



**DR. MICHAEL P. MASTERS
ON:
ARE UFOs TIME TRAVELING
HUMANS FROM THE FUTURE
STUDYING US? . . .**

**UFONN
SUNDAY**

1
00:00:08,000 --> 00:01:06,670

[Music]

2
00:01:11,570 --> 00:01:09,230

good morning from Philadelphia Frank

3
00:01:14,420 --> 00:01:11,580

here with another edition of UFO news

4
00:01:19,219 --> 00:01:14,430

network Sunday this morning joined by

5
00:01:21,679 --> 00:01:19,229

dr. Michael P masters who is let me get

6
00:01:24,200 --> 00:01:21,689

this straight here a Biola professor of

7
00:01:27,200 --> 00:01:24,210

biological anthropology researching

8
00:01:30,620 --> 00:01:27,210

hominin and evolutionary Anatomy

9
00:01:33,050 --> 00:01:30,630

biomedicine archaeology astrobiology and

10
00:01:35,450 --> 00:01:33,060

the physics of human perception of time

11
00:01:39,080 --> 00:01:35,460

then that's a mouthful doctor how do you

12
00:01:41,570 --> 00:01:39,090

keep it all straight yeah it's it's it's

13
00:01:43,580 --> 00:01:41,580

fun to be diversified I guess get to get

14

00:01:45,469 --> 00:01:43,590

to dip into a lot of different areas of

15

00:01:50,300 --> 00:01:45,479

study and learn a lot of different

16

00:01:53,149 --> 00:01:50,310

things but it's it's fun and basically I

17

00:01:54,949 --> 00:01:53,159

came across your work as a result of an

18

00:01:57,740 --> 00:01:54,959

appearance you did on the Jimmy Church

19

00:01:59,149 --> 00:01:57,750

show a little over a month ago month and

20

00:02:02,210 --> 00:01:59,159

a half two months ago somewhere in that

21

00:02:04,100 --> 00:02:02,220

timeframe I got to listen to it but yeah

22

00:02:07,479 --> 00:02:04,110

we need more guys like you in the field

23

00:02:10,669 --> 00:02:07,489

talking about UFOs and some of this

24

00:02:12,280 --> 00:02:10,679

speculative stuff and with that what got

25

00:02:15,470 --> 00:02:12,290

you interested in it in the first place

26

00:02:17,390 --> 00:02:15,480

well I mean it's funny that you

27

00:02:21,170 --> 00:02:17,400

mentioned that because there is a lot of

28

00:02:23,660 --> 00:02:21,180

speculation right now and and I think I

29

00:02:25,460 --> 00:02:23,670

think it's important to to really

30

00:02:28,280 --> 00:02:25,470

acknowledge the role that science can

31

00:02:30,890 --> 00:02:28,290

play and and trying to to rein that in a

32

00:02:32,720 --> 00:02:30,900

little bit that you know we can all say

33

00:02:35,300 --> 00:02:32,730

things we can don't believe things but

34

00:02:37,610 --> 00:02:35,310

but the science actually helps us get to

35

00:02:41,540 --> 00:02:37,620

the root of that and and yeah I think

36

00:02:44,210 --> 00:02:41,550

it's it's unfortunate a little bit that

37

00:02:46,940 --> 00:02:44,220

the speculation is sort of driven a lot

38

00:02:50,509 --> 00:02:46,950

of academics away but that really

39

00:02:52,130 --> 00:02:50,519

doesn't have to be the case we can still

40

00:02:56,110 --> 00:02:52,140

approach these things and understand

41

00:02:59,270 --> 00:02:56,120

these things with a an empirical

42

00:03:01,479 --> 00:02:59,280

testable hypothesis and and that's a big

43

00:03:04,699 --> 00:03:01,489

part of what I'm trying to do here is

44

00:03:07,059 --> 00:03:04,709

present a hypothesis that that's unique

45

00:03:10,490 --> 00:03:07,069

in the sense that it is testable a

46

00:03:12,830 --> 00:03:10,500

time-travel explanation for the UFO

47

00:03:14,830 --> 00:03:12,840

phenomenon is one that that's testable

48

00:03:18,460 --> 00:03:14,840

by time itself

49

00:03:20,350 --> 00:03:18,470

and I think kind of moving into this

50

00:03:23,199 --> 00:03:20,360

area there's been there's actually been

51
00:03:25,630 --> 00:03:23,209
a little pushback from some people that

52
00:03:29,199 --> 00:03:25,640
are really staunchly into the

53
00:03:31,870 --> 00:03:29,209
extra-terrestrial hypothesis but you

54
00:03:37,020 --> 00:03:31,880
know I think that the having this

55
00:03:39,690 --> 00:03:37,030
different approach it doesn't need to be

56
00:03:43,059 --> 00:03:39,700
that these are mutually exclusive

57
00:03:45,640 --> 00:03:43,069
necessarily but there's still ways to

58
00:03:47,860 --> 00:03:45,650
sort of approach this question with an

59
00:03:50,020 --> 00:03:47,870
understanding of science and and move

60
00:03:52,199 --> 00:03:50,030
move the field forward and then

61
00:03:54,910 --> 00:03:52,209
hopefully in doing so bring more

62
00:03:57,870 --> 00:03:54,920
researchers more academics into it that

63
00:04:00,640 --> 00:03:57,880

have been somewhat put off by by the

64

00:04:04,240 --> 00:04:00,650

rampant speculation within this

65

00:04:08,380 --> 00:04:04,250

particular field of study so I guess my

66

00:04:10,600 --> 00:04:08,390

role my hope is that you know by by

67

00:04:13,440 --> 00:04:10,610

moving into this area that we can sort

68

00:04:16,180 --> 00:04:13,450

of develop a broader conversation among

69

00:04:18,219 --> 00:04:16,190

people in academia also the UFO

70

00:04:20,259 --> 00:04:18,229

community and and sort of bridge and

71

00:04:28,000 --> 00:04:20,269

unnecessary gap that's that's formed

72

00:04:31,360 --> 00:04:28,010

around this how would you go about doing

73

00:04:32,320 --> 00:04:31,370

that well like I said it's it's testable

74

00:04:34,570 --> 00:04:32,330

by time itself

75

00:04:37,590 --> 00:04:34,580

if you know I don't make specific

76

00:04:41,560 --> 00:04:37,600

predictions about when exactly we will

77

00:04:44,440 --> 00:04:41,570

develop this technology to be able to to

78

00:04:48,400 --> 00:04:44,450

return to the past based on specific

79

00:04:51,550 --> 00:04:48,410

cranial facial features of what I refer

80

00:04:56,440 --> 00:04:51,560

to as extra tempest riyals replacing

81

00:04:59,860 --> 00:04:56,450

tear for earth with time for time with

82

00:05:02,740 --> 00:04:59,870

that in mind the the features that they

83

00:05:05,200 --> 00:05:02,750

have the cranial facial morphology as we

84

00:05:06,520 --> 00:05:05,210

call it is certainly different than our

85

00:05:10,180 --> 00:05:06,530

own I mean there's there's a broad range

86

00:05:13,150 --> 00:05:10,190

of descriptions of of these individuals

87

00:05:15,790 --> 00:05:13,160

and and the main thing to keep in mind

88

00:05:19,659 --> 00:05:15,800

is that they they have the same cranial

89

00:05:22,960 --> 00:05:19,669

facial Bo plan of hominins they're

90

00:05:25,350 --> 00:05:22,970

clearly bipedal they walk upright I

91

00:05:28,460 --> 00:05:25,360

haven't seen any descriptions of

92

00:05:30,230 --> 00:05:28,470

quadrupedal or you know six legged

93

00:05:32,180 --> 00:05:30,240

aliens or anything like that but the

94

00:05:34,520 --> 00:05:32,190

fact that they have that same

95

00:05:37,310 --> 00:05:34,530

characteristic that defines us that

96

00:05:39,500 --> 00:05:37,320

defines the hominin lineage as the

97

00:05:41,240 --> 00:05:39,510

separate cladistic group and

98

00:05:44,300 --> 00:05:41,250

phylogenetic soar the study of

99

00:05:46,970 --> 00:05:44,310

evolutionary relationships taxonomy the

100

00:05:49,370 --> 00:05:46,980

fact that they have that trait alone is

101
00:05:52,240 --> 00:05:49,380
a very good indication that that we are

102
00:05:55,610 --> 00:05:52,250
closely related and then you look at the

103
00:05:58,250 --> 00:05:55,620
characteristics of the face you know the

104
00:06:01,940 --> 00:05:58,260
mouth nose eyes are all in the same

105
00:06:05,420 --> 00:06:01,950
place brain on top but probably the the

106
00:06:09,200 --> 00:06:05,430
biggest indication of this is the fact

107
00:06:12,430 --> 00:06:09,210
that they have traits that are an

108
00:06:14,990 --> 00:06:12,440
extension of the same six million year

109
00:06:18,560 --> 00:06:15,000
evolutionary trends in our own hominid

110
00:06:20,690 --> 00:06:18,570
lineage the two biggest ones in addition

111
00:06:23,930 --> 00:06:20,700
to bipedalism and adapting to that

112
00:06:26,360 --> 00:06:23,940
characteristic itself is an expanding

113
00:06:30,170 --> 00:06:26,370

brain a brain that becomes more or

114

00:06:32,690 --> 00:06:30,180

Balbus more globular as we call it it's

115

00:06:34,940 --> 00:06:32,700

moved out over top of the eyes we're one

116

00:06:37,880 --> 00:06:34,950

of the only mammals with that cranial

117

00:06:40,940 --> 00:06:37,890

facial configuration the face is

118

00:06:43,390 --> 00:06:40,950

shrunk back the eyes and the orbits of

119

00:06:47,540 --> 00:06:43,400

sort of varied over time actually did my

120

00:06:49,969 --> 00:06:47,550

PhD thesis on size and shape of for

121

00:06:52,580 --> 00:06:49,979

battle anatomy the toboni eye socket

122

00:06:55,100 --> 00:06:52,590

that houses the eye and other ocular

123

00:06:59,090 --> 00:06:55,110

soft tissues and if we look at all of

124

00:07:00,650 --> 00:06:59,100

these traits collectively the trends

125

00:07:02,810 --> 00:07:00,660

that have characterized the last six

126

00:07:06,110 --> 00:07:02,820

million years of hominid evolution on

127

00:07:08,960 --> 00:07:06,120

this planet projected forward are

128

00:07:11,510 --> 00:07:08,970

exactly what are described in the vast

129

00:07:14,150 --> 00:07:11,520

majority of these these abduction

130

00:07:16,580 --> 00:07:14,160

accounts just close encounters of

131

00:07:19,100 --> 00:07:16,590

whatever kind where where these

132

00:07:21,350 --> 00:07:19,110

individuals were actually observed so so

133

00:07:24,650 --> 00:07:21,360

that's a big a big part of it and in

134

00:07:27,710 --> 00:07:24,660

that sense projecting those things

135

00:07:30,770 --> 00:07:27,720

forward connecting our present point

136

00:07:33,409 --> 00:07:30,780

with that of the future based on this

137

00:07:36,560 --> 00:07:33,419

linkage and the anatomy of these

138

00:07:39,800 --> 00:07:36,570

individuals it is it is a prediction

139

00:07:42,470 --> 00:07:39,810

it's both a prediction about a state of

140

00:07:45,770 --> 00:07:42,480

humans in the future but also an OPS

141

00:07:47,330 --> 00:07:45,780

servation of that state at this time as

142

00:07:51,470 --> 00:07:47,340

a result of time travel technology

143

00:07:54,500 --> 00:07:51,480

itself it it bridges those those gaps in

144

00:07:57,320 --> 00:07:54,510

the fourth dimensional continuum so so I

145

00:08:00,890 --> 00:07:57,330

say it's testable because if we continue

146

00:08:03,260 --> 00:08:00,900

to exist on this planet we will

147

00:08:05,390 --> 00:08:03,270

eventually reach a point at which if

148

00:08:09,190 --> 00:08:05,400

this hypothesis is correct we will

149

00:08:12,680 --> 00:08:09,200

become them and in that sense we can

150

00:08:15,500 --> 00:08:12,690

very simply test whether or not it was

151

00:08:18,290 --> 00:08:15,510

at that point in the future will have

152

00:08:22,370 --> 00:08:18,300

been an accurate hypothesis or not

153

00:08:25,790 --> 00:08:22,380

because if we're not then the hypothesis

154

00:08:28,040 --> 00:08:25,800

has been falsified if we are at some

155

00:08:30,890 --> 00:08:28,050

point in the future the ones with these

156

00:08:33,850 --> 00:08:30,900

specific anatomical characteristics and

157

00:08:36,170 --> 00:08:33,860

we are travelling back in time and

158

00:08:40,250 --> 00:08:36,180

researching ourselves in the past then

159

00:08:42,890 --> 00:08:40,260

that this extra temp astral hypothesis

160

00:08:44,780 --> 00:08:42,900

will have been validated and that can

161

00:08:47,630 --> 00:08:44,790

you ballpark how long you think it might

162

00:08:49,730 --> 00:08:47,640

take together where we're at today -

163

00:08:53,210 --> 00:08:49,740

looking like you know I guess the

164

00:08:54,530 --> 00:08:53,220

prototypical Ichi gray because I thought

165

00:08:57,740 --> 00:08:54,540

that's the description they seem to be

166

00:09:00,170 --> 00:08:57,750

describing there yeah it is and and this

167

00:09:01,910 --> 00:09:00,180

is something that I guess I haven't

168

00:09:06,320 --> 00:09:01,920

addressed well enough in the past

169

00:09:09,440 --> 00:09:06,330

because I I keep hearing a sort of

170

00:09:12,050 --> 00:09:09,450

critiques of the idea based on a lot of

171

00:09:16,610 --> 00:09:12,060

people like to separate the greys from

172

00:09:21,050 --> 00:09:16,620

these other extras and pass drills i i i

173

00:09:26,780 --> 00:09:21,060

think they're all a part of the same

174

00:09:28,610 --> 00:09:26,790

phenomenon but if i guess a good way of

175

00:09:31,730 --> 00:09:28,620

looking at this would be if we went back

176
00:09:32,990 --> 00:09:31,740
in time and we went back ten thousand

177
00:09:35,030 --> 00:09:33,000
years in the past say we went back a

178
00:09:37,610 --> 00:09:35,040
hundred years in the past and we did we

179
00:09:40,400 --> 00:09:37,620
would do that in heartbeat oh my god

180
00:09:43,010 --> 00:09:40,410
absolutely as an anthropologist who's

181
00:09:45,500 --> 00:09:43,020
you know worked around the world doing

182
00:09:48,610 --> 00:09:45,510
archaeology blasting through rock in

183
00:09:51,830 --> 00:09:48,620
south africa digging through you know

184
00:09:54,020 --> 00:09:51,840
cave roofs that collapsed in dirt and

185
00:09:55,410 --> 00:09:54,030
and earth all sites and france and out

186
00:09:58,320 --> 00:09:55,420
here in montana native

187
00:10:00,330 --> 00:09:58,330
American sites yeah I mean I wish for a

188
00:10:03,090 --> 00:10:00,340

time machine every day when it's 95

189

00:10:04,980 --> 00:10:03,100

degrees and humid and you're you digging

190

00:10:06,570 --> 00:10:04,990

through the dirt so so there's no doubt

191

00:10:08,640 --> 00:10:06,580

that anthropologists would make very

192

00:10:09,900 --> 00:10:08,650

good use of this technology and we can

193

00:10:11,460 --> 00:10:09,910

come back to this later if you'd like

194

00:10:13,380 --> 00:10:11,470

but I think that's mostly what's

195

00:10:15,660 --> 00:10:13,390

happening here it seems like very much

196

00:10:19,590 --> 00:10:15,670

research being conducted on us in the

197

00:10:22,230 --> 00:10:19,600

same way that we would do it but yeah so

198

00:10:25,140 --> 00:10:22,240

so going back to this issue of the

199

00:10:28,290 --> 00:10:25,150

variation the morphological variability

