

1

00:00:00,000 --> 00:00:07,000

On this episode of Mythbusters...

2

00:00:07,000 --> 00:00:10,000

Like that.

3

00:00:10,000 --> 00:00:11,000

Sparks are flying.

4

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

Totally f\*\*\*ing f\*\*\*ing me.

5

00:00:12,000 --> 00:00:16,000

We finally get a reasonable experiment here and he's like...

6

00:00:16,000 --> 00:00:17,000

And trouble's brewing.

7

00:00:17,000 --> 00:00:21,000

I would say that the rig is not safe at all.

8

00:00:21,000 --> 00:00:26,000

Adam finds out that the falling penny myth can really be a pain in the...

9

00:00:26,000 --> 00:00:27,000

Oh!

10

00:00:27,000 --> 00:00:31,000

We'll see why these guys don't have their own cooking show.

11

00:00:31,000 --> 00:00:37,000

And find out the link between Japanese spies and Lucille Ball's teeth.

12

00:00:37,000 --> 00:00:40,000

The more scalded.

13

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

Who are the Mythbusters?

14

00:00:42,000 --> 00:00:45,000

Am I missing an eyebrow?

15

00:00:45,000 --> 00:00:47,000

Adam Savage.

16

00:00:47,000 --> 00:00:50,000

I always enjoyed seeing Adam in pain.

17

00:00:50,000 --> 00:00:51,000

Oh!

18

00:00:51,000 --> 00:00:52,000

And Jamie Heidemann.

19

00:00:52,000 --> 00:00:54,000

Jamie wants a big bone.

20

00:00:55,000 --> 00:00:58,000

More than 30 years special effects experience.

21

00:00:58,000 --> 00:01:00,000

You're kind of sexy.

22

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

They don't just tell the myth.

23

00:01:03,000 --> 00:01:06,000

They put them to the test.

24

00:01:06,000 --> 00:01:24,000

This myth originated in the Big Apple atop an architectural icon.

25

00:01:24,000 --> 00:01:26,000

The Empire State Building.

26

00:01:26,000 --> 00:01:30,000

The myth is that if you throw a penny off of a building this height,

27

00:01:30,000 --> 00:01:34,000

that it'll either get going so fast that it'll embed itself in the concrete

28

00:01:34,000 --> 00:01:39,000

at the base of the building or it'll hit somebody in the head and kill them.

29

00:01:39,000 --> 00:01:43,000

Lydia Ruth has worked here for 18 years.

30

00:01:43,000 --> 00:01:46,000

She's heard the penny myth many times.

31

00:01:46,000 --> 00:01:50,000

I know one gentleman who worked in the lobby was with the building from

32

00:01:50,000 --> 00:01:54,000

late 1930s right after the building opened and he had heard it.

33

00:01:54,000 --> 00:01:58,000

So I think it's just one of those myths that belongs to the Empire State Building.

34

00:01:58,000 --> 00:02:02,000

Tossing a coin off the Empire State is not as easy as it sounds.

35

00:02:02,000 --> 00:02:07,000

Tall buildings like this can generate their own unique weather conditions.

36

00:02:07,000 --> 00:02:11,000

Some updrafts can reach cyclonic speeds.

37

00:02:11,000 --> 00:02:15,000

It's 8 a.m. in the morning and the wind's already starting to pick up.

38

00:02:15,000 --> 00:02:19,000

There's every possibility that if you hurl this thing off the edge of the building

39

00:02:19,000 --> 00:02:21,000

that it'd just blow it back over.

40

00:02:21,000 --> 00:02:25,000

When the wind blows against the face of the building, the wind blows up.

41

00:02:25,000 --> 00:02:28,000

And you might have heard the story of it raining up or it's snowing up.

42

00:02:28,000 --> 00:02:30,000

Well, that actually does happen.

43

00:02:30,000 --> 00:02:33,000

It will blow against the side of the building. There's an updraft.

44

00:02:33,000 --> 00:02:36,000

So if you throw something off, no matter how far away you throw it,

45

00:02:36,000 --> 00:02:38,000

the wind is going to catch it.

46

00:02:38,000 --> 00:02:43,000

Of course, there's also the possibility that the story might be true.

47

00:02:43,000 --> 00:02:47,000

In which case, you risk killing some innocent pedestrian.

48

00:02:47,000 --> 00:02:53,000

We need to figure out how fast a penny would be going if it fell 1280 feet.

49

00:02:53,000 --> 00:02:56,000

What kind of damage it would do. I think we need to go back to the shop and test it.

50

00:02:56,000 --> 00:03:01,000

Adam and Jamie need to find out what is a penny's maximum speed when falling.

51

00:03:01,000 --> 00:03:04,000

In other words, it's terminal velocity.

52

00:03:04,000 --> 00:03:08,000

Once they've done that, they'll shoot the coin at concrete, asphalt,

53

00:03:08,000 --> 00:03:11,000

and a head made from ballistics gel.

54

00:03:11,000 --> 00:03:12,000

Nice.

55

00:03:12,000 --> 00:03:16,000

Step one, finding out a penny's terminal velocity.

56

00:03:17,000 --> 00:03:23,000

Now, we know a person's terminal velocity is about 120 miles per hour.

57

00:03:23,000 --> 00:03:26,000

But is a penny's the same?

58

00:03:26,000 --> 00:03:33,000

In his quest to find out, Adam's willing to jump out of a perfectly good plane for the first time.

59

00:03:33,000 --> 00:03:40,000

As he plummets, he releases handfuls of pennies.

60

00:03:40,000 --> 00:03:42,000

Well done. How'd it go?

61

00:03:42,000 --> 00:03:44,000

That was amazing.

62

00:03:44,000 --> 00:03:48,000

I mean, unlike anything I've ever tried before, you really should have done it.

63

00:03:48,000 --> 00:03:51,000

A penny's the same as a penny's.

64

00:03:51,000 --> 00:03:52,000

Well done.

65

00:03:52,000 --> 00:03:53,000

What a story.

66

00:03:53,000 --> 00:03:55,000

You're a real master of pennies.

67

00:03:55,000 --> 00:03:56,000

I can tell you.

68

00:03:56,000 --> 00:03:58,000

I'm a real master of pennies.

69

00:03:58,000 --> 00:04:01,000

You're a real master of pennies.

70

00:04:01,000 --> 00:04:02,000

Well done.

71

00:04:02,000 --> 00:04:04,000

How'd it go?

72

00:04:04,000 --> 00:04:05,000

That was amazing.

73

00:04:05,000 --> 00:04:08,000

I mean, it's unlike anything I've ever tried before.

74

00:04:08,000 --> 00:04:09,000

You really should have done it.

75

00:04:09,000 --> 00:04:10,480

I really should have done it.

76

00:04:10,480 --> 00:04:11,760

What did the pennies do when you let them go?

77

00:04:11,760 --> 00:04:13,380

The pennies flew right out of my hands.

78

00:04:13,380 --> 00:04:15,040

I opened one hand and then the other,

79

00:04:15,040 --> 00:04:18,120

and the pennies just shot out towards the sky.

80

00:04:18,120 --> 00:04:20,280

Out of one hand, they hovered for a second

81

00:04:20,280 --> 00:04:23,800

in the burble above my hand, the air bubble vortex.

82

00:04:23,800 --> 00:04:26,600

And other than that, I was traveling way faster

83

00:04:26,600 --> 00:04:28,040

than they were.

84

00:04:28,040 --> 00:04:28,960

I want to do it again.

85

00:04:28,960 --> 00:04:30,080

That was awesome.

86

00:04:30,080 --> 00:04:30,920

Boom!

87

00:04:30,920 --> 00:04:36,860

The guys have seen complex equations

88

00:04:36,860 --> 00:04:41,820

that put a penny's top speed at somewhere between 35 and 65

89

00:04:41,820 --> 00:04:44,900

miles per hour.

90

00:04:44,900 --> 00:04:47,300

I used to be able to juggle them.

91

00:04:47,300 --> 00:04:50,380

But Adam's not taking those figures at face value.

92

00:04:50,380 --> 00:04:53,420

He wants to test them in his own penny wind tunnel.

93

00:04:57,340 --> 00:05:01,820

At the bottom, wind speed is clocked at 65 miles per hour.

94

00:05:01,820 --> 00:05:04,580

Holes in the tube allow the air to dissipate,

95

00:05:04,580 --> 00:05:08,540

so the speed at the top drops to 35 miles per hour.

96

00:05:08,540 --> 00:05:13,060

If the penny stays in the tube, then the equations are correct.

97

00:05:13,060 --> 00:05:13,900

Bingo!

98

00:05:13,900 --> 00:05:18,820

Adam's one happy myth buster, if only Jamie was excited.

99

00:05:18,820 --> 00:05:21,420

This matches the math, the complex equations

100

00:05:21,420 --> 00:05:22,940

that we have showing the velocity.

101

00:05:22,940 --> 00:05:24,620

I think we should go for a worst case scenario,

102

00:05:24,620 --> 00:05:26,540

like 65 miles an hour.

103

00:05:26,540 --> 00:05:27,620

OK, works for me.

104

00:05:27,620 --> 00:05:28,820

This is excited, Jamie.

105

00:05:28,820 --> 00:05:29,300

Yeah, this is dance.

106

00:05:29,300 --> 00:05:30,220

We've got a world first.

107

00:05:30,220 --> 00:05:32,300

It's going out on television that we

108

00:05:32,340 --> 00:05:35,060

did the experiment that showed exactly how fast a penny goes.

109

00:05:35,060 --> 00:05:38,860

No math, no ideas, no timing off a building.

110

00:05:38,860 --> 00:05:40,620

We got it right here in the lab.

111

00:05:40,620 --> 00:05:41,940

It's great.

112

00:05:41,940 --> 00:05:43,580

Good job.

113

00:05:43,580 --> 00:05:44,660

Totally f\*\*\*ed me.

