1

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

It may not look like it, but we're professionals.

2

00:00:03,000 --> 00:00:05,000

Do us a favor.

3

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

Don't try this at home! Whoa!

4

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

On this episode of Mythbusters,

5

00:00:10,000 --> 00:00:14,000

Adam and Jamie come out all guns blazing.

6

00:00:14,000 --> 00:00:16,000

It's still hot!

7

00:00:16,000 --> 00:00:19,000

As they find out if a freakish three-way ricochet

8

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

Get this one. Shotgun.

9

00:00:21,000 --> 00:00:24,000

could result in the shooter shooting himself.

10

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

And I see a hole in me.

11

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

Then Tori granted Jesse turn lumberjack.

12

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

Maybe we should have yelled timber.

13

00:00:32,000 --> 00:00:36,000

Testing the myth that a codifer can be used as a living catapult.

14

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

The Mythbusters!

15

00:00:38,000 --> 00:00:39,000

There are only hope.

16

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

To fling an infected corpse up and over a castle wall.

17

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

Whoa!

18

00:00:48,000 --> 00:00:50,000

Who are the Mythbusters?

19

00:00:50,000 --> 00:00:52,000

Adam Savage.

20

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

Here comes chaos.

21

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

And Jamie Heineman.

22

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

We're gonna have an adventure.

23

00:00:57,000 --> 00:01:01,000

Between them more than 30 years of special effects experience.

24

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

Joining them.

25

00:01:03,000 --> 00:01:05,000

Carrie Byron.

26

00:01:05,000 --> 00:01:07,000

Right to the job.

27

00:01:07,000 --> 00:01:08,000

Tori Belleggi.

28

00:01:08,000 --> 00:01:10,000

Okay, you wanna play a rough little golfer?

29

00:01:10,000 --> 00:01:11,000

Grant Imahara.

30

00:01:11,000 --> 00:01:12,000

Good to go.

31

00:01:12,000 --> 00:01:14,000

And featuring Jesse Cones.

32

00:01:14,000 --> 00:01:15,000

That was awesome!

33

00:01:15,000 --> 00:01:17,000

They don't just tell the Myths,

34

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

they put them to the test.

35

00:01:26,000 --> 00:01:31,000

To kick start the first Myth, Adam decides on a field trip.

36

00:01:34,000 --> 00:01:37,000

They told me you were over here doing research.

37

00:01:37,000 --> 00:01:39,000

Looks to me like you're playing pool.

38

00:01:39,000 --> 00:01:40,000

I'm doing both.

39

00:01:40,000 --> 00:01:41,000

I've got our next story.

40

00:01:41,000 --> 00:01:45,000

It's a shooting myth from our gun toting fans and allow me to demonstrate.

41

00:01:45,000 --> 00:01:48,000

Let's say this red ball represents our shooter.

42

00:01:48,000 --> 00:01:52,000

Let's say the cue ball here represents the bullet from his gun.

43

00:01:52,000 --> 00:01:58,000

The myth is that our shooter can fire a bullet and can bounce off one, two, three surfaces

44

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

and come back and kill the shooter.

45

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

That would ruin your day.

46

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

I know.

47

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

Let's test it.

48

00:02:03,000 --> 00:02:04,000

Okay.

49

00:02:04,000 --> 00:02:07,000

The myth takes place in a half-built skyscraper.

50

00:02:07,000 --> 00:02:10,000

It's a pin-up parable for poetic justice.

51

00:02:10,000 --> 00:02:15,000

One angry shot at just the wrong angle, misses the target,

52

00:02:15,000 --> 00:02:17,000

ricochets off three steel beams,

53

00:02:17,000 --> 00:02:21,000

and returns to the shooter in less than a heartbeat.

54

00:02:23,000 --> 00:02:25,000

So how do you want to start this one?

55

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

Well, I figure we need to start with some kind of a controlled situation.

56

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

You know, a bench test.

57

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

Well, to my mind, that just means we set up three adjustable steel plates,

58

00:02:33,000 --> 00:02:39,000

probably in our bunker, fire a gun into them and see if it ricochets off all three plates and kills its shooter.

59

00:02:39,000 --> 00:02:40,000

Works for me.

60

00:02:40,000 --> 00:02:41,000

All right.

61

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

You ready to let all hell break loose in here?

62

00:02:46,000 --> 00:02:47,000

Yep.

63

00:02:48,000 --> 00:02:54,000

From bare bunker to ballistic death trap, the transformation is fast and efficient.

64

00:02:54,000 --> 00:02:58,000

Three steel plates and three vices and one 45-caliber pistol.

65

00:02:58,000 --> 00:03:02,000

And what we've got here is pretty much the bench test setting up the circumstances of this myth,

66

00:03:02,000 --> 00:03:07,000

in which this pistol will release its bullet, firing it into plate number one,

67

00:03:07,000 --> 00:03:12,000

where it will reflect off, in theory, at least, at a 90-degree angle into plate number two,

68

00:03:12,000 --> 00:03:17,000

doing the same to plate number three, and hopefully coming all the way back around to where it started,

69

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

potentially killing its shooter.

70

00:03:19,000 --> 00:03:24,000

Now, to make sure that everything's set up nice and Jake, I'm going to use some mirrors and a laser.

71

00:03:25,000 --> 00:03:29,000

With the help of predictive technology, they're doing Pythagoras proud.

72

00:03:31,000 --> 00:03:34,000

The final angle won't quite make a perfect diamond,

73

00:03:34,000 --> 00:03:38,000

but there's method behind this deliberate mis-deflection.

74

00:03:39,000 --> 00:03:43,000

Yeah, it brings the path of the bullet back here so that we hopefully don't hit the gun.

75

00:03:43,000 --> 00:03:44,000

Okay.

76

00:03:44,000 --> 00:03:45,000

I don't want to hurt it.

77

00:03:46,000 --> 00:03:50,000

Adam has no such concerns about punching a hole in his partner in crime.

78

00:03:50,000 --> 00:03:52,000

I brought some motivation for our gun.

79

00:03:52,000 --> 00:03:54,000

I brought a shooter.

80

00:03:54,000 --> 00:03:56,000

That looked badass.

81

00:03:56,000 --> 00:04:00,000

Yeah, I figured we put him right here, and if there's any meat on the bones of this,

82

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

he's going to end up with a bullet hole on him.

83

00:04:02,000 --> 00:04:03,000

Okay.

84

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

So what we've got set up inside the bunker right now is a really idealized situation.

85

00:04:08,000 --> 00:04:12,000

In actuality, I'm not so sure it's going to make it perfectly all the way through.

86

00:04:12,000 --> 00:04:15,000

I don't know, I've seen a lot about bullets when they hit metal objects,

87

00:04:15,000 --> 00:04:18,000

and I'm expecting some spatter.

88

00:04:18,000 --> 00:04:22,000

Adam puts paper to steel to help mark the points of impact.

89

00:04:22,000 --> 00:04:26,000

When he's done, Jamie carefully loads the weapon.

90

00:04:29,000 --> 00:04:31,000

Bunker's hot.

91

00:04:33,000 --> 00:04:38,000

And they're ready to shoot with intent to kill dirty Jamie.

92

00:04:38,000 --> 00:04:39,000

This is ricocheting bullet.

93

00:04:39,000 --> 00:04:41,000

Ideal scenario.

94

00:04:41,000 --> 00:04:45,000

And three, two, one.

95

00:04:48,000 --> 00:04:51,000

I only see one player with a mark on it.

96

00:04:51,000 --> 00:04:53,000

Second plate doesn't have anything.

97

00:04:53,000 --> 00:04:55,000

Well, that's interesting, isn't it?

98

00:04:55,000 --> 00:04:59,000

On closer inspection, that turns out to be an understatement.

99

00:04:59,000 --> 00:05:02,000

I can already see what's going on here.

100

00:05:02,000 --> 00:05:04,000

Look at the back wall.

101

00:05:04,000 --> 00:05:07,000

Yeah, all right along here.

102

00:05:07,000 --> 00:05:10,000

It's spread out almost four feet.

