

1

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

On this episode of MythBusters...

2

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

Wow! Oh, the current is really strong!

3

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

It's bubble, bubble, toil and trauma.

4

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

Like riding a fucking Bronco.

5

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

...as the guys test the fizzy fable that it's impossible to stay afloat in bubbly water.

6

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

You're just not trying to harden up.

7

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

That's more like it. Yeah, baby.

8

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

But will it be a case of sing or swim?

9

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

Swim harder!

10

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

Meantime, Kari, Tori and Grant take aim at a myth that's got them quivering with anticipation.

11

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

Okay, it's lit!

12

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

Can an exploding arrow cleave a mighty pine tree in two?

13

00:00:39,000 --> 00:00:45,000

With precision explosives and the mother of all pine trees, it's time to split.

14

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

I'm so ready!

15

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

Here we go! Three, two, one!

16

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

Who are the MythBusters?

17

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

Adam Savage

18

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

That's the spirit, soldiers!

19

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

and Jamie Heinemann

20

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

I'll be darned.

21

00:01:02,000 --> 00:01:07,000

Between them more than 30 years of special effects experience...

22

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

Joining them, Kari Byron

23

00:01:10,000 --> 00:01:12,000

That is messed up!

24

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

Grant Imahara

25

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

Start the car!

26

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

and Tori Bellegi

27

00:01:16,000 --> 00:01:18,000

Let's trap this car up!

28

00:01:18,000 --> 00:01:22,000

They don't just tell the myths, they put them to the test.

29

00:01:26,000 --> 00:01:28,000

The Myth

30

00:01:36,000 --> 00:01:37,000

Hangover?

31

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

No, I'm setting up a demo for our next story.

32

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

Which is?

33

00:01:40,000 --> 00:01:44,000

Well, there's a myth going around that it is impossible to swim in bubbly water.

34

00:01:44,000 --> 00:01:49,000

Whether it's an acid tablet or carbonated, as long as there's bubbles in the water, you won't be able to swim.

35

00:01:49,000 --> 00:01:50,000

Really?

36

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

The conventional wisdom is that the bubbles make the water overall less dense,

37

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

and so while you'd float in non-bubbly water, when you get to the bubble part, you'd sink like a stone.

38

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

Sounds like we're going for a swim.

39

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

I think so.

40

00:02:03,000 --> 00:02:09,000

According to the myth, when water is filled with fins, you supposedly sink without trace.

41

00:02:10,000 --> 00:02:16,000

But does the density difference of bubbly water really mean that swimming in it is impossible?

42

00:02:16,000 --> 00:02:20,000

Well, since we used up all our an acid breaking out of jail,

43

00:02:22,000 --> 00:02:27,000

let's say we start with something small like a fish tank and make a bunch of bubbles in it and see what happens.

44

00:02:27,000 --> 00:02:28,000

Sounds good, let's do it.

45

00:02:29,000 --> 00:02:36,000

So the myth is that it is impossible to swim in bubbly water because the aerated water is supposed to be less dense than regular water.

46

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

Are you ready for some experimenting?

47

00:02:38,000 --> 00:02:40,000

I don't think so.

48

00:02:40,000 --> 00:02:47,000

So I'm about to conduct some scale experiments to see if there is a change in density of water when I run a crap load of bubbles through it.

49

00:02:59,000 --> 00:03:00,000

Alright, let's try that again.

50

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

It's a great place to start.

51

00:03:02,000 --> 00:03:06,000

Adam and his 2D mini-meat will test the science at the heart of this myth.

52

00:03:07,000 --> 00:03:10,000

Do bubbles make a difference to the density of water?

53

00:03:12,000 --> 00:03:14,000

What I've made here is a crude hydrometer.

54

00:03:14,000 --> 00:03:18,000

It's actually floating at a very specific depth, depending on the density of the water.

55

00:03:18,000 --> 00:03:23,000

If I increase the density of this fish tank, it would say, salt, it would float a little higher.

56

00:03:23,000 --> 00:03:27,000

If I decrease the density with, let's say, air bubbles, it would float a little lower.

57

00:03:27,000 --> 00:03:33,000

Now, if this myth is true and I put a whole bunch of air bubbles underneath this guy, little Adam there is going to drown.

58

00:03:33,000 --> 00:03:39,000

So now that 2D mini-meat is neutrally buoyant, it's time to see if he'll sink like the myth suggests.

59

00:03:49,000 --> 00:03:54,000

Someone's happy, but aside from putting a smile on Adam's dial, what are the results?

60

00:03:55,000 --> 00:03:59,000

I'm seeing almost no change at all in the hydrometer's level.

61

00:03:59,000 --> 00:04:02,000

If anything, it's actually rising a little bit.

62

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

And I must admit, I had a little bias going into this.

63

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

I thought that as soon as I turned on the bubbles, that hydrometer was going to drop below the surface.

64

00:04:09,000 --> 00:04:14,000

I'm fully in the camp of the bubbles lower the density, but there's something else going on here.