114

00:05:44,660 --> 00:05:46,780

We finally get a reasonable experiment here,

115

00:05:46,780 --> 00:05:49,420

and he's like, ugh, ugh.

116

00:05:49,420 --> 00:05:50,580

Well, that's great.

117

00:05:50,580 --> 00:05:52,180

It's like, what are you going to do?

118

00:05:52,180 --> 00:05:53,500

How are you going to please the guy?

119

00:05:53,500 --> 00:05:55,460

I don't consider it an enormous feat

120

00:05:55,460 --> 00:06:01,300

to be able to elevate a penny in a wind chamber.

121

00:06:01,300 --> 00:06:07,220

On that note, the mythbusters go their separate ways.

122

00:06:07,220 --> 00:06:11,660

Jamie's looking for a way to fire a penny at 65 miles per hour,

123

00:06:11,660 --> 00:06:15,020

while Adam begins work on the dummy head.

124

00:06:15,020 --> 00:06:18,020

I decided to use the staple gun because when we're

125

00:06:18,020 --> 00:06:20,780

experimenting with things here in the shop, a lot of times,

126

00:06:20,780 --> 00:06:23,620

I don't like to go through a whole elaborate process

127

00:06:23,620 --> 00:06:26,740

in days of machining something, only to find

128

00:06:26,740 --> 00:06:29,500

that it was the wrong approach or didn't have the right speed.

129

00:06:29,500 --> 00:06:31,700

I like to kind of find something that

130

00:06:31,700 --> 00:06:33,420

will allow me to move into it quickly.

131

00:06:33,420 --> 00:06:35,620

To make the petty fit in the staple gun,

132

00:06:35,620 --> 00:06:37,660

Jamie lops a little off each side.

133

00:06:45,460 --> 00:06:45,960

What?

134

00:06:49,060 --> 00:06:49,980

We should get out of here.

135

00:06:49,980 --> 00:06:51,740

That's mercury vapor there.

136

00:06:51,740 --> 00:06:53,500

OK.

137

00:06:53,500 --> 00:06:56,300

Well, the good news is it works.

138

00:06:56,300 --> 00:07:00,500

I guess I should look up before I shoot those things.

139

00:07:00,500 --> 00:07:01,740

Well, that worked.

140

00:07:01,740 --> 00:07:06,220

Next, Jamie has to measure how fast the penny is going.

141

00:07:06,220 --> 00:07:07,740

We've taken a staple gun, like what

142

00:07:07,740 --> 00:07:09,820

you would have in a normal wood shop.

143

00:07:09,820 --> 00:07:11,500

We put it in front of a chart that we

144

00:07:11,500 --> 00:07:13,620

can track the speed of the penny with.

145

00:07:13,620 --> 00:07:16,860

We've got a concrete block and a high-speed camera.

146

00:07:16,860 --> 00:07:19,700

So we've modified this staple gun to accept the penny.

147

00:07:19,700 --> 00:07:22,060

We're firing it and tracking it, recording

148

00:07:22,060 --> 00:07:25,180

how fast it goes based on this information.

149

00:07:25,180 --> 00:07:27,300

It's time to see if Jamie's penny can

150

00:07:27,300 --> 00:07:29,700

achieve terminal velocity.

151

00:07:29,700 --> 00:07:33,300

The modified staple gun blasts the coin from three feet

152

00:07:33,300 --> 00:07:34,820

at the concrete block.

153

00:07:34,820 --> 00:07:37,380

OK, you can see the penny in the current.

154

00:07:37,380 --> 00:07:42,380

The penny traveled the three feet in 16, 500s of a second.

155

00:07:42,380 --> 00:07:45,420

The rig has shown that we can fire this penny at about 65

156

00:07:45,420 --> 00:07:49,540

miles an hour, which is at the upper level of what studies

157

00:07:49,540 --> 00:07:52,940

have shown that the terminal velocity of a penny would be.

158

00:07:52,980 --> 00:07:56,140

Jamie's strong points are that he'll try a solution that

159

00:07:56,140 --> 00:07:59,660

seems ridiculous.

160

00:07:59,660 --> 00:08:04,020

Chewing gum and nails to do something

161

00:08:04,020 --> 00:08:06,100

will seem really inelegant, but he'll

162

00:08:06,100 --> 00:08:11,260

have grasped by trying that a central thing about the mechanics

163

00:08:11,260 --> 00:08:12,220

of what he's doing.

164

00:08:12,220 --> 00:08:15,380

And his solution, therefore, won't be too clever.

165

00:08:15,380 --> 00:08:18,340

It will be very unadorned, very simple, but it'll work.

166

00:08:18,340 --> 00:08:20,300

But the staple gun's not perfect.

167

00:08:20,300 --> 00:08:23,100

It has to fire a whole penny.

168

00:08:23,100 --> 00:08:25,580

Obviously, it was really easy to nip the corners off

169

00:08:25,580 --> 00:08:27,420

of this penny to make it fit in the gun.

170

00:08:27,420 --> 00:08:29,420

And it's not that much different in mass

171

00:08:29,420 --> 00:08:30,420

than what real penny is.

172

00:08:30,420 --> 00:08:32,180

So I'm pretty sure, based on that,

173

00:08:32,180 --> 00:08:37,020

that if I widen the channel or the throat of this staple gun,

174

00:08:37,020 --> 00:08:41,020

that I should be able to make it fire a full-size penny just

175

00:08:41,020 --> 00:08:42,580

as well and with the same kind of speed.

176

00:08:42,580 --> 00:08:51,820

Well, it took relatively little work.

177

00:08:51,820 --> 00:08:56,060

And this is a high-velocity penny shooter.

178

00:08:56,060 --> 00:08:58,380

Terminal velocity gun right here.

179

00:08:58,380 --> 00:09:01,780

Meanwhile, Adam's mood has changed dramatically.

180

00:09:01,780 --> 00:09:04,140

Ah, screw.

181

00:09:04,140 --> 00:09:05,380

That's total wash.

182

00:09:05,380 --> 00:09:06,220

I don't have it.

183

00:09:06,220 --> 00:09:07,300

I'm going to argue against this.

184

00:09:07,300 --> 00:09:08,140

I don't have it today.

185

00:09:08,140 --> 00:09:09,740

I'm just going to get really frustrated.

186

00:09:09,780 --> 00:09:13,020

He's vacuum forming a mold to make the ballistics bus.

187

00:09:13,020 --> 00:09:16,900

It's a female skull, which is why I use the female head here.

188

00:09:16,900 --> 00:09:19,180

The skull is placed inside the mold,

189

00:09:19,180 --> 00:09:22,020

and ballistics gel poured in around it.

190

00:09:22,020 --> 00:09:26,100

When it sets, the gel has the same density and elasticity

191

00:09:26,100 --> 00:09:32,260

as human flesh, which is why the FBI uses it to test weapons.

192

00:09:32,260 --> 00:09:34,140

The mold has sprung a leak.

193

00:09:34,140 --> 00:09:37,100

Paper toweling and glue stem the tide of gel.

194

00:09:40,740 --> 00:09:43,940

Most coins thrown from the top of the Empire State Building

195

00:09:43,940 --> 00:09:45,540

don't get very far.

196

00:09:45,540 --> 00:09:51,940

They wind up here, just five stories down on the 81st floor.

197

00:09:51,940 --> 00:09:53,340

It proves one thing, though.

198

00:09:53,340 --> 00:09:55,940

A lot of people have heard the penny myth.

199

00:09:55,940 --> 00:09:58,060

So it would seem that even though the myth is prevalent,

200

00:09:58,060 --> 00:10:00,140

people are pretty cavalier about testing it.

201

00:10:00,140 --> 00:10:02,140

Yeah, they do it all the time, and it scares me

202

00:10:02,140 --> 00:10:03,820

because if they really thought that their penny

203

00:10:03,820 --> 00:10:05,900

was going to kill somebody, what are they thinking?

204

00:10:05,900 --> 00:10:08,100

And it seems penny-related myths

205

00:10:08,260 --> 00:10:10,740

have always had plenty of currency.

206

00:10:10,740 --> 00:10:12,900

Penny's have long been associated with luck,

207

00:10:12,900 --> 00:10:14,620

in this case, really bad luck.

208

00:10:14,620 --> 00:10:16,500

But normally, very good luck.

209

00:10:16,500 --> 00:10:19,620

If you find a penny, pick it up, and all day you'll have good luck.

210

00:10:19,620 --> 00:10:22,180

If you pass up a penny, you'll lose a dollar.

211

00:10:22,180 --> 00:10:23,780

If you find a penny that's heads up,

212

00:10:23,780 --> 00:10:26,540

it's particularly good luck, and you should carry it with you

213

00:10:26,540 --> 00:10:27,580

as a charm.

214

00:10:27,580 --> 00:10:29,860

A bride should always have a penny in her shoe.

215

00:10:29,860 --> 00:10:32,220

And following the wedding, she should take that penny

216

00:10:32,220 --> 00:10:34,740

and get it made into a piece of jewelry, a pendant,

217

00:10:34,740 --> 00:10:36,660

or a bracelet, or something like that.

218

00:10:36,700 --> 00:10:40,500

Back in the workshop, Jamie's showing off his penny gun.

219

00:10:40,500 --> 00:10:42,780

Adam can't hide his approval.

220

00:10:42,780 --> 00:10:45,060

Oh, my God.

221

00:10:45,060 --> 00:10:48,700

Damn, that is some serious impact there.

222

00:10:48,700 --> 00:10:52,100

I mean, are you sure this is 64 miles an hour?

223

00:10:52,100 --> 00:10:53,980

64.4.

224

00:10:53,980 --> 00:10:56,180

Of course, now he wants to have a turn.

225

00:10:57,220 --> 00:10:59,860

He also apparently wants to do his own narration.

226

00:10:59,860 --> 00:11:03,820

Adam loads a penny into the lethal penny shooting device.

227

00:11:03,820 --> 00:11:07,060

This time, the penny is launched at a block of asphalt.