103

00:05:10,000 --> 00:05:15,000

So much for, like, dang, dang, dang it just went shotgun.

104

00:05:15,000 --> 00:05:18,000

It looks like the lead bullet shattered,

105

00:05:18,000 --> 00:05:22,000

and the high-speed replay confirms their consternation.

106

00:05:22,000 --> 00:05:23,000

Well, that didn't work.

107

00:05:23,000 --> 00:05:25,000

There's your problem.

108

00:05:25,000 --> 00:05:29,000

That bullet came in and it just kind of laid flat right along the plate.

109

00:05:29,000 --> 00:05:31,000

It did. It was so beautiful.

110

00:05:31,000 --> 00:05:33,000

Followed the line just perfectly.

111

00:05:33,000 --> 00:05:35,000

The fire behind it was gorgeous.

112

00:05:35,000 --> 00:05:38,000

Yeah, there's got to be a bullet that holds together better than that.

113

00:05:38,000 --> 00:05:39,000

Yeah, I think so.

114

00:05:39,000 --> 00:05:42,000

Time to dip into Jamie's private stash.

115

00:05:42,000 --> 00:05:44,000

Well, lead didn't do it.

116

00:05:44,000 --> 00:05:47,000

So this time around, we're going to use full-metal, jacketed bullets.

117

00:05:47,000 --> 00:05:50,000

That means they're covered with copper everywhere except for the bottom.

118

00:05:50,000 --> 00:05:54,000

I think the fact that this thing is encased in metal,

119

00:05:54,000 --> 00:05:56,000

but it's not just raw lead,

120

00:05:56,000 --> 00:05:58,000

means that we are going to see a better bounce from this.

121

00:05:58,000 --> 00:06:01,000

It might not be the bounce that we were hoping in the beginning,

122

00:06:01,000 --> 00:06:04,000

but it's got to be better than just raw lead.

123

00:06:05,000 --> 00:06:09,000

With the paper replaced and the gun locked and loaded...

124

00:06:10,000 --> 00:06:13,000

And three, two, one.

125

00:06:18,000 --> 00:06:19,000

Same thing.

126

00:06:21,000 --> 00:06:25,000

The full-metal jacket fared marginally better than lead,

127

00:06:25,000 --> 00:06:28,000

but they still couldn't get a single ricochet.

128

00:06:29,000 --> 00:06:30,000

Alright, there it goes.

129

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

On the down line...

130

00:06:33,000 --> 00:06:35,000

...batters again.

131

00:06:35,000 --> 00:06:38,000

It might as well be a paintball.

132

00:06:38,000 --> 00:06:41,000

It didn't even get anywhere close to that second plate.

133

00:06:41,000 --> 00:06:43,000

Well, dude, that was a full-metal jacket.

134

00:06:43,000 --> 00:06:45,000

I don't know where we're going to go from there.

135

00:06:45,000 --> 00:06:51,000

But Jamie's brought along the FMJ's bigger and tougher brother.

136

00:06:51,000 --> 00:06:54,000

Will the total metal jacket do better than the full-metal jacket?

137

00:06:54,000 --> 00:06:58,000

Well, this one is completely covered with copper, so it should do better.

138

00:06:59,000 --> 00:07:01,000

There's only one way to find out.

139

00:07:02,000 --> 00:07:06,000

And three, two, one.

140

00:07:10,000 --> 00:07:12,000

Still no hit on the second plate.

141

00:07:15,000 --> 00:07:17,000

It's time to get innovative.

142

00:07:19,000 --> 00:07:22,000

Not only is it not hitting the second or the third plate,

143

00:07:22,000 --> 00:07:26,000

but it's hitting the first plate at 45 degrees and leaving it like 5 degrees.

144

00:07:26,000 --> 00:07:29,000

That's not a ricochet. That's like a splatter.

145

00:07:29,000 --> 00:07:32,000

Look at this. This looks like a piece of fruit that you ran over.

146

00:07:32,000 --> 00:07:34,000

Are you paying attention?

147

00:07:34,000 --> 00:07:37,000

We've got to come up with something better than a bullet now.

148

00:07:37,000 --> 00:07:38,000

Come on.

149

00:07:38,000 --> 00:07:39,000

Bullets are out.

150

00:07:39,000 --> 00:07:42,000

We need something to bounce around like a ball,

151

00:07:42,000 --> 00:07:47,000

so I figure why not use a ball, specifically a hardened steel ball bearing?

152

00:07:47,000 --> 00:07:50,000

These puppies aren't going to be splattering when they hit a steel plate.

153

00:07:50,000 --> 00:07:53,000

With any luck, we'll see one return to center.

154

00:07:55,000 --> 00:07:58,000

The boys will return to bouncing bullets,

155

00:07:58,000 --> 00:08:02,000

but for now, they'll try their luck with something rounder and harder.

156

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

The ball bearing we're now firing into these steel plates is hardened crumb steel,

157

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

and it is actually much harder than these steel plates.

158

00:08:11,000 --> 00:08:15,000

Hopefully with these, we're going to see the bouncing ricocheting action

159

00:08:15,000 --> 00:08:19,000

that we're hoping for on all three plates right back to our shooter.

160

00:08:19,000 --> 00:08:21,000

To enable the gun to shoot the bearing,

161

00:08:21,000 --> 00:08:25,000

Jamie fits it inside a sleeve called a sabote.

162

00:08:27,000 --> 00:08:30,000

Let's do this thing. I'm feeling good about it.

163

00:08:30,000 --> 00:08:33,000

We've got to get something better than what we've gotten so far.

164

00:08:33,000 --> 00:08:34,000

All right.

165

00:08:34,000 --> 00:08:36,000

Ball bearings.

166

00:08:36,000 --> 00:08:42,000

In three, two, one, boom.

167

00:08:42,000 --> 00:08:43,000

Ha!

168

00:08:43,000 --> 00:08:46,000

I see a mark on the second plate.

169

00:08:47,000 --> 00:08:50,000

Oh, and I see a hole in me.

170

00:08:50,000 --> 00:08:51,000

Hey!

171

00:08:52,000 --> 00:08:53,000

Look at that!

172

00:08:54,000 --> 00:08:56,000

Well, let's get in there and see.

173

00:08:59,000 --> 00:09:04,000

It looks like the ball bearing has indeed returned with a vengeance.

174

00:09:05,000 --> 00:09:11,000

Plate number one has a mark, plate number two has a mark, plate number three has a mark,

175

00:09:11,000 --> 00:09:13,000

and you're dead, sucker.

176

00:09:13,000 --> 00:09:18,000

To get the full picture, the boys settle down to peruse the high speed.

177

00:09:19,000 --> 00:09:20,000

It's going...

178

00:09:20,000 --> 00:09:22,000

Oh, look at it slow down.

179

00:09:22,000 --> 00:09:25,000

That is a lot of energy lost each time it heads.

180

00:09:25,000 --> 00:09:28,000

At high speed, it's almost like it's slowing to a crawl.

181

00:09:28,000 --> 00:09:32,000

Well, I want to actually take some measurements and do the math

182

00:09:32,000 --> 00:09:34,000

how fast it's actually going after that third plate.

183

00:09:34,000 --> 00:09:36,000

We need to know if that's lethal.

184

00:09:36,000 --> 00:09:37,000

Yes.

185

00:09:37,000 --> 00:09:40,000

Confirming the myth means killing the shooter.

186

00:09:40,000 --> 00:09:45,000

And let's acknowledge that less than 10% of the real Jamie is actually made from cardboard.

187

00:09:48,000 --> 00:09:50,000

Dude, it's not lethal.

188

00:09:50,000 --> 00:09:51,000

Really?

189

00:09:51,000 --> 00:09:52,000

Yeah.

190

00:09:52,000 --> 00:09:55,000

I come up with 106 feet per second or 72 miles per hour.

191

00:09:55,000 --> 00:09:58,000

It would f**k you off, but it wouldn't kill you.

192

00:09:58,000 --> 00:09:59,000

Ha!

193

00:09:59,000 --> 00:10:01,000

I can throw a baseball faster than that.