200

00:10:30,450 --> 00:10:28,300

among these extraterrestrials if if we

201
00:10:32,550 --> 00:10:30,460
went back a hundred years we'd get out

202
00:10:34,590 --> 00:10:32,560
of our time machine walk around nobody

203
00:10:36,210 --> 00:10:34,600
would have any idea that we were

204
00:10:38,400 --> 00:10:36,220
different we we our clothes would be

205
00:10:40,710 --> 00:10:38,410
different we would speak slightly

206
00:10:42,840 --> 00:10:40,720
differently but we'd still speak the

207
00:10:45,060 --> 00:10:42,850
same language we'd look exactly like we

208
00:10:46,890 --> 00:10:45,070
go back ten thousand years obviously

209
00:10:48,630 --> 00:10:46,900
more cultural things are gonna be

210
00:10:51,690 --> 00:10:48,640
different but we're still gonna look the

211
00:10:54,780 --> 00:10:51,700
same we go back 1.5 million years now we

212
00:10:58,740 --> 00:10:54,790
look very very different from the homo

213
00:11:01,260 --> 00:10:58,750

erectus individuals we encounter we go

214

00:11:03,060 --> 00:11:01,270

back six million years to some of the

215

00:11:06,390 --> 00:11:03,070

earliest hominins roarin to condense

216

00:11:09,540 --> 00:11:06,400

this or are to *Pitacanthropus ramidus* whoever

217

00:11:11,970 --> 00:11:09,550

we encounter at that time and we're

218

00:11:14,400 --> 00:11:11,980

gonna look extremely different to these

219

00:11:18,750 --> 00:11:14,410

individuals so so I think a lot of the

220

00:11:22,680 --> 00:11:18,760

variation that exists in these these UFO

221

00:11:24,690 --> 00:11:22,690

reports is I mean it could still be sex

222

00:11:26,400 --> 00:11:24,700

variation there's differences between

223

00:11:29,460 --> 00:11:26,410

males and females it could be age

224

00:11:31,050 --> 00:11:29,470

variation to some extent obviously

225

00:11:33,150 --> 00:11:31,060

four-year-olds look different than 90

226

00:11:35,490 --> 00:11:33,160

year olds there could still be some

227

00:11:38,040 --> 00:11:35,500

Geographic variation in the sense of

228

00:11:40,770 --> 00:11:38,050

what we used to refer to as race this

229

00:11:43,470 --> 00:11:40,780

idea of geographical ancestry or people

230

00:11:45,660 --> 00:11:43,480

and East Asia look different than Native

231

00:11:47,400 --> 00:11:45,670

Americans people in Africa and so on and

232

00:11:49,860 --> 00:11:47,410

so forth but but I believe in the

233

00:11:51,900 --> 00:11:49,870

context of a time machine though a lot

234

00:11:55,020 --> 00:11:51,910

of it could be temporal variation as

235

00:11:57,540 --> 00:11:55,030

well that we have differences among

236

00:12:02,400 --> 00:11:57,550

these individuals who we see at this

237

00:12:04,230 --> 00:12:02,410

present time as being variable but they

238

00:12:06,000 --> 00:12:04,240

could have come from different times so

239

00:12:09,000 --> 00:12:06,010

theoretically could have someone picked

240

00:12:12,090 --> 00:12:09,010

up by an extra time pastoral

241

00:12:14,009 --> 00:12:12,100

from 10,000 years in our future later

242

00:12:15,569 --> 00:12:14,019

that day be picked up by someone from

243

00:12:18,509 --> 00:12:15,579

one and a half million years in our

244

00:12:19,800 --> 00:12:18,519

future and those two individuals would

245

00:12:22,410 --> 00:12:19,810

look very different from one another

246

00:12:25,680 --> 00:12:22,420

simply as a result of phylogenetic

247

00:12:27,720 --> 00:12:25,690

change across that 1.5 million year

248

00:12:29,910 --> 00:12:27,730

period between ten thousand years in the

249

00:12:33,740 --> 00:12:29,920

future and 1.5 million years in the

250

00:12:37,050 --> 00:12:33,750

future so so to some extent that that

251

00:12:41,280 --> 00:12:37,060

physiological variation could be in part

252

00:12:44,189 --> 00:12:41,290

a product of of temporal ancestry as

253

00:12:47,280 --> 00:12:44,199

much as it is Geographic ancestry or or

254

00:12:48,870 --> 00:12:47,290

age sex variation as well so so it's

255

00:12:52,500 --> 00:12:48,880

hard to make a prediction we we have

256

00:12:54,629 --> 00:12:52,510

this problem and in looking at the

257

00:12:57,509 --> 00:12:54,639

fossil record - we don't have a

258

00:12:59,730 --> 00:12:57,519

representative sample of every single

259

00:13:01,860 --> 00:12:59,740

individual every single time period we

260

00:13:03,090 --> 00:13:01,870

have a ton of fossils and it's funny

261

00:13:04,889 --> 00:13:03,100

whenever we say that people were like

262

00:13:06,900 --> 00:13:04,899

all there's holes there's gaps on the

263

00:13:08,569 --> 00:13:06,910

fossil record there's missing links and

264

00:13:13,139 --> 00:13:08,579

that's not true at all we have a very

265

00:13:15,990 --> 00:13:13,149

good long picture of the the hominid

266

00:13:18,480 --> 00:13:16,000

fossil record but we don't have every

267

00:13:21,840 --> 00:13:18,490

individual that existed at every time in

268

00:13:24,329 --> 00:13:21,850

the past so when we find a new fossil we

269

00:13:27,629 --> 00:13:24,339

have to account for age variation sex

270

00:13:30,900 --> 00:13:27,639

variation there are different species

271

00:13:34,050 --> 00:13:30,910

and subspecies around many points of our

272

00:13:36,000 --> 00:13:34,060

past - so there's also inter species

273

00:13:38,939 --> 00:13:36,010

variation that we have to account for

274

00:13:41,900 --> 00:13:38,949

and and that makes it hard in the past

275

00:13:44,370 --> 00:13:41,910

but it also makes it hard in the future

276

00:13:46,500 --> 00:13:44,380

if we're getting snapshots of

277

00:13:48,720 --> 00:13:46,510

individuals from different periods in

278

00:13:52,559 --> 00:13:48,730

our future coming back to investigate us

279

00:13:54,960 --> 00:13:52,569

in our past what how do we determine

280

00:13:58,079 --> 00:13:54,970

that archetype will form you know how do

281

00:14:01,139 --> 00:13:58,089

we how do we determine what that that

282

00:14:04,829 --> 00:14:01,149

type specimen is if we're getting

283

00:14:07,769 --> 00:14:04,839

different shots of time each time we're

284

00:14:14,129 --> 00:14:07,779

being visited so so I guess a very loose

285

00:14:17,699 --> 00:14:14,139

answer to your question would be I don't

286

00:14:19,800 --> 00:14:17,709

even know it's so it's so hard to say

287

00:14:22,500 --> 00:14:19,810

and I really try very hard not to make

288

00:14:24,660 --> 00:14:22,510

predictions in the book that aren't true

289

00:14:27,960 --> 00:14:24,670

something and this is this is what I do

290

00:14:30,510 --> 00:14:27,970

for a living and I study hominin

291

00:14:32,760 --> 00:14:30,520

craniofacial anatomies so I feel like

292

00:14:36,090 --> 00:14:32,770

I'm in a very good position to make that

293

00:14:39,990 --> 00:14:36,100

prediction but but there's just so many

294

00:14:42,750 --> 00:14:40,000

factors that that go into our our

295

00:14:44,340 --> 00:14:42,760

evolution and our change that you know

296

00:14:48,930 --> 00:14:44,350

in looking at the past we can identify

297

00:14:51,270 --> 00:14:48,940

certain things that contributed to this

298

00:14:54,300 --> 00:14:51,280

unique form that we have the big giant

299

00:14:57,660 --> 00:14:54,310

brains the small faces projecting that

300

00:15:01,980 --> 00:14:57,670

forward you know it doesn't even seem to

301
00:15:04,500 --> 00:15:01,990
really matter what what what's shaping

302
00:15:07,020 --> 00:15:04,510
it per se because it's persisted over

303
00:15:09,840 --> 00:15:07,030
such a long period of time that it's

304
00:15:11,670 --> 00:15:09,850
regardless of what is driving the

305
00:15:13,590 --> 00:15:11,680
runaway brain it's probably going to

306
00:15:17,940 --> 00:15:13,600
keep going and especially you know

307
00:15:20,430 --> 00:15:17,950
things like cesarean section sort of an

308
00:15:22,170 --> 00:15:20,440
important aspect of maternal and fetal

309
00:15:24,240 --> 00:15:22,180
health that you wouldn't really think

310
00:15:27,750 --> 00:15:24,250
would have much implication for future

311
00:15:29,490 --> 00:15:27,760
human evolution but we suffer from

312
00:15:32,520 --> 00:15:29,500
something called the big head small hole

313
00:15:35,190 --> 00:15:32,530

problem and upwards of twenty five

314

00:15:38,010 --> 00:15:35,200

thirty percent of mothers died in

315

00:15:41,130 --> 00:15:38,020

childbirth giving birth to large headed

316

00:15:43,830 --> 00:15:41,140

babies mostly because of obstructions

317

00:15:45,990 --> 00:15:43,840

during labor being able to pass the baby

318

00:15:49,380 --> 00:15:46,000

through the birth canal and that over

319

00:15:52,260 --> 00:15:49,390

evolutionary time was a huge factor in

320

00:15:55,050 --> 00:15:52,270

keeping our brains relatively small in

321

00:15:57,990 --> 00:15:55,060

utero and we do most of our brain growth

322

00:16:01,260 --> 00:15:58,000

outside of the uterine environment which

323

00:16:04,260 --> 00:16:01,270

is also beneficial because of culture we

324

00:16:06,750 --> 00:16:04,270

can grow our brains at a time and in a

325

00:16:09,540 --> 00:16:06,760

very stimulus rich environment while our

326

00:16:11,430 --> 00:16:09,550

brains are growing to the fastest at

327

00:16:14,880 --> 00:16:11,440

that time as well so just being able to

328

00:16:17,600 --> 00:16:14,890

take the baby out with caesarean section

329

00:16:22,350 --> 00:16:17,610

relieves that selective pressure

330

00:16:26,820 --> 00:16:22,360

maintaining a smaller amount of in utero

331

00:16:29,610 --> 00:16:26,830

cerebral development we we no longer if

332

00:16:31,800 --> 00:16:29,620

we continue to do this and it becomes

333

00:16:35,310 --> 00:16:31,810

the standard way in which we deliver

334

00:16:36,300 --> 00:16:35,320

babies and in fact someday it may be the

335

00:16:39,930 --> 00:16:36,310

only way we can

336

00:16:41,940 --> 00:16:39,940

liver babies if if our brains are are

337

00:16:44,100 --> 00:16:41,950

having that pressure relaxed and we are

338

00:16:46,230 --> 00:16:44,110

able to grow them larger so there's

339

00:16:48,360 --> 00:16:46,240

there's a lot of things like that

340

00:16:50,490 --> 00:16:48,370

sort of and that's why I anthropologists

341

00:16:53,310 --> 00:16:50,500

talk about this in the context of bio

342

00:16:55,230 --> 00:16:53,320

cultural evolution as it's not just the

343

00:16:58,250 --> 00:16:55,240

biology and its biological evolution

344

00:17:02,269 --> 00:16:58,260

with humans it's also cultural that that

345

00:17:06,179 --> 00:17:02,279

cultural ability to cut a baby out of

346

00:17:09,240 --> 00:17:06,189

its mother isn't something other animals

347

00:17:11,069 --> 00:17:09,250

can do and we we evolved to those those

348

00:17:14,490 --> 00:17:11,079

cultural things too like lactose

349

00:17:16,679 --> 00:17:14,500

tolerance because we drink milk and just

350

00:17:20,130 --> 00:17:16,689

the the frequency of the HBS allele

351
00:17:21,809 --> 00:17:20,140
associated with malaria because because

352
00:17:23,880 --> 00:17:21,819
of agricultural changes and

353
00:17:27,270 --> 00:17:23,890
slash-and-burn and and different things

354
00:17:30,900 --> 00:17:27,280
that we've done culturally have changed

355
00:17:32,460 --> 00:17:30,910
our biology so looking forward there's

356
00:17:34,620 --> 00:17:32,470
so many of those things that could

357
00:17:35,880 --> 00:17:34,630
impact it but but it does seem that

358
00:17:38,280 --> 00:17:35,890
we're still moving in that direction

359
00:17:40,560 --> 00:17:38,290
that that our brain shape is changing

360
00:17:42,720 --> 00:17:40,570
we're getting these balloon heads and

361
00:17:44,700 --> 00:17:42,730
and when that happens our face has to

362
00:17:48,750 --> 00:17:44,710
get out of the way those those two

363
00:17:50,280 --> 00:17:48,760

things are linked biologically what we

364

00:17:52,890 --> 00:17:50,290

call integration craniofacial

365

00:17:56,540 --> 00:17:52,900

integration where because our brains the

366

00:18:00,360 --> 00:17:56,550

first to grow it expands outward forward

367

00:18:03,930 --> 00:18:00,370

and the frontal bone expands forward the

368

00:18:05,940 --> 00:18:03,940

anterior create basic cranium sets the

369

00:18:08,580 --> 00:18:05,950

template for the rest of facial growth

370

00:18:11,610 --> 00:18:08,590

so so as our brains grow larger I face

371

00:18:14,070 --> 00:18:11,620

just can't get bigger and that that's

372

00:18:15,840 --> 00:18:14,080

largely why our faces are small and why

373

00:18:18,480 --> 00:18:15,850

they've gotten smaller over evolutionary

374

00:18:21,930 --> 00:18:18,490

time in association with our expanding

375

00:18:26,340 --> 00:18:21,940

brain so if those continue over

376

00:18:28,380 --> 00:18:26,350

long-term future human evolution we we

377

00:18:31,260 --> 00:18:28,390

would expect to look exactly like what

378

00:18:33,260 --> 00:18:31,270

these individuals look like and and

379

00:18:35,490 --> 00:18:33,270

those are just some of the many

380

00:18:38,220 --> 00:18:35,500

characteristics addressed in the book

381

00:18:41,660 --> 00:18:38,230

that link our evolutionary past to our

382

00:18:43,950 --> 00:18:41,670

modern form to what is our presumed

383

00:18:47,250 --> 00:18:43,960

future evolutionary form at whatever

384

00:18:49,370 --> 00:18:47,260

point or points in the future that may

385

00:18:51,620 --> 00:18:49,380

be now with the

386

00:18:55,220 --> 00:18:51,630

the eyes and the eyes seem to be getting

387

00:18:56,330 --> 00:18:55,230

bigger in these descriptions do you have

388

00:18:59,720 --> 00:18:56,340

an explanation for that

389

00:19:02,030 --> 00:18:59,730

yeah actually um it's really interesting

390

00:19:05,000 --> 00:19:02,040

you bring that up I've published a

391

00:19:07,810 --> 00:19:05,010

couple papers and the Journal of anatomy

392

00:19:10,730 --> 00:19:07,820

and and one in medical hypotheses and

393

00:19:14,810 --> 00:19:10,740

some other places where we look at the

394

00:19:17,990 --> 00:19:14,820

relationship between the brain I the

395

00:19:21,080 --> 00:19:18,000

orbit specifically and looking at

396

00:19:24,080 --> 00:19:21,090

evolution of the orbits throughout grad

397

00:19:28,160 --> 00:19:24,090

