

01:03:48,760 --> 01:03:46,910

we're getting out there but yeah sign up

1494

01:03:51,880 --> 01:03:48,770

for THC plus if you want to get the full

1495

01:03:55,330 --> 01:03:51,890

show not just this episode but every

1496

01:03:56,710 --> 01:03:55,340

episode we don't do sponsors or networks

1497

01:03:59,589 --> 01:03:56,720

or any of that it's just

1498

01:04:01,540 --> 01:03:59,599

and you baby but just a touch on a few

1499

01:04:03,069 --> 01:04:01,550

things I've heard dr. Pollock bring up

1500

01:04:05,109 --> 01:04:03,079

in other interviews that are interesting

1501

01:04:08,980 --> 01:04:05,119

I've heard him talk about the huns of

1502

01:04:12,609 --> 01:04:08,990

people they live in a fairly isolated

1503

01:04:14,200 --> 01:04:12,619

area of Pakistan in the Himalayas but

1504

01:04:16,059 --> 01:04:14,210

the stories are that they can easily

1505

01:04:18,490 --> 01:04:16,069

live to be a hundred and twenty

1506

01:04:21,040 --> 01:04:18,500

sometimes a hundred and fifty they don't

1507

01:04:23,319 --> 01:04:21,050

get cancer women can get pregnant in

1508

01:04:26,349 --> 01:04:23,329

their 60s 70s 80s

1509

01:04:28,540 --> 01:04:26,359

some even say 90s they have a

1510

01:04:31,270 --> 01:04:28,550

well-established shamanic tradition

1511

01:04:34,660 --> 01:04:31,280

as a sidenote but they are also living

1512

01:04:37,480 --> 01:04:34,670

off glacier water and apricots largely

1513

01:04:40,180 --> 01:04:37,490

I've also read that they drink this

1514

01:04:43,870 --> 01:04:40,190

water that is so high in mineral content

1515

01:04:48,190 --> 01:04:43,880

it's almost thick well gel-like is a

1516

01:04:50,910 --> 01:04:48,200

structured water descriptor and I'm sure

1517

01:04:54,040 --> 01:04:50,920

this is a huge piece of their longevity

1518

01:04:56,200 --> 01:04:54,050

increasing lifestyle people might also

1519

01:04:59,170 --> 01:04:56,210

know Dave Asprey from bulletproof coffee

1520

01:05:02,410 --> 01:04:59,180

I interviewed him here way back in the

1521

01:05:04,839 --> 01:05:02,420

day but he is a big dr. [h\_\_h] fan as

1522

01:05:07,690 --> 01:05:04,849

well and we know that bubbles increase

1523

01:05:10,809 --> 01:05:07,700

easy because around each one is an easy

1524

01:05:12,670 --> 01:05:10,819

layer and that becomes another reason

1525

01:05:15,790 --> 01:05:12,680

why this bulletproof coffee thing seems

1526  
01:05:19,260 --> 01:05:15,800  
to increase health because blending it

1527  
01:05:21,970 --> 01:05:19,270  
with butter is a part of that process

1528  
01:05:23,609 --> 01:05:21,980  
homeopathy a big part of that process is

1529  
01:05:27,400 --> 01:05:23,619  
shaking it and creating bubbles

1530  
01:05:29,740 --> 01:05:27,410  
something is up here how much of our six

1531  
01:05:31,990 --> 01:05:29,750  
society and crippled immune systems

1532  
01:05:34,870 --> 01:05:32,000  
could be healed with this information

1533  
01:05:36,700 --> 01:05:34,880  
of course validation from the system is

1534  
01:05:40,210 --> 01:05:36,710  
only so valuable but get this man a

1535  
01:05:42,400 --> 01:05:40,220  
Nobel Prize I don't know but I'd find

1536  
01:05:45,370 --> 01:05:42,410  
myself just staring at a glass of water

1537  
01:05:48,640 --> 01:05:45,380  
now holding my drink up into the sun's

1538  
01:05:50,920 --> 01:05:48,650

rays even for just a minute it's

1539

01:05:53,710 --> 01:05:50,930

probably psychological but we know the

1540

01:05:56,650 --> 01:05:53,720

power of the mind but just as the keto

1541

01:05:59,319 --> 01:05:56,660

diet centers around getting your body to

1542

01:06:01,900 --> 01:05:59,329

process fats as energy instead of carbs

1543

01:06:04,990 --> 01:06:01,910

and sugar dr. [h\_\_\h] has also talked

1544

01:06:08,290 --> 01:06:05,000

about this broth aryan movement now some

1545

01:06:10,510 --> 01:06:08,300

hair amine as popular as he is claims

1546

01:06:12,970 --> 01:06:10,520

that he's gone years without eating

1547

01:06:15,790 --> 01:06:12,980

and maybe this structured water context

1548

01:06:18,520 --> 01:06:15,800

can explain that the documentary on it

1549

01:06:22,530 --> 01:06:18,530

is called eat the Sun well dr. [h\_\_\h]