65

00:04:14,000 --> 00:04:17,000

At any rate, in this small-scale test, it's not looking very good for this myth.

66

00:04:17,000 --> 00:04:21,000

A conviction only confirmed after Janey gets a demo.

67

00:04:21,000 --> 00:04:24,000

So I see you're fixing into dump water all over my floor.

68

00:04:24,000 --> 00:04:27,000

No, no, I'm continuing in this lovely tank.

69

00:04:27,000 --> 00:04:28,000

So what do you think is going to happen?

70

00:04:28,000 --> 00:04:30,000

I think it's going to sink.

71

00:04:30,000 --> 00:04:31,000

Check this out.

72

00:04:34,000 --> 00:04:36,000

It's not sinking.

73

00:04:36,000 --> 00:04:38,000

Not at all, not even a little bit.

74

00:04:38,000 --> 00:04:40,000

If anything, it rises up a fraction of an inch.

75

00:04:40,000 --> 00:04:45,000

You would think that the increased amount of air in the water would make it less dense, so it would sink,

76

00:04:45,000 --> 00:04:51,000

but that seems to be counteracted and then some by the upwelling current of that movement of those bubbles.

77

00:04:52,000 --> 00:04:54,000

It's not looking very good for the story at this point.

78

00:04:54,000 --> 00:04:55,000

No.

79

00:04:55,000 --> 00:05:00,000

Far from sinking, the hydrometer rose slightly, but it's too early to call this myth yet.

80

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

After all, you can't test a swimming saga without getting wet.

81

00:05:09,000 --> 00:05:12,000

Next up, a myth that's going to blow you away.

82

00:05:12,000 --> 00:05:14,000

Alright, so this myth comes from a viewer.

83

00:05:14,000 --> 00:05:18,000

A guy in Iowa wrote in and said that his uncle used to take a bow and arrow,

84

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

strap a stick of dynamite to it, light it, fire it into a tree,

85

00:05:22,000 --> 00:05:24,000

and when it would explode, it would split the tree up the middle.

86

00:05:24,000 --> 00:05:28,000

Okay, are you sure this is a viewer myth and not like a Tory Waleichi family history?

87

00:05:28,000 --> 00:05:30,000

No, I'm serious, he wrote it in.

88

00:05:30,000 --> 00:05:31,000

Alright, well I'm willing to try it.

89

00:05:31,000 --> 00:05:34,000

It sounds like we need a stick of dynamite, an arrow, and a tree.

90

00:05:36,000 --> 00:05:43,000

As any William Tell fan will tell you, the trick of splitting an apple with an arrow is a blast.

91

00:05:46,000 --> 00:05:52,000

But according to this myth, an arrow coupled with dynamite can split a much bigger apple,

92

00:05:52,000 --> 00:05:55,000

but is this band fable bow-beloding?

93

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

Okay, for this experiment, I think we need to just go for it,

94

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

get the biggest log we can find and just anchor it to the ground at the bomb range.

95

00:06:03,000 --> 00:06:07,000

But remember, we're trying to split this tree down the middle with explosives.

96

00:06:07,000 --> 00:06:09,000

We don't want to just blow it into pieces.

97

00:06:13,000 --> 00:06:16,000

Full-scale testing means finding the right tree.

98

00:06:17,000 --> 00:06:22,000

We're here at the bomb range to find out if our dynamite arrows can split a tree.

99

00:06:22,000 --> 00:06:25,000

These are our trees. They are pine trees from Recycler.

100

00:06:25,000 --> 00:06:29,000

Now they're 20 feet long and almost 6,000 pounds.

101

00:06:29,000 --> 00:06:32,000

So the first step, dig a hole.

102

00:06:32,000 --> 00:06:36,000

The pine trees' tech specs match the viewer myth almost to the letter.

103

00:06:36,000 --> 00:06:38,000

Alright, how's it about right here?

104

00:06:39,000 --> 00:06:42,000

While Carrie gets on with step one,

105

00:06:42,000 --> 00:06:44,000

So much better than a shovel.

106

00:06:44,000 --> 00:06:47,000

Getting to grips with the pine's parameters is grand.

107

00:06:47,000 --> 00:06:51,000

Now we've chosen the pine tree because it's one of the most common trees in America.

108

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

In fact, there are over 35 varieties in North America alone,

109

00:06:54,000 --> 00:06:59,000

but there are two reasons that might make it easier to split down the middle.

110

00:06:59,000 --> 00:07:02,000

One, they have vascular bundles that run the entire length of the tree,

111

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

and these are tiny tubes that carry water and nutrients to the top.

112

00:07:06,000 --> 00:07:11,000

And two, it's got a spiral grain, which goes parallel to the axis of the tree.

113

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

Those things together might just help us get a split.

114

00:07:14,000 --> 00:07:18,000

That's the theory. Add with the target tree now standing tall.

115

00:07:18,000 --> 00:07:21,000

Now that's what I call a real stick in the mud.