school and since as part of sort of the

398

00:19:31,640 --> 00:19:28,170

main area of research that I do I began

399

00:19:34,400 --> 00:19:31,650

to wonder about certain conditions like

400

00:19:36,350 --> 00:19:34,410

juvenile onset Miyabi astigmatism and

401
00:19:40,970 --> 00:19:36,360
and some other problems that humans have

402
00:19:44,090 --> 00:19:40,980
with our eyes being that they are a soft

403
00:19:48,230 --> 00:19:44,100
tissue circumscribed by a hard bony

404
00:19:51,610 --> 00:19:48,240
orbit that's being modified by the brain

405
00:19:54,680 --> 00:19:51,620
above it and with our faces contracting

406
00:19:56,450 --> 00:19:54,690
retracting and also reducing in

407
00:20:00,800 --> 00:19:56,460
association with the brain growing out

408
00:20:02,900 --> 00:20:00,810
above it sort of made sense that there

409
00:20:05,390 --> 00:20:02,910
would be some malformations of the eye

410
00:20:07,610 --> 00:20:05,400
that would happen in association with

411
00:20:09,620 --> 00:20:07,620
that that would become constricted by an

412
00:20:13,220 --> 00:20:09,630
expanding brain above and a reducing

413
00:20:15,320 --> 00:20:13,230

face below so we've worked doing some

414

00:20:22,370 --> 00:20:15,330

research and in geometric morphometrics

415

00:20:25,850 --> 00:20:22,380

and I study MRIs in my lab and we are

416

00:20:29,240 --> 00:20:25,860

looking at what characteristics of the

417

00:20:32,210 --> 00:20:29,250

eye associated with my ah Pia and some

418

00:20:35,480 --> 00:20:32,220

of these other negative characteristics

419

00:20:37,480 --> 00:20:35,490

these negative traits how they may

420

00:20:42,700 --> 00:20:37,490

relate to that and and if you look at

421

00:20:46,040 --> 00:20:42,710

the myopic or myopic eye it does have

422

00:20:48,500 --> 00:20:46,050

very telltale signs of that constriction

423

00:20:52,190 --> 00:20:48,510

it's it's elongated it projects out

424

00:20:55,550 --> 00:20:52,200

forward out of the orbit people that

425

00:20:58,850 --> 00:20:55,560

have juvenile onset myopia they have

426

00:21:02,510 --> 00:20:58,860

larger eyes that are more actually

427

00:21:08,180 --> 00:21:02,520

elongated they're extended from front to

428

00:21:10,040 --> 00:21:08,190

back and and these things in in the

429

00:21:13,730 --> 00:21:10,050

context of growth and development that I

430

00:21:16,310 --> 00:21:13,740

itself is very much a product of the

431

00:21:20,150 --> 00:21:16,320

brain it grows out of the telencephalon

432

00:21:23,450 --> 00:21:20,160

of the brain during early fetal ontogeny

433

00:21:25,550 --> 00:21:23,460

or growth and development so so as the

434

00:21:27,310 --> 00:21:25,560

brain gets bigger we would expect the

435

00:21:31,370 --> 00:21:27,320

eye to get bigger too and unfortunately

436

00:21:33,560 --> 00:21:31,380

the eye doesn't preserve in the hominin

437

00:21:35,300 --> 00:21:33,570

fossil record it's a soft tissue it goes

438

00:21:37,850 --> 00:21:35,310

away we still have the orbit we can see

439

00:21:40,880 --> 00:21:37,860

how that changes and it has especially

440

00:21:43,280 --> 00:21:40,890

over the last 800,000 years sort of

441

00:21:46,430 --> 00:21:43,290

constricted and changed shape if we look

442

00:21:48,500 --> 00:21:46,440

at the Neanderthals or the Denisovans or

443

00:21:50,360 --> 00:21:48,510

any of the archaic Homo sapiens they

444

00:21:54,170 --> 00:21:50,370

have these big mass of lowa rabbits and

445

00:21:55,850 --> 00:21:54,180

these big massive brow ridges so there

446

00:21:58,010 --> 00:21:55,860

would have been plenty of space within

447

00:22:02,180 --> 00:21:58,020

the skull for the eyes and these

448

00:22:07,700 --> 00:22:02,190

specimens but but with modern humans we

449

00:22:09,350 --> 00:22:07,710

we have larger not necessarily larger

450

00:22:11,750 --> 00:22:09,360

brains than an turtles they're about the

451
00:22:14,630 --> 00:22:11,760
same size slightly smaller in some cases

452
00:22:17,450 --> 00:22:14,640
but the shape of our brains changed and

453
00:22:20,660 --> 00:22:17,460
we have more forward projection of the

454
00:22:23,150 --> 00:22:20,670
anterior lobe of the brain and the eye

455
00:22:26,419 --> 00:22:23,160
grows out of that so so having larger

456
00:22:29,150 --> 00:22:26,429
eyes would be an expected correlate of a

457
00:22:32,210 --> 00:22:29,160
larger brain throughout future human

458
00:22:36,169 --> 00:22:32,220
evolution simply because the eyes grow

459
00:22:39,530 --> 00:22:36,179
out of the brain and they they grow

460
00:22:41,390 --> 00:22:39,540
together throughout ontogeny throughout

461
00:22:44,690 --> 00:22:41,400
growth and development in one's lifetime

462
00:22:46,669 --> 00:22:44,700
and we expect again we can't test this

463
00:22:48,590 --> 00:22:46,679

in the fossil record because the eyes

464

00:22:51,500 --> 00:22:48,600

don't preserve but we would expect that

465

00:22:53,480 --> 00:22:51,510

as the brain increases in size the

466

00:22:55,220 --> 00:22:53,490

eyeball also increases in size and

467

00:22:59,020 --> 00:22:55,230

projecting that forward

468

00:23:01,400 --> 00:22:59,030

that would help explain why these

469

00:23:04,610 --> 00:23:01,410

extraterrestrials are ubiquitously and

470

00:23:08,330 --> 00:23:04,620

described as having very human eyes very

471

00:23:10,940 --> 00:23:08,340

large eyes much larger than ours but in

472

00:23:14,200 --> 00:23:10,950

accordance with their larger brains that

473

00:23:21,610 --> 00:23:14,210

characteristic would be expected yeah

474

00:23:23,800 --> 00:23:21,620

you know the the prototypical et well

475

00:23:26,110 --> 00:23:23,810

the prototypical et the way that we're

476
00:23:29,410 --> 00:23:26,120
talking about here those eyes don't seem

477
00:23:30,910 --> 00:23:29,420
as well protected as the eyes that we've

478
00:23:34,150 --> 00:23:30,920
got I used to play a little bit of

479
00:23:37,540 --> 00:23:34,160
hockey and those those protective brows

480
00:23:39,940 --> 00:23:37,550
come in handy once in a while sky and

481
00:23:43,200 --> 00:23:39,950
you don't really seem to see that in the

482
00:23:45,580 --> 00:23:43,210
way these eighties are described so

483
00:23:47,830 --> 00:23:45,590
they'd have to be a lot careful a lot

484
00:23:50,020 --> 00:23:47,840
more careful in order to avoid some

485
00:23:51,880 --> 00:23:50,030
devastating eye injuries they wouldn't

486
00:23:53,830 --> 00:23:51,890
be able to play hockey or a lot of other

487
00:23:55,420 --> 00:23:53,840
things I would think you know boxing

488
00:23:57,820 --> 00:23:55,430

something along those lines a lot of

489

00:23:59,650 --> 00:23:57,830

activities I would seem to result in

490

00:24:04,150 --> 00:23:59,660

some eye damage there would that that

491

00:24:06,880 --> 00:24:04,160

kind of morphology well partly yeah but

492

00:24:10,360 --> 00:24:06,890

at the same time we we we have a pretty

493

00:24:12,640 --> 00:24:10,370

evolved culture for taking care of the

494

00:24:15,880 --> 00:24:12,650

problems that that biological evolution

495

00:24:18,490 --> 00:24:15,890

has presented us with so you know an

496

00:24:20,170 --> 00:24:18,500

example would be the the problems we

497

00:24:25,120 --> 00:24:20,180

have just with standing upright with our

498

00:24:27,700 --> 00:24:25,130

knees our backs our hips and we found

499

00:24:30,010 --> 00:24:27,710

ways to adapt to that we we can use

500

00:24:32,350 --> 00:24:30,020

canes we can use wheelchairs as we get

501
00:24:34,780 --> 00:24:32,360
older and our our bones and joints just

502
00:24:37,450 --> 00:24:34,790
can't support our bipedalism and our

503
00:24:38,980 --> 00:24:37,460
bodyweight so I mean I think they still

504
00:24:41,050 --> 00:24:38,990
could they probably just have to rely on

505
00:24:44,830 --> 00:24:41,060
eye protection a lot more and obviously

506
00:24:48,760 --> 00:24:44,840
bigger sort of giant aviator glasses

507
00:24:53,280 --> 00:24:48,770
tape tight forms of protection but I

508
00:24:57,100 --> 00:24:53,290
mean even there's also a common thing

509
00:25:00,730 --> 00:24:57,110
and and I try not to base too much off

510
00:25:03,970 --> 00:25:00,740
of the reports themselves because you

511
00:25:06,580 --> 00:25:03,980
know that's the the thing that that's a

512
00:25:08,440 --> 00:25:06,590
little more uncertain there's there

513
00:25:10,300 --> 00:25:08,450

there's you know obviously a lot of

514

00:25:12,160 --> 00:25:10,310

people who have have witnessed these

515

00:25:13,810 --> 00:25:12,170

things and experienced these things and

516

00:25:16,990 --> 00:25:13,820

to them it's it's a part of their

517

00:25:18,520 --> 00:25:17,000

reality it's an obvious fact of reality

518

00:25:21,310 --> 00:25:18,530

for other people who haven't including

519

00:25:24,430 --> 00:25:21,320

myself I've never seen a UFO or anything

520

00:25:27,769 --> 00:25:24,440

it's it's it's harder to really tangibly

521

00:25:30,709 --> 00:25:27,779

say this thing's happening

522

00:25:34,099 --> 00:25:30,719

ooh and and so I don't base a lot of

523

00:25:35,779 --> 00:25:34,109

things off of that there's a couple

524

00:25:37,639 --> 00:25:35,789

chapters where obviously it's tied

525

00:25:40,580 --> 00:25:37,649

together in the context of long term

526
00:25:43,359 --> 00:25:40,590
human evolution but one thing that that

527
00:25:48,830 --> 00:25:43,369
is pretty common in these reports are

528
00:25:53,299 --> 00:25:48,840
these big dark eyes black eyes and and

529
00:25:57,919 --> 00:25:53,309
there's one interesting example and the

530
00:26:01,369 --> 00:25:57,929
the sort of famous notorious depending

531
00:26:04,459 --> 00:26:01,379
on your viewpoint alien autopsy where

532
00:26:06,919 --> 00:26:04,469
you know the individuals laying on this

533
00:26:10,219 --> 00:26:06,929
table and and it's it's a recreation of

534
00:26:12,320 --> 00:26:10,229
an event that took place in 1947 it's

535
00:26:13,999 --> 00:26:12,330
not the actual one though there is some

536
00:26:16,669 --> 00:26:14,009
footage in there but one interesting

537
00:26:19,909 --> 00:26:16,679
thing is they pull off this dark contact

538
00:26:23,060 --> 00:26:19,919

lens from that individual in it yeah and

539

00:26:24,950 --> 00:26:23,070

in doing so you see very human eyes I

540

00:26:28,820 --> 00:26:24,960

actually have a picture of that in the

541

00:26:31,430 --> 00:26:28,830

book to demonstrate how how not only is

542

00:26:33,889 --> 00:26:31,440

this most likely a contact lens

543

00:26:35,919 --> 00:26:33,899

phenomenon in this particular case but

544

00:26:38,749 --> 00:26:35,929

also just how much more human they look

545

00:26:41,869 --> 00:26:38,759

when you take that lens off with a big

546

00:26:44,810 --> 00:26:41,879

black eye they look like an insane alien

547

00:26:47,989 --> 00:26:44,820

form but once that lens comes off and

548

00:26:50,299 --> 00:26:47,999

you can see the pupils and the cornea

549

00:26:52,549 --> 00:26:50,309

and and the whites around the eye which

550

00:26:54,979 --> 00:26:52,559

is a very human characteristic most

551
00:26:58,999 --> 00:26:54,989
other primates even are hominoid

552
00:27:01,279 --> 00:26:59,009
ancestors and and hominoid cousins alive

553
00:27:03,229 --> 00:27:01,289
today have very little white showing in

554
00:27:05,779 --> 00:27:03,239
their eyes but but us humans have a lot

555
00:27:08,749 --> 00:27:05,789
largely because our eyes are bigger also

556
00:27:10,039 --> 00:27:08,759
the shape for our orbits have something

557
00:27:13,129 --> 00:27:10,049
to do with that was simply taking that

558
00:27:15,320 --> 00:27:13,139
lens off causes this individual to

559
00:27:17,899 --> 00:27:15,330
instantly look much more human and and

560
00:27:20,269 --> 00:27:17,909
so I think in addition to our eyes

561
00:27:22,219 --> 00:27:20,279
getting bigger that that common

562
00:27:25,549 --> 00:27:22,229
characteristic of the deep dark black

563
00:27:27,200 --> 00:27:25,559

eyes is probably the result of context

564

00:27:29,149 --> 00:27:27,210

and and might come back to your point

565

00:27:31,549 --> 00:27:29,159

too about protecting our eyes you know

566

00:27:34,430 --> 00:27:31,559

maybe maybe we need more protection in

567

00:27:36,109 --> 00:27:34,440

our eyes in the future because of you

568

00:27:40,519 --> 00:27:36,119

know any number of things that could

569

00:27:41,520 --> 00:27:40,529

happen but yeah it may be a vision thing

570

00:27:43,440 --> 00:27:41,530

too

571

00:27:47,250 --> 00:27:43,450

very much be the same vision problems

572

00:27:49,200 --> 00:27:47,260

that we suffer from now arguably because

573

00:27:52,920 --> 00:27:49,210

our brains and eyes have been getting

574

00:27:55,260 --> 00:27:52,930

bigger in a constricted face maybe they

575

00:27:57,210 --> 00:27:55,270

need them to see in the same way that we

576

00:27:58,980 --> 00:27:57,220

do I have contacts then right now and

577

00:28:06,030 --> 00:27:58,990

don't know how will that function

578

00:28:12,870 --> 00:28:06,040

without him to tell you that yeah they

579

00:28:15,360 --> 00:28:12,880

would be very absolute Liana in the I

580

00:28:19,230 --> 00:28:15,370

wrote a paper in 2012 and medical

581

00:28:21,300 --> 00:28:19,240

hypotheses about how it would only

582

00:28:23,100 --> 00:28:21,310

really be a factor in recent human

583

00:28:25,710 --> 00:28:23,110

evolution because you would have

584

00:28:27,630 --> 00:28:25,720

selective pressures weeding out those

585

00:28:31,200 --> 00:28:27,640

with poor vision that didn't see the

586

00:28:32,850 --> 00:28:31,210

saber-tooth cat coming for instance but

587

00:28:35,040 --> 00:28:32,860

then not only that once we started to

588

00:28:36,630 --> 00:28:35,050

domesticate ourselves out after the

589

00:28:40,050 --> 00:28:36,640

Neolithic Revolution once we got

590

00:28:44,520 --> 00:28:40,060

agriculture and diversified now you have

591

00:28:46,470 --> 00:28:44,530

people that can do near work activities

592

00:28:49,110 --> 00:28:46,480

and sustain themselves that way they can

593

00:28:52,200 --> 00:28:49,120

they can be Weaver's or they can pound

594

00:28:55,620 --> 00:28:52,210

metal they can even with stone tools

595

00:28:58,140 --> 00:28:55,630