194

00:10:03,000 --> 00:10:05,000

I'll bet you can't.

195

00:10:06,000 --> 00:10:11,000

But the challenge is out there to find a hard surface that might bounce some bullets.

196

00:10:13,000 --> 00:10:14,000

You're going to keep that?

197

00:10:14,000 --> 00:10:15,000

Are you kidding?

198

00:10:15,000 --> 00:10:17,000

This is how I'm riding in the high occupancy vehicle lane.

199

00:10:18,000 --> 00:10:19,000

Good luck with that.

200

00:10:20,000 --> 00:10:27,000

After the break, Jesse, Grant, Tori and Buster bend over backwards to launch a legend.

201

00:10:27,000 --> 00:10:28,000

All right, here we go!

202

00:10:35,000 --> 00:10:45,000

Now to test out an infectious treetail.

203

00:10:45,000 --> 00:10:52,000

All right, so the story goes that during the medieval castle sieges, attacking armies would use nearby pine trees.

204

00:10:52,000 --> 00:11:00,000

They would bend them back, load them up with bodies that had died from smallpox or the plague, launch them over the wall into the enemy's castle.

205

00:11:00,000 --> 00:11:05,000

And at that point, people inside the castle would contract some lethal disease and ultimately be defeated.

206

00:11:05,000 --> 00:11:07,000

Wow, so like the first biological warfare.

207

00:11:07,000 --> 00:11:08,000

Exactly.

208

00:11:09,000 --> 00:11:15,000

It's been a cartoon classic for generations, but how will it work in real life?

209

00:11:15,000 --> 00:11:27,000

They'll have to somehow attach a body to the top of a tree, pull back the tree without snapping it off, and then launch the cadet far and high enough to clear a castle wall.

210

00:11:28,000 --> 00:11:29,000

Body hits a dead body.

211

00:11:29,000 --> 00:11:30,000

Wall of bleeding nails.

212

00:11:30,000 --> 00:11:31,000

That's the dead end reason.

213

00:11:32,000 --> 00:11:34,000

Okay, so right off the bat, I think this is going to be kind of difficult.

214

00:11:34,000 --> 00:11:35,000

Why?

215

00:11:35,000 --> 00:11:36,000

Well, think about it.

216

00:11:36,000 --> 00:11:42,000

For us to be able to fling a disease infected body up and over some castle walls, we have to bend a tree back like this.

217

00:11:42,000 --> 00:11:44,000

And that's a significant distance.

218

00:11:44,000 --> 00:11:47,000

It could either break right at the trunk or even possibly completely uproot.

219

00:11:47,000 --> 00:11:50,000

So it sounds like we need to find the elastic limit of a tree.

220

00:11:50,000 --> 00:11:55,000

Let's go to a tree plantation, find a nice tall, straight tree, and bend it back until it breaks.

221

00:11:55,000 --> 00:12:05,000

All right, once we've done that, let's take another similar sized tree, bend it back just before it breaks, then we'll load up Buster, release the tree, and see if it has enough energy to send him over the castle wall.

222

00:12:07,000 --> 00:12:11,000

Now, we can't just skip out to any old forest and start twanging trees.

223

00:12:14,000 --> 00:12:21,000

Jim Curry from Loggers Unlimited has 22 acres of mixed woodland already destined for shipping.

224

00:12:21,000 --> 00:12:25,000

All right, we're trying to fling some disease corpses over a castle wall and we need some trees.

225

00:12:25,000 --> 00:12:27,000

Oh, you come to the right place.

226

00:12:27,000 --> 00:12:29,000

Hmm, didn't so much as bat an eyelid.

227

00:12:29,000 --> 00:12:33,000

Minutes later, Jesse tracks down a suitable specimen.

228

00:12:34,000 --> 00:12:36,000

Guys, I found the perfect tree!

229

00:12:36,000 --> 00:12:40,000

According to Jim, it's a California gray pine.

230

00:12:40,000 --> 00:12:45,000

That fits the build perfectly because this myth specifically calls for a conifer.

231

00:12:46,000 --> 00:12:53,000

Let's say you were the head of an invading army and you came up with this crazy idea to use trees to fling disease bodies over castle walls.

232

00:12:53,000 --> 00:12:55,000

Which type of tree would you use?

233

00:12:55,000 --> 00:13:03,000

The deciduous one with all the curvy branches and the curvy trunk or the long, tall, straight coniferous one.

234

00:13:03,000 --> 00:13:06,000

That's right, we're going with the coniferous one too.

235

00:13:09,000 --> 00:13:10,000

Why am I climbing it?

236

00:13:10,000 --> 00:13:15,000

Well, I need to get up here and tie a line so that way we can bend our tree down to the ground.

237

00:13:15,000 --> 00:13:22,000

We're going to have a force meter attached to the line so that way we'll be able to read how many pounds of force it takes to get this tree down.

238

00:13:22,000 --> 00:13:31,000

Remember, this first test is designed to gather one vital statistic to see how far the tree bends before it breaks.

239

00:13:32,000 --> 00:13:37,000

The other end of that line is a giant come along. Hopefully it's strong enough to actually break the tree.

240

00:13:38,000 --> 00:13:44,000

Finally, we have a force gauge to tell us how many pounds of force that tree will take before it breaks.

241

00:13:44,000 --> 00:13:46,000

It's time to get cranking.

242

00:13:46,000 --> 00:13:50,000

Who's first on come along duty? You are! Dang it!

243

00:13:51,000 --> 00:13:55,000

In keeping with the myth's rustic nature, they're using a handwinch.

244

00:13:55,000 --> 00:13:59,000

Grant's the first to bend his arm and make a prediction.

245

00:14:00,000 --> 00:14:02,000

As far as the amount of force it'll take?

246

00:14:02,000 --> 00:14:03,000

I don't know.

247

00:14:03,000 --> 00:14:05,000

Maybe a thousand pounds?

248

00:14:05,000 --> 00:14:07,000

I'm not an arborist.

249

00:14:07,000 --> 00:14:11,000

Slowly but surely the pine starts to bend.

250

00:14:12,000 --> 00:14:19,000

Incredibly, this full grown tree arches 45 degrees and it's groaning under the pressure.

251

00:14:19,000 --> 00:14:22,000

Wow, look at how far bent over it is.

252

00:14:23,000 --> 00:14:25,000

Creeping up on 1500.

253

00:14:25,000 --> 00:14:28,000

It's bending. It's not breaking yet.

254

00:14:29,000 --> 00:14:33,000

The rope still strains but the gauge stalls at 2000.

255

00:14:33,000 --> 00:14:37,000

That just might mean that this conifer is ready to crack.

256

00:14:41,000 --> 00:14:43,000

Yeah!

257

00:14:44,000 --> 00:14:46,000

That was dramatic.

258

00:14:46,000 --> 00:14:50,000

It snapped like a twig so they've now got the number they needed.

259

00:14:50,000 --> 00:14:55,000

2000 pounds of force should crack a medium sized gray pine.

260

00:14:59,000 --> 00:15:03,000

With that data in mind, they're now ready to see if a man can fly.

261

00:15:03,000 --> 00:15:04,000

A dead man.

262

00:15:04,000 --> 00:15:07,000

Alright, for our second tree we found a very similar tree.

263

00:15:07,000 --> 00:15:11,000

So it's time to bring in the big guns and this thing has a 40,000 pound winch on it.

264

00:15:11,000 --> 00:15:14,000

Which is going to make our jobs a whole lot easier.

265

00:15:14,000 --> 00:15:20,000

In fact, with this near identical tree, it's technology to the rescue all around.

266

00:15:20,000 --> 00:15:23,000

Tori's tree climbing days are over.

267

00:15:23,000 --> 00:15:25,000

Alright, I hope he stays.

268

00:15:25,000 --> 00:15:26,000

Alright, let's go.

269

00:15:26,000 --> 00:15:27,000

Good luck buddy.

270

00:15:27,000 --> 00:15:30,000

Why are you wishing him luck? He's dead.

271

00:15:30,000 --> 00:15:35,000

Even in death, there's no dignity for your professional crash test dummy.