228

00:11:09,060 --> 00:11:11,220

The penny bounces right off.

229

00:11:11,220 --> 00:11:15,020

So the test shows that a coin traveling at terminal velocity

230

00:11:15,020 --> 00:11:17,820

cannot penetrate concrete or asphalt.

231

00:11:18,940 --> 00:11:21,020

But what about flesh and bone?

232

00:11:21,020 --> 00:11:23,660

Remember, the penny myth talks about a penny

233

00:11:23,660 --> 00:11:25,740

shattering someone's skull.

234

00:11:25,740 --> 00:11:28,860

Enter Norma, Adam's ballistics dummy.

235

00:11:28,860 --> 00:11:32,220

Norma's cranium will take the full brunt of a penny

236

00:11:32,220 --> 00:11:34,140

traveling at terminal velocity.

237

00:11:34,140 --> 00:11:34,980

Lights.

238

00:11:36,220 --> 00:11:38,020

Perfect hit.

239

00:11:38,020 --> 00:11:39,660

Lights off.

240

00:11:39,660 --> 00:11:42,700

The penny broke through the thin layer of ballistics gel,

241

00:11:42,700 --> 00:11:44,900

but the skull is intact.

242

00:11:44,900 --> 00:11:46,740

So you ready to put that to the ultimate test?

243

00:11:46,740 --> 00:11:49,780

We've tried it on all the other stuff we've got.

244

00:11:49,780 --> 00:11:51,100

Want to try and catch it in your hand?

245

00:11:51,100 --> 00:11:54,340

The penny is leaving an imprint in the concrete when it hits.

246

00:11:54,340 --> 00:11:59,260

So, you know, I'm a little hesitant about catching it,

247

00:11:59,260 --> 00:12:00,500

actually.

248

00:12:00,540 --> 00:12:03,180

The mythbusters are about to find out what happens

249

00:12:03,180 --> 00:12:08,020

when a penny traveling at 64 miles per hour hits skin.

250

00:12:08,020 --> 00:12:08,860

I'll do it.

251

00:12:08,860 --> 00:12:09,380

OK.

252

00:12:09,380 --> 00:12:10,340

But you got to do it too.

253

00:12:10,340 --> 00:12:12,300

Otherwise, you know, you're like a wuss.

254

00:12:12,300 --> 00:12:13,820

OK, you first.

255

00:12:13,820 --> 00:12:16,060

OK.

256

00:12:16,060 --> 00:12:18,260

You still look wuss.

257

00:12:18,260 --> 00:12:19,860

I'll kick your ass.

258

00:12:19,860 --> 00:12:23,060

Penny, for your thoughts, right about now, Adam.

259

00:12:23,060 --> 00:12:24,460

I'm scared.

260

00:12:24,460 --> 00:12:26,180

OK.

261

00:12:26,180 --> 00:12:29,740

Three, two, one.

262

00:12:29,780 --> 00:12:31,780

Ow!

263

00:12:31,780 --> 00:12:34,100

Wow.

264

00:12:34,100 --> 00:12:36,700

That didn't actually hurt that much.

265

00:12:36,700 --> 00:12:38,060

We can try again.

266

00:12:38,060 --> 00:12:39,060

OK.

267

00:12:41,900 --> 00:12:42,700

Looks pretty good.

268

00:12:42,700 --> 00:12:43,940

Are we ready?

269

00:12:43,940 --> 00:12:45,020

Ready, Adam?

270

00:12:45,020 --> 00:12:46,300

Well, you are.

271

00:12:46,300 --> 00:12:48,060

OK, three, two.

272

00:12:49,260 --> 00:12:50,500

Ow!

273

00:12:50,500 --> 00:12:52,340

What?

274

00:12:52,340 --> 00:12:56,260

You hit me in the same exact place.

275

00:12:56,260 --> 00:12:59,020

It didn't hurt that much before, but now it really hurts.

276

00:12:59,740 --> 00:13:01,700

Oh, you baby.

277

00:13:01,700 --> 00:13:02,780

It looks like it's swelling.

278

00:13:02,780 --> 00:13:03,820

Yeah.

279

00:13:03,820 --> 00:13:07,980

It stings, but there's no bruising or broken skin.

280

00:13:07,980 --> 00:13:10,780

Well, I always enjoyed seeing Adam in pain.

281

00:13:10,780 --> 00:13:12,380

I am not sure what it is.

282

00:13:12,380 --> 00:13:13,940

All right, honey man.

283

00:13:13,940 --> 00:13:14,660

Are you ready?

284

00:13:14,660 --> 00:13:17,660

Now it's Adam's chance for revenge.

285

00:13:17,660 --> 00:13:18,660

Show.

286

00:13:21,980 --> 00:13:23,980

That was totally off.

287

00:13:23,980 --> 00:13:25,460

I felt it on my wrist.

288

00:13:25,460 --> 00:13:28,420

If it hurt, he's hiding it well.

289

00:13:28,460 --> 00:13:30,900

And you know how Adam wasn't having a good day?

290

00:13:30,900 --> 00:13:31,780

Well.

291

00:13:31,780 --> 00:13:32,940

Go ahead, shoot me in the ass.

292

00:13:32,940 --> 00:13:33,900

Come on.

293

00:13:33,900 --> 00:13:34,900

I can take it.

294

00:13:39,220 --> 00:13:40,220

Oh!

295

00:13:40,220 --> 00:13:41,220

Ow!

296

00:13:41,220 --> 00:13:42,220

That hurts.

297

00:13:42,220 --> 00:13:44,500

Ow!

298

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

Oh, man!

299

00:13:46,500 --> 00:13:47,500

Ouch!

300

00:13:49,980 --> 00:13:50,780

Oh!

301

00:13:50,780 --> 00:13:51,860

Well, you said I could.

302

00:13:51,860 --> 00:13:52,500

I did.

303

00:13:52,500 --> 00:13:55,500

No, I was prepared for the consequences.

304

00:13:55,500 --> 00:13:56,500

Woo!

305

00:13:58,660 --> 00:13:59,860

So you made that great gun.

306

00:13:59,860 --> 00:14:02,380

We made the pennies go 64 miles an hour.

307

00:14:02,380 --> 00:14:03,780

What did we end up with?

308

00:14:03,780 --> 00:14:05,900

Well, it didn't penetrate the asphalt.

309

00:14:05,900 --> 00:14:08,060

It didn't penetrate the concrete.

310

00:14:08,060 --> 00:14:10,980

It didn't penetrate the skull of the ballistics dummy.

311

00:14:10,980 --> 00:14:12,900

And it didn't hurt your butt.

312

00:14:12,900 --> 00:14:13,900

Thank goodness.

313

00:14:13,900 --> 00:14:17,420

I mean, it kind of stung when we hit the bones on our hands.

314

00:14:17,420 --> 00:14:19,740

But you know, the myth's not looking good.

315

00:14:19,740 --> 00:14:22,780

But that doesn't faze the mythbusters.

316

00:14:22,780 --> 00:14:26,060

It's time to see how fast a penny has to go

317

00:14:26,060 --> 00:14:28,620

before it does serious damage.

318

00:14:28,620 --> 00:14:35,220

Any time we get to play around with explosives, gunpowder,

319

00:14:35,220 --> 00:14:37,940

you know, cool weapons and things like that,

320

00:14:37,940 --> 00:14:40,180

here at Mythbusters, we're happy campers.

321

00:14:49,180 --> 00:14:54,140

Adams modifying a high-powered rifle so that it will expand a penny.

322

00:14:55,140 --> 00:14:58,140

That's not chambering around, I'm just test firing.

323

00:14:59,140 --> 00:15:02,140

The coin will be fired from a special aluminum barrel

324

00:15:02,140 --> 00:15:05,140

attached to the rifle like a silencer.

325

00:15:05,140 --> 00:15:08,140

The rifle itself will be loaded with a blank round.

326

00:15:08,140 --> 00:15:11,140

When it's fired, the expanding gases from the cartridge

327

00:15:11,140 --> 00:15:13,140

will explode along the barrel,

328

00:15:13,140 --> 00:15:17,140

propelling the coin from the slot with bullet-like speed.

329

00:15:17,140 --> 00:15:21,140

It's a bold plan and a potentially deadly one.

330

00:15:21,140 --> 00:15:23,140

Jamie's far from convinced.

331

00:15:23,140 --> 00:15:26,140

I would say that the rig is not safe at all.

332

00:15:26,140 --> 00:15:29,140

There's a significant chance that there will be an explosion

333

00:15:29,140 --> 00:15:32,140

and either the breach of the rifle will blow out

334

00:15:32,140 --> 00:15:38,140

or what may well be likely is that the whole head of the rifle,

335

00:15:38,140 --> 00:15:41,140

the device that Adam has constructed on here,

336

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

may just shoot off the end of the rifle.

337

00:15:43,140 --> 00:15:47,140

Well, Jamie, take cover because Adams taking aim.

338

00:15:47,140 --> 00:15:53,140

Alright, firing and three, two, one.

339

00:15:55,140 --> 00:15:57,140

That seemed to work like a charm.

340

00:15:58,140 --> 00:16:01,140

Look at that imprint. You can clearly see where it hit.

341

00:16:02,140 --> 00:16:06,140

The penny is shot from the slot at almost three times the speed of sound.

342

00:16:07,140 --> 00:16:10,140

The high-speed camera result apparently is 3,000 feet per second.

343

00:16:10,140 --> 00:16:14,140

That's like a bullet. That's the speed of a bullet.

344

00:16:14,140 --> 00:16:18,140

The coin still did not end up embedded in the block.

345

00:16:18,140 --> 00:16:20,140

Where's the penny?

346

00:16:20,140 --> 00:16:24,140

This is one penny, however, that has been well and truly spent.

347

00:16:24,140 --> 00:16:27,140

The detail on the face of it is flattened.

348

00:16:27,140 --> 00:16:29,140

It worked like a charm.