even before that people could have just

596

00:29:00,000 --> 00:28:58,150

made their really good stone tools

597

00:29:03,450 --> 00:29:00,010

developed really good napping skills and

598

00:29:05,520 --> 00:29:03,460

then traded those tools for for me and

599

00:29:07,320 --> 00:29:05,530

for for other things that they couldn't

600

00:29:09,180 --> 00:29:07,330

get themselves because of this visual

601
00:29:11,460 --> 00:29:09,190
deficit but also just in the anatomy

602
00:29:13,680 --> 00:29:11,470
it's only recently and human evolution

603
00:29:16,260 --> 00:29:13,690
that we've had these these brains move

604
00:29:18,480 --> 00:29:16,270
out overtop of our eyes and our face is

605
00:29:20,310 --> 00:29:18,490
contracting so I think yeah throughout

606
00:29:22,080 --> 00:29:20,320
most of human history the vision

607
00:29:25,470 --> 00:29:22,090
problems wouldn't have been an issue but

608
00:29:27,810 --> 00:29:25,480
but now and likely in the future because

609
00:29:30,930 --> 00:29:27,820
we have this culture to correct for a

610
00:29:33,300 --> 00:29:30,940
biological problem it's an evolutionary

611
00:29:36,810 --> 00:29:33,310
trade-off as what we call these where

612
00:29:40,020 --> 00:29:36,820
we've traded you know big brain for poor

613
00:29:42,390 --> 00:29:40,030

vision we've sacrificed our vision we

614

00:29:45,390 --> 00:29:42,400

sacrificed a lot of things with our

615

00:29:47,310 --> 00:29:45,400

dentition we have overcrowding we have

616

00:29:49,770 --> 00:29:47,320

wisdom teeth that gets stuck we have

617

00:29:52,770 --> 00:29:49,780

problems with sleep apnea because of a

618

00:29:54,560 --> 00:29:52,780

constricted airway we have choking we're

619

00:29:56,509 --> 00:29:54,570

one of the only animals that

620

00:29:59,480 --> 00:29:56,519

choked and died because we put this big

621

00:30:01,159 --> 00:29:59,490

bend and our throats as a result of

622

00:30:03,440 --> 00:30:01,169

standing upright and having to rotate

623

00:30:06,230 --> 00:30:03,450

our heads down so we have these cultural

624

00:30:08,509 --> 00:30:06,240

mechanisms to help fix some of the

625

00:30:11,299 --> 00:30:08,519

biological problems that we have because

626

00:30:13,820 --> 00:30:11,309

of our our unique physiological form and

627

00:30:15,769 --> 00:30:13,830

and I think going forward the the

628

00:30:17,480 --> 00:30:15,779

Contacts and glasses as long as we can

629

00:30:20,120 --> 00:30:17,490

continue to mitigate the negative

630

00:30:24,289 --> 00:30:20,130

aspects of that it can can very much

631

00:30:26,749 --> 00:30:24,299

allow it to exist but without being you

632

00:30:28,310 --> 00:30:26,759

know anything more than just a giant

633

00:30:31,279 --> 00:30:28,320

pain every morning putting them in and

634

00:30:34,159 --> 00:30:31,289

taking them out at night I guess now one

635

00:30:36,230 --> 00:30:34,169

thing I did a few years back I don't

636

00:30:39,110 --> 00:30:36,240

live too far from Independence Hall in

637

00:30:40,759 --> 00:30:39,120

Philadelphia and I'm able to get down

638

00:30:42,619 --> 00:30:40,769

there once in a while and one thing that

639

00:30:44,840 --> 00:30:42,629

is really striking they still have the

640

00:30:47,629 --> 00:30:44,850

same desk I mean this is a I'm not even

641

00:30:50,749 --> 00:30:47,639

250 years ago they still have the same

642

00:30:53,060 --> 00:30:50,759

desks at Independence halls they had

643

00:30:56,029 --> 00:30:53,070

back when that the declaration was

644

00:30:59,090 --> 00:30:56,039

signed and you really notice right away

645

00:31:02,269 --> 00:30:59,100

how much smaller people were back then

646

00:31:05,240 --> 00:31:02,279

and I mean just 250 years were a lot

647

00:31:09,560 --> 00:31:05,250

bigger today than we were not that long

648

00:31:12,320 --> 00:31:09,570

ago it seems like we can change pretty

649

00:31:15,830 --> 00:31:12,330

quick we sort of put our unconscious

650

00:31:18,200 --> 00:31:15,840

minds to it yeah I mean it's not really

651
00:31:21,320 --> 00:31:18,210
a conscious thing it's just a product of

652
00:31:24,379 --> 00:31:21,330
our environment and it's it's kind of an

653
00:31:26,600 --> 00:31:24,389
interesting thing height I actually just

654
00:31:29,600 --> 00:31:26,610
got done editing that section of the

655
00:31:31,700 --> 00:31:29,610
chapter last week but Heights Heights

656
00:31:34,999 --> 00:31:31,710
kind of interesting because it varies

657
00:31:37,129 --> 00:31:35,009
tremendously over evolutionary time and

658
00:31:39,769 --> 00:31:37,139
even in a short term capacity like you

659
00:31:42,799 --> 00:31:39,779
just acknowledged so like you go back

660
00:31:46,549 --> 00:31:42,809
1.5 2 million years with some of the

661
00:31:47,840 --> 00:31:46,559
earliest Homo erectus individuals that

662
00:31:49,940 --> 00:31:47,850
lived at that time and they were about

663
00:31:55,340 --> 00:31:49,950

the same height as we were the narrow

664

00:31:58,279 --> 00:31:55,350

kotomi boy Turkana boy km WT 15,000 for

665

00:32:00,080 --> 00:31:58,289

the Nerds out there he was about 11

666

00:32:03,080 --> 00:32:00,090

years old and was projected that he'd be

667

00:32:06,049 --> 00:32:03,090

about 6:1 when we reached full maturity

668

00:32:08,110 --> 00:32:06,059

which is very much within the range of

669

00:32:10,990 --> 00:32:08,120

modern humans and you also have

670

00:32:14,980 --> 00:32:11,000

even at age 11 he was predicted to have

671

00:32:17,800 --> 00:32:14,990

been an anemone seventh percentile for a

672

00:32:20,080 --> 00:32:17,810

large sample population of modern humans

673

00:32:23,140 --> 00:32:20,090

a sample population of 11 year old so

674

00:32:25,660 --> 00:32:23,150

even without that prediction of what he

675

00:32:27,340 --> 00:32:25,670

would be at the end of growth and

676

00:32:30,040 --> 00:32:27,350

development he was still very very tall

677

00:32:34,090 --> 00:32:30,050

for an 11 year old so so it's fluctuated

678

00:32:36,750 --> 00:32:34,100

a lot over evolutionary time but but

679

00:32:40,390 --> 00:32:36,760

once we get into the the more short-term

680

00:32:41,830 --> 00:32:40,400

historical changes we have been been

681

00:32:42,460 --> 00:32:41,840

getting taller there's no doubt about

682

00:32:44,530 --> 00:32:42,470

that

683

00:32:46,300 --> 00:32:44,540

I think the Dutch are the tallest people

684

00:32:48,550 --> 00:32:46,310

in the world and and there's a lot of

685

00:32:50,290 --> 00:32:48,560

data that shows that over the last 50

686

00:32:53,620 --> 00:32:50,300

years they've gotten much taller as well

687

00:32:57,670 --> 00:32:53,630

but but it also varies based on on your

688

00:33:00,510 --> 00:32:57,680

socioeconomic status major events taking

689

00:33:04,330 --> 00:33:00,520

place one of the first research project

690

00:33:06,460 --> 00:33:04,340

but does that when you say socioeconomic

691

00:33:08,350 --> 00:33:06,470

status that relate to diet yes

692

00:33:11,140 --> 00:33:08,360

absolutely it's one of the biggest the

693

00:33:14,170 --> 00:33:11,150

biggest coral it's his diet well in the

694

00:33:14,950 --> 00:33:14,180

first studies I worked on as an

695

00:33:18,550 --> 00:33:14,960

undergraduate

696

00:33:21,510 --> 00:33:18,560

actually at Ohio University was a

697

00:33:25,210 --> 00:33:21,520

stature study looking at socio economics

698

00:33:27,400 --> 00:33:25,220

peoples occupations as a gauge of socio

699

00:33:30,270 --> 00:33:27,410

economics the other big factor is

700

00:33:33,030 --> 00:33:30,280

education level but looking at their

701
00:33:35,710 --> 00:33:33,040
height and their anthropometric

702
00:33:38,320 --> 00:33:35,720
characteristics their their body high

703
00:33:41,590 --> 00:33:38,330
stature arm width things like that in

704
00:33:44,560 --> 00:33:41,600
the context of their occupation and and

705
00:33:46,870 --> 00:33:44,570
the results of that study and many other

706
00:33:50,470 --> 00:33:46,880
studies have shown that people that have

707
00:33:53,800 --> 00:33:50,480
higher incomes that have better access

708
00:33:55,540 --> 00:33:53,810
to a good diet tend to be taller people

709
00:33:58,090 --> 00:33:55,550
and and the whole population you could

710
00:34:01,900 --> 00:33:58,100
this is one of the best indicators of a

711
00:34:03,820 --> 00:34:01,910
populations health is is stature you

712
00:34:06,880 --> 00:34:03,830
look at World War one the Great

713
00:34:09,480 --> 00:34:06,890

Depression World War two we see these

714

00:34:12,850 --> 00:34:09,490

rapid dips in people's height as a

715

00:34:15,370 --> 00:34:12,860

result of of just food shortages and and

716

00:34:18,360 --> 00:34:15,380

people not reaching their genetic height

717

00:34:21,510 --> 00:34:18,370

potential because the environment has

718

00:34:24,090 --> 00:34:21,520

subjugated their ability to do that so

719

00:34:25,889 --> 00:34:24,100

yeah and looking at you know people 100

720

00:34:29,389 --> 00:34:25,899

200 years ago we've definitely gotten a

721

00:34:31,889 --> 00:34:29,399

lot taller over that period of time but

722

00:34:36,659 --> 00:34:31,899

it's important to also consider the

723

00:34:39,030 --> 00:34:36,669

whole history of of of stature and of

724

00:34:40,889 --> 00:34:39,040

even human evolution and and really is

725

00:34:42,570 --> 00:34:40,899

just there's a lot of fluctuation we've

726

00:34:45,330 --> 00:34:42,580

been tall we've been short even now we

727

00:34:46,649 --> 00:34:45,340

have modern human populations that are

728

00:34:51,659 --> 00:34:46,659

very short of pygmies

729

00:34:54,090 --> 00:34:51,669

for instance Homo floresiensis this may

730

00:34:56,280 --> 00:34:54,100

have heard of this species found

731

00:34:58,560 --> 00:34:56,290

recently on the island of Flores known

732

00:35:00,000 --> 00:34:58,570

as the Hobbit but they're they're only

733

00:35:03,870 --> 00:35:00,010

about three feet tall three and a half

734

00:35:06,690 --> 00:35:03,880

maybe four feet tall but they lived as

735

00:35:09,000 --> 00:35:06,700

recently as you know 40,000 years ago so

736

00:35:11,250 --> 00:35:09,010

we have a lot of variation and height

737

00:35:13,410 --> 00:35:11,260

throughout the world and throughout time

738

00:35:19,200 --> 00:35:13,420

as well and I mean even looking at the

739

00:35:21,150 --> 00:35:19,210

future if we can base some some idea of

740

00:35:23,220 --> 00:35:21,160

what we will look like in the future on

741

00:35:25,440 --> 00:35:23,230

on these these reports of Close

742

00:35:27,630 --> 00:35:25,450

Encounters there's a lot of variation

743

00:35:30,480 --> 00:35:27,640

throughout the human future too it would

744

00:35:33,420 --> 00:35:30,490

seem some individuals or report as being

745

00:35:36,540 --> 00:35:33,430

very tall others around five foot seems

746

00:35:39,000 --> 00:35:36,550

to be a common description and a lot of

747

00:35:41,400 --> 00:35:39,010

these reports so so yeah it's an

748

00:35:44,310 --> 00:35:41,410

interesting thing it really varies quite

749

00:35:46,290 --> 00:35:44,320

a bit across space and through time as

750

00:35:48,690 --> 00:35:46,300

well now you've been talking about that

751
00:35:50,849 --> 00:35:48,700
some of the human precursors and early

752
00:35:52,590 --> 00:35:50,859
humans human beings really aren't all

753
00:35:54,690 --> 00:35:52,600
that old for a long time that two

754
00:35:56,940 --> 00:35:54,700
hundred thousand numbers sort of held

755
00:36:00,780 --> 00:35:56,950
together and within the last couple

756
00:36:03,570 --> 00:36:00,790
years there was a report of a human

757
00:36:06,180 --> 00:36:03,580
human being that was 300 years old

758
00:36:08,910 --> 00:36:06,190
that's a quite a jump further back into

759
00:36:11,790 --> 00:36:08,920
the past what did you think about that

760
00:36:17,280 --> 00:36:11,800
when that news came out well I think

761
00:36:21,090 --> 00:36:17,290
it's important and I hear a lot of

762
00:36:24,330 --> 00:36:21,100
people sort of talk about human

763
00:36:27,090 --> 00:36:24,340

evolution in these discrete categorical

764

00:36:31,410 --> 00:36:27,100

terms there it's important to keep in

765

00:36:33,120 --> 00:36:31,420

mind that it's a continuous change there

766

00:36:35,310 --> 00:36:33,130

wasn't really a time we can't say

767

00:36:38,700 --> 00:36:35,320

exactly 200 thousand years ago

768

00:36:40,320 --> 00:36:38,710

we became humans that's when modern

769

00:36:44,040 --> 00:36:40,330

humans were born Homo sapiens sapiens

770

00:36:46,020 --> 00:36:44,050

and I I hear some some commentators talk

771

00:36:48,300 --> 00:36:46,030

about this sometime about you know what

772

00:36:50,400 --> 00:36:48,310

happened 200,000 years ago well nothing

773

00:36:52,320 --> 00:36:50,410

really I mean it was it's all continuous

774

00:36:54,570 --> 00:36:52,330

that's all in the same way that if you

775

00:36:56,700 --> 00:36:54,580

went back and looked at your ancestors

776

00:36:59,040 --> 00:36:56,710

over five generations you'd see slight

777

00:37:01,650 --> 00:36:59,050

changes and and how you looked and how

778

00:37:03,180 --> 00:37:01,660

your your lineage looked over that time

779

00:37:04,980 --> 00:37:03,190

and you pick out traits that you have

780

00:37:06,630 --> 00:37:04,990

that your grandparents and

781

00:37:09,090 --> 00:37:06,640

great-grandparents had and so on and so

782

00:37:11,880 --> 00:37:09,100

forth but but winding that clock back

783

00:37:13,950 --> 00:37:11,890

even farther it's it's really a long

784

00:37:16,530 --> 00:37:13,960

continuous thing and a lot of people

785

00:37:19,800 --> 00:37:16,540

make the mistake in and looking at this

786

00:37:23,010 --> 00:37:19,810

continuum by breaking it up into these

787

00:37:25,170 --> 00:37:23,020

categorical terms so it's it's hard for

788

00:37:27,570 --> 00:37:25,180

us as anthropologists because we have to

789

00:37:31,380 --> 00:37:27,580

give things labels we have to say this

790

00:37:33,870 --> 00:37:31,390

is when we became anatomically modern

791

00:37:36,240 --> 00:37:33,880

and in doing so people take that as as

792

00:37:37,590 --> 00:37:36,250

boom that's the moment when when humans

793