116

00:07:21,000 --> 00:07:24,000

The guys turn their attention to the weapon,

117

00:07:24,000 --> 00:07:27,000

setting up a remote bow and arrow firing mechanism.

118

00:07:28,000 --> 00:07:33,000

So we need to fire a lit stick of dynamite from a bow and arrow into a tree.

119

00:07:33,000 --> 00:07:38,000

Now, that is way too dangerous for us to do, so we brought out our remote arrow firing mechanism.

120

00:07:38,000 --> 00:07:42,000

With the bow ready to go, that just leaves the payload.

121

00:07:42,000 --> 00:07:46,000

We're not going to use dynamite because actually it's a fairly unstable substance.

122

00:07:46,000 --> 00:07:50,000

Instead, our experts Frank Doyle and JD Nelson have given us this.

123

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

It's a binary explosive. It's a lot more stable,

124

00:07:53,000 --> 00:07:56,000

which means it'll go off when and where we want it to,

125

00:07:56,000 --> 00:08:00,000

and it has exactly the same amount of energy as a stick of dynamite.

126

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

After a quick test fire to make sure their remote bow and arrow is on the money,

127

00:08:07,000 --> 00:08:09,000

it's time to take aim at this myth.

128

00:08:09,000 --> 00:08:13,000

It's time to load up our arrow firing machine, shoot it into the tree,

129

00:08:13,000 --> 00:08:15,000

and see if we can split it down the middle.

130

00:08:15,000 --> 00:08:17,000

Do I think that's going to happen?

131

00:08:17,000 --> 00:08:18,000

Sure, absolutely.

132

00:08:18,000 --> 00:08:20,000

If we leave it in a cartoon.

133

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

Wiley Coyote carry has her doubts, but there's only one way to find out.

134

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

Alright, so the dynamite's lit. Let's see if we can cleave this tree.

135

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

Okay, this is dynamite arrow. Take it.

136

00:08:33,000 --> 00:08:35,000

Here we go. In three, two,

137

00:08:35,000 --> 00:08:36,000

one.

138

00:08:37,000 --> 00:08:40,000

The arrow gets triggered, the fuse burns through,

139

00:08:41,000 --> 00:08:42,000

and then...

140

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

And the tree still stands.

141

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

That was a good slap.

142

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

It sure was a hefty blast,

143

00:08:56,000 --> 00:09:00,000

but when the smoke clears, it's clear it wasn't hefty enough.

144

00:09:00,000 --> 00:09:03,000

The tree appears to be pretty well undamaged.

145

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

Alright, well the tree is still in one piece.

146

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

Yeah, I don't even see a crack.

147

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

Well, maybe we need more explosives.

148

00:09:13,000 --> 00:09:15,000

Maybe this was more than just like a stick of dynamite.

149

00:09:15,000 --> 00:09:17,000

Maybe it was extra powerful dynamite.

150

00:09:17,000 --> 00:09:19,000

That is a great idea.

151

00:09:19,000 --> 00:09:24,000

After a surprisingly feeble first test, the myth is already on thin ice,

152

00:09:24,000 --> 00:09:27,000

so it's time to up the addy.

153

00:09:27,000 --> 00:09:31,000

We're going to double the amount of explosive that we're attaching to the tip of the arrow.

154

00:09:31,000 --> 00:09:33,000

Same as before, we're going to light the fuse,

155

00:09:33,000 --> 00:09:36,000

remote fire it into the tree, and see what happens.

156

00:09:37,000 --> 00:09:41,000

Later on Myth Busters, split in time with a super dynamite arrow.

157

00:09:41,000 --> 00:09:45,000

But next, bubble, bubble, Adam's in trouble.

158

00:09:45,000 --> 00:09:48,000

Oh, the current is really strong.

159

00:09:54,000 --> 00:09:56,000

I don't know, man, it's not looking very good for this story.

160

00:09:56,000 --> 00:10:00,000

Our hydrometer didn't just not sink in the water, it rose.

161

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

Well, you know, sometimes things as basic as air and water just doesn't scale that well.

162

00:10:05,000 --> 00:10:08,000

Let's say we bump it up a notch and go larger.

163

00:10:08,000 --> 00:10:09,000

All right.

164

00:10:09,000 --> 00:10:11,000

Hey, you know that irrigation tank we use for whirlpool of death?

165

00:10:11,000 --> 00:10:15,000

What say we fill that full of water and put a bubbler at the bottom of it?

166

00:10:15,000 --> 00:10:16,000

I think we've still got it.

167

00:10:16,000 --> 00:10:18,000

I think we do. Let's do it.

168

00:10:18,000 --> 00:10:22,000

Yep, the small scale wasn't particularly promising.

169

00:10:22,000 --> 00:10:23,000

It's not sinking.

170

00:10:23,000 --> 00:10:25,000

But the myth hasn't sunk just yet,

171

00:10:25,000 --> 00:10:29,000

and as Adam won't fit in that tank, the team is upsizing everything.