272

00:15:35,000 --> 00:15:39,000

Still, they all have their parts to play.

273

00:15:39,000 --> 00:15:41,000

Now Jesse is going to be operating that winch.

274

00:15:41,000 --> 00:15:43,000

Grant will be watching the force meter.

275

00:15:43,000 --> 00:15:48,000

As soon as we get to the right pounds of force, he'll let me know and then we'll release the rope.

276

00:15:48,000 --> 00:15:49,000

Launching buster.

277

00:15:49,000 --> 00:15:55,000

Now we could use a quick release, but we thought, since this is a medieval myth, why not cut the

rope with a sword?

278

00:15:55,000 --> 00:15:56,000

I know, it's a samurai sword.

279

00:15:56,000 --> 00:15:58,000

At least we're making an effort.

280

00:16:02,000 --> 00:16:06,000

They're all hoping that buster will soar like a pox-ridden pigeon.

281

00:16:06,000 --> 00:16:12,000

But there's always the chance that our man will in fact be a tree hugger.

282

00:16:12,000 --> 00:16:14,000

This is tree bending.

283

00:16:14,000 --> 00:16:18,000

It's very unpredictable, so it's really hard to take a guess at what's really going to happen.

284

00:16:18,000 --> 00:16:25,000

The plan is to cut the rope when the gauge hits 2000.

285

00:16:25,000 --> 00:16:31,000

That was the maximum force inflicted on the last tree before we shivered its timbers.

286

00:16:31,000 --> 00:16:32,000

2000 pounds.

287

00:16:32,000 --> 00:16:37,000

The massive bent trunk looks like it could fling buster into the next county.

288

00:16:37,000 --> 00:16:42,000

The cast and crew backed off to what they hope is a safe distance.

289

00:16:42,000 --> 00:16:43,000

Tori cuts loose.

290

00:16:43,000 --> 00:16:44,000

Here we go.

291

00:16:44,000 --> 00:16:47,000

In three, two, one.

292

00:16:47,000 --> 00:16:58,000

It's a total failure.

293

00:16:58,000 --> 00:17:04,000

Falling is not flying, and busters more dislodged than discharged.

294

00:17:04,000 --> 00:17:07,000

Well, we've proved one thing.

295

00:17:07,000 --> 00:17:09,000

Gravity still works.

296

00:17:10,000 --> 00:17:18,000

Coming right up, Adam and Jamie work the angles for a fatal three-way ricochet.

297

00:17:18,000 --> 00:17:19,000

Test bullet trigger.

298

00:17:29,000 --> 00:17:34,000

Adam and Jamie are testing the myth that a bullet could ricochet three times off steel,

299

00:17:34,000 --> 00:17:37,000

returning to snuff out the shooter.

300

00:17:38,000 --> 00:17:43,000

Nice day for a ricochet, huh?

301

00:17:43,000 --> 00:17:50,000

Now they've decided for safety's sake to relocate to the wide open spaces.

302

00:17:50,000 --> 00:17:57,000

They've already done bench tests with solid steel plates, but the bullets all burst before bouncing.

303

00:17:57,000 --> 00:17:59,000

It just went shotgun.

304

00:17:59,000 --> 00:18:01,000

So where does that leave us?

305

00:18:01,000 --> 00:18:03,000

Well, we wondered if we were thinking about it all wrong.

306

00:18:03,000 --> 00:18:05,000

Maybe it's not the bullet's fault.

307

00:18:05,000 --> 00:18:08,000

Maybe we were asking it to bounce off something way too hard.

308

00:18:08,000 --> 00:18:12,000

Suppose we gave it some softer surfaces, maybe it would bounce better.

309

00:18:12,000 --> 00:18:14,000

And that's what we're just about to do.

310

00:18:14,000 --> 00:18:20,000

The first surface they'll test is much softer than steel and way heavier.

311

00:18:20,000 --> 00:18:26,000

You want to pop one of those out of there and into here and we'll clamp it in.

312

00:18:26,000 --> 00:18:29,000

So why are we using a lead target?

313

00:18:29,000 --> 00:18:33,000

Well, the bullets we're using are coated in copper, and copper is harder than lead.

314

00:18:33,000 --> 00:18:41,000

So I'm hoping that copper will hold the bullet together well enough to not splatter when it hits this and it can continue on its way.

315

00:18:41,000 --> 00:18:44,000

And will the speed be lethal?

316

00:18:44,000 --> 00:18:50,000

For these tests, they'll start by measuring the angle of deflection off just one surface.

317

00:18:50,000 --> 00:18:55,000

The bullet, if it bounces, should pass through the backboard.

318

00:18:59,000 --> 00:19:01,000

Range is high.

319

00:19:02,000 --> 00:19:07,000

The bullet they're using is the fully copper coated total metal jacket.

320

00:19:07,000 --> 00:19:10,000

Three, two, one.

321

00:19:12,000 --> 00:19:13,000

I can see the hole.

322

00:19:13,000 --> 00:19:14,000

Really?

323

00:19:14,000 --> 00:19:15,000

It's at a wonderful angle.

324

00:19:15,000 --> 00:19:16,000

Really?

325

00:19:16,000 --> 00:19:17,000

Yeah.

326

00:19:17,000 --> 00:19:24,000

Providing the bullet stayed more or less in one piece, this looks like a step in the right direction.

327

00:19:24,000 --> 00:19:29,000

Look, I can see what a 45 degree angle of reflection is and I think we're at like 42.

328

00:19:29,000 --> 00:19:31,000

That's far steeper than I thought we'd get.

329

00:19:31,000 --> 00:19:34,000

The only thing we need to know now is how fast it's going.

330

00:19:34,000 --> 00:19:37,000

Well, let's get to the high speed and do some math.

331

00:19:37,000 --> 00:19:42,000

But the ultra slow motion shows something they hadn't expected.

332

00:19:42,000 --> 00:19:47,000

A real tumbling piece of twisted metal at that point.

333

00:19:47,000 --> 00:19:49,000

Yeah, that surprises me.

334

00:19:49,000 --> 00:19:53,000

Now Adam determines the speed of that twisted lump of metal.

335

00:19:53,000 --> 00:19:57,000

Well, alright, here's the math.

336

00:19:57,000 --> 00:20:02,000

Bullet after it struck the lead plate, it was only going 171 feet per second.

337

00:20:02,000 --> 00:20:05,000

116 miles per hour when it went through the backboard.

338

00:20:05,000 --> 00:20:06,000

That's not lethal.

339

00:20:06,000 --> 00:20:09,000

Lost almost all its energy.

340

00:20:09,000 --> 00:20:10,000

Yeah.

341

00:20:10,000 --> 00:20:14,000

Time to change up to a surface that might make a difference.

342

00:20:15,000 --> 00:20:18,000

Next up is one of these cinder block pavers.

343

00:20:18,000 --> 00:20:19,000

Why a paver?

344

00:20:19,000 --> 00:20:24,000

Well, this material is soft enough that it will allow the bullet to dig into it

345

00:20:24,000 --> 00:20:28,000

and then have to climb out of the groove giving us the angle we want.

346

00:20:28,000 --> 00:20:29,000

Good to go.

347

00:20:29,000 --> 00:20:32,000

Alright, you got a prediction for the angle for the paver?

348

00:20:32,000 --> 00:20:33,000

No.

349

00:20:33,000 --> 00:20:34,000

No?

350

00:20:34,000 --> 00:20:35,000

No.

351

00:20:35,000 --> 00:20:37,000

If you were to have a prediction, you had any idea what it would be?

352

00:20:37,000 --> 00:20:38,000

I don't know.

353

00:20:40,000 --> 00:20:42,000

Just pull the trigger.

354

00:20:42,000 --> 00:20:44,000

Three, two, one.

355

00:20:45,000 --> 00:20:49,000

The bullet was squashed but not shattered.

356

00:20:51,000 --> 00:20:54,000

It's now up to Adam to check on the angle.

357

00:20:55,000 --> 00:20:56,000

Huh.

358

00:20:56,000 --> 00:21:01,000

It's exactly one half of 45 degrees, 22 and a half.