00:37:39,390 --> 00:37:37,600

arose you know what was it about that

794

00:37:43,410 --> 00:37:39,400

moment but it wasn't a moment it was

795

00:37:45,750 --> 00:37:43,420

just certain traits came about and

796

00:37:48,000 --> 00:37:45,760

developed at a point that we can say are

797

00:37:50,610 --> 00:37:48,010

it these traits were different than the

798

00:37:52,080 --> 00:37:50,620

traits of their ancestors farther back

799

00:37:55,380 --> 00:37:52,090

but there's not one point where we just

800

00:37:57,780 --> 00:37:55,390

got a chin and we just got a bulbous

801
00:37:59,580 --> 00:37:57,790
globular neurocranium those Sewer

802
00:38:02,700 --> 00:37:59,590
changes that were happening slowly over

803
00:38:07,260 --> 00:38:02,710
time so so yeah I'm never surprised when

804
00:38:08,760 --> 00:38:07,270
when we modify the age slightly and a

805
00:38:10,860 --> 00:38:08,770
hundred thousand years sounds like a lot

806
00:38:13,050 --> 00:38:10,870
but really it's it's not it's a it's a

807
00:38:16,640 --> 00:38:13,060
blink of an eye and and most of us that

808
00:38:20,700 --> 00:38:16,650
are in the camp of the multi-regional

809
00:38:22,470 --> 00:38:20,710
hypothesis which is the idea that we

810
00:38:25,980 --> 00:38:22,480
didn't develop during one major

811
00:38:29,100 --> 00:38:25,990
speciation event in Africa around

812
00:38:32,040 --> 00:38:29,110
200,000 years ago but rather the evolved

813
00:38:33,810 --> 00:38:32,050

slowly from archaic Homo sapiens and the

814

00:38:34,830 --> 00:38:33,820

modern Homo sapiens throughout much of

815

00:38:37,890 --> 00:38:34,840

the old world

816

00:38:39,480 --> 00:38:37,900

we had been advocating for you know

817

00:38:42,060 --> 00:38:39,490

three hundred thousand even four hundred

818

00:38:44,550 --> 00:38:42,070

thousand years for a much longer and

819

00:38:49,050 --> 00:38:44,560

again it's it's it's a continuum that

820

00:38:52,190 --> 00:38:49,060

that we can't put a specific date on

821

00:38:54,960 --> 00:38:52,200

I think a lot of that came from the

822

00:38:57,630 --> 00:38:54,970

mitochondrial DNA and this this out of

823

00:39:01,290 --> 00:38:57,640

Africa this African Eve hypothesis which

824

00:39:04,710 --> 00:39:01,300

put us and in Africa modern humans I

825

00:39:06,630 --> 00:39:04,720

mean at 200,000 years ago but but no the

826

00:39:08,970 --> 00:39:06,640

the research now is starting to move

827

00:39:13,290 --> 00:39:08,980

more toward toward our multi regional

828

00:39:15,810 --> 00:39:13,300

side that that it wasn't this this one

829

00:39:19,100 --> 00:39:15,820

brief event it was a slow continuous

830

00:39:23,070 --> 00:39:19,110

evolutionary change from more primitive

831

00:39:26,070 --> 00:39:23,080

Homo Sapien traits to more modern homo

832

00:39:28,950 --> 00:39:26,080

sapiens sapiens rates throughout that

833

00:39:31,410 --> 00:39:28,960

200 to 300 thousand year window so there

834

00:39:33,270 --> 00:39:31,420

wasn't really anything too tremendous

835

00:39:35,400 --> 00:39:33,280

about it we were always doing the same

836

00:39:37,590 --> 00:39:35,410

things we're still hunter-gatherers we

837

00:39:40,050 --> 00:39:37,600

still had big brains there were more

838

00:39:42,750 --> 00:39:40,060

species alive at that time it wasn't

839

00:39:46,080 --> 00:39:42,760

just us by any means but but as far as

840

00:39:48,090 --> 00:39:46,090

our toolkit our culture it was all just

841

00:39:52,050 --> 00:39:48,100

kind of evolving at the same slow

842

00:39:54,060 --> 00:39:52,060

process and and certainly you know with

843

00:39:56,910 --> 00:39:54,070

our bigger brains our Chin's our smaller

844

00:40:00,540 --> 00:39:56,920

faces we were able to identify certain

845

00:40:02,730 --> 00:40:00,550

traits that that make us you know more

846

00:40:06,120 --> 00:40:02,740

like we are now but even looking at now

847

00:40:07,890 --> 00:40:06,130

is a snapshot in time of our whole

848

00:40:09,660 --> 00:40:07,900

evolutionary history just because we're

849

00:40:11,940 --> 00:40:09,670

the ones looking back on it and I would

850

00:40:15,960 --> 00:40:11,950

argue now looking forward toward the

851

00:40:18,930 --> 00:40:15,970

future we're still just one small small

852

00:40:21,660 --> 00:40:18,940

part of that very large continuous four

853

00:40:24,030 --> 00:40:21,670

dimensional change in human evolution so

854

00:40:25,580 --> 00:40:24,040

you know in in a hundred thousand years

855

00:40:27,990 --> 00:40:25,590

two hundred thousand years in the future

856

00:40:30,450 --> 00:40:28,000

they'll probably be looking at us just

857

00:40:32,220 --> 00:40:30,460

as some average humans that were doing

858

00:40:34,530 --> 00:40:32,230

very primitive things with primitive

859

00:40:36,390 --> 00:40:34,540

technology and in the same way that we

860

00:40:38,460 --> 00:40:36,400

would look you know back 200 300

861

00:40:40,770 --> 00:40:38,470

thousand years in the past so so no I'm

862

00:40:42,390 --> 00:40:40,780

never really never really surprised and

863

00:40:45,960 --> 00:40:42,400

especially with that one because like I

864

00:40:48,150 --> 00:40:45,970

said I and many of my colleagues had

865

00:40:51,300 --> 00:40:48,160

already been on the more you know

866

00:40:53,070 --> 00:40:51,310

long-term multi-regional evolutionary

867

00:40:55,980 --> 00:40:53,080

side you're right you're suggesting then

868

00:40:58,950 --> 00:40:55,990

that that humans developed in multiple

869

00:41:02,070 --> 00:40:58,960

locations not just in East Africa

870

00:41:03,960 --> 00:41:02,080

but the humans arose a number of

871

00:41:05,609 --> 00:41:03,970

different places around the world more

872

00:41:07,650 --> 00:41:05,619

or less simultaneously

873

00:41:11,070 --> 00:41:07,660

yeah and it's certainly not my

874

00:41:14,010 --> 00:41:11,080

suggestion the multi-regional hypothesis

875

00:41:17,670 --> 00:41:14,020

has been around for going on probably 40

876

00:41:19,290 --> 00:41:17,680

years now milford wolf off was probably

877

00:41:22,589 --> 00:41:19,300

one of the biggest proponents and

878

00:41:25,349 --> 00:41:22,599

anthropologist in the 70s 80s 90s and

879

00:41:27,480 --> 00:41:25,359

he's still doing work I think but yeah

880

00:41:31,079 --> 00:41:27,490

it's just it's two different models to

881

00:41:33,810 --> 00:41:31,089

explain the same sort of rise of homo

882

00:41:36,960 --> 00:41:33,820

sapiens sapiens and again you know you

883

00:41:38,430 --> 00:41:36,970

could take a human from a hundred

884

00:41:40,020 --> 00:41:38,440

thousand years ago and one from four

885

00:41:43,200 --> 00:41:40,030

hundred thousand years ago and they

886

00:41:45,329 --> 00:41:43,210

could most certainly reproduce so from a

887

00:41:47,430 --> 00:41:45,339

biological species concept they weren't

888

00:41:50,099 --> 00:41:47,440

different species there wasn't there

889

00:41:52,230 --> 00:41:50,109

wasn't anything about humans had two

890

00:41:54,870 --> 00:41:52,240

hundred thousand years ago that boom

891

00:41:57,570 --> 00:41:54,880

made us different we were still the same

892

00:42:01,950 --> 00:41:57,580

just doing the same things but we we as

893

00:42:04,950 --> 00:42:01,960

anthropologist have to have labels we we

894

00:42:08,460 --> 00:42:04,960

have to make discrete categories out of

895

00:42:11,250 --> 00:42:08,470

continuous change and it's obviously

896

00:42:13,680 --> 00:42:11,260

impossible to do you can't just draw a

897

00:42:15,320 --> 00:42:13,690

line and something continuous and say

898

00:42:19,800 --> 00:42:15,330

there it is that's when it started but

899

00:42:23,190 --> 00:42:19,810

but our window of change for when we

900

00:42:25,230 --> 00:42:23,200

became modern humans yeah it did it did

901
00:42:27,810 --> 00:42:25,240
occur there's more and more evidence the

902
00:42:31,109 --> 00:42:27,820
morphological evidence our physical form

903
00:42:33,810 --> 00:42:31,119
has always backed up this multi-regional

904
00:42:37,079 --> 00:42:33,820
hypothesis it was mostly the the genetic

905
00:42:38,970 --> 00:42:37,089
evidence rewinding the genetic clock

906
00:42:41,420 --> 00:42:38,980
that put us in africa two hundred

907
00:42:45,839 --> 00:42:41,430
thousand years ago but but that model

908
00:42:48,660 --> 00:42:45,849
has always been criticized and and now

909
00:42:51,020 --> 00:42:48,670
with the recent study that you pointed

910
00:42:54,000 --> 00:42:51,030
out and other research it seems to be

911
00:42:56,730 --> 00:42:54,010
falling out of favor even more so in

912
00:42:58,740 --> 00:42:56,740
recent time so so yeah the the other

913
00:43:00,780 --> 00:42:58,750

explanation i mean there was a homo

914

00:43:03,570 --> 00:43:00,790

erectus left africa two million years

915

00:43:07,020 --> 00:43:03,580

ago populated all other parts of the old

916

00:43:11,910 --> 00:43:07,030

world over time even existed as recently

917

00:43:12,750 --> 00:43:11,920

as 25,000 years ago and and java so we

918

00:43:14,510 --> 00:43:12,760

had we had people

919

00:43:17,310 --> 00:43:14,520

coming across the Bering Land Bridge

920

00:43:20,400 --> 00:43:17,320

into the Americas at the same time homo

921

00:43:24,900 --> 00:43:20,410

erectus was still in existence on parts

922

00:43:28,650 --> 00:43:24,910

of Southeast Asia so so that that that

923

00:43:31,950 --> 00:43:28,660

older model mostly focuses on Africa but

924

00:43:34,020 --> 00:43:31,960

but after homo erectus left we evolved

925

00:43:36,500 --> 00:43:34,030

slowly from Homo erectus into the

926
00:43:38,880 --> 00:43:36,510
Denisovans and towards the Middle East

927
00:43:43,650 --> 00:43:38,890
Eastern Europe the Neanderthals in

928
00:43:45,660 --> 00:43:43,660
Western Europe East Africa or East Asian

929
00:43:47,330 --> 00:43:45,670
Homo erectus developed more modern

930
00:43:50,070 --> 00:43:47,340
characteristics into what we call

931
00:43:54,810 --> 00:43:50,080
archaic Homo sapiens and then that shift

932
00:43:57,330 --> 00:43:54,820
from archaic Homo sapiens into what what

933
00:44:00,920 --> 00:43:57,340
a lot of people refer to as as humans

934
00:44:02,100 --> 00:44:00,930
what we call anatomically modern humans

935
00:44:05,010 --> 00:44:02,110
yeah

936
00:44:07,140 --> 00:44:05,020
occurred just as a slow process in many

937
00:44:10,140 --> 00:44:07,150
of these places and and what allowed us

938
00:44:14,400 --> 00:44:10,150

to do it collectively what allowed us to

939

00:44:17,670 --> 00:44:14,410

become one modern human population was

940

00:44:19,920 --> 00:44:17,680

just gene flow reproduction among

941

00:44:23,640 --> 00:44:19,930

neighboring groups and then because we

942

00:44:26,250 --> 00:44:23,650

had reached critical mass so to speak we

943

00:44:28,320 --> 00:44:26,260

reached a large enough population that

944

00:44:30,180 --> 00:44:28,330

interbreeding among all of these smaller

945

00:44:31,770 --> 00:44:30,190

groups throughout the old world helped

946

00:44:34,410 --> 00:44:31,780

link us together in the same way that we

947

00:44:37,320 --> 00:44:34,420

are now I mean we now exist as one large

948

00:44:40,110 --> 00:44:37,330

interbreeding population throughout the

949

00:44:41,910 --> 00:44:40,120

world and and that migration among

950

00:44:43,580 --> 00:44:41,920

different groups and interbreeding with

951
00:44:46,970 --> 00:44:43,590
other people that they came across

952
00:44:49,260 --> 00:44:46,980
throughout Asia and Africa and Europe

953
00:44:51,600 --> 00:44:49,270
allowed us to maintain genetic

954
00:44:53,760 --> 00:44:51,610
homogeneity across those different

955
00:44:55,110 --> 00:44:53,770
regions the Neanderthals died out but we

956
00:44:56,640 --> 00:44:55,120
also know that we were in a breeding

957
00:44:59,130 --> 00:44:56,650
with them - because roughly five percent

958
00:45:02,100 --> 00:44:59,140
of the modern human genome is

959
00:45:04,680 --> 00:45:02,110
Neanderthal so there was there's a lot

960
00:45:07,200 --> 00:45:04,690
of movement and shakin there was a lot

961
00:45:10,440 --> 00:45:07,210
of a lot of interbreeding and and we

962
00:45:13,710 --> 00:45:10,450
were able to to just evolve slowly into

963
00:45:16,440 --> 00:45:13,720

modern Homo sapiens throughout this 200

964

00:45:18,810 --> 00:45:16,450
to 400,000 year period but but without

965

00:45:21,990 --> 00:45:18,820
one particular thing happening at one

966

00:45:23,940 --> 00:45:22,000
particular time it was just a slow slow

967

00:45:25,270 --> 00:45:23,950
evolutionary change and well that's more

968

00:45:26,860 --> 00:45:25,280
boring

969

00:45:28,570 --> 00:45:26,870
well you know well it's not as

970

00:45:30,580 --> 00:45:28,580
interesting as oh wow what happened

971

00:45:32,470 --> 00:45:30,590
200,000 years ago or you know what

972

00:45:34,720 --> 00:45:32,480
happened 20,000 years ago nothing

973

00:45:38,500 --> 00:45:34,730
happened it's just that's that's the

974

00:45:41,020 --> 00:45:38,510
point at which anthropologists say this

975

00:45:44,980 --> 00:45:41,030
is when we develop these traits that

976

00:45:47,590 --> 00:45:44,990

make us classified as homo sapiens

977

00:45:49,000 --> 00:45:47,600

sapiens okay so it doesn't seem likely

978

00:45:51,990 --> 00:45:49,010

yeah based on what you're telling me

979

00:45:55,210 --> 00:45:52,000

that there was some kind of advanced

980

00:45:57,990 --> 00:45:55,220

interference in our progress that this

981

00:46:01,540 --> 00:45:58,000

is a natural process that there's no

982

00:46:03,400 --> 00:46:01,550

point at which either time travelers

983

00:46:07,510 --> 00:46:03,410

from the future we're able to go back

984

00:46:10,750 --> 00:46:07,520

and speed things along a little bit and

985

00:46:12,610 --> 00:46:10,760

make the humans of those days a little

986

00:46:15,550 --> 00:46:12,620

bit that closer to modern human with the

987

00:46:17,440 --> 00:46:15,560

intellectual capacity or maybe yes

988

00:46:19,950 --> 00:46:17,450

somebody from some other planet that

989

00:46:22,300 --> 00:46:19,960

humans are just spread too far too wide

990

00:46:23,440 --> 00:46:22,310

doesn't seem like it would be possible

991

00:46:27,190 --> 00:46:23,450

based on what you're telling me here