349

00:16:29,140 --> 00:16:31,140

And Jamie's forced to eat his words.

350

00:16:31,140 --> 00:16:33,140

Yeah, congratulations.

351

00:16:33,140 --> 00:16:34,140

Thank you.

352

00:16:35,140 --> 00:16:37,140

I wouldn't want to get hit by that thing.

353

00:16:37,140 --> 00:16:38,140

One penny down.

354

00:16:40,140 --> 00:16:41,140

Went to go.

355

00:16:42,140 --> 00:16:43,140

I'm sorry.

356

00:16:43,140 --> 00:16:45,140

Even at supersonic speed,

357

00:16:45,140 --> 00:16:48,140

a penny weighing just two and a half grams

358

00:16:48,140 --> 00:16:52,140

simply doesn't have enough mass to break through concrete.

359

00:16:53,140 --> 00:16:54,140

Or bone.

360

00:16:54,140 --> 00:16:57,140

Unlike, say, a real bullet,

361

00:16:57,140 --> 00:17:02,140

which in this case is 6.65 millimeters of solid lead.

362

00:17:04,140 --> 00:17:07,140

The penny drop myth isn't worth a dime.

363

00:17:07,140 --> 00:17:10,140

Oh, man.

364

00:17:11,140 --> 00:17:13,140

I hate when that happens.

365

00:17:13,140 --> 00:17:15,140

Eliminating all the things that are in the penny's way

366

00:17:15,140 --> 00:17:17,140

from just reaching the ground,

367

00:17:17,140 --> 00:17:21,140

64 miles an hour just wasn't enough to cause any kind of damage to a person.

368

00:17:21,140 --> 00:17:25,140

And then when we made it go almost three times the speed of sound,

369

00:17:25,140 --> 00:17:27,140

it still wasn't enough to break the bones.

370

00:17:27,140 --> 00:17:32,140

Yeah, I mean, the worst thing I can come up with is if you were looking straight up in the sky

371

00:17:32,140 --> 00:17:35,140

and you got hit in the eye, it probably wouldn't be very good for you.

372

00:17:35,140 --> 00:17:37,140

But even then, I don't know whether it would take your eye out.

373

00:17:37,140 --> 00:17:39,140

I think we busted the heck out of this one.

374

00:17:39,140 --> 00:17:40,140

And it busted.

375

00:17:40,140 --> 00:17:41,140

Yeah.

376

00:18:00,140 --> 00:18:02,140

That's really disgusting.

377

00:18:02,140 --> 00:18:05,140

What sort of foul play is this?

378

00:18:05,140 --> 00:18:08,140

Chickens soaking up the rays on a tanning bed?

379

00:18:08,140 --> 00:18:13,140

What urban myth could be solved in such a poultry fashion?

380

00:18:16,140 --> 00:18:18,140

The humble microwave oven.

381

00:18:18,140 --> 00:18:20,140

Is it a handy cooking device?

382

00:18:20,140 --> 00:18:24,140

Or mysterious machine with dark and frightening powers?

383

00:18:24,140 --> 00:18:28,140

Microwaves just seem to be magnets for urban legends.

384

00:18:28,140 --> 00:18:32,140

So we're going to put some of the main ones to the test.

385

00:18:36,140 --> 00:18:37,140

Whoa!

386

00:18:37,140 --> 00:18:39,140

You are the man.

387

00:18:44,140 --> 00:18:49,140

Of all the myths surrounding the microwave oven, none is more famous than the story of the poodle

388

00:18:49,140 --> 00:18:53,140

sent for a spin in a microwave to dry its fur.

389

00:18:53,140 --> 00:18:54,140

The result?

390

00:18:54,140 --> 00:18:56,140

One hot dog.

391

00:18:56,140 --> 00:19:00,140

Well, meet Jazzy, a two-year-old show poodle.

392

00:19:00,140 --> 00:19:04,140

Jazzy's being groomed for her Mythbusters guest appearance.

393

00:19:04,140 --> 00:19:07,140

So we'll come back later to check how she's doing.

394

00:19:07,140 --> 00:19:12,140

Meanwhile, it's time to turn up the heat on Microwave Myth Number One.

395

00:19:14,140 --> 00:19:19,140

30 million Americans tan indoors at salons like this.

396

00:19:19,140 --> 00:19:26,140

And in recent years, one microwave myth has caught on and spread like good quality tanning lotion.

397

00:19:26,140 --> 00:19:31,140

Have you actually heard the myth of the tanning bed cooking the insides of the bride to be?

398

00:19:31,140 --> 00:19:32,140

Oh, yes.

399

00:19:32,140 --> 00:19:38,140

There's a woman who's getting ready for a special occasion, and she decides she'll look fabulous in her dress if she's very tan.

400

00:19:38,140 --> 00:19:45,140

So she goes to a tanning salon, and she's very annoyed that they have this half-hour daily limit on tanning.

401

00:19:45,140 --> 00:19:51,140

So she goes there, and then she goes to several other places, and basically is tanning for hours a day.

402

00:19:51,140 --> 00:19:56,140

After a few days of this, her husband says, honey, you smell kind of funny.

403

00:19:56,140 --> 00:19:57,140

So she showers.

404

00:19:57,140 --> 00:19:59,140

You still smell kind of funny.

405

00:19:59,140 --> 00:20:10,140

So she goes to the doctor, and the doctor does numerous tests upon which she finds that she's microwave-turned internal organs and only has two weeks to live.

406

00:20:10,140 --> 00:20:14,140

Rick Mattoon is director of the National Tanning Training Institute.

407

00:20:14,140 --> 00:20:17,140

How many different versions of the story have you heard over the years?

408

00:20:17,140 --> 00:20:23,140

We have a tendency of getting a different version about every month for about the past four years that I've been involved in the indoor tanning industry.

409

00:20:23,140 --> 00:20:26,140

Do you keep an archive of all the stories that you've gotten?

410

00:20:26,140 --> 00:20:33,140

I do, and it's very interesting. It's picked up typically anywhere, or grows anywhere from the local level to a national level.

411

00:20:33,140 --> 00:20:38,140

And bottom line is that it always has a tendency to go back to the microwaving theory or story.

412

00:20:38,140 --> 00:20:42,140

Can a tanning bed act like a microwave oven?

413

00:20:42,140 --> 00:20:47,140

Will overexposure result in a baked bladder, as well as a golden glow?

414

00:20:47,140 --> 00:20:50,140

How are Adam and Jamie going to test this myth?

415

00:20:50,140 --> 00:20:55,140

The simplest way would be to strip off and submit to the simulated sunlight.

416

00:20:55,140 --> 00:20:58,140

But they don't look like the tanning types.

417

00:20:58,140 --> 00:21:02,140

I think it's really quite obvious that I don't tan, not at all.

418

00:21:02,140 --> 00:21:05,140

That's why I've got to wear these glasses in the sun.

419

00:21:05,140 --> 00:21:10,140

So that explains why these chickens have been plucked from the local deli.

420

00:21:10,140 --> 00:21:17,140

They'll give the birds four straight sessions on the bed and see whether or not the result is lunch.

421

00:21:17,140 --> 00:21:20,140

This is right up there with one of the weirder things that we've had to do.

422

00:21:20,140 --> 00:21:24,140

Trying to put a dead chicken in a tanning booth?

423

00:21:24,140 --> 00:21:26,140

Hello!

424

00:21:30,140 --> 00:21:34,140

Time to see if the chickens goose has been cooked.

425

00:21:34,140 --> 00:21:37,140

So how many sessions did these go through?

426

00:21:37,140 --> 00:21:41,140

Four sessions, a total of 48 minutes on the tanning lights.

427

00:21:41,140 --> 00:21:43,140

So if I'd been in here I'd be pretty badly burned by now.

428

00:21:43,140 --> 00:21:46,140

You would have a severe sunburn at this point.

429

00:21:46,140 --> 00:21:48,140

But would your gizzards be gone or something?

430

00:21:48,140 --> 00:21:52,140

Not at all. Pink and perfect. Not cooked on the inside at all.

431

00:21:52,140 --> 00:21:58,140

Basically, there's no difference between overstaying your welcome on a tanning bed and spending too long in the sun.

432

00:21:58,140 --> 00:22:03,140

Now this story has been told and retold so many times it's a very popular narrative.

433

00:22:03,140 --> 00:22:06,140

Indeed it was published in at least two Dear Abbey columns.

434

00:22:06,140 --> 00:22:09,140

So it's got a lot of veracity, a lot of people believe it.

435

00:22:09,140 --> 00:22:17,140

Also the industry magazine Tanning Trends had to publish an article telling people that

436

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

it's not true, don't worry about it, but clearly the narrative is still out there.

437

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

Do tanning beds put out microwaves?

438

00:22:24,140 --> 00:22:28,140

They put out nothing of the sort. They put out light waves and that's all there is to it.

439

00:22:28,140 --> 00:22:35,140

Besides, for the myth to work microwaves would have to cook from the inside out and that's easily tested.

440

00:22:35,140 --> 00:22:40,140

Simply throw a roast in a microwave for 20 minutes and carve.

441

00:22:40,140 --> 00:22:45,140

Look at that, I mean it's just, it's totally cold on the inside, it's not heating from the inside out.

442

00:22:45,140 --> 00:22:47,140

It's definitely heating from the outside in.

443

00:22:47,140 --> 00:22:48,140

Yeah.

444

00:22:48,140 --> 00:22:50,140

The myth is totally busted.

445

00:23:15,140 --> 00:23:27,140

The Emana radar range microwave oven is quality.

446

00:23:27,140 --> 00:23:32,140

In the early days it was hailed as a revolutionary kitchen convenience.

447

00:23:32,140 --> 00:23:38,140

A family-sized turkey, 675 watts of cooking power means faster cooking than most other microwave ovens.

448

00:23:38,140 --> 00:23:43,140

Uses 50 to 75% less energy than a conventional electric range.

449

00:23:43,140 --> 00:23:47,140

5 and 30 minute timers with automatic defrost cycle.