172

00:10:30,000 --> 00:10:32,000

Starting with the bubble maker.

173

00:10:32,000 --> 00:10:37,000

So this assembly of aquarium bubblers worked pretty well for this test.

174

00:10:37,000 --> 00:10:41,000

But if we're going to do this in a larger scale, I don't want to have to do all the plumbing

175

00:10:41,000 --> 00:10:45,000

and you can buy a thousand of these little aquarium thingies.

176

00:10:45,000 --> 00:10:50,000

I need to figure out some more efficient way of creating lots of little bubbles.

177

00:10:50,000 --> 00:10:54,000

And the method is typically Jamie-esque in its practical simplicity.

178

00:10:54,000 --> 00:11:00,000

Compressed air pumped into a canvas pillowcase, forcing thousands of tiny bubbles through the fabric.

179

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

Oh, that is very cool.

180

00:11:02,000 --> 00:11:04,000

Very cool indeed.

181

00:11:04,000 --> 00:11:08,000

With the proof of concept pillowcase bubbling away, Adam's on to the next task.

182

00:11:08,000 --> 00:11:10,000

Well, let's start figuring out how to go full scale with this,

183

00:11:10,000 --> 00:11:12,000

because I'm dying to get in the water with this.

184

00:11:12,000 --> 00:11:15,000

If the myth is true, dying could be right.

185

00:11:15,000 --> 00:11:18,000

But Jamie doesn't seem too bothered by the prospect.

186

00:11:18,000 --> 00:11:19,000

It's going to be fun.

187

00:11:19,000 --> 00:11:28,000

But before the fun begins, Jamie has to upscale his prototype into a heavy duty working model.

188

00:11:28,000 --> 00:11:34,000

So all we've done here is welded together a couple of heavy steel frames,

189

00:11:34,000 --> 00:11:38,000

and we've sandwiched inside the frames a pillowcase.

190

00:11:38,000 --> 00:11:45,000

We're pumping air into that pillowcase, and as it pressurizes, it comes through the weave of the fabric.

191

00:11:45,000 --> 00:11:46,000

That's great.

192

00:11:46,000 --> 00:11:47,000

It makes little bubbles.

193

00:11:47,000 --> 00:11:49,000

But not in the shop it won't.

194

00:11:51,000 --> 00:11:55,000

For that, they're heading for some familiar, queasy scenery.

195

00:11:57,000 --> 00:12:00,000

Ha, brings back memories, don't it?

196

00:12:00,000 --> 00:12:02,000

Not very pleasant ones.

197

00:12:02,000 --> 00:12:06,000

Yep, the last time Adam took a dip in the irrigation tank.

198

00:12:07,000 --> 00:12:08,000

Well, that's great.

199

00:12:08,000 --> 00:12:11,000

Things did not go quite to plan.

200

00:12:11,000 --> 00:12:13,000

I'm done with science for today.

201

00:12:13,000 --> 00:12:16,000

We've done our small scale tests, and we've learned a thing or two.

202

00:12:16,000 --> 00:12:22,000

But if we're going to find out if it's possible to swim in fizzy water, we're going to have to swim in fizzy water.

203

00:12:22,000 --> 00:12:28,000

So we've come back out here to Alameda to this 10,000 gallon tank that we installed a few years ago,

204

00:12:28,000 --> 00:12:33,000

and we're going to put a larger bubbler in it, and Adam's going to go for a swim.

205

00:12:33,000 --> 00:12:34,000

Or not.

206

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

Now comes the tricky bit, getting the giant bubbler up and in.

207

00:12:41,000 --> 00:12:43,000

Alright, take it on up.

208

00:12:47,000 --> 00:12:50,000

So our bubbler is just about ready to be put in place.

209

00:12:50,000 --> 00:12:51,000

That's a tight fit.

210

00:12:51,000 --> 00:12:52,000

Okay, stop.

211

00:12:52,000 --> 00:12:54,000

What happens next is that we hook up the air supply.

212

00:12:55,000 --> 00:12:57,000

Okay, go ahead and give us some air.

213

00:12:58,000 --> 00:12:59,000

Nice.

214

00:12:59,000 --> 00:13:04,000

And then we slowly lower it, the 20 feet to the bottom of this tank,

215

00:13:04,000 --> 00:13:08,000

which is full of reasonably clear but quite cold water.

216

00:13:08,000 --> 00:13:11,000

Then I'll put on some scuba gear, and then we're pretty much ready to do this test,

217

00:13:11,000 --> 00:13:16,000

which I hope happens quickly because this water right now is about 50, 51 degrees.

218

00:13:17,000 --> 00:13:20,000

As plans go, it's pretty straightforward.

219

00:13:20,000 --> 00:13:24,000

I'm above ground, and yet I'm going scuba diving.

220

00:13:24,000 --> 00:13:25,000

On by ours.

221

00:13:25,000 --> 00:13:26,000

Alright, here we go.