359

00:21:01,000 --> 00:21:03,000

That's pretty cool.

360

00:21:06,000 --> 00:21:09,000

And if the bullet is talking, then Adam is listening.

361

00:21:10,000 --> 00:21:13,000

So we're wondering, maybe we're making the bullets do too much work.

362

00:21:13,000 --> 00:21:17,000

Suppose we shoot them into their surface at a shallower angle of incidence.

363

00:21:17,000 --> 00:21:20,000

Maybe they'll store more of their energy for subsequent hits

364

00:21:20,000 --> 00:21:22,000

and eventually get all the way back around to the shooter.

365

00:21:22,000 --> 00:21:25,000

So we're going to take that 45 degree angle of incidence,

366

00:21:25,000 --> 00:21:30,000

split it in half and start shooting them into the stuff at 22 and a half degrees.

367

00:21:31,000 --> 00:21:38,000

22 and a half degrees into a paver in three, two, how one?

368

00:21:39,000 --> 00:21:40,000

I don't know.

369

00:21:46,000 --> 00:21:49,000

I just had this warm feeling about how much I like our job right now.

370

00:21:50,000 --> 00:21:55,000

With the new shallow angle, they're looking for speed and it seems like they found it.

371

00:21:55,000 --> 00:21:59,000

But they'll need to confirm if they're close to a kill shot.

372

00:22:00,000 --> 00:22:01,000

Here we go. High speed.

373

00:22:02,000 --> 00:22:04,000

High speed is the objective.

374

00:22:04,000 --> 00:22:09,000

The number they're chasing for terminal velocity is 300 feet per second.

375

00:22:10,000 --> 00:22:11,000

That's the best one yet.

376

00:22:11,000 --> 00:22:18,000

Coming off that paver, that bullet is going 488 feet per second, 332 miles an hour.

377

00:22:18,000 --> 00:22:20,000

Well that could be lethal, though.

378

00:22:20,000 --> 00:22:23,000

I think so. I think it's one of our most promising hits yet.

379

00:22:23,000 --> 00:22:25,000

That's awesome speed.

380

00:22:25,000 --> 00:22:27,000

So where to from here?

381

00:22:27,000 --> 00:22:30,000

In different tests, they got speed and direction.

382

00:22:30,000 --> 00:22:33,000

The trick is putting them together.

383

00:22:34,000 --> 00:22:37,000

At Adams, almost convinced he's got the answer.

384

00:22:38,000 --> 00:22:41,000

So Jamie's likeness is brought into play.

385

00:22:42,000 --> 00:22:43,000

Which is which.

386

00:22:45,000 --> 00:22:48,000

As are the two extra ricochet pavers.

387

00:22:48,000 --> 00:22:52,000

The first bullet hit occurs on this paving stone at 22 and a half degrees.

388

00:22:52,000 --> 00:22:55,000

Now we know from doing this a couple times before that it's going to bounce off this paving stone

389

00:22:55,000 --> 00:22:58,000

at about 12 degrees into this one.

390

00:22:58,000 --> 00:23:03,000

Now I have this one positioned so the bullet will hit this stone at actually about 30 degrees.

391

00:23:03,000 --> 00:23:05,000

This is a little bit sharper, but because the bullet's got less energy,

392

00:23:05,000 --> 00:23:09,000

I think it's going to dig less into this stone and perhaps have a higher angle of reflection.

393

00:23:09,000 --> 00:23:12,000

Now it's into this one where really it's anybody's guess.

394

00:23:12,000 --> 00:23:15,000

I'm positioning it roughly about there.

395

00:23:15,000 --> 00:23:19,000

And I'm hoping that's enough to get the bullet back to Jamie's cut out.

396

00:23:19,000 --> 00:23:23,000

One bullet, three paving stones and a cardboard hoosier

397

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

and a cartridge and a pear tree for the gold.

398

00:23:27,000 --> 00:23:30,000

Three, two, one.

399

00:23:31,000 --> 00:23:35,000

The odds of success seem astronomically small,

400

00:23:35,000 --> 00:23:39,000

but it looks like the planets have almost aligned.

401

00:23:39,000 --> 00:23:44,000

I see one mark, I see two marks, I see three marks.

402

00:23:44,000 --> 00:23:46,000

Our stones got hit right.

403

00:23:46,000 --> 00:23:49,000

I see a mark right here in my chest.

404

00:23:49,000 --> 00:23:50,000

No!

405

00:23:50,000 --> 00:23:51,000

Where's the bullet?

406

00:23:51,000 --> 00:23:53,000

What's that?

407

00:23:53,000 --> 00:23:55,000

That's it.

408

00:23:55,000 --> 00:23:56,000

It's still hot.

409

00:23:56,000 --> 00:23:58,000

You ever feel that?

410

00:23:58,000 --> 00:24:00,000

Ow, yeah.

411

00:24:00,000 --> 00:24:02,000

That's it.

412

00:24:02,000 --> 00:24:08,000

Despite all those odd angles, they actually got the triple ricochet.

413

00:24:08,000 --> 00:24:10,000

The need now is for speed.

414

00:24:10,000 --> 00:24:13,000

Dead smack center that second. It's so pretty.

415

00:24:13,000 --> 00:24:15,000

Starting to slow down.

416

00:24:15,000 --> 00:24:16,000

Three.

417

00:24:16,000 --> 00:24:20,000

Oh, and now we're really slowed down.

418

00:24:20,000 --> 00:24:23,000

God, you can't die to me.

419

00:24:23,000 --> 00:24:27,000

I think I can, I think I can, I think I can.

420

00:24:27,000 --> 00:24:30,000

Kill! Here it comes!

421

00:24:30,000 --> 00:24:35,000

Even with cement slabs, they couldn't match up the speed with the angle.

422

00:24:35,000 --> 00:24:41,000

He hits a third paving stone at an angle of 60 degrees and left it at 60 degrees,

423

00:24:41,000 --> 00:24:44,000

just like a mirror eventually hitting Jamie in the chest.

424

00:24:44,000 --> 00:24:46,000

Unfortunately, by the time he hit Jamie in the chest,

425

00:24:46,000 --> 00:24:51,000

he was only going 200 feet per second or about 135 miles an hour.

426

00:24:51,000 --> 00:24:53,000

Not lethal!

427

00:24:53,000 --> 00:24:55,000

I'm through with you.

428

00:24:57,000 --> 00:25:00,000

But we all want to see a 180 kill shot.

429

00:25:00,000 --> 00:25:05,000

And I promise that this one's not over till the flat man screams.

430

00:25:05,000 --> 00:25:09,000

Up next, Minnie McBuster turns test pilot.

431

00:25:11,000 --> 00:25:14,000

As zapplings become slingshots.

432

00:25:20,000 --> 00:25:22,000

Don't try anything you see on the show at home.

433

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

Wear what you call experts.

434

00:25:28,000 --> 00:25:30,000

Ow!

435

00:25:31,000 --> 00:25:39,000

Going straight to full scale proved unproductive for those bent on flexing a tree and flinging a corpse.

436

00:25:39,000 --> 00:25:42,000

Now it's time to regroup.

437

00:25:42,000 --> 00:25:44,000

Alright, so that was a complete failure.

438

00:25:44,000 --> 00:25:47,000

Buster didn't launch, he plummeted straight down to the ground.

439

00:25:47,000 --> 00:25:50,000

Yeah, I mean we probably could have thrown him farther than he went.

440

00:25:50,000 --> 00:25:53,000

Oh, don't give up hope. That was our first try.

441

00:25:53,000 --> 00:25:56,000

We just went in and did it. We could be a little bit more scientific about it.

442

00:25:56,000 --> 00:25:57,000

Go on.

443

00:25:57,000 --> 00:26:02,000

Well we could do some small scale tests where we vary the launch angle and see if trimming the tree makes any difference at all.

444

00:26:02,000 --> 00:26:05,000

And we can use different types of trees to see which one does the best job.

445

00:26:05,000 --> 00:26:07,000

Alright, sounds like we need to get some small scale trees.