992

00:46:29,820 --> 00:46:27,200

well in the in the context of a time

993

00:46:33,340 --> 00:46:29,830

machine it would certainly be possible

994

00:46:35,890 --> 00:46:33,350

but it doesn't need to be we don't need

995

00:46:38,260 --> 00:46:35,900

that explanation because if you look at

996

00:46:40,720 --> 00:46:38,270

at the pace the rate of culture change

997

00:46:43,200 --> 00:46:40,730

and and physical change there were no

998

00:46:45,700 --> 00:46:43,210

big jumps there were there was no

999

00:46:48,610 --> 00:46:45,710

indication that that we got this flood

1000

00:46:50,320 --> 00:46:48,620

of future genes or this flood of future

1001
00:46:53,230 --> 00:46:50,330
information in our culture we were just

1002
00:46:55,390 --> 00:46:53,240
getting smarter and more culturally

1003
00:46:57,640 --> 00:46:55,400
advanced and we were developing these

1004
00:46:59,740 --> 00:46:57,650
traits that we have today and presumably

1005
00:47:03,970 --> 00:46:59,750
are going to have even more so in the

1006
00:47:07,870 --> 00:47:03,980
future so I mean it's certainly easy to

1007
00:47:10,540 --> 00:47:07,880
say there there could have been contact

1008
00:47:12,040 --> 00:47:10,550
there could have been influence but but

1009
00:47:14,080 --> 00:47:12,050
I mean think about it this way if if I

1010
00:47:18,610 --> 00:47:14,090
was gonna go back in time as a

1011
00:47:24,370 --> 00:47:18,620
paleoanthropologist and study say the

1012
00:47:26,800 --> 00:47:24,380
Neanderthals 150,000 years ago I I would

1013
00:47:29,650 --> 00:47:26,810

I would take fecal samples I would take

1014

00:47:32,560 --> 00:47:29,660

blood samples hair samples I would take

1015

00:47:34,960 --> 00:47:32,570

some samples of their their cultural

1016

00:47:36,160 --> 00:47:34,970

materials the material remains that we

1017

00:47:38,020 --> 00:47:36,170

are able to investigate

1018

00:47:38,609 --> 00:47:38,030

archaeologically but we can't look at

1019

00:47:40,739 --> 00:47:38,619

any of these

1020

00:47:42,390 --> 00:47:40,749

things we don't have that soft tissue

1021

00:47:43,980 --> 00:47:42,400

like I said I would measure their

1022

00:47:45,900 --> 00:47:43,990

eyeballs I'd be the very first thing I

1023

00:47:48,539 --> 00:47:45,910

take because we don't have the ability

1024

00:47:50,220 --> 00:47:48,549

to do that so so going back in time we

1025

00:47:55,319 --> 00:47:50,230

we have the ability to learn so much

1026
00:47:57,210 --> 00:47:55,329
more but I don't feel like we would want

1027
00:47:59,099 --> 00:47:57,220
to change anything and it wouldn't be

1028
00:48:01,710 --> 00:47:59,109
changed because of linkages and

1029
00:48:05,009 --> 00:48:01,720
self-consistency it would always have

1030
00:48:07,380 --> 00:48:05,019
been there and the results of any thing

1031
00:48:09,509 --> 00:48:07,390
that we did would always be in our

1032
00:48:10,650 --> 00:48:09,519
future - there self-consistency among

1033
00:48:13,470 --> 00:48:10,660
event so we wouldn't be changing

1034
00:48:17,400 --> 00:48:13,480
anything but but we would try not to

1035
00:48:19,799 --> 00:48:17,410
interject ourselves to monumentally in

1036
00:48:20,970 --> 00:48:19,809
that culture even if we did doesn't

1037
00:48:23,190 --> 00:48:20,980
really matter they didn't have writing

1038
00:48:24,690 --> 00:48:23,200

they they weren't carrying around cell

1039

00:48:28,559 --> 00:48:24,700

phones where they could take pictures

1040

00:48:31,650 --> 00:48:28,569

all the time they're there art there was

1041

00:48:33,329 --> 00:48:31,660

some you know cave art at that time we

1042

00:48:35,279 --> 00:48:33,339

actually just recently found evidence of

1043

00:48:38,609 --> 00:48:35,289

Neanderthals doing that within the last

1044

00:48:43,380 --> 00:48:38,619

few months but you know they're not

1045

00:48:45,630 --> 00:48:43,390

really going to be able to transcribe

1046

00:48:48,120 --> 00:48:45,640

our existence in their time in any

1047

00:48:50,849 --> 00:48:48,130

meaningful long-term way however we go

1048

00:48:54,809 --> 00:48:50,859

back you know 200 years ago they go back

1049

00:48:56,759 --> 00:48:54,819

you know ten years ago suddenly we're

1050

00:48:59,339 --> 00:48:56,769

going to be interjecting ourselves into

1051
00:49:02,729 --> 00:48:59,349
a culture where we can be recorded much

1052
00:49:05,849 --> 00:49:02,739
much more in in more archival context

1053
00:49:11,059 --> 00:49:05,859
that lasts for four long swathes of the

1054
00:49:14,819 --> 00:49:11,069
future so so I tend away from an

1055
00:49:17,069 --> 00:49:14,829
interjection and influence sort of thing

1056
00:49:19,769 --> 00:49:17,079
again in in the presence of a time

1057
00:49:22,380 --> 00:49:19,779
machine that would be possible but I

1058
00:49:24,180 --> 00:49:22,390
think people come in from the future to

1059
00:49:27,620 --> 00:49:24,190
study the past would have strict limits

1060
00:49:32,130 --> 00:49:27,630
on how deeply they can really engage in

1061
00:49:34,259 --> 00:49:32,140
or or interact with the past certainly

1062
00:49:37,079 --> 00:49:34,269
you know like if the Roswell crash in

1063
00:49:39,210 --> 00:49:37,089

1947 took place that's a pretty big

1064

00:49:40,859 --> 00:49:39,220

interjection that seemingly was

1065

00:49:44,069 --> 00:49:40,869

unintentional I don't think anyone would

1066

00:49:46,440 --> 00:49:44,079

intend to go back and die and uh you

1067

00:49:52,410 --> 00:49:46,450

know time-travel research capacity but

1068

00:49:56,730 --> 00:49:52,420

but that that the accident may have

1069

00:49:59,540 --> 00:49:56,740

huge ramifications for our our ability

1070

00:50:02,160 --> 00:49:59,550

to you know not only develop a

1071

00:50:04,650 --> 00:50:02,170

technology the stick disk or

1072

00:50:07,680 --> 00:50:04,660

triangle-shaped craft that's able to use

1073

00:50:09,840 --> 00:50:07,690

you know a non vector propulsion system

1074

00:50:13,380 --> 00:50:09,850

probably something electromagnetic based

1075

00:50:16,110 --> 00:50:13,390

on reports that that allow it much a

1076
00:50:18,330 --> 00:50:16,120
much better ability to maneuver and fly

1077
00:50:20,400 --> 00:50:18,340
in the speed and and all of these things

1078
00:50:22,320 --> 00:50:20,410
that we see all of the time even being

1079
00:50:24,930 --> 00:50:22,330
tested you know in different places

1080
00:50:27,570 --> 00:50:24,940
there's lots of lots of videos authentic

1081
00:50:30,330 --> 00:50:27,580
videos of that but but that would have

1082
00:50:32,370 --> 00:50:30,340
to be considered a major inner

1083
00:50:34,350 --> 00:50:32,380
intervention not an intentional one an

1084
00:50:36,150 --> 00:50:34,360
unintentional one but certainly

1085
00:50:37,830 --> 00:50:36,160
something that that would not only give

1086
00:50:41,400 --> 00:50:37,840
us that leap forward in our technology

1087
00:50:44,850 --> 00:50:41,410
but also and this is kind of a

1088
00:50:47,370 --> 00:50:44,860

mind-bending aspect of time travel also

1089

00:50:49,260 --> 00:50:47,380

help create the same time machine that

1090

00:50:51,090 --> 00:50:49,270

was used to come back and crash at that

1091

00:50:52,980 --> 00:50:51,100

time which was then used to create the

1092

00:50:54,660 --> 00:50:52,990

same time machine that then comes back

1093

00:50:58,080 --> 00:50:54,670

and crashes at that time and so on and

1094

00:51:00,360 --> 00:50:58,090

so forth which which creates this this

1095

00:51:02,940 --> 00:51:00,370

interesting scenario it's not a paradox

1096

00:51:06,390 --> 00:51:02,950

in any way but an interesting scenario

1097

00:51:09,450 --> 00:51:06,400

in which the time machine if this is the

1098

00:51:12,330 --> 00:51:09,460

actual case if there was a crash 1947 we

1099

00:51:14,250 --> 00:51:12,340

do develop time travel technology partly

1100

00:51:17,640 --> 00:51:14,260

based on this machine from the future

1101

00:51:20,100 --> 00:51:17,650

capable of time travel then no one

1102

00:51:21,870 --> 00:51:20,110

created it if it was given to people in

1103

00:51:23,610 --> 00:51:21,880

the past who had no knowledge of it but

1104

00:51:25,020 --> 00:51:23,620

they reverse engineered it and were able

1105

00:51:27,210 --> 00:51:25,030

to create it to the point that it

1106

00:51:29,850 --> 00:51:27,220

becomes the thing that starts that

1107

00:51:32,010 --> 00:51:29,860

creation again it's really hard to say

1108

00:51:34,380 --> 00:51:32,020

that this person invented time machines

1109

00:51:37,230 --> 00:51:34,390

because it's always been a part of that

1110

00:51:41,240 --> 00:51:37,240

slice of fourth dimensional block time

1111

00:51:45,000 --> 00:51:41,250

without any clear beginning as to when

1112

00:51:49,560 --> 00:51:45,010

it was created outside of the context of

1113

00:51:52,380 --> 00:51:49,570

that crash so so yeah I think you know

1114

00:51:56,340 --> 00:51:52,390

there's a lot of reasons why we wouldn't

1115

00:51:58,770 --> 00:51:56,350

want to interact too overtly with the

1116

00:52:03,330 --> 00:51:58,780

past and in fact this helps explain why

1117

00:52:06,000 --> 00:52:03,340

UFO sightings are so you know so few and

1118

00:52:07,680 --> 00:52:06,010

far between why why why

1119

00:52:10,530 --> 00:52:07,690

somebody come from a different planet

1120

00:52:13,320 --> 00:52:10,540

you know millions of light-years away to

1121

00:52:14,940 --> 00:52:13,330

pick somebody up and you know anally

1122

00:52:17,880 --> 00:52:14,950

probe them and take some blood samples

1123

00:52:20,190 --> 00:52:17,890

and hair samples and and then just leave

1124

00:52:24,120 --> 00:52:20,200

you know without saying hi I'm from

1125

00:52:26,490 --> 00:52:24,130

Planet X 5 5 1 and this nebula and this

1126

00:52:29,460 --> 00:52:26,500

place I mean a big part of the book

1127

00:52:31,950 --> 00:52:29,470

points out just how improbable it is

1128

00:52:33,780 --> 00:52:31,960

that that we could ever find each other

1129

00:52:36,330 --> 00:52:33,790

if there are that the distance is in

1130

00:52:37,860 --> 00:52:36,340

between which are real physical

1131

00:52:40,950 --> 00:52:37,870

limitations a lot of people try to

1132

00:52:44,040 --> 00:52:40,960

downplay that but all the all the

1133

00:52:46,280 --> 00:52:44,050

astronomy physics research pretty

1134

00:52:50,250 --> 00:52:46,290

clearly states that it would it would be

1135

00:52:52,410 --> 00:52:50,260

extremely difficult to get anything to

1136

00:52:56,060 --> 00:52:52,420

another galaxy in any meaningful period

1137

00:52:58,860 --> 00:52:56,070

of time let alone the whole problem of

1138

00:53:00,090 --> 00:52:58,870

evolving on a different planet and and

1139

00:53:02,430 --> 00:53:00,100

what would we look like we certainly

1140

00:53:04,350 --> 00:53:02,440

wouldn't look anything like us some

1141

00:53:06,420 --> 00:53:04,360

people like to argue that you know

1142

00:53:07,950 --> 00:53:06,430

there's there's DNA there's genes and

1143

00:53:10,950 --> 00:53:07,960

things just unfold in the same way but

1144

00:53:12,870 --> 00:53:10,960

there's so many unique aspects of our

1145

00:53:14,880 --> 00:53:12,880

own evolutionary history that made us

1146

00:53:16,680 --> 00:53:14,890

the way we are that you couldn't just

1147

00:53:19,050 --> 00:53:16,690

presume that those will happen on

1148

00:53:20,670 --> 00:53:19,060

another planet with you know different

1149

00:53:22,640 --> 00:53:20,680

amount of gravity different climate

1150

00:53:25,380 --> 00:53:22,650

different distance from the Sun

1151

00:53:29,580 --> 00:53:25,390

different atmosphere maybe it's not even

1152

00:53:31,740 --> 00:53:29,590

the same sugar phosphate base nucleotide

1153

00:53:33,630 --> 00:53:31,750

DNA coding system that we have maybe

1154

00:53:36,090 --> 00:53:33,640

it's a completely different coding

1155

00:53:39,480 --> 00:53:36,100

system that that arose on those planets

1156

00:53:42,300 --> 00:53:39,490

so so yeah I think it's it's improbable

1157

00:53:44,370 --> 00:53:42,310

that we would really do too much to the

1158

00:53:47,970 --> 00:53:44,380

past we would probably go out of our way

1159

00:53:49,680 --> 00:53:47,980

not to and that's like I said one other

1160

00:53:52,140 --> 00:53:49,690

thing that sort of lends credence to

1161

00:53:54,660 --> 00:53:52,150

this time-travel hypothesis over an

1162

00:53:57,870 --> 00:53:54,670

extraterrestrial hypothesis because they

1163

00:53:59,910 --> 00:53:57,880

would seemingly make a great effort to

1164

00:54:03,210 --> 00:53:59,920

contact us if you drove to see your

1165

00:54:04,560 --> 00:54:03,220

friend you know 2,000 miles away you

1166

00:54:06,240 --> 00:54:04,570

wouldn't just sit outside their house

1167

00:54:08,520 --> 00:54:06,250

and watch them with binoculars you'd go

1168

00:54:10,890 --> 00:54:08,530

in there say hey boy how's it going you

1169

00:54:13,440 --> 00:54:10,900

know I haven't seen know what's up so so

1170

00:54:18,150 --> 00:54:13,450

just it doesn't make sense and honestly

1171

00:54:19,350 --> 00:54:18,160

this might sound I don't know it might

1172

00:54:21,780 --> 00:54:19,360

sound

1173

00:54:23,090 --> 00:54:21,790

a little presumptuous but I I really

1174

00:54:26,250 --> 00:54:23,100

think that the extra-terrestrial

1175

00:54:29,810 --> 00:54:26,260

hypothesis will will be dead in the next

1176

00:54:32,400 --> 00:54:29,820

five years I just I don't see how it can

1177

00:54:34,290 --> 00:54:32,410

I don't see how its sustain itself this

1178

00:54:36,720 --> 00:54:34,300

long there's just too many too many

1179

00:54:39,060 --> 00:54:36,730

variables too many questions too many

1180

00:54:42,120 --> 00:54:39,070

things that just don't seem to add up

1181

00:54:44,850 --> 00:54:42,130

with the idea of extraterrestrial life

1182

00:54:47,490 --> 00:54:44,860

visiting us from another planet and and

1183

00:54:50,220 --> 00:54:47,500

I don't know maybe maybe it's a little

1184

00:54:52,130 --> 00:54:50,230

overt to come out and say that but I I

1185

00:54:54,960 --> 00:54:52,140

think there's it I think it's a flawed

1186

00:54:57,210 --> 00:54:54,970

hypothesis it's a flawed concept and and

1187

00:55:00,360 --> 00:54:57,220