222

00:13:28,000 --> 00:13:29,000

How's the water?

223

00:13:29,000 --> 00:13:31,000

The water is so cold I got an instant headache.

224

00:13:31,000 --> 00:13:32,000

But you know what's really cool in here?

225

00:13:32,000 --> 00:13:34,000

Looking out the portholes.

226

00:13:35,000 --> 00:13:39,000

But before Adam can unhook the bubbler, it needs to be in the right position.

227

00:13:39,000 --> 00:13:40,000

Is that good enough?

228

00:13:40,000 --> 00:13:41,000

I think so.

229

00:13:41,000 --> 00:13:42,000

Will you start to lower it very slowly?

230

00:13:42,000 --> 00:13:43,000

We'll do.

231

00:13:43,000 --> 00:13:49,000

The aim is to get the bubbler perfectly level to have an even spread of bubbles at the surface.

232

00:13:49,000 --> 00:13:51,000

Fire up the generator please.

233

00:13:52,000 --> 00:13:54,000

Slowly bring it up to the mark.

234

00:13:55,000 --> 00:14:01,000

As the rig roars into life, a perfect hub above bubbles bursts forth.

235

00:14:01,000 --> 00:14:03,000

It's a gorgeous stream of bubbles.

236

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

Can't wait to get into it.

237

00:14:05,000 --> 00:14:09,000

With their fully functioning rig in the right position, what's next?

238

00:14:09,000 --> 00:14:17,000

This test is pretty much the same as our small scale experiments, except this time we're going to have a human hydrometer, namely Adam.

239

00:14:17,000 --> 00:14:21,000

Now we're going to try and weight him so he's neutrally buoyant.

240

00:14:21,000 --> 00:14:24,000

And just his head is floating above the water.

241

00:14:24,000 --> 00:14:29,000

And when we turn the air on, if he goes up or down, that'll tell us what's really happening.

242

00:14:29,000 --> 00:14:32,000

It's time to sink or swim.

243

00:14:36,000 --> 00:14:42,000

Carri-Torian Grant are testing the myth that a dynamite arrow can split a tree down the middle.

244

00:14:42,000 --> 00:14:46,000

But so far, it's got the team well and truly stumped.

245

00:14:46,000 --> 00:14:48,000

We'll be treeing.

246

00:14:48,000 --> 00:14:50,000

Still in one piece.

247

00:14:50,000 --> 00:14:52,000

Yeah, I don't even see a crack.

248

00:14:54,000 --> 00:14:56,000

Today's solution, double the dynamite.

249

00:14:56,000 --> 00:15:00,000

So this is two times the explosives that we used on the first test.

250

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

Let's see if this is enough to split the tree down the middle.

251

00:15:03,000 --> 00:15:05,000

Arm, we're lit, we're lit!

252

00:15:05,000 --> 00:15:07,000

Alright, Granty, call it.

253

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

So this is splitting a tree with dynamite, double the explosives.

254

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

In three, two, one.

255

00:15:14,000 --> 00:15:16,000

Whoa!

256

00:15:16,000 --> 00:15:20,000

Yeah, that was a good blast.

257

00:15:24,000 --> 00:15:28,000

Well, I'd say this is looking pretty bad for the myth.

258

00:15:28,000 --> 00:15:32,000

Yeah, I mean, we used twice the amount of explosives as the myth calls for it,

259

00:15:32,000 --> 00:15:35,000

and still we did not get any cleaving whatsoever.

260

00:15:36,000 --> 00:15:41,000

Even with two sticks of modern dynamite, the tree was left with hardly a scratch.

261

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

Let alone a cleave.

262

00:15:43,000 --> 00:15:45,000

And Grant thinks he knows why.

263

00:15:45,000 --> 00:15:49,000

Now, my theory is that the dynamite is outside,

264

00:15:49,000 --> 00:15:53,000

and when you explode it, all that energy just gets dissipated away from the tree,

265

00:15:53,000 --> 00:15:56,000

and not where we actually need it to be focused,

266

00:15:56,000 --> 00:15:59,000

which is right on the trunk in order to split it.

267

00:15:59,000 --> 00:16:04,000

And without that focus, the myth, unlike the tree, is looking busted.

268

00:16:04,000 --> 00:16:06,000

So what's next?

269

00:16:06,000 --> 00:16:10,000

Well, any more explosives strapped to that arrow is going to be a little bit more complicated.

270

00:16:10,000 --> 00:16:12,000

So strapped to that arrow, it's going to mess with the aerodynamics.

271

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

There's no way it's going to fly.

272

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

So why don't we just push an arrow into the tree,

273

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

put as many explosives on it as JD will allow,

274

00:16:19,000 --> 00:16:21,000

and just see if we can get anything.

275

00:16:21,000 --> 00:16:23,000

Now you're talking.