446

00:26:07,000 --> 00:26:09,000

I know, they're called zapplings.

447

00:26:13,000 --> 00:26:19,000

So the team orders in a zappling selection to see which one has more spring in its stem.

448

00:26:20,000 --> 00:26:28,000

The first trial tree is a Douglas fir, which Tori secures by clamping a collar to the base of the trunk.

449

00:26:28,000 --> 00:26:33,000

The collar in turn is fixed tight to the factory floor.

450

00:26:33,000 --> 00:26:43,000

Jesse prepares an action do-dall called Mini McBuster at a custom made launch plate to facilitate flight by reducing the friction.

451

00:26:43,000 --> 00:26:53,000

We still need to give him a proper perch that when the tree actually hits its apex, the force will just continue to propel the buster as far as he can possibly fly.

452

00:26:53,000 --> 00:26:58,000

And assuming that all goes to plan, Grant lays a scale that will measure the distance.

453

00:26:58,000 --> 00:27:04,000

None of this guessing, we're going to get scientific about this.

454

00:27:04,000 --> 00:27:13,000

And they plan to pull each of the test trees starting with the Douglas fir back to exactly the same angle each and every time.

455

00:27:13,000 --> 00:27:16,000

Okay, so we're at a 45 degree deflection.

456

00:27:16,000 --> 00:27:20,000

Alright, we are at 160 pounds of force.

457

00:27:20,000 --> 00:27:22,000

That's a lot of oomph for that little tree, huh?

458

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

Yup.

459

00:27:23,000 --> 00:27:25,000

Grant, you in position?

460

00:27:25,000 --> 00:27:26,000

Ready?

461

00:27:26,000 --> 00:27:30,000

Alright, launching in three, two, one.

462

00:27:31,000 --> 00:27:32,000

Nice!

463

00:27:32,000 --> 00:27:34,000

That's pretty far.

464

00:27:36,000 --> 00:27:38,000

Now that's a result.

465

00:27:38,000 --> 00:27:43,000

Mini McBuster has well and truly left the launch pad.

466

00:27:44,000 --> 00:27:56,000

Douglas fir number one was 160 pounds of force and a distance of 16 feet, 9 inches.

467

00:27:56,000 --> 00:27:58,000

Next up, Redwood.

468

00:28:01,000 --> 00:28:08,000

So the team slides in the next contestant, a baby version of the majestic Redwood.

469

00:28:08,000 --> 00:28:11,000

Alright, Redwood trees, fraction.

470

00:28:11,000 --> 00:28:15,000

Time to see if there's any benefit to be gained from a tree change.

471

00:28:15,000 --> 00:28:19,000

Launching in three, two, one.

472

00:28:21,000 --> 00:28:23,000

He went less than half the distance.

473

00:28:23,000 --> 00:28:26,000

Not even close.

474

00:28:26,000 --> 00:28:31,000

Our diseased doll made it only a third of the way to the castle wall.

475

00:28:34,000 --> 00:28:39,000

60 pound load and went a distance of six feet.

476

00:28:39,000 --> 00:28:41,000

Next up, Alaskan cedar.

477

00:28:43,000 --> 00:28:47,000

So now they've tried two of their three best bet conifers.

478

00:28:47,000 --> 00:28:50,000

Here's hoping the cedar can fling even farther.

479

00:28:51,000 --> 00:28:57,000

With the angle once more set to 45, the only key difference is the degree of resistance.

480

00:28:57,000 --> 00:29:03,000

The Douglas fir pulled 160 pounds and the Redwood just 60.

481

00:29:03,000 --> 00:29:06,000

The cedar is showing 100 pounds.

482

00:29:06,000 --> 00:29:09,000

Still, let's see if we have a new winner.

483

00:29:09,000 --> 00:29:10,000

Alright, here we go.

484

00:29:10,000 --> 00:29:15,000

Launching Mini Buster in three, two, one.

485

00:29:21,000 --> 00:29:26,000

The catapult cadaver flew just 15 times its own body length.

486

00:29:26,000 --> 00:29:28,000

10 feet on the dock.

487

00:29:29,000 --> 00:29:32,000

Alright, well before we pick a tree, why don't we look at the high speed

488

00:29:32,000 --> 00:29:34,000

and see if we can figure out why this is happening.

489

00:29:34,000 --> 00:29:36,000

Alright.

490

00:29:36,000 --> 00:29:42,000

The first fling they check is the last one they flung, the Alaskan cedar.

491

00:29:43,000 --> 00:29:44,000

The tree is released.

492

00:29:44,000 --> 00:29:46,000

He stays with the tree.

493

00:29:46,000 --> 00:29:49,000

As soon as it gets vertical, he's released.

494

00:29:49,000 --> 00:29:51,000

In that one, he was going...

495

00:29:51,000 --> 00:29:56,000

14.2 miles per hour, which is 20.83 feet per second.

496

00:29:57,000 --> 00:30:00,000

Now for the recalcitrant Redwood.

497

00:30:00,000 --> 00:30:03,000

There's a lot less energy in this tree.

498

00:30:03,000 --> 00:30:05,000

It seems less flexible actually.

499

00:30:05,000 --> 00:30:07,000

And he left the tree sooner.

500

00:30:09,000 --> 00:30:13,000

The last replay checked is the day's big winner, the Douglas fir.

501

00:30:13,000 --> 00:30:17,000

But watching the high speed gives Grant pause for thought.

502

00:30:18,000 --> 00:30:22,000

Now, I'm wondering if we chop some of these limbs off,

503

00:30:22,000 --> 00:30:24,000

do you think we can get more speed?

504

00:30:24,000 --> 00:30:29,000

Yeah, also if we cut off the limbs, it would cut down on the wind resistance as well.

505

00:30:29,000 --> 00:30:31,000

So, you know, we might get them to go farther.

506

00:30:31,000 --> 00:30:32,000

Well, let's try it.

507

00:30:32,000 --> 00:30:33,000

Alright.

508

00:30:35,000 --> 00:30:38,000

The jury agrees that the tree needs a haircut.

509

00:30:39,000 --> 00:30:41,000

And here's why it might work.

510

00:30:42,000 --> 00:30:46,000

One of the main jobs of branches is to balance the tree.

511

00:30:46,000 --> 00:30:50,000

When the wind blows, they wave and sway in every direction.

512

00:30:50,000 --> 00:30:55,000

So the opposite forces work in concert to keep the trunk stable.

513

00:30:55,000 --> 00:30:59,000

So to make a tree bend, it stands to reason we cut off the branches.

514

00:30:59,000 --> 00:31:03,000

That might be enough to turn this tree torpedo.

515

00:31:08,000 --> 00:31:09,000

Nice.

516

00:31:10,000 --> 00:31:12,000

That's the trim of the tree.

517

00:31:13,000 --> 00:31:16,000

So let's see if it's worth all the effort.

518

00:31:18,000 --> 00:31:22,000

Launching in three, two, one.

519

00:31:25,000 --> 00:31:29,000

The scaling is way too rough to draw real world conclusions.

520

00:31:30,000 --> 00:31:35,000

But they can fine tune the method to improve their chances back in the forest.

521

00:31:35,000 --> 00:31:39,000

His trajectory though is definitely on the downward path.

522

00:31:39,000 --> 00:31:41,000

Yeah, it sort of holds on to him.

523

00:31:41,000 --> 00:31:42,000

Past vertical.

524

00:31:42,000 --> 00:31:47,000

So maybe if we had a way to stop him before he reaches that point.

525

00:31:47,000 --> 00:31:49,000

Like, you know, like a catapult.

526

00:31:49,000 --> 00:31:50,000

Like a tether.

527

00:31:50,000 --> 00:31:51,000

Stopping tether.

528

00:31:51,000 --> 00:31:52,000

Alright, let's try that.

529

00:31:53,000 --> 00:31:56,000

They got the distance, but not quite the height.

530

00:31:56,000 --> 00:32:00,000

A tether should stop the momentum just short of vertical.

531

00:32:00,000 --> 00:32:04,000

So if all goes to plan, this will be their best shot yet.