450

00:23:47,140 --> 00:23:51,140

This store has been selling microwaves ever since those heady times.

451

00:23:51,140 --> 00:23:55,140

The main thing I'm interested in personally is raw power.

452

00:23:55,140 --> 00:24:02,140

Well the average microwave today is about 1100 watts, but you can go up from there or you can go down from there.

453

00:24:02,140 --> 00:24:05,140

How many people are going to be using the oven?

454

00:24:05,140 --> 00:24:08,140

One very strange television show.

455

00:24:08,140 --> 00:24:09,140

Just one.

456

00:24:09,140 --> 00:24:11,140

Is this the soul of the microwave oven?

457

00:24:11,140 --> 00:24:14,140

More the heart of the microwave.

458

00:24:14,140 --> 00:24:23,140

This is a little radio transmitter and you plug it in and it converts it to DC voltage and out comes the microwave.

459

00:24:23,140 --> 00:24:28,140

And it looks like Jamie's suffering a little microwave madness.

460

00:24:28,140 --> 00:24:29,140

Sorry.

461

00:24:29,140 --> 00:24:31,140

Did you get enough Jamie?

462

00:24:31,140 --> 00:24:35,140

Microwaves are really cool. They're like X-ray guns.

463

00:24:35,140 --> 00:24:42,140

And I think the same thing that makes people afraid of them and makes them generate a lot of myths about them is what's always fascinated me.

464

00:24:42,140 --> 00:24:50,140

I'm going to make this super powerful microwave gun that I can heat things up around in my shop with.

465

00:24:50,140 --> 00:24:53,140

And that for me is a lot of fun.

466

00:24:53,140 --> 00:24:59,140

I think he wants to take apart all these microwaves and make some kind of super microwave.

467

00:24:59,140 --> 00:25:05,140

And I don't know if he's planned on shielding or anything, but I don't necessarily want to be in the building when he does it.

468

00:25:05,140 --> 00:25:10,140

Back at the workshop, it's time to test microwave myth number two.

469

00:25:10,140 --> 00:25:13,140

That microwaving metal makes the oven explode.

470

00:25:13,140 --> 00:25:20,140

You know, I once had a roommate where I accidentally put a spoon in my coffee cup in the microwave and he refused to use it ever again.

471

00:25:20,140 --> 00:25:21,140

Made me buy him a new one.

472

00:25:21,140 --> 00:25:22,140

Wow.

473

00:25:22,140 --> 00:25:26,140

It's just those kind of misconceptions I want to clear up here on MythBusters.

474

00:25:26,140 --> 00:25:27,140

Yeah.

475

00:25:27,140 --> 00:25:28,140

There you go.

476

00:25:28,140 --> 00:25:32,140

Adam and Jamie are going to microwave several metal objects.

477

00:25:32,140 --> 00:25:38,140

Just in case something dramatic does occur, the pair will watch from behind a Lexan shield.

478

00:25:38,140 --> 00:25:43,140

Lexan is a bulletproof material used in the windshields of NASCAR.

479

00:25:43,140 --> 00:25:47,140

It's time for the first metallic test subject.

480

00:25:51,140 --> 00:25:52,140

No?

481

00:25:52,140 --> 00:25:53,140

Nothing happening there.

482

00:25:53,140 --> 00:25:55,140

The spoon's been in there for two minutes. I don't see nothing.

483

00:25:55,140 --> 00:25:56,140

Turn it off.

484

00:25:57,140 --> 00:25:59,140

So, I mean...

485

00:25:59,140 --> 00:26:00,140

I'm guessing it.

486

00:26:00,140 --> 00:26:01,140

Ah!

487

00:26:01,140 --> 00:26:02,140

Woo!

488

00:26:03,140 --> 00:26:05,140

The spoon was really hot.

489

00:26:05,140 --> 00:26:08,140

That spoon was really hot, but it didn't do anything.

490

00:26:08,140 --> 00:26:12,140

I mean, it didn't arc, it didn't like buzz or, you know, all that stuff.

491

00:26:12,140 --> 00:26:15,140

Something else from the silverware drawer, perhaps?

492

00:26:15,140 --> 00:26:17,140

It's forked in the microwave.

493

00:26:19,140 --> 00:26:23,140

Maybe the sharp prongs will cause sparks to fly.

494

00:26:24,140 --> 00:26:25,140

Oh yeah, that's true.

495

00:26:25,140 --> 00:26:26,140

Not a thing.

496

00:26:26,140 --> 00:26:32,140

Adam and Jamie have heard that tin foil scrunched into a ball can have an effect.

497

00:26:32,140 --> 00:26:33,140

Oh, that's cool!

498

00:26:34,140 --> 00:26:36,140

It looks like something got a star trek.

499

00:26:36,140 --> 00:26:38,140

It's beautiful, actually.

500

00:26:38,140 --> 00:26:40,140

Now, that's interesting.

501

00:26:41,140 --> 00:26:45,140

The microwaves are causing an electric charge to build up in the metal.

502

00:26:45,140 --> 00:26:49,140

Scrunching the foil allows the charge to jump the gaps.

503

00:26:49,140 --> 00:26:54,140

Jamie tries again, this time folding the foil into an accordion shape.

504

00:26:54,140 --> 00:26:55,140

Whoa!

505

00:26:56,140 --> 00:26:59,140

The Heinemann with the precognitive technique!

506

00:27:00,140 --> 00:27:01,140

Look at that!

507

00:27:01,140 --> 00:27:02,140

That's the best.

508

00:27:02,140 --> 00:27:04,140

Dude, you are the man!

509

00:27:06,140 --> 00:27:10,140

Spectacular, yes, but explosive? No.

510

00:27:10,140 --> 00:27:12,140

A warning, though.

511

00:27:12,140 --> 00:27:16,140

Microwaving metal might result in magnetron meltdown.

512

00:27:16,140 --> 00:27:19,140

So, metal in a microwave. Is it true or is it false?

513

00:27:20,140 --> 00:27:23,140

Well, that's false with provisions.

514

00:27:23,140 --> 00:27:28,140

Only in the case of an object that is made out of metal that is contacting the sides,

515

00:27:28,140 --> 00:27:33,140

you can create some marking there that would feed back into the magnetron and reduce its lifespan.

516

00:27:34,140 --> 00:27:37,140

That's two minutes done and busted.

517

00:27:37,140 --> 00:27:39,140

Meanwhile, what's Jamie up to?

518

00:27:39,140 --> 00:27:41,140

Does he have a screw loose?

519

00:27:42,140 --> 00:27:45,140

Jamie's harvested the magnetrons from four microwaves.

520

00:27:46,140 --> 00:27:50,140

Looks like he's serious about building that super microwave machine.

521

00:27:50,140 --> 00:27:51,140

Scary stuff.

522

00:27:51,140 --> 00:27:52,140

Microwave oven!

523

00:27:52,140 --> 00:27:56,140

So we know metal won't turn your microwave into a bomb.

524

00:27:56,140 --> 00:28:02,140

It's time now for Adam and Jamie to investigate a microwave myth that is potentially lethal.

525

00:28:06,140 --> 00:28:11,140

If you overheat water in a microwave, you may take the cup out of the bowl

526

00:28:11,140 --> 00:28:16,140

and then the water is going to explode in your face injuring you or burning you in some horrific way.

527

00:28:16,140 --> 00:28:19,140

We're going to time how long it takes to bubble.

528

00:28:19,140 --> 00:28:24,140

After a little research, Adam and Jamie know that the only way water could explode

529

00:28:24,140 --> 00:28:31,140

is if it's been super heated, that is, heated beyond boiling point, without actually boiling.

530

00:28:31,140 --> 00:28:35,140

Tap water always boils because it has impurities.

531

00:28:35,140 --> 00:28:38,140

Distilled water has no impurities.

532

00:28:38,140 --> 00:28:40,140

That means no boiling.

533

00:28:40,140 --> 00:28:45,140

Yeah, the smaller experiments, you know, they generally, they look a lot simpler

534

00:28:45,140 --> 00:28:49,140

because they're tabletop, you know, we have small amount of variables

535

00:28:49,140 --> 00:28:55,140

and really invariably they turn out to be the most complex and difficult ones to get a real result from.

536

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

They put two cups of water in the microwave.

537

00:28:58,140 --> 00:29:00,140

One distilled, one tap.

538

00:29:00,140 --> 00:29:06,140

When the tap water boils, they'll know that the distilled water has become super hot.

539

00:29:06,140 --> 00:29:13,140

Just dropping in a sugar cube should make the boiling process happen instantly and violently.

540

00:29:13,140 --> 00:29:17,140

Hey!

541

00:29:17,140 --> 00:29:19,140

Spectacular!

542

00:29:19,140 --> 00:29:20,140

That would suffice.

543

00:29:20,140 --> 00:29:22,140

That was exploding water?

544

00:29:22,140 --> 00:29:24,140

It erupted, it left the container.

545

00:29:24,140 --> 00:29:25,140

Yeah.

546

00:29:25,140 --> 00:29:26,140

Quite a bit of it.

547

00:29:26,140 --> 00:29:31,140

If someone were holding the cup, they would definitely have severe burns.

548

00:29:32,140 --> 00:29:39,140

But if straight tap water can't explode, how likely is it that people will be scalded by exploding beverages?

549

00:29:39,140 --> 00:29:42,140

On your average day in your average house, it's not very likely.

550

00:29:42,140 --> 00:29:47,140

However, with the hundreds of millions of people using microwaves every day to boil water, re-boil water,

551

00:29:47,140 --> 00:29:51,140

I'd say it could happen a few times a year around, you know, around the world.

552

00:29:51,140 --> 00:29:53,140

Uh, myth absolutely true.

553

00:29:54,140 --> 00:29:58,140

Finally, Jamie's finished playing Dr. Frankenstein.

554

00:29:58,140 --> 00:30:01,140

What we have here is a super-duper microwave oven.