1550

01:06:26,560 --> 01:06:22,540

has explained this system as a sort of

1551

01:06:29,170 --> 01:06:26,570

human photosynthesis and I'm pretty open

1552

01:06:31,900 --> 01:06:29,180

to it now that a person can sustain

1553

01:06:35,260 --> 01:06:31,910

themselves on how easy water content in

1554

01:06:36,670 --> 01:06:35,270

their bodies and sunlight I don't want

1555

01:06:39,610 --> 01:06:36,680

to live like that though I'm still an

1556

01:06:42,190 --> 01:06:39,620

American damn it but guys like dr.

1557

01:06:46,030 --> 01:06:42,200

[h\_\_\h] are the ones that bridge the gap

1558

01:06:48,700 --> 01:06:46,040

between academia and the alternative he

1559

01:06:51,070 --> 01:06:48,710

mentioned Dean Radin in the + show Dean

1560

01:06:54,370 --> 01:06:51,080

Raiden's latest book is titled magic is

1561

01:06:57,130 --> 01:06:54,380

real I mean we are at the gates of the

1562

01:07:01,030 --> 01:06:57,140

dominant of water inclusion and it feels

1563

01:07:03,850 --> 01:07:01,040

fine big thanks to both dr. Raiden and

1564

01:07:06,130 --> 01:07:03,860

dr. Pollock and all of these one foot in

1565

01:07:08,560 --> 01:07:06,140

one foot out folks who are willing to go

1566

01:07:10,980 --> 01:07:08,570

full weirdo with someone like me

1567

01:07:13,660 --> 01:07:10,990

on a show called the higher side chats

1568

01:07:15,850 --> 01:07:13,670

it's not good for anyone's image and

1569

01:07:18,310 --> 01:07:15,860

they're comfortable and confident enough

1570

01:07:20,410 --> 01:07:18,320

to take the chance so I try really hard

1571

01:07:23,140 --> 01:07:20,420

to make sure they leave feeling just as

1572

01:07:25,270 --> 01:07:23,150

comfortable and confident but I hope you

1573

01:07:28,630 --> 01:07:25,280

liked it and I hope you pencil some of

1574

01:07:30,040 --> 01:07:28,640

this stuff in on your reality map get

1575

01:07:32,560 --> 01:07:30,050

yourself a copy of the fourth phase of

1576

01:07:33,490 --> 01:07:32,570

water give it to your teachers give it

1577

01:07:35,560 --> 01:07:33,500

to your kids

1578

01:07:38,440 --> 01:07:35,570

alternative thinkers love to promote

1579

01:07:40,990 --> 01:07:38,450

their ideas and with shows like this I

1580

01:07:44,050 --> 01:07:41,000

try to give you a better data better

1581

01:07:46,870 --> 01:07:44,060

information stuff that can actually push

1582

01:07:50,710 --> 01:07:46,880

us forward more than an angry shaking

1583

01:07:53,560 --> 01:07:50,720

fist ever will so go to Pollock lab dot

1584

01:07:56,440 --> 01:07:53,570

org maybe I'll see you at the conference

1585

01:07:59,800 --> 01:07:56,450

in Germany next year or if you want to

1586

01:08:02,050 --> 01:07:59,810

donate any kind of money to research I

1587

01:08:03,820 --> 01:08:02,060

would avoid the bottomless pits that

1588

01:08:06,340 --> 01:08:03,830

have formed under all the various

1589

01:08:09,100 --> 01:08:06,350

conditions we can get from our backwards

1590

01:08:11,590 --> 01:08:09,110

lifestyles and I'd put a few bucks into

1591

01:08:13,260 --> 01:08:11,600

something like dr. Pollock's Institute

1592

01:08:15,670 --> 01:08:13,270

for venture science

1593

01:08:18,820 --> 01:08:15,680

let me just read its mission statement

1594

01:08:21,519 --> 01:08:18,830

from his website the Institute of

1595

01:08:23,349 --> 01:08:21,529

venture science was founded in 2013 and

1596

01:08:24,160 --> 01:08:23,359

Gerald [h\_\_h] is the founding executive

1597

01:08:27,220 --> 01:08:24,170

director

1598

01:08:29,849 --> 01:08:27,230

after the IV s funds scientific

1599

01:08:33,220 --> 01:08:29,859

inquiries into high-risk high-reward