in the presence of one that can't

1188

00:55:02,550 --> 00:55:00,370

explain these things I think it's

1189

00:55:06,360 --> 00:55:02,560

inevitable that that will sort of move

1190

00:55:08,520 --> 00:55:06,370

away from not so you're saying you think

1191

00:55:10,380 --> 00:55:08,530

it's a lot more likely that it's more or

1192

00:55:11,910 --> 00:55:10,390

less sauce kind of looping back and

1193

00:55:14,910 --> 00:55:11,920

checking things out

1194

00:55:18,420 --> 00:55:14,920

I do yeah and and if you look at these

1195

00:55:21,330 --> 00:55:18,430

reports of abductions you know what

1196

00:55:23,430 --> 00:55:21,340

they're doing to us is exactly what what

1197

00:55:27,030 --> 00:55:23,440

we would do as paleoanthropologists as

1198

00:55:29,040 --> 00:55:27,040

biomedical researchers we would

1199

00:55:32,190 --> 00:55:29,050

incapacitate them lay them on a table

1200

00:55:35,280 --> 00:55:32,200

and and examined it's it's basically a

1201

00:55:38,970 --> 00:55:35,290

you know biomedical examination and and

1202

00:55:41,430 --> 00:55:38,980

that's that's what we would do the vast

1203

00:55:43,950 --> 00:55:41,440

majority of abduction reports describe

1204

00:55:47,700 --> 00:55:43,960

that very same thing some even put it in

1205

00:55:49,290 --> 00:55:47,710

the context of a biomedical exam over at

1206

00:55:51,720 --> 00:55:49,300

least stating that that they feel like

1207

00:55:54,780 --> 00:55:51,730

they were you know being visited by

1208

00:55:58,200 --> 00:55:54,790

doctors they they describe these people

1209

00:56:00,900 --> 00:55:58,210

as as doctors physicians biomedical

1210

00:56:03,000 --> 00:56:00,910

examiner's and and the fact that that's

1211

00:56:04,650 --> 00:56:03,010

what we would be doing to in the

1212

00:56:07,770 --> 00:56:04,660

capacity of trying to learn more about

1213

00:56:10,800 --> 00:56:07,780

our own evolutionary history our own

1214

00:56:12,450 --> 00:56:10,810

deep evolutionary past where we can get

1215

00:56:15,120 --> 00:56:12,460

more information because we're not just

1216

00:56:17,370 --> 00:56:15,130

digging through dirt looking for the the

1217

00:56:19,320 --> 00:56:17,380

material remains of past cultural groups

1218

00:56:22,950 --> 00:56:19,330

but we're we're studying them they're

1219

00:56:24,690 --> 00:56:22,960

living breathing physical form we can

1220

00:56:26,880 --> 00:56:24,700

study their language we can look at

1221

00:56:30,810 --> 00:56:26,890

their belief systems and we're not just

1222

00:56:32,730 --> 00:56:30,820

left to infer from what we find a small

1223

00:56:33,090 --> 00:56:32,740

sample of things that we find in the

1224

00:56:34,620 --> 00:56:33,100

ground

1225

00:56:37,770 --> 00:56:34,630

but we can we can get a really

1226

00:56:39,750 --> 00:56:37,780

broad-based holistic perspective of

1227

00:56:41,640 --> 00:56:39,760

their culture and biology which is what

1228

00:56:43,980 --> 00:56:41,650

we do in anthropology it's the holistic

1229

00:56:46,530 --> 00:56:43,990

and scientific study of humankind as a

1230

00:56:49,380 --> 00:56:46,540

biological and cultural entity we could

1231

00:56:52,350 --> 00:56:49,390

get all of that with this tool of

1232

00:56:53,760 --> 00:56:52,360

time-travel so see I very much do think

1233

00:56:56,670 --> 00:56:53,770

that's the case and the whole point of

1234

00:56:59,760 --> 00:56:56,680

the book is to to lay out all of these

1235

00:57:03,000 --> 00:56:59,770

things in one very comprehensive form to

1236

00:57:04,760 --> 00:57:03,010

present why scientifically this is a

1237

00:57:07,530 --> 00:57:04,770

better explanation for this phenomenon

1238

00:57:09,930 --> 00:57:07,540

and jumping ahead a little bit

1239

00:57:12,630 --> 00:57:09,940

maybe yeah the the numbers I've seen

1240

00:57:15,330 --> 00:57:12,640

maybe roughly thirty five forty thousand

1241

00:57:19,130 --> 00:57:15,340

years ago that's where you start to see

1242

00:57:21,990 --> 00:57:19,140

among humans as the the rise of a

1243

00:57:23,520 --> 00:57:22,000

civilization they're they start they

1244

00:57:26,160 --> 00:57:23,530

start building things within the next

1245

00:57:28,500 --> 00:57:26,170

few thousand years you see that the

1246

00:57:31,230 --> 00:57:28,510

paintings are the cave paintings things

1247

00:57:33,750 --> 00:57:31,240

like that and also stories from some of

1248

00:57:36,000 --> 00:57:33,760

those ancient people but visitors from

1249

00:57:38,520 --> 00:57:36,010

from somewhere else and gave them a lot

1250

00:57:40,410 --> 00:57:38,530

of these gifts how do those kind of

1251

00:57:46,290 --> 00:57:40,420

stories that play into your thinking on

1252

00:57:50,970 --> 00:57:46,300

this yeah I don't I I do there is a

1253

00:57:54,080 --> 00:57:50,980

chapter in the book that that's actually

1254

00:57:56,940 --> 00:57:54,090

called a brief history of time travelers

1255

00:58:00,720 --> 00:57:56,950

sort of a play on on Hawking's book a

1256

00:58:03,690 --> 00:58:00,730

brief history of time but yeah I you

1257

00:58:06,180 --> 00:58:03,700

know look at certain aspects of of our

1258

00:58:10,200 --> 00:58:06,190

prehistoric past our historic past a lot

1259

00:58:11,790 --> 00:58:10,210

of folklore a lot of you know oral

1260

00:58:16,530 --> 00:58:11,800

histories that have been passed down

1261

00:58:18,480 --> 00:58:16,540

that that describe you know very obscure

1262

00:58:20,250 --> 00:58:18,490

things that don't necessarily fit with

1263

00:58:23,100 --> 00:58:20,260

the culture of the people that lived at

1264

00:58:25,400 --> 00:58:23,110

those times and again I don't I don't

1265

00:58:29,040 --> 00:58:25,410

think there's a lot of direct

1266

00:58:31,740 --> 00:58:29,050

intentional intervention in the past but

1267

00:58:34,950 --> 00:58:31,750

to simply by being there you would

1268

00:58:39,780 --> 00:58:34,960

expect that to manifest itself in some

1269

00:58:41,490 --> 00:58:39,790

way you would expect them to recognize

1270

00:58:43,920 --> 00:58:41,500

that it's very strange you'd probably

1271

00:58:45,600 --> 00:58:43,930

expect them as people do now to think

1272

00:58:46,680 --> 00:58:45,610

that they came from space because you

1273

00:58:48,540 --> 00:58:46,690

would see this

1274

00:58:50,510 --> 00:58:48,550

crafts coming down from the sky and

1275

00:58:55,650 --> 00:58:50,520

instantly thank God it came from space

1276

00:58:59,880 --> 00:58:55,660

but but I don't feel like there needs to

1277

00:59:01,500 --> 00:58:59,890

be this alien explanation for everything

1278

00:59:04,099 --> 00:59:01,510

I think we've gotten a little out of

1279

00:59:06,780 --> 00:59:04,109

control as far as that goes

1280

00:59:08,910 --> 00:59:06,790

but there there's no doubt that certain

1281

00:59:11,460 --> 00:59:08,920

certain aspects of our historic and

1282

00:59:14,250 --> 00:59:11,470

prehistoric past describe things that

1283

00:59:16,980 --> 00:59:14,260

that would make sense in the context of

1284

00:59:19,559 --> 00:59:16,990

of people from the future coming back to

1285

00:59:21,990 --> 00:59:19,569

investigate people in the past and if

1286

00:59:25,829 --> 00:59:22,000

we're seeing it now if it's happening

1287

00:59:27,960 --> 00:59:25,839

now why wouldn't it be happening in the

1288

00:59:30,540 --> 00:59:27,970

past - there's nothing about us like I

1289

00:59:32,520 --> 00:59:30,550

said that makes us so interesting that

1290

00:59:34,380 --> 00:59:32,530

we'd be the only time period that future

1291

00:59:36,680 --> 00:59:34,390

humans would come to we'd want to know

1292

00:59:39,750 --> 00:59:36,690

about every part of the past and and

1293

00:59:43,109 --> 00:59:39,760

there's certain aspects of of us being

1294

00:59:45,059 --> 00:59:43,119

there at those points in time that we

1295

00:59:46,710 --> 00:59:45,069

would expect them to become manifested

1296

00:59:49,800 --> 00:59:46,720

and in the culture history of those

1297

00:59:51,210 --> 00:59:49,810

people the actual civilizations was a

1298

00:59:53,250 --> 00:59:51,220

little more recent it was mostly the

1299

00:59:55,500 --> 00:59:53,260

result of agriculture which was about

1300

00:59:58,950 --> 00:59:55,510

ten thousand years ago and it rose

1301
01:00:01,880 --> 00:59:58,960
independently and along the the Yellow

1302
01:00:04,920 --> 01:00:01,890
River the Yangtze River in China

1303
01:00:07,559 --> 01:00:04,930
Mesopotamia the Nile River Teotihuacan

1304
01:00:10,410 --> 01:00:07,569
valley of Mexico and in a couple other

1305
01:00:12,450 --> 01:00:10,420
places mostly because we started to

1306
01:00:15,260 --> 01:00:12,460
domesticate crops and and that was a

1307
01:00:17,550 --> 01:00:15,270
slow process - I mean you could go back

1308
01:00:20,970 --> 01:00:17,560
possibly as far as twelve thirteen

1309
01:00:24,120 --> 01:00:20,980
thousand years ago or we just started to

1310
01:00:26,190 --> 01:00:24,130
use crops and had noticed that at least

1311
01:00:28,290 --> 01:00:26,200
this is the the dominant theory of how

1312
01:00:30,890 --> 01:00:28,300
agriculture started that we started to

1313
01:00:33,270 --> 01:00:30,900

notice that they were growing up around

1314

01:00:36,150 --> 01:00:33,280

you know where we were living as we were

1315

01:00:38,609 --> 01:00:36,160

gathering them and then the the bigger

1316

01:00:41,309 --> 01:00:38,619

ones the bigger seeds produced the

1317

01:00:43,380 --> 01:00:41,319

biggest plant so we started to to select

1318

01:00:45,300 --> 01:00:43,390

for those to get a bigger yield and

1319

01:00:48,120 --> 01:00:45,310

started to plant them around where we

1320

01:00:50,280 --> 01:00:48,130

lived and started domesticate gregarious

1321

01:00:51,690 --> 01:00:50,290

animals and and all of this started

1322

01:00:53,700 --> 01:00:51,700

around ten thousand years ago and then

1323

01:00:55,910 --> 01:00:53,710

civilizations rose up around those

1324

01:00:59,830 --> 01:00:55,920

mostly because we had a surplus of food

1325

01:01:02,050 --> 01:00:59,840

with agriculture that could allow people

1326

01:01:04,300 --> 01:01:02,060

you divorce themselves from the burdens

1327

01:01:06,130 --> 01:01:04,310

of getting food not everybody had to go

1328

01:01:07,810 --> 01:01:06,140

out and hunt and gather not everybody

1329

01:01:10,360 --> 01:01:07,820

had to work in the fields because they

1330

01:01:13,120 --> 01:01:10,370

could trade their time and what they

1331

01:01:15,190 --> 01:01:13,130

were making for the surplus that's being

1332

01:01:17,050 --> 01:01:15,200

produced by people involved in

1333

01:01:18,340 --> 01:01:17,060

agriculture so that that gave us a whole

1334

01:01:20,080 --> 01:01:18,350

nobility class

1335

01:01:22,990 --> 01:01:20,090

it gave us a ruling class that gave us

1336

01:01:24,880 --> 01:01:23,000

military that military started to act to

1337

01:01:27,220 --> 01:01:24,890

take over neighbouring groups and steal

1338

01:01:29,860 --> 01:01:27,230

their resources and then we have an even

1339

01:01:33,940 --> 01:01:29,870

bigger stratification in society of a

1340

01:01:36,640 --> 01:01:33,950

slave caste now and populations grew

1341

01:01:38,710 --> 01:01:36,650

largely out of that agricultural

1342

01:01:40,890 --> 01:01:38,720

revolution that began during the

1343

01:01:44,610 --> 01:01:40,900

Neolithic about ten thousand years ago

1344

01:01:47,080 --> 01:01:44,620

but again there doesn't need to be an

1345

01:01:48,970 --> 01:01:47,090

extra-terrestrial explanation there it

1346

01:01:51,430 --> 01:01:48,980

doesn't it doesn't have to be the people

1347

01:01:54,130 --> 01:01:51,440

from the future created this it just

1348

01:01:56,230 --> 01:01:54,140

it's an obvious step forward from what

1349

01:01:57,970 --> 01:01:56,240

we are already doing at that time and it

1350

01:02:00,370 --> 01:01:57,980

helps solve a lot of problems too we

1351
01:02:03,010 --> 01:02:00,380
have climate change taking place a lot

1352
01:02:05,050 --> 01:02:03,020
of the big delicious animals that we're

1353
01:02:08,290 --> 01:02:05,060
eating like mammoths mastodons woolly

1354
01:02:11,740 --> 01:02:08,300
rhinoceros they were all dying out what

1355
01:02:13,600 --> 01:02:11,750
do you do when this really large source

1356
01:02:15,760 --> 01:02:13,610
of food starts disappearing you you

1357
01:02:19,170 --> 01:02:15,770
adapt you adapt migrate or die and we

1358
01:02:21,850 --> 01:02:19,180
adapted by by harnessing the power of

1359
01:02:23,650 --> 01:02:21,860
Agriculture and domestication around

1360
01:02:26,800 --> 01:02:23,660
that same time and obviously with the

1361
01:02:28,960 --> 01:02:26,810
climate warming it became more possible

1362
01:02:31,090 --> 01:02:28,970
to do so too to actually grow crops and

1363
01:02:35,740 --> 01:02:31,100

what were previously environments that

1364

01:02:37,900 --> 01:02:35,750

were too cold to do so okay well you got

1365

01:02:39,640 --> 01:02:37,910

the book coming out that is going to

1366

01:02:40,780 --> 01:02:39,650

come out in the spring that's a your

1367

01:02:46,420 --> 01:02:40,790

target published

1368

01:02:49,390 --> 01:02:46,430

yeah around March 15th open open that we

1369

01:02:51,250 --> 01:02:49,400

can meet that deadline got some good

1370

01:02:53,710 --> 01:02:51,260

people working on the project with me

1371

01:02:55,210 --> 01:02:53,720

and I certainly think we should be able

1372

01:02:57,850 --> 01:02:55,220

to maybe even earlier we'll probably

1373

01:03:00,220 --> 01:02:57,860

start doing presale and early February

1374

01:03:02,380 --> 01:03:00,230

in fact so yeah it's it's coming up it's

1375

01:03:04,690 --> 01:03:02,390

it's almost done and almost ready to hit

1376

01:03:05,080 --> 01:03:04,700

the presses and you sound pretty excited

1377

01:03:07,600 --> 01:03:05,090

about it

1378

01:03:10,570 --> 01:03:07,610

I am yeah it's been a it's been a long

1379

01:03:13,330 --> 01:03:10,580

journey it's been a big project that the

1380

01:03:13,740 --> 01:03:13,340

you know and and if it was just the book

1381

01:03:15,750 --> 01:03:13,750

it

1382

01:03:17,660 --> 01:03:15,760

would have been done a long time ago but

1383

01:03:20,220 --> 01:03:17,670