276

00:16:23,000 --> 00:16:27,000

For round three, the mythbusters are going gangbusters,

277

00:16:27,000 --> 00:16:31,000

strapping an arrow with as much dynamite as can be crammed on,

278

00:16:31,000 --> 00:16:33,000

but too much for it to actually fly.

279

00:16:33,000 --> 00:16:36,000

So how much is too much?

280

00:16:36,000 --> 00:16:39,000

JD says the amount we can use out here is six sticks of dynamite.

281

00:16:39,000 --> 00:16:41,000

Is that going to split the tree down the middle?

282

00:16:41,000 --> 00:16:44,000

I don't know, but we're going to get a big bang.

283

00:16:44,000 --> 00:16:48,000

Six drops of essence of terror, five drops of sinister sauce.

284

00:16:48,000 --> 00:16:53,000

With the mother of all explosive arrows prepped and embedded in the tree,

285

00:16:53,000 --> 00:16:55,000

mega arrow is in place.

286

00:16:55,000 --> 00:16:57,000

The team is taking no chances.

287

00:16:57,000 --> 00:17:01,000

They'll hunker in the bunker because this is going to be big.

288

00:17:01,000 --> 00:17:06,000

Fire the hole! Fire the hole! Fire the hole!

289

00:17:06,000 --> 00:17:10,000

This is splitting the tree with dynamite. Six sticks.

290

00:17:10,000 --> 00:17:13,000

In three, two, one.

291

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

That was a good explosion.

292

00:17:21,000 --> 00:17:23,000

Let's go see if we split the tree.

293

00:17:23,000 --> 00:17:25,000

I don't think so, man.

294

00:17:25,000 --> 00:17:27,000

But we rattled the bunker.

295

00:17:31,000 --> 00:17:34,000

There's just no timber on the timber.

296

00:17:34,000 --> 00:17:39,000

Even with six sticks of dynamite, the shark wave barely scratches the surface,

297

00:17:39,000 --> 00:17:41,000

let alone causes a cleave.

298

00:17:41,000 --> 00:17:43,000

So it's back to the drawing board.

299

00:17:43,000 --> 00:17:45,000

So right now, this myth is looking busted.

300

00:17:45,000 --> 00:17:47,000

We used one stick of dynamite, two sticks of dynamite,

301

00:17:47,000 --> 00:17:49,000

finally six sticks of dynamite.

302

00:17:49,000 --> 00:17:53,000

It was not enough to split the tree up the middle like the myth talks about.

303

00:17:53,000 --> 00:17:55,000

But this is myth buzzers.

304

00:17:55,000 --> 00:17:57,000

We're going to go deeper and not stop here.

305

00:17:57,000 --> 00:18:02,000

We're going to figure out is there a way to use nothing but explosives to split that tree.

306

00:18:02,000 --> 00:18:05,000

Next up, Adam the human hydrometer.

307

00:18:05,000 --> 00:18:07,000

It's like riding a fucking Bronco.

308

00:18:07,000 --> 00:18:10,000

But will he sink without a trace?

309

00:18:16,000 --> 00:18:21,000

In bubble trouble, Adam is about to find out if decreasing the density of water with air

310

00:18:21,000 --> 00:18:24,000

means you'll sink without a trace.

311

00:18:24,000 --> 00:18:31,000

And to do that, Adam's ditched the scuba tank and turned himself into a neutrally buoyant human hydrometer.

312

00:18:31,000 --> 00:18:35,000

My wetsuit makes me quite floatatious.

313

00:18:35,000 --> 00:18:41,000

I'm overly buoyant, so I'm putting weights around my waist so that I will be neutrally buoyant,

314

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

ideally floating right around here.

315

00:18:44,000 --> 00:18:48,000

Then we'll be able to see the best effect that the bubbles might have on me.

316

00:18:48,000 --> 00:18:50,000

Alright, let's try it.

317

00:18:52,000 --> 00:18:53,000

I think that's perfect.

318

00:18:53,000 --> 00:18:54,000

It's a simple test.

319

00:18:54,000 --> 00:18:56,000

Let's fire up the compressor.

320

00:18:56,000 --> 00:19:00,000

When Jamie turns on the bubbler, if Adam sinks, the myth is looking good.

321

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

Okay, open the valve to the mark, please.

322

00:19:08,000 --> 00:19:09,000

Here they come!

323

00:19:09,000 --> 00:19:15,000

With the bubbles on, Adam does go under, but not quite as planned.

324

00:19:15,000 --> 00:19:20,000

He first gets pushed to the side, and only then does he sink.

325

00:19:21,000 --> 00:19:22,000

Oh!

326

00:19:26,000 --> 00:19:31,000

I'll tell you, it's not making me sink like a stone, but it is creating this really strong current

327

00:19:31,000 --> 00:19:36,000

that's throwing me to the side, and I feel like dragging me down a little bit.

328

00:19:36,000 --> 00:19:38,000

You don't seem to be able to stay right there.

329

00:19:38,000 --> 00:19:40,000

No, I definitely can't stay on time with this.