1600

01:08:36,099 --> 01:08:33,230

theses the challenge conventional

1601

01:08:38,050 --> 01:08:36,109

thinking by virtue of their break with

1602

01:08:39,700 --> 01:08:38,060

ideas that may have become more

1603

01:08:42,640 --> 01:08:39,710

traditional than forward-looking

1604

01:08:44,260 --> 01:08:42,650

concepts these fresh challenges may lead

1605

01:08:47,470 --> 01:08:44,270

to fundamental breakthroughs in

1606

01:08:49,030 --> 01:08:47,480

understanding the IV s identifies the

1607

01:08:51,519 --> 01:08:49,040

most promising ideas that challenge

1608

01:08:54,400 --> 01:08:51,529

prevailing paradigms from each selective

1609

01:08:56,229 --> 01:08:54,410

thesis it will simultaneously fund

1610

01:08:58,510 --> 01:08:56,239

multiple research teams working

1611

01:09:01,260 --> 01:08:58,520

independently in various nations around

1612

01:09:03,579 --> 01:09:01,270

the world funding multiple laboratories

1613

01:09:07,300 --> 01:09:03,589

increases the likelihood that the

1614

01:09:10,180 --> 01:09:07,310

challenge will bear fruit this is how we

1615

01:09:13,599 --> 01:09:10,190

break the quarantine right so respect

1616

01:09:15,880 --> 01:09:13,609

the man and thanks for listening but I

1617

01:09:18,430 --> 01:09:15,890

hope we don't mind too much a slightly

1618

01:09:21,999 --> 01:09:18,440

shorter show that I think packs a punch

1619

01:09:26,110 --> 01:09:22,009

of higher than average potency I should

1620

01:09:29,769 --> 01:09:26,120

say that I do have an extra 1 hour plus

1621

01:09:31,630 --> 01:09:29,779

bonus show in the works so you'll get

1622

01:09:34,510 --> 01:09:31,640

that when it's ready and end up with

1623

01:09:37,930 --> 01:09:34,520

more than the usual paid extra content

1624

01:09:39,519 --> 01:09:37,940

so be on the lookout for it also I

1625

01:09:41,620 --> 01:09:39,529

should say that our joint session is

1626

01:09:44,620 --> 01:09:41,630

going to be on the 20th this month man

1627

01:09:47,890 --> 01:09:44,630

this month is flying by that is Monday

1628

01:09:51,309 --> 01:09:47,900

Monday Monday so please come and join me

1629

01:09:52,689 --> 01:09:51,319

for a little digital hang but I got to

1630

01:09:54,910 --> 01:09:52,699

get out of here I'll catch you next time

1631

01:09:57,010 --> 01:09:54,920

your move dark sorcerer's of the

1632

01:10:00,510 --> 01:09:57,020

scientific quarantine and promoters of

1633

01:10:04,250 --> 01:10:00,520

the cold mechanical materialist mindset

1634

01:10:14,120 --> 01:10:04,260

your [h\_\_h]

1635

01:10:19,660 --> 01:10:14,130

oh no you see no world isn't random it's

1636

01:10:26,270 --> 01:10:19,670

attached to pub or Street control over

1637

01:10:32,140 --> 01:10:26,280

everything 95 is trying to steal yeah

1638

01:10:38,410 --> 01:10:32,150

now don't that job seem silly hello

1639

01:10:42,130 --> 01:10:38,420

here should I play back

1640

01:10:42,700 --> 01:10:42,140

and some spy agency which we were

1641

01:10:46,569 --> 01:10:42,710

younger

1642

01:10:51,109 --> 01:10:46,579

[Music]

1643

01:11:00,590 --> 01:10:51,119

I'll be thankful when it's exposed the

1644

01:11:37,660 --> 01:11:34,770

[Music]

1645

01:11:59,139 --> 01:11:37,670

the

1646

01:12:06,580 --> 01:11:59,149

[Music]

1647

01:12:11,379 --> 01:12:06,590

oh no they're cartoons it's so typical

1648

01:12:19,859 --> 01:12:11,389

of me to talk about the stuff I'm sorry

1649

01:12:24,069 --> 01:12:19,869

there's good and well did you ever hear

1650

01:12:24,920 --> 01:12:24,079

argument the nothing really happens it's

1651

01:12:29,669 --> 01:12:24,930

no secret

1652

01:14:23,990 --> 01:12:29,679

[Music]