with with teaching and you know

1384

01:03:22,710 --> 01:03:20,230

researching and and doing these these

1385

01:03:24,600 --> 01:03:22,720

other things service is a big part of

1386

01:03:27,060 --> 01:03:24,610

our jobs that most people don't

1387

01:03:29,280 --> 01:03:27,070

recognize that the professor's are

1388

01:03:31,620 --> 01:03:29,290

expected to de mentor and be on

1389

01:03:34,770 --> 01:03:31,630

committees and engage the community and

1390

01:03:38,280 --> 01:03:34,780

things like that but it's it's it's been

1391

01:03:40,680 --> 01:03:38,290

a big project in the six years and yeah

1392

01:03:42,510 --> 01:03:40,690

I'm really excited to see it coming to

1393

01:03:45,120 --> 01:03:42,520

fruition and and and honestly I'm

1394

01:03:46,590 --> 01:03:45,130

excited about what it's become there's

1395

01:03:49,110 --> 01:03:46,600

been a lot of really intelligent people

1396

01:03:52,050 --> 01:03:49,120

that have read versions of this along

1397

01:03:53,970 --> 01:03:52,060

the way and provided important feedback

1398

01:03:57,090 --> 01:03:53,980

and insight it's been a very

1399

01:03:59,850 --> 01:03:57,100

collaborative project in many ways and

1400

01:04:02,850 --> 01:03:59,860

I'm kind of excited as to what it's

1401
01:04:07,980 --> 01:04:02,860
become as a result of that process and

1402
01:04:11,100 --> 01:04:07,990
jumping into the the UFO realm a little

1403
01:04:15,030 --> 01:04:11,110
bit that have you gotten any feedback as

1404
01:04:18,660 --> 01:04:15,040
far as that goes oh yeah definitely have

1405
01:04:21,990 --> 01:04:18,670
been been talking with a lot of people

1406
01:04:25,680 --> 01:04:22,000
mostly on Twitter actually a good bit on

1407
01:04:28,920 --> 01:04:25,690
Facebook too I post I post updates from

1408
01:04:30,800 --> 01:04:28,930
the book and little snippets as I'm

1409
01:04:34,440 --> 01:04:30,810
going through the last content at it on

1410
01:04:37,740 --> 01:04:34,450
Facebook and people you know I've been

1411
01:04:40,650 --> 01:04:37,750
excited about those we just hosted a

1412
01:04:42,270 --> 01:04:40,660
little festival the other day and people

1413
01:04:43,980 --> 01:04:42,280

would come up and say I've really been

1414

01:04:46,260 --> 01:04:43,990

enjoying these these little snippets I'm

1415

01:04:49,500 --> 01:04:46,270

excited about the book and people in the

1416

01:04:51,210 --> 01:04:49,510

UFO community too and a really

1417

01:04:54,420 --> 01:04:51,220

interesting conversations on Twitter

1418

01:04:56,670 --> 01:04:54,430

just doing interviews like this and and

1419

01:04:58,200 --> 01:04:56,680

talking to people there's there's it's

1420

01:05:01,680 --> 01:04:58,210

been really really fun and really

1421

01:05:05,370 --> 01:05:01,690

interesting to just continue to to grow

1422

01:05:06,780 --> 01:05:05,380

it evolve the idea you know it's like I

1423

01:05:09,180 --> 01:05:06,790

said it's been a collaborative project

1424

01:05:11,880 --> 01:05:09,190

working with you know peer reviewers and

1425

01:05:14,150 --> 01:05:11,890

beta readers but but honestly you know

1426

01:05:17,490 --> 01:05:14,160

just just talking with people over

1427

01:05:19,370 --> 01:05:17,500

probably the last 25 years

1428

01:05:21,990 --> 01:05:19,380

I remember you know laying in fields

1429

01:05:24,120 --> 01:05:22,000

rapping with friends and junior high

1430

01:05:26,520 --> 01:05:24,130

high school about the same question and

1431

01:05:27,630 --> 01:05:26,530

it's it's obviously evolved a lot since

1432

01:05:30,749 --> 01:05:27,640

then but

1433

01:05:33,120 --> 01:05:30,759

it's uh yeah it's it's it's been really

1434

01:05:36,269 --> 01:05:33,130

interesting and really enlightening for

1435

01:05:37,410 --> 01:05:36,279

me as well and you went to high school I

1436

01:05:39,120 --> 01:05:37,420

did a little bit of background research

1437

01:05:40,859 --> 01:05:39,130

you went to high school not far from the

1438

01:05:43,709 --> 01:05:40,869

Hall of Fame City Canton Ohio

1439

01:05:45,809 --> 01:05:43,719

that's right that's right yeah Orvil

1440

01:05:48,499 --> 01:05:45,819

Ohio just just down the street from

1441

01:05:54,089 --> 01:05:48,509

Canton actually home of Smuckers jelly

1442

01:05:57,180 --> 01:05:54,099

okay now you are out west teaching yeah

1443

01:06:01,469 --> 01:05:57,190

yeah Mount Montana now I've been here

1444

01:06:03,749 --> 01:06:01,479

for about nine years work in it a

1445

01:06:08,069 --> 01:06:03,759

top-rated university in the Northwest

1446

01:06:10,609 --> 01:06:08,079

Montana Tech and yeah I love it out here

1447

01:06:13,799 --> 01:06:10,619

it's it's great so many opportunities to

1448

01:06:16,620 --> 01:06:13,809

to just get out in nature and and really

1449

01:06:20,009 --> 01:06:16,630

take advantage of what what nature has

1450

01:06:26,609 --> 01:06:20,019

to offer I guess yeah Midwestern er

1451
01:06:28,109 --> 01:06:26,619
living in the mountains now I remember

1452
01:06:31,440 --> 01:06:28,119
that for my days living out there myself

1453
01:06:34,049 --> 01:06:31,450
yeah down in southern Ohio I was lucky

1454
01:06:38,549 --> 01:06:34,059
to go to school in Ohio University we

1455
01:06:41,069 --> 01:06:38,559
had we had Hills yeah yeah we had a

1456
01:06:43,620 --> 01:06:41,079
little bit to go up and down on it was

1457
01:06:45,569 --> 01:06:43,630
it was a nice place to be but yeah you

1458
01:06:50,249 --> 01:06:45,579
write the rest of the states mostly

1459
01:06:52,890 --> 01:06:50,259
cornfields dr. masters it was great

1460
01:06:56,309 --> 01:06:52,900
having you on this morning very

1461
01:06:59,459 --> 01:06:56,319
interesting subjects some very

1462
01:07:02,640 --> 01:06:59,469
interesting speculations that may or may

1463
01:07:05,249 --> 01:07:02,650

not go over with the UFO community but

1464

01:07:07,739 --> 01:07:05,259

interesting nevertheless certainly yes

1465

01:07:09,150 --> 01:07:07,749

something well worth considering thanks

1466

01:07:11,279 --> 01:07:09,160

so much for joining me today it was

1467

01:07:14,430 --> 01:07:11,289

great yeah I appreciate you having me I

1468

01:07:17,099 --> 01:07:14,440

would like to point out though that it's

1469

01:07:20,099 --> 01:07:17,109

I don't feel like it needs to be

1470

01:07:24,660 --> 01:07:20,109

mutually exclusive that you know I don't

1471

01:07:26,789 --> 01:07:24,670

feel like by explaining this with a time

1472

01:07:29,370 --> 01:07:26,799

travel model that it needs to be

1473

01:07:31,680 --> 01:07:29,380

something that that's looked critically

1474

01:07:34,109 --> 01:07:31,690

upon by the UFO community I really do

1475

01:07:36,839 --> 01:07:34,119

believe that that it's it's the

1476

01:07:40,769 --> 01:07:36,849

scientific explanation you know that

1477

01:07:41,460 --> 01:07:40,779

that tries to avoid speculation so far

1478

01:07:43,109 --> 01:07:41,470

has been very

1479

01:07:45,390 --> 01:07:43,119

well received by the UFO community I

1480

01:07:48,210 --> 01:07:45,400

think it'll continue to be because it

1481

01:07:51,690 --> 01:07:48,220

doesn't it doesn't take away it only

1482

01:07:53,730 --> 01:07:51,700

adds to the knowledge from what I've

1483

01:07:55,920 --> 01:07:53,740

seen that I've been looking at this

1484

01:07:59,940 --> 01:07:55,930

seriously maybe not quite a decade now

1485

01:08:01,620 --> 01:07:59,950

and it's a pretty idea driven the ideas

1486

01:08:03,570 --> 01:08:01,630

are interesting the riff kicking around

1487

01:08:05,160 --> 01:08:03,580

they're worth discussing I think

1488

01:08:07,760 --> 01:08:05,170

generally there they will be pretty

1489

01:08:10,620 --> 01:08:07,770

embraced I don't see too many dogmatists

1490

01:08:12,660 --> 01:08:10,630

there's there's a couple there's there's

1491

01:08:14,820 --> 01:08:12,670

a few there's a few but not too many no

1492

01:08:16,860 --> 01:08:14,830

you're right I've actually I'd like to I

1493

01:08:20,579 --> 01:08:16,870

definitely like to go on record say and

1494

01:08:21,959 --> 01:08:20,589

I've been really excited so far I mean

1495

01:08:24,300 --> 01:08:21,969

I've only been talking about this for

1496

01:08:26,430 --> 01:08:24,310

about a month but but the reception it's

1497

01:08:28,829 --> 01:08:26,440

it's received in the UFO community has

1498

01:08:30,570 --> 01:08:28,839

been overwhelmingly positive and and

1499

01:08:32,849 --> 01:08:30,580

it's been really great to work with

1500

01:08:35,309 --> 01:08:32,859

these people and and talk to them and

1501

01:08:36,870 --> 01:08:35,319

and learn from them - like I said I mean

1502

01:08:39,570 --> 01:08:36,880

it's it's it's a growing evolving

1503

01:08:41,849 --> 01:08:39,580

project and and will always be that's

1504

01:08:44,789 --> 01:08:41,859

that's the main point of doing this is

1505

01:08:47,519 --> 01:08:44,799

to bring a new perspective and a new you

1506

01:08:50,099 --> 01:08:47,529

know rigorous scientific perspective and

1507

01:08:52,829 --> 01:08:50,109

I think I think people want that and

1508

01:08:56,340 --> 01:08:52,839

thus far it's it's been indicated by

1509

01:08:58,349 --> 01:08:56,350

their reception so I'm excited to work

1510

01:09:01,320 --> 01:08:58,359

with the UFO community in this capacity

1511

01:09:02,910 --> 01:09:01,330

and I don't know you're likely aware of

1512

01:09:05,550 --> 01:09:02,920

this but it hasn't come up to this point

1513

01:09:08,099 --> 01:09:05,560

but one of the more famous cases of the

1514

01:09:10,800 --> 01:09:08,109

last half century or so is the

1515

01:09:13,320 --> 01:09:10,810

Rendlesham forest case and one of the

1516

01:09:15,870 --> 01:09:13,330

key witnesses in that case was a an

1517

01:09:18,450 --> 01:09:15,880

airman named Jim Penniston who has

1518

01:09:21,269 --> 01:09:18,460

openly discussed his feelings of that

1519

01:09:23,010 --> 01:09:21,279

it's a very much time travelers from the

1520

01:09:24,990 --> 01:09:23,020

future us from the future that's what

1521

01:09:26,430 --> 01:09:25,000

yeah he feels he's encountered there so

1522

01:09:29,760 --> 01:09:26,440

I I don't know if you're familiar with

1523

01:09:32,820 --> 01:09:29,770

that or had any dealings with Jim

1524

01:09:33,269 --> 01:09:32,830

directly but you're certainly not alone

1525

01:09:36,510 --> 01:09:33,279

out there

1526

01:09:38,880 --> 01:09:36,520

well it's you're not alone at all as far

1527

01:09:41,610 --> 01:09:38,890

as that idea that's awesome yeah it's

1528

01:09:43,680 --> 01:09:41,620

good to hear and and you know if the

1529

01:09:47,820 --> 01:09:43,690

chip so far where they may well like

1530

01:09:49,090 --> 01:09:47,830

were you not aware I had I have heard

1531

01:09:51,849 --> 01:09:49,100

his name yeah

1532

01:09:54,640 --> 01:09:51,859

then about him touching the craft and he

1533

01:09:56,170 --> 01:09:54,650

received this sort of flash and that

1534

01:09:59,050 --> 01:09:56,180

understood that they were from time

1535

01:10:01,930 --> 01:09:59,060

rather than space so yeah and then you

1536

01:10:05,170 --> 01:10:01,940

had on your show recently one of his

1537

01:10:07,450 --> 01:10:05,180

colleagues John John Burroughs yeah I

1538

01:10:09,370 --> 01:10:07,460

listen to that interview it's really

1539

01:10:12,580 --> 01:10:09,380

good a really good episode of the

1540

01:10:15,820 --> 01:10:12,590

program but ya know it's it's not it's

1541

01:10:18,070 --> 01:10:15,830

not an idea that you know I came up with

1542

01:10:20,860 --> 01:10:18,080

myself I I thought of it independently

1543

01:10:23,830 --> 01:10:20,870

when I was 8 but you know it's it's an

1544

01:10:27,310 --> 01:10:23,840

idea that that has been around and and I

1545

01:10:30,280 --> 01:10:27,320

think you know in the near future it's

1546

01:10:32,410 --> 01:10:30,290

going to become a more prominent model

1547

01:10:34,570 --> 01:10:32,420

to explain this phenomenon but but like

1548

01:10:37,540 --> 01:10:34,580

I said you know all I can do is put out

1549

01:10:41,260 --> 01:10:37,550

the research that I've done build this

1550

01:10:43,810 --> 01:10:41,270

case and then you know looking at the

1551

01:10:45,670 --> 01:10:43,820

research of others collectively going

1552

01:10:53,500 --> 01:10:45,680

forward you know just try to make sense

1553

01:11:00,340 --> 01:10:55,690

yeah it's called identified flying

1554

01:11:02,890 --> 01:11:00,350

objects I'm assuming that when it does

1555

01:11:04,900 --> 01:11:02,900

come out the easy spot is Amazon but

1556

01:11:07,470 --> 01:11:04,910

there'll be others as well where could

1557

01:11:10,960 --> 01:11:07,480

pick it up yep all major distributors

1558

01:11:13,360 --> 01:11:10,970

Amazon's probably the easiest and the

1559

01:11:15,510 --> 01:11:13,370

the best as far as that goes but but

1560

01:11:19,330 --> 01:11:15,520

yeah it'll be widely available for sure

1561

01:11:21,010 --> 01:11:19,340

fantastic well dr. you enjoy the rest of

1562

01:11:22,960 --> 01:11:21,020

your weekend I'm gonna try here you got

1563

01:11:25,210 --> 01:11:22,970

that being out west you've got a little

1564

01:11:27,750 --> 01:11:25,220

bit more time ahead of you today but

1565

01:11:30,400 --> 01:11:27,760

thanks so very much for joining us and

1566

01:11:32,920 --> 01:11:30,410

we will have some more shows in the

1567

01:11:35,890 --> 01:11:32,930

future by yeah co-host James who's on

1568

01:11:38,430 --> 01:11:35,900

assignment again this week says he's got

1569

01:11:40,450 --> 01:11:38,440

some good names for us lined up so

1570

01:11:42,250 --> 01:11:40,460

everybody yeah by all means

1571

01:11:44,890 --> 01:11:42,260

tune in in the future tell your friends

1572

01:11:46,930 --> 01:11:44,900

all about it doctor thanks once again

1573

01:11:48,220 --> 01:11:46,940

for joining us thank you so much

1574

01:11:49,660 --> 01:11:48,230

appreciate having me Frank cuz I'm

1575

01:11:53,410 --> 01:11:49,670

talkin to you thanks a lot you have a

1576

01:11:58,360 --> 01:11:53,420

great day bye bye dick him and that's

1577

01:12:02,080 --> 01:11:58,370

that we will be back in the future just

1578

01:12:04,030 --> 01:12:02,090

like our just like our future friends