330

00:19:40,000 --> 00:19:44,000

It's very, very...it's a super strong push.

331

00:19:44,000 --> 00:19:45,000

And if I'm...

332

00:19:45,000 --> 00:19:49,000

The push to the side I get dragged under is what he was going to say.

333

00:19:49,000 --> 00:19:55,000

It seems Adam is being lifted up and away from the central column of bubbles.

334

00:19:55,000 --> 00:20:01,000

And then, just like a convection current, there's a downward drag at the outer edge.

335

00:20:01,000 --> 00:20:03,000

Where to from here?

336

00:20:03,000 --> 00:20:09,000

Well, I think if we're seeing this kind of effect where it's an upwelling that drags me down on the outside,

337

00:20:09,000 --> 00:20:12,000

let's turn it up and see if the effect gets more pronounced.

338

00:20:12,000 --> 00:20:13,000

I'm not kind of thinking.

339

00:20:13,000 --> 00:20:17,000

Of course, it's the one instruction that fits all myth-busting occasions.

340

00:20:17,000 --> 00:20:18,000

Ramp it up.

341

00:20:22,000 --> 00:20:24,000

And as they turn it up again...

342

00:20:24,000 --> 00:20:26,000

Let's move it up another notch.

343

00:20:26,000 --> 00:20:30,000

The bigger current pushes Adam to the side faster.

344

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

I'm in trouble with the bubbles, man!

345

00:20:32,000 --> 00:20:36,000

In fact, the upwelling of water associated with the rising bubbles...

346

00:20:36,000 --> 00:20:37,000

Wow!

347

00:20:37,000 --> 00:20:39,000

Oh, the current is really strong.

348

00:20:39,000 --> 00:20:45,000

...is pushing him upwards until he reaches the sides, leaving just one further test.

349

00:20:45,000 --> 00:20:47,000

We need more power, Scotty.

350

00:20:47,000 --> 00:20:50,000

Jamie just made a Star Trek reference!

351

00:20:51,000 --> 00:20:52,000

Awesome!

352

00:20:52,000 --> 00:20:55,000

And with the compressor, give it as all she's got...

353

00:20:58,000 --> 00:21:01,000

It's like riding a fucking Bronco.

354

00:21:01,000 --> 00:21:04,000

Jamie and Adam are ready to wrap it up.

355

00:21:04,000 --> 00:21:08,000

Well, I don't feel like we can call it on the basis of this tank.

356

00:21:08,000 --> 00:21:11,000

I think it's actually too small.

357

00:21:11,000 --> 00:21:14,000

This current being everything...

358

00:21:14,000 --> 00:21:18,000

It sort of overwhelms the original story, which is about bubbles.

359

00:21:18,000 --> 00:21:22,000

So I feel like we need to create more bubbles in a much bigger space.

360

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

The myth is that you can't swim in bubbles.

361

00:21:25,000 --> 00:21:27,000

There's no swimming going on in there.

362

00:21:27,000 --> 00:21:29,000

It's trending.

363

00:21:29,000 --> 00:21:32,000

We need to go someplace we can do some swimming.

364

00:21:32,000 --> 00:21:37,000

The close proximity of the tank's walls has rendered the results unreliable.

365

00:21:37,000 --> 00:21:42,000

To truly test the myth, they'll need somewhere with much more room to make a splash in.

366

00:21:42,000 --> 00:21:44,000

This was a great test.

367

00:21:44,000 --> 00:21:47,000

It was also an excellent proof of concept for my prototype bubble maker.

368

00:21:47,000 --> 00:21:52,000

It put things in a human scale and showed us a lot about bubbles and how they interact with water.

369

00:21:52,000 --> 00:21:57,000

But given that this myth is about swimming in bubbles to test it properly,

370

00:21:57,000 --> 00:22:00,000

we're going to have to go up yet more in scale.

371

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

After three big booms, the myth of a dynamite axe is, well...

372

00:22:09,000 --> 00:22:15,000

100% bust. You're not going to split a tree using one stick of dynamite, let alone six sticks of dynamite.

373

00:22:15,000 --> 00:22:17,000

Yeah, all the energy is going outward. It's completely external.

374

00:22:17,000 --> 00:22:19,000

I think to actually cleave the tree, you need something inside.

375

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

Alright, what if we tried reconfiguring the explosives?

376

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

Get it closer to the core. Maybe that will split the tree up the middle.

377

00:22:25,000 --> 00:22:29,000

Let's go to a smaller scale so we can experiment with different kinds of explosives.

378

00:22:29,000 --> 00:22:31,000

Great idea.

379

00:22:31,000 --> 00:22:37,000

Much as they love blowing things up, this myth is about dividing the tree, not destroying it.

380

00:22:37,000 --> 00:22:42,000

So in small scale, the guys are going to start by putting two explosives head to head.

381

00:22:42,000 --> 00:22:45,000

The first type is TNT, or Trinitrotoluene.