555

00:30:01,140 --> 00:30:05,140

I've taken the guts out of four microwaves, the magnetrons,

556

00:30:05,140 --> 00:30:11,140

and I've put them in a box all aiming at a single glass of water.

557

00:30:11,140 --> 00:30:18,140

So, in theory, this should heat up that glass of water about four times as fast as a regular microwave oven.

558

00:30:18,140 --> 00:30:20,140

Maybe it'll just go, pfft, we'll find out.

559

00:30:23,140 --> 00:30:28,140

Jamie, I'm ready to test this infernal machine of yours, but could you wrap me up a little more?

560

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

I don't feel quite safe yet.

561

00:30:30,140 --> 00:30:32,140

What are you, a turkey?

562

00:30:37,140 --> 00:30:39,140

I wouldn't say Jamie's an evil genius.

563

00:30:39,140 --> 00:30:41,140

I know, this could be a wonderful mousetrap.

564

00:30:41,140 --> 00:30:42,140

I'm not sure.

565

00:30:42,140 --> 00:30:43,140

I'm not sure.

566

00:30:43,140 --> 00:30:44,140

I'm not sure.

567

00:30:44,140 --> 00:30:45,140

I'm not sure.

568

00:30:45,140 --> 00:30:48,140

We're ready for a mega-microwave test-firing.

569

00:30:48,140 --> 00:30:49,140

What, about 30 seconds?

570

00:30:49,140 --> 00:30:51,140

Jamie flicks the switch.

571

00:30:51,140 --> 00:30:53,140

The room's filled with an angry buzz.

572

00:30:53,140 --> 00:30:55,140

How come my watch is stopped?

573

00:30:55,140 --> 00:30:57,140

I'm gonna give it.

574

00:30:57,140 --> 00:31:00,140

What on earth is happening behind those metal walls?

575

00:31:00,140 --> 00:31:02,140

Let's put the temperature probe in.

576

00:31:06,140 --> 00:31:08,140

Jamie, I'm ready to test this.

577

00:31:08,140 --> 00:31:10,140

I'm ready to test this.

578

00:31:10,140 --> 00:31:12,140

I'm ready to test this.

579

00:31:13,140 --> 00:31:16,140

That doesn't look like it's boiling.

580

00:31:16,140 --> 00:31:19,140

No, in fact, 66 degrees.

581

00:31:19,140 --> 00:31:22,140

You've made a refrigerator.

582

00:31:22,140 --> 00:31:24,140

That's amazing.

583

00:31:24,140 --> 00:31:27,140

For all that humming, you ended up with pupkis.

584

00:31:27,140 --> 00:31:31,140

Looks like that's the evil genius theory out the window.

585

00:31:31,140 --> 00:31:36,140

Time for the final myth, the famous poodle in the microwave.

586

00:31:36,140 --> 00:31:39,140

It's the moment of truth for our guest star, Jazzy,

587

00:31:39,140 --> 00:31:42,140

who's been crimped and preened to perfection.

588

00:31:42,140 --> 00:31:44,140

Or is it?

589

00:31:44,140 --> 00:31:48,140

There's some things that even we, on Mythbusters, can't do.

590

00:31:48,140 --> 00:31:50,140

And I think this is one of them.

591

00:31:50,140 --> 00:31:53,140

There's just no way that we could put a poodle in a microwave.

592

00:31:53,140 --> 00:31:56,140

It might dry her hair, but it killed the dog.

593

00:31:56,140 --> 00:32:00,140

Fortunately for the viewers, this one's just gonna have to remain a legend.

594

00:32:10,140 --> 00:32:14,140

The story that we're looking at is from 1942.

595

00:32:14,140 --> 00:32:18,140

One of the most bizarre urban myths of all comes from wartime USA

596

00:32:18,140 --> 00:32:22,140

and involves America's queen of comedy, Lucille Ball.

597

00:32:22,140 --> 00:32:24,140

I had some dental work to be done.

598

00:32:24,140 --> 00:32:26,140

You know, they put in temporary fillings.

599

00:32:26,140 --> 00:32:32,140

I was just driving along and rode that I'd taken many times.

600

00:32:32,140 --> 00:32:38,140

And all of a sudden, I heard music.

601

00:32:38,140 --> 00:32:42,140

But I mean, with a great beat, you know,

602

00:32:42,140 --> 00:32:45,140

and I looked down to turn off my radio and it was none.

603

00:32:45,140 --> 00:32:48,140

And the music was getting louder and louder and louder.

604

00:32:48,140 --> 00:32:50,140

And I realized it was in my mouth.

605

00:32:50,140 --> 00:32:53,140

And it was bleeding and beating in my ears.

606

00:32:53,140 --> 00:32:55,140

I could hear the tune and everything.

607

00:32:55,140 --> 00:32:57,140

I recognized the tune.

608

00:32:57,140 --> 00:32:59,140

The following morning at work,

609

00:32:59,140 --> 00:33:04,140

comedy legend Buster Keaton offered this explanation for the ghostly tune.

610

00:33:04,140 --> 00:33:06,140

And he said, what street were you on?

611

00:33:06,140 --> 00:33:08,140

Moore Park? And I said, yes.

612

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

He said, you went by the radio station. You picked it up.

613

00:33:10,140 --> 00:33:12,140

Were you got any fillings?

614

00:33:12,140 --> 00:33:14,140

I said, yes.

615

00:33:14,140 --> 00:33:16,140

He said, you picked it up in your teeth.

616

00:33:16,140 --> 00:33:19,140

Well, I could hardly wait to go by there again.

617

00:33:24,140 --> 00:33:28,140

Here's a challenge Adam and Jamie can really get their teeth into.

618

00:33:28,140 --> 00:33:33,140

Is it possible to receive radio transmissions through the fillings in your mouth?

619

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

We need to get a skull.

620

00:33:35,140 --> 00:33:38,140

Two of the skull's teeth will be given different fillings.

621

00:33:38,140 --> 00:33:40,140

One gold, the other amalgam.

622

00:33:40,140 --> 00:33:44,140

We'll also obviously have to have some sort of a radio transmitter.

623

00:33:44,140 --> 00:33:49,140

That transmitter will pump radio frequencies into the air around the teeth.

624

00:33:49,140 --> 00:33:54,140

A voltmeter will monitor any change in electrical activity across the fillings.

625

00:33:54,140 --> 00:33:55,140

Well, let's do it.

626

00:33:55,140 --> 00:34:00,140

First question, where are you most likely to come across a spare cranium?

627

00:34:00,140 --> 00:34:02,140

The number for the bone room.

628

00:34:02,140 --> 00:34:06,140

The number for UCSF School of Anatomy.

629

00:34:06,140 --> 00:34:09,140

The number for UCSF dental school.

630

00:34:09,140 --> 00:34:11,140

I'm looking for a human skull.

631

00:34:11,140 --> 00:34:13,140

Do you guys have any skulls?

632

00:34:13,140 --> 00:34:14,140

A wrinkle?

633

00:34:14,140 --> 00:34:15,140

Yes.

634

00:34:15,140 --> 00:34:17,140

Finding a skull is hard enough.

635

00:34:17,140 --> 00:34:21,140

Finding one complete with fillings, well, that's another matter.

636

00:34:21,140 --> 00:34:23,140

One with fillings.

637

00:34:23,140 --> 00:34:26,140

Would any of them happen to have fillings in them?

638

00:34:26,140 --> 00:34:28,140

So you don't have any with fillings right now?

639

00:34:28,140 --> 00:34:33,140

There's a dental charity.

640

00:34:33,140 --> 00:34:35,140

Eventually, Adam tracks down a skull.

641

00:34:35,140 --> 00:34:37,140

It's his father's.

642

00:34:37,140 --> 00:34:40,140

Well, his father owns it, that is.

643

00:34:40,140 --> 00:34:42,140

Next step, a little dental work.

644

00:34:42,140 --> 00:34:43,140

Hi, doctor.

645

00:34:43,140 --> 00:34:45,140

That's a grody-looking skull.

646

00:34:45,140 --> 00:34:46,140

Okay.

647

00:34:46,140 --> 00:34:49,140

Do I have a real dead person?

648

00:34:49,140 --> 00:34:50,140

Yes.

649

00:34:50,140 --> 00:34:51,140

You bet.

650

00:34:51,140 --> 00:34:52,140

Not got much teeth left.

651

00:34:52,140 --> 00:34:55,140

He has trouble eating his steak these days.

652

00:34:56,140 --> 00:34:57,140

What?

653

00:34:57,140 --> 00:34:58,140

What's that?

654

00:34:58,140 --> 00:35:00,140

This guy have a name?

655

00:35:00,140 --> 00:35:03,140

He has a very dried-out teeth.

656

00:35:03,140 --> 00:35:06,140

Smells the same as it usually does.

657

00:35:06,140 --> 00:35:07,140

Yeah.

658

00:35:07,140 --> 00:35:09,140

I have 7,000 patients.

659

00:35:09,140 --> 00:35:10,140

I'm practicing dentist.

660

00:35:10,140 --> 00:35:13,140

It's never in my career been a practitioner for 30 years.

661

00:35:13,140 --> 00:35:15,140

Had anybody complained to me.

662

00:35:15,140 --> 00:35:19,140

They were picking up sounds or signals from their fillings.

663

00:35:25,140 --> 00:35:29,140

Lucy, even in her later years, she was always at the dentist.

664

00:35:29,140 --> 00:35:31,140

She was always having some kind of dental work.

665

00:35:31,140 --> 00:35:33,140

I don't think she was blessed with great teeth.

666

00:35:33,140 --> 00:35:37,140

If anyone should know about the state of Lucy LeBal's teeth,

667

00:35:37,140 --> 00:35:39,140

it's Jim Brochoux.

668

00:35:39,140 --> 00:35:42,140

He was her close friend, unofficial biographer,

669

00:35:42,140 --> 00:35:45,140

and one of the last people to see Lucy alive.