532

00:32:05,000 --> 00:32:06,000

Ready.

533

00:32:06,000 --> 00:32:07,000

Alright.

534

00:32:07,000 --> 00:32:09,000

Three, two, one.

535

00:32:12,000 --> 00:32:17,000

Oh my God, he hit the back wall.

536

00:32:21,000 --> 00:32:26,000

The tether works wonders and our little guys fly when right off the scale.

537

00:32:28,000 --> 00:32:30,000

Alright, I know what you're saying.

538

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

I can hear it through the TV.

539

00:32:32,000 --> 00:32:35,000

You're saying, but Grant, these trees are young trees.

540

00:32:35,000 --> 00:32:37,000

They're more flexible.

541

00:32:37,000 --> 00:32:40,000

They're not like the trees you find in the forest that we're going to use.

542

00:32:40,000 --> 00:32:41,000

I know.

543

00:32:41,000 --> 00:32:46,000

And that is where we're going to take all these ideas out to the forest and put them to the test.

544

00:32:52,000 --> 00:32:57,000

Straight ahead, Adam and Jamie bend the myth of the ricochet bullet way out of shape.

545

00:32:58,000 --> 00:33:00,000

The world's heaviest hula hoop.

546

00:33:10,000 --> 00:33:14,000

We all know that ricochets happen and they can be nasty.

547

00:33:14,000 --> 00:33:16,000

Have you gone mad?

548

00:33:17,000 --> 00:33:21,000

But can a bullet bounce three times to kill the shooter?

549

00:33:21,000 --> 00:33:23,000

Apparently not.

550

00:33:24,000 --> 00:33:27,000

But we've still got one left in the chamber.

551

00:33:28,000 --> 00:33:31,000

We are now going to try it using this piece of schedule 40 plumbing pipe.

552

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

Oh no, not in this state.

553

00:33:33,000 --> 00:33:35,000

This is merely a raw material.

554

00:33:36,000 --> 00:33:38,000

We're going to bend it.

555

00:33:38,000 --> 00:33:39,000

Yeah!

556

00:33:40,000 --> 00:33:46,000

The triple ricochet myth is busted, but Jamie and Adam have hatched a plan to replicate the result.

557

00:33:46,000 --> 00:33:53,000

They aim to shoot through a curvy steel pipe and the bending machines a mechanical marvel.

558

00:33:53,000 --> 00:33:59,000

So the way I figure it, what if we shot the bullet into something that didn't actually involve an impact,

559

00:33:59,000 --> 00:34:02,000

like say a bent pipe?

560

00:34:02,000 --> 00:34:04,000

It does one thing.

561

00:34:04,000 --> 00:34:06,000

And it does it really well.

562

00:34:06,000 --> 00:34:07,000

I like that.

563

00:34:08,000 --> 00:34:09,000

There we go.

564

00:34:13,000 --> 00:34:16,000

Does this remind you of when you used to hunt mastodon?

565

00:34:16,000 --> 00:34:18,000

It's like a big macaroni.

566

00:34:21,000 --> 00:34:23,000

You really did hunt mastodon.

567

00:34:23,000 --> 00:34:26,000

All that remains is for Adam to mount and secure the pipe,

568

00:34:26,000 --> 00:34:32,000

while Jamie positions a fat slab of ballistics gel to hopefully catch the bullet.

569

00:34:33,000 --> 00:34:40,000

At this point you may be wondering, what is the curve of the bent pipe you're shooting into?

570

00:34:40,000 --> 00:34:41,000

Well, it's a good question.

571

00:34:41,000 --> 00:34:44,000

Right now this pipe has a radius of about 88 inches.

572

00:34:44,000 --> 00:34:48,000

That means if it was a complete circle, it would be about 15 feet across.

573

00:34:48,000 --> 00:34:51,000

Why haven't we bent it to come all the way back around to the gun?

574

00:34:51,000 --> 00:34:55,000

That's simply because we're not sure this is going to work at all.

575

00:34:55,000 --> 00:34:58,000

So we're going to incrementally sneak up on it.

576

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

Why put all our eggs in one basket?

577

00:35:01,000 --> 00:35:03,000

Range is hot.

578

00:35:06,000 --> 00:35:10,000

Firing into an 88 inch radius tube.

579

00:35:10,000 --> 00:35:13,000

Three, two, one.

580

00:35:15,000 --> 00:35:16,000

Looks like it came out.

581

00:35:16,000 --> 00:35:18,000

And I can see where it hit.

582

00:35:18,000 --> 00:35:19,000

Uh-huh.

583

00:35:24,000 --> 00:35:28,000

Wow, I had no idea it would be so pristine.

584

00:35:28,000 --> 00:35:33,000

Look at that, it's a nice little flat on it where it slid around the pipe.

585

00:35:34,000 --> 00:35:39,000

So a bullet can at least slide around steel and return with a vengeance.

586

00:35:39,000 --> 00:35:44,000

It penetrated 14 and a half inches, which would cripple the shooter.

587

00:35:46,000 --> 00:35:51,000

Our first and shallowest bend on the pipe gave us 622 feet per second as an exit speed,

588

00:35:51,000 --> 00:35:53,000

which means it was fully lethal.

589

00:35:53,000 --> 00:35:57,000

Not only that, but if you look at how far it went in this ballistics gel,

590

00:35:57,000 --> 00:36:01,000

if it hit me this way, it would have gone clean through me.

591

00:36:06,000 --> 00:36:09,000

So now to ramp up to a fitting finale.

592

00:36:09,000 --> 00:36:14,000

The machines redeployed to give maximum curve for their bending butt.

593

00:36:14,000 --> 00:36:18,000

The plan is to wrestle the pipe almost back in a circle.

594

00:36:18,000 --> 00:36:22,000

23 inch radius.

595

00:36:22,000 --> 00:36:24,000

That's pretty tight.

596

00:36:24,000 --> 00:36:25,000

That's pretty tight.

597

00:36:26,000 --> 00:36:31,000

More friction decreases the chance of success, but they're both optimistic.

598

00:36:31,000 --> 00:36:33,000

Let's go see how it fits.

599

00:36:33,000 --> 00:36:34,000

I think it's going to work.

600

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

I'm feeling so good about this.

601

00:36:37,000 --> 00:36:41,000

In fact, Adam's so fired up, he offers himself as the target.

602

00:36:41,000 --> 00:36:43,000

Well, kinda.

603

00:36:45,000 --> 00:36:46,000

Range is hot.

604

00:36:46,000 --> 00:36:52,000

46 inch diameter pipe coming all the way back around in three, two, one.

605

00:36:54,000 --> 00:36:55,000

Did it go through?

606

00:36:55,000 --> 00:36:57,000

You've got a hole in your chest there, buddy.

607

00:37:00,000 --> 00:37:06,000

If bad guy Adam actually had a heart, he now has a hole in it.

608

00:37:07,000 --> 00:37:09,000

We've still got 10 and a half inches.

609

00:37:09,000 --> 00:37:13,000

Alright, well, the final speed will be determined by the high-speed camera.

610

00:37:17,000 --> 00:37:23,000

We got a final exit speed, 338 feet per second.

611

00:37:23,000 --> 00:37:24,000

Yes.

612

00:37:24,000 --> 00:37:25,000

A kill shot.

613

00:37:25,000 --> 00:37:27,000

That would be a kill shot.

614

00:37:27,000 --> 00:37:29,000

Well, potentially lethal.

615

00:37:30,000 --> 00:37:31,000

Nice work.

616

00:37:32,000 --> 00:37:33,000

I'm all happy now.

617

00:37:35,000 --> 00:37:38,000

There's no doubt it's a stunning result.

618

00:37:39,000 --> 00:37:43,000

But we know that the myth has meandered somewhat from its ricochet roots.

619

00:37:44,000 --> 00:37:46,000

But what's the takeaway from this myth?

620

00:37:46,000 --> 00:37:49,000

Well, we know that people get killed by ricochets.

621

00:37:49,000 --> 00:37:50,000

That's not the point.