670

00:35:45,140 --> 00:35:50,140

I spent every day with Lucy from, I would think,

671

00:35:50,140 --> 00:35:58,140

until April of 1988 until the next year, April of 1989, when she died.

672

00:35:58,140 --> 00:36:00,140

And her name is Lucy LeBal.

673

00:36:00,140 --> 00:36:01,140

Come on!

674

00:36:01,140 --> 00:36:04,140

And although the star mightn't have had great teeth,

675

00:36:04,140 --> 00:36:08,140

Jim's positive she was always of sound mind.

676

00:36:08,140 --> 00:36:11,140

Lucy had no kind of psychosis.

677

00:36:11,140 --> 00:36:13,140

She didn't hear voices.

678

00:36:13,140 --> 00:36:16,140

She didn't put her faith in the supernatural.

679

00:36:16,140 --> 00:36:18,140

Okay, okay, don't be ridiculous.

680

00:36:18,140 --> 00:36:19,140

Well, you just met me.

681

00:36:19,140 --> 00:36:22,140

Hey, listen, a childhound doesn't have to wait for dinner to be hungry, you know.

682

00:36:25,140 --> 00:36:29,140

Phase two, Adam's on the trail of a radio transmitter.

683

00:36:29,140 --> 00:36:32,140

A little bit of equipment, and I was wondering if you had the...

684

00:36:32,140 --> 00:36:35,140

Now, this has to be easier than getting hold of a skull, right?

685

00:36:35,140 --> 00:36:41,140

Two-channel oscilloscope, like a sweep generator with an oscillator and an amplifier.

686

00:36:41,140 --> 00:36:46,140

Roller, seems these radio guys just aren't operating on Adam's wavelength.

687

00:36:46,140 --> 00:36:49,140

He had no idea what a sweep generator even was.

688

00:36:49,140 --> 00:36:51,140

This one had you kind of stressed out, didn't you?

689

00:36:51,140 --> 00:36:54,140

Yeah, this one was a real bear, actually.

690

00:36:54,140 --> 00:36:59,140

It turns out that it's very difficult, number one, to get the equipment

691

00:36:59,140 --> 00:37:02,140

to generate a very powerful AM frequency,

692

00:37:02,140 --> 00:37:06,140

because that's been cracked down a lot, pirate radio stations and such.

693

00:37:06,140 --> 00:37:12,140

Like all great stories, the Lucy legend has plenty of details that lend it credence.

694

00:37:12,140 --> 00:37:16,140

Then there was the radio station, which is a 50,000 watt radio station,

695

00:37:16,140 --> 00:37:20,140

that we understand now that there was some kind of clay in the ground

696

00:37:20,140 --> 00:37:25,140

that aided the transmission, that amplified the 50,000 watt transmission.

697

00:37:25,140 --> 00:37:32,140

So I associate that radio station as where she heard the music coming from that night as she passed by.

698

00:37:33,140 --> 00:37:39,140

Things might be looking up for Adam in his hunt for that elusive radio gear.

699

00:37:39,140 --> 00:37:43,140

The Foothills Swap Meet is a Bay Area institution.

700

00:37:43,140 --> 00:37:47,140

Its stalls are a paradise for electronics enthusiasts.

701

00:37:47,140 --> 00:37:51,140

If he can't find what he needs here, he never will.

702

00:37:55,140 --> 00:37:57,140

Back at the workshop.

703

00:37:58,140 --> 00:38:03,140

This brass screen will shield the skull from outside interference during the tests.

704

00:38:03,140 --> 00:38:07,140

The ferriday cage is like a ground that eliminates any radio waves

705

00:38:07,140 --> 00:38:12,140

from getting to the testing equipment, which makes our test,

706

00:38:12,140 --> 00:38:18,140

makes us know that our test is happening in an experimentally clean space.

707

00:38:20,140 --> 00:38:23,140

Of course, it works better if you can get into it.

708

00:38:24,140 --> 00:38:26,140

I locked the door for me inside.

709

00:38:29,140 --> 00:38:30,140

Alright.

710

00:38:32,140 --> 00:38:34,140

There's my ferriday cage.

711

00:38:36,140 --> 00:38:37,140

Let's see.

712

00:38:38,140 --> 00:38:40,140

No signal on the cell phone.

713

00:38:41,140 --> 00:38:42,140

No signal at all.

714

00:38:42,140 --> 00:38:45,140

One theory is that if Lucy's filling in the air,

715

00:38:45,140 --> 00:38:47,140

she'll be able to get into it.

716

00:38:47,140 --> 00:38:49,140

No signal on the cell phone.

717

00:38:49,140 --> 00:38:51,140

No signal at all.

718

00:38:51,140 --> 00:38:55,140

One theory is that if Lucy's fillings were made from different metals,

719

00:38:55,140 --> 00:38:59,140

then they might just have acted as what's known as a point contact diode.

720

00:38:59,140 --> 00:39:04,140

Point contact diode is the basis of the earliest radio crystal sets.

721

00:39:04,140 --> 00:39:09,140

In fact, in World War II, soldiers in foxholes built what's called a foxhole radio,

722

00:39:09,140 --> 00:39:13,140

which we have a crude model of here in which our point contact diode

723

00:39:13,140 --> 00:39:15,140

is simply a razor blade and a pencil lead.

724

00:39:15,140 --> 00:39:19,140

Two different metals combining to capture a radio frequency.

725

00:39:23,140 --> 00:39:24,140

I hear a buzz.

726

00:39:28,140 --> 00:39:33,140

A pencil and a razor blade and some coil, you know, some common household objects.

727

00:39:33,140 --> 00:39:38,140

It seems unlikely that we could actually hear a radio signal from that, but we can't.

728

00:39:38,140 --> 00:39:40,140

Right now we're hearing a buzz.

729

00:39:40,140 --> 00:39:43,140

Yeah, I mean, we're pulling something out of the air.

730

00:39:43,140 --> 00:39:47,140

The seal ball's fillings fleetingly become a primitive radio,

731

00:39:47,140 --> 00:39:50,140

picking up a signal and broadcasting it into her head.

732

00:39:50,140 --> 00:39:52,140

I recognize the tune and everything.

733

00:39:52,140 --> 00:39:53,140

I recognize the tune.

734

00:39:53,140 --> 00:39:56,140

One tooth already has an amalgam filling.

735

00:39:56,140 --> 00:39:58,140

We need another metal.

736

00:39:58,140 --> 00:40:01,140

And Adam and Jamie are going for gold.

737

00:40:01,140 --> 00:40:03,140

That is real gold foil.

738

00:40:14,140 --> 00:40:17,140

The teeth are placed inside the Faraday cage,

739

00:40:17,140 --> 00:40:22,140

along with a crude antenna made from a cardboard cylinder and insulated copper wire.

740

00:40:22,140 --> 00:40:27,140

Two probes placed on the fillings will register any change in voltage.

741

00:40:27,140 --> 00:40:31,140

So we're going to inject some, have modulated AM radio signal

742

00:40:31,140 --> 00:40:34,140

and see what the teeth generate on this voltmeter.

743

00:40:34,140 --> 00:40:38,140

Frank Hausmann has more than 20 years experience

744

00:40:38,140 --> 00:40:41,140

in electronics and computer network engineering.

745

00:40:41,140 --> 00:40:46,140

He's agreed to become an honorary myth buster just for one day.

746

00:40:46,140 --> 00:40:53,140

The RF field in that chamber, there's no change in the teeth.

747

00:40:53,140 --> 00:40:56,140

Several radio frequencies are channeled into the Faraday cage,

748

00:40:56,140 --> 00:40:59,140

but the voltmeter doesn't flicker.

749

00:40:59,140 --> 00:41:03,140

So if the teeth were acting as a diode, which is one of the theories about how they might pick up radio,

750

00:41:03,140 --> 00:41:06,140

we would see a change in voltage, but we didn't.

751

00:41:06,140 --> 00:41:11,140

So in this test, the fillings did not become a simple radio receiver.

752

00:41:11,140 --> 00:41:17,140

But even if Lucy's did, does it automatically follow that she'd have been able to hear the signal?

753

00:41:17,140 --> 00:41:21,140

Could our nerves transmit the frequency to the brain,

754

00:41:21,140 --> 00:41:23,140

time to get wired for sound?

755

00:41:23,140 --> 00:41:26,140

You should theoretically hear an audio tone.

756

00:41:26,140 --> 00:41:28,140

Just like that.

757

00:41:28,140 --> 00:41:30,140

All in the name of the science.

758

00:41:30,140 --> 00:41:32,140

All right, I'm ready to take the juice.

759

00:41:32,140 --> 00:41:34,140

Are you ready?

760

00:41:34,140 --> 00:41:38,140

It's going to you. You can, you've got .4 milliliters.

761

00:41:38,140 --> 00:41:41,140

Oh, okay.

762

00:41:41,140 --> 00:41:42,140

Are you on there?

763

00:41:42,140 --> 00:41:43,140

Uh-huh.

764

00:41:43,140 --> 00:41:44,140

Do you feel anything?

765

00:41:44,140 --> 00:41:45,140

Uh-uh.

766

00:41:45,140 --> 00:41:46,140

Okay. Take one off.

767

00:41:46,140 --> 00:41:47,140

Okay.

768

00:41:47,140 --> 00:41:52,140

Well, I'm going to turn it up to 300 milliliters.

769

00:41:52,140 --> 00:41:55,140

This is about the highest voltage I'm comfortable putting out into your head.

770

00:41:55,140 --> 00:41:56,140

Of course, you say that.

771

00:41:56,140 --> 00:41:59,140

I'm just going to ask you to bump it up one more.

772

00:41:59,140 --> 00:42:00,140

No, I don't feel anything.

773

00:42:00,140 --> 00:42:05,140

I've just run it across several combinations of all my fillings.

774

00:42:05,140 --> 00:42:08,140

But what if you had metal somewhere else in your head?

775

00:42:08,140 --> 00:42:14,140

In 1981, the Veterans Medical Center in Miami reported a remarkable case.

776

00:42:14,140 --> 00:42:20,140

A Vietnam veteran claimed he was picking up radio through shrapnel embedded in his skull.

777

00:42:20,140 --> 00:42:25,140

He started to hear music, and then he became very frightened, very scared.

778

00:42:25,140 --> 00:42:29,140

He thought that he may be going psychotic with an intolution.

779

00:42:29,140 --> 00:42:33,140

The man was successfully treated for post-traumatic stress disorder.

780

00:42:33,140 --> 00:42:36,140

But still, the band played on.

781

00:42:36,140 --> 00:42:43,140

It's the only case of this kind in the last half-century to be published by a medical journal.

782

00:42:43,140 --> 00:42:49,140

For Lucille Ball, the radio-filling story didn't end when the music stopped.

783

00:42:49,140 --> 00:42:51,140

In fact, it got even zanier.

784

00:42:51,140 --> 00:42:56,140

I was going up another street, almost home.

785

00:42:56,140 --> 00:42:59,140

And I was passing four vacant lots.

786

00:42:59,140 --> 00:43:04,140

And as I went by there, I heard...

787

00:43:04,140 --> 00:43:06,140

I'm picking it up on my teeth.

788

00:43:06,140 --> 00:43:11,140

I stopped the car, and I looked around...

789

00:43:11,140 --> 00:43:14,140

...in a morse code like.

790

00:43:14,140 --> 00:43:18,140

And I couldn't wait to get back to MGM the next morning and tell the security office.

791

00:43:18,140 --> 00:43:20,140

And they found an underground Japanese...

792

00:43:20,140 --> 00:43:22,140

Transparency radio station.

793

00:43:22,140 --> 00:43:23,140

Radio station.

794

00:43:23,140 --> 00:43:24,140

Honest to God.

795

00:43:24,140 --> 00:43:26,140

Is that a great story?

796

00:43:26,140 --> 00:43:28,140

A great story, without a doubt.

797

00:43:28,140 --> 00:43:32,140

But morse code tapped out through tooth fillings?

798

00:43:32,140 --> 00:43:36,140

One of the theories is that it could be a galvanic reaction.

799

00:43:36,140 --> 00:43:41,140

I.e., let's say you have two dissimilar metals in your fillings.

800

00:43:41,140 --> 00:43:44,140

You have a gold crown and an amalgam filling.

801

00:43:44,140 --> 00:43:50,140

That those in the solution of your saliva might actually be generating a small amount of electric current, like a battery.

802

00:43:50,140 --> 00:43:56,140

In that case, the galvanic reaction would be building up a charge that it was discharging.

803

00:43:56,140 --> 00:43:58,140

Build up and discharge and build up and discharge.

804

00:43:58,140 --> 00:44:00,140

And you might actually think that was morse code.

805

00:44:00,140 --> 00:44:05,140

Jamie and Adam want to recreate what might have happened in Lucy's mouth.

806

00:44:05,140 --> 00:44:08,140

It's been a little while since this mouth saw any saliva.

807

00:44:08,140 --> 00:44:12,140

So Adam and Jamie are going to sit the teeth in vinegar.

808

00:44:12,140 --> 00:44:17,140

Vinegar's level of acidity should make it an excellent conductor.

809

00:44:17,140 --> 00:44:22,140

That ought to be enough for galvanic resistance.

810

00:44:22,140 --> 00:44:29,140

I have the teeth in solution just so that the metal of the teeth is both in the bath of vinegar and slightly above.

811

00:44:29,140 --> 00:44:33,140

Okay, we'll set some probes next.

812

00:44:33,140 --> 00:44:35,140

Alright.

813

00:44:35,140 --> 00:44:38,140

We have positive contact on everything here.

814

00:44:38,140 --> 00:44:41,140

Great.

815

00:44:41,140 --> 00:44:49,140

Adam and Jamie have heard the Japanese bombing of Pearl Harbor had just forced the United States to join the Second World War.

816

00:44:49,140 --> 00:44:56,140

It was after they had taken the Japanese out of California and unfortunately put them in the camps.

817

00:44:56,140 --> 00:45:03,140

With people fearing a full-scale Japanese invasion, panic and paranoia raged.

818

00:45:03,140 --> 00:45:07,140

Professor Rusty Kapps was with the FBI.

819

00:45:07,140 --> 00:45:11,140

He had now lectures on Japanese espionage during World War II.

820

00:45:11,140 --> 00:45:15,140

There were all kinds of rumors after the attack on Pearl Harbor.

821

00:45:15,140 --> 00:45:25,140

There was one I'm aware of, of a Japanese submarine that fired, and I think the number is 20 or less than 20 rounds, into a petroleum tank farm.

822

00:45:25,140 --> 00:45:34,140

There were also instances of Japanese trying to bomb America with high-altitude balloons that were going to drop incinerates.

823

00:45:34,140 --> 00:45:37,140

You didn't know how to reconcile this fear.

824

00:45:37,140 --> 00:45:41,140

So then suddenly you have Lucy of all people.

825

00:45:41,140 --> 00:45:45,140

Hey, what am I going to get? A kiss or a quarter milk?

826

00:45:45,140 --> 00:45:56,140

If these incompetent Japanese people couldn't even get one over on Lucy, how could they hope to win out over our American military?

827

00:45:56,140 --> 00:45:59,140

So it's really a comforting tale for people of that time period.

828

00:45:59,140 --> 00:46:02,140

It's saying, well, they couldn't possibly win.

829

00:46:02,140 --> 00:46:05,140

All in all, I'm quite pleased.

830

00:46:05,140 --> 00:46:14,140

To test for a galvanic reaction, the probes are once again placed on the fillings.

831

00:46:14,140 --> 00:46:16,140

Now we're seeing seven milivolts.

832

00:46:16,140 --> 00:46:17,140

Okay, let's see.

833

00:46:17,140 --> 00:46:21,140

And if you lift the probe off, lifting, it should go to zero.

834

00:46:21,140 --> 00:46:22,140

There it is.

835

00:46:22,140 --> 00:46:27,140

The fillings, reacting with the acid in the vinegar, are generating their own tiny current.

836

00:46:27,140 --> 00:46:36,140

This voltage would probably be similar to what would be if someone had a meal and their pH of their mouth was around this vinegar, around four and a half, five.

837

00:46:36,140 --> 00:46:37,140

That's right.

838

00:46:37,140 --> 00:46:38,140

This might exist in their mouth.

839

00:46:38,140 --> 00:46:39,140

That's right.

840

00:46:39,140 --> 00:46:40,140

That's right.

841

00:46:41,140 --> 00:46:48,140

Was Lucy's spy message nothing more sinister than a reaction between her fillings and her saliva?

842

00:46:48,140 --> 00:46:56,140

So it's possible someone could mistake that voltage discharge if they had a nerve close to a filling for something like Morse code.

843

00:46:56,140 --> 00:46:59,140

But that discharge would be an oscillation and they would feel it.

844

00:46:59,140 --> 00:47:01,140

And it wouldn't be pleasant, actually.

845

00:47:01,140 --> 00:47:04,140

A galvanic reaction can only occur in new fillings.

846

00:47:04,140 --> 00:47:11,140

Before the metal starts to corrode, Lucy's fillings were only a week old when the Morse code began to transmit.

847

00:47:11,140 --> 00:47:16,140

It would be more helpful if she actually knew Morse code and was able to translate the message.

848

00:47:16,140 --> 00:47:24,140

In 1994, five years after her death, Lucille Ball's FBI file was released to the public.

849

00:47:24,140 --> 00:47:29,140

All 142 pages refer to her involvement in the Communist Party.

850

00:47:29,140 --> 00:47:33,140

There's no mention of her role in foiling a Japanese spy network.

851

00:47:33,140 --> 00:47:38,140

If it had been true, I can think of no reason why it wouldn't have been widely published.

852

00:47:38,140 --> 00:47:46,140

The FBI, you have to remember, like all law enforcement and counterintelligence services has one basic rule.

853

00:47:46,140 --> 00:47:48,140

If it ain't on paper, it didn't happen.

854

00:47:48,140 --> 00:47:52,140

And one of the things that she's thinking about, I'm sure, as she comes forward is,

855

00:47:52,140 --> 00:47:54,140

well, how about my career?

856

00:47:54,140 --> 00:48:00,140

You know, I'm an actress, but if I'm also a war hero, if I'm also able to help the war effort in this way,

857

00:48:00,140 --> 00:48:03,140

I mean, it's going to raise my stock dramatically.

858

00:48:03,140 --> 00:48:07,140

I don't know how much publicity this story actually got when it happened.

859

00:48:07,140 --> 00:48:13,140

I know eventually there was a Broadway show called Something for the Boys with her friend Ethel Merman in it.

860

00:48:13,140 --> 00:48:22,140

And that one part of Lucille's story about picking up the radio signals in her fillings was translated to this musical.

861

00:48:22,140 --> 00:48:25,140

I don't think Lucille had a reason to make up a story.

862

00:48:25,140 --> 00:48:32,140

I mean, she had a very rich, full life, full of wonderful stories that, you know, she wouldn't have to make one up about herself.

863

00:48:32,140 --> 00:48:35,140

Adam, is the myth true or false?

864

00:48:35,140 --> 00:48:41,140

I think definitively we've shown that two different types of fillings do not act as a rudimentary radio crystal.

865

00:48:41,140 --> 00:48:47,140

And that there is some potential voltage or battery action occurring if you've eaten a lot of acidic food

866

00:48:47,140 --> 00:48:49,140

and you do have different types of metals in your mouth.

867

00:48:49,140 --> 00:48:50,140

It's busted.

868

00:48:50,140 --> 00:48:52,140

Okay, we'll call it busted.

869

00:48:52,140 --> 00:48:53,140

Alright.

870

00:48:53,140 --> 00:48:56,140

Thank you, Lucille, for talking about this.