622

00:37:50,000 --> 00:37:54,000

The point is that a bullet bouncing off three surfaces, bing, bing, bing,

623

00:37:54,000 --> 00:37:57,000

and killing someone is totally busted.

624

00:37:58,000 --> 00:38:00,000

Maybe we should have yelled timber.

625

00:38:00,000 --> 00:38:06,000

And still to come, mankind's most spectacular descent from the trees in two million years.

626

00:38:14,000 --> 00:38:17,000

Back at the scene of their last public failure,

627

00:38:17,000 --> 00:38:23,000

our corpse catapulters are buoyed by the fact that they're now more tree-savvy.

628

00:38:23,000 --> 00:38:27,000

Now, the last time we were out in the forest, we used a California gray pine.

629

00:38:27,000 --> 00:38:30,000

Unfortunately, that test was completely unsuccessful.

630

00:38:32,000 --> 00:38:35,000

So we went back to the shop and we found using small-scale tests

631

00:38:35,000 --> 00:38:38,000

that a Douglas fir is going to be the perfect tree for this job.

632

00:38:44,000 --> 00:38:48,000

Well, guys, that right there is the perfect Douglas fir.

633

00:38:48,000 --> 00:38:50,000

And this layout is perfect.

634

00:38:50,000 --> 00:38:54,000

I mean, it gives us plenty of room to bend the tree back and plenty of room to throw buster.

635

00:38:54,000 --> 00:38:56,000

Let's just get them up there and start flinging them.

636

00:38:56,000 --> 00:38:58,000

Now hang on a minute. We need a castle.

637

00:38:58,000 --> 00:39:00,000

Oh, we got a castle.

638

00:39:00,000 --> 00:39:02,000

And I think you're going to love it.

639

00:39:04,000 --> 00:39:08,000

The castles inflated exactly 100 feet away from the tree.

640

00:39:08,000 --> 00:39:14,000

That's the minimum historical distance we could verify between a fortification and a forest.

641

00:39:16,000 --> 00:39:21,000

To mark off the height of the parapet, balloons are deployed on the end of a 40-foot string.

642

00:39:24,000 --> 00:39:28,000

Then the team pulls together to strip back the branches.

643

00:39:31,000 --> 00:39:33,000

Maybe we should have yelled Timber.

644

00:39:33,000 --> 00:39:35,000

Timber!

645

00:39:35,000 --> 00:39:37,000

Might be a little late now.

646

00:39:39,000 --> 00:39:41,000

We just cut off the crown.

647

00:39:41,000 --> 00:39:44,000

You can tell already how much more spring this tree has.

648

00:39:44,000 --> 00:39:46,000

This thing might go far.

649

00:39:47,000 --> 00:39:53,000

To help ensure buster's smooth release, Jesse's built him a man-sized metal backplate.

650

00:39:53,000 --> 00:39:55,000

All right, Jesse, what do you think?

651

00:39:55,000 --> 00:39:57,000

Think he's going to release out of that tree?

652

00:39:57,000 --> 00:40:00,000

According to all of our small-scale tests, absolutely.

653

00:40:00,000 --> 00:40:09,000

With the body secured, the ropes are attached in the hope that our man can go the distance.

654

00:40:12,000 --> 00:40:13,000

The Odey!

655

00:40:18,000 --> 00:40:21,000

Now as you can tell, there are two lines attached to this tree.

656

00:40:21,000 --> 00:40:23,000

We have the pool line and the tether line.

657

00:40:23,000 --> 00:40:29,000

Now we learned from our small-scale tests that the best launch we're going to get is if the tree stops just before birth.

658

00:40:29,000 --> 00:40:31,000

Good luck, buster!

659

00:40:31,000 --> 00:40:33,000

We're our only hope!

660

00:40:34,000 --> 00:40:37,000

Buster hangs 70 feet above the forest floor.

661

00:40:37,000 --> 00:40:41,000

The castle's a clear and distant 100 feet out in front.

662

00:40:41,000 --> 00:40:47,000

It's the biggest tree on the lot, so if this won't do it, nothing will.

663

00:40:48,000 --> 00:40:50,000

Okay, Jesse, the force meter's all set.

664

00:40:50,000 --> 00:40:52,000

You can go ahead and tension up.

665

00:40:53,000 --> 00:40:58,000

We're going to go to really low speeds so we don't jolt buster out of the tree before he's ready to jump.

666

00:40:59,000 --> 00:41:01,000

He's ready to be flung.

667

00:41:03,000 --> 00:41:06,000

Tori decides that the cord is best cut from up high.

668

00:41:08,000 --> 00:41:10,000

Okay, we're at 1,000 pounds.

669

00:41:11,000 --> 00:41:15,000

The tension mounts as the... well, as the tension mounts.

670

00:41:16,000 --> 00:41:18,000

We're at 2,400 pounds, that's it!

671

00:41:19,000 --> 00:41:23,000

So we have the tree bent back, we're at 2,400 pounds, and that's it, it's maxing out.

672

00:41:23,000 --> 00:41:26,000

We keep pulling the tree back and there's no more pounds of pressure.

673

00:41:26,000 --> 00:41:28,000

I think we're ready to launch this tree.

674

00:41:29,000 --> 00:41:31,000

So it's all down to this.

675

00:41:31,000 --> 00:41:35,000

And remember that so far, busters done no more than fall off his perch.

676

00:41:36,000 --> 00:41:40,000

Here we go, launching in three, two, one!

677

00:41:48,000 --> 00:41:52,000

Against all predictions, busters arrived at the castle gate.

678

00:41:53,000 --> 00:41:54,000

Yeah!

679

00:41:55,000 --> 00:41:59,000

But he's fallen just short of infecting the enemy.

680

00:42:00,000 --> 00:42:02,000

We applied everything we learned for the small scale.

681

00:42:02,000 --> 00:42:06,000

We cut off the limbs, we cut off the crown, we even tethered the tree.

682

00:42:06,000 --> 00:42:09,000

We cut the rope and buster flew.

683

00:42:09,000 --> 00:42:11,000

We turned a tree into a catapult.

684

00:42:12,000 --> 00:42:13,000

Tori's excited.

685

00:42:14,000 --> 00:42:17,000

Can he get over to the castle but he made it to the front door?

686

00:42:17,000 --> 00:42:20,000

But just how does one measure success?

687

00:42:20,000 --> 00:42:24,000

Sadly for him and us, we have set some benchmarks.

688

00:42:27,000 --> 00:42:29,000

Now let's look at this realistically though guys.

689

00:42:29,000 --> 00:42:32,000

I mean we gave this myth the best chance possible.

690

00:42:32,000 --> 00:42:36,000

We put a castle as close to the tree as we could find any historical reference for.

691

00:42:36,000 --> 00:42:38,000

And we cut off all the branches.

692

00:42:38,000 --> 00:42:42,000

Yeah, by the time we do that, they would have picked us off from the castle.

693

00:42:42,000 --> 00:42:46,000

And not only that, we pulled that tree back to 2,400 pounds as much as it could handle.

694

00:42:46,000 --> 00:42:49,000

How many ancient horses and troops would that have taken?

695

00:42:49,000 --> 00:42:52,000

Alright, but we did manage to turn a tree into a catapult.

696

00:42:52,000 --> 00:42:57,000

But as far as the myth goes, we weren't able to launch them 100 feet over a 40 foot castle wall.

697

00:42:57,000 --> 00:42:58,000

So this was busted.

698

00:42:59,000 --> 00:43:00,000

It's busted.

699

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

Busted.

700

00:43:01,000 --> 00:43:02,000

We did get over the moat.

701

00:43:02,000 --> 00:43:03,000

Oh yeah.

702

00:43:03,000 --> 00:43:04,000

And we have a bouncy castle.

703

00:43:04,000 --> 00:43:05,000

Yeah!

704

00:43:05,000 --> 00:43:06,000

Woo hoo!

705

00:43:15,000 --> 00:43:16,000

You want more?

706

00:43:16,000 --> 00:43:17,000

We've got more!

707

00:43:17,000 --> 00:43:22,000

Log on to Discovery.com slash Mythbusters and jump in!