382

00:22:45,000 --> 00:22:49,000

Now this is a faster moving, more tearing explosive.

383

00:22:49,000 --> 00:22:52,000

The other kind of explosive we're going to be using is Ampho.

384

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

That is a slower moving explosive, but it has more pushing power.

385

00:22:55,000 --> 00:23:00,000

We're going to see if either of those is able to split our tree up the middle, just like the myth.

386

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

But switching the explosives and using tiny quantities aren't the only changes there drilling down for this test.

387

00:23:07,000 --> 00:23:12,000

So what we've done here is solve what I think is the biggest problem of our previous test,

388

00:23:12,000 --> 00:23:17,000

which is getting the explosive to where it needs to be, which is the strength of the tree, the core, the heartwood.

389

00:23:17,000 --> 00:23:22,000

But will this internal placement cause the cleave that dynamite arrow couldn't?

390

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

Well to find out, they're starting by embedding explosive one, the TNT.

391

00:23:27,000 --> 00:23:34,000

Alright, this is TNT in the lily pie tree.

392

00:23:34,000 --> 00:23:36,000

Let's do it!

393

00:23:36,000 --> 00:23:40,000

It's a tense wait for the fuse to burn down until...

394

00:23:40,000 --> 00:23:49,000

It might have had the boon, but did it give the team the kind of break they need?

395

00:23:50,000 --> 00:23:55,000

I see some cracking going on, but not what I would call a split.

396

00:23:55,000 --> 00:24:00,000

Yeah, it seems like it's shredding more than anything.

397

00:24:00,000 --> 00:24:09,000

Tori's on the money. Traveling at more than 21,000 feet per second, the shockwave from the TNT simply ripped the tree to pieces.

398

00:24:09,000 --> 00:24:13,000

Will their low velocity explosive do any better?

399

00:24:13,000 --> 00:24:17,000

This is ANFO, which stands for ammonium nitrate fuel oil.

400

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

It's a lower velocity explosive than TNT, which means it has a higher likelihood of actually splitting the tree without shredding it.

401

00:24:27,000 --> 00:24:31,000

What I've just done is cut some vertical grooves in the bark of the tree.

402

00:24:31,000 --> 00:24:36,000

That way we can lay up our explosives along the grain, the vascular bundles of the tree.

403

00:24:36,000 --> 00:24:40,000

Because what's happening right now is we have an explosive at the base and it's cross cutting.

404

00:24:40,000 --> 00:24:49,000

What we want is a vertical split. So this way we put the explosives up the line of the tree and that force punches through and hopefully we get that vertical split that we're looking for.

405

00:24:49,000 --> 00:24:55,000

Alright, the grooves are loaded. We're going hot. Alright, we're lit!

406

00:24:55,000 --> 00:25:01,000

Okay, so this is cutting a tree in half with explosives zipper technique.

407

00:25:01,000 --> 00:25:11,000

It didn't go completely to plan, but at least the team gets slightly more than a toppled trunk.

408

00:25:11,000 --> 00:25:16,000

It's kind of a split in the right direction.

409

00:25:16,000 --> 00:25:20,000

Wow, that is definitely a better technique.

410

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

Finally, we got a split.

411

00:25:23,000 --> 00:25:33,000

Of sorts, it's still not the clean cleave they wanted, but promising enough to warrant one more go at a mighty grand finale.

412

00:25:33,000 --> 00:25:41,000

What did we do right? Well, on this test, we got our explosives in a line that's parallel to the grain of the tree.

413

00:25:41,000 --> 00:25:46,000

Instead of focusing on one spot, we went all the way up the tree and I think that is what made the difference.

414

00:25:46,000 --> 00:25:54,000

Now, this is a small tree, but that's fine. We proved the concept here. Now it's time for us to go into a big tree and try it full scale.

415

00:25:54,000 --> 00:25:59,000

Coming up, almost a ton of runaway rogue steel heading Adam's way.

416

00:25:59,000 --> 00:26:01,000

This is where things get dangerous.

417

00:26:05,000 --> 00:26:09,000

So far, bubble trouble is looking like a bust.

418

00:26:09,000 --> 00:26:11,000

Wow, I feel it totally looking me.

419

00:26:11,000 --> 00:26:13,000

But Adam and Jamie aren't done yet.

420

00:26:13,000 --> 00:26:14,000

Ow!

421

00:26:16,000 --> 00:26:18,000

I took a pin in the leg.

422

00:26:18,000 --> 00:26:25,000

To put this myth to bed, they're going to sink or swim in a full-sized pool with a super-sized bubbler.

423

00:26:25,000 --> 00:26:29,000

One that's four feet wide and 16 feet long.

424

00:26:29,000 --> 00:26:38,000

And to get the job done in double time, Jamie welds the massive steel frame while Adam sews the giant canvas bubbler bag.

425

00:26:39,000 --> 00:26:48,000

Well, based on what we saw at the big tank, this new bladder ought to be perfect for the swimming pool.

426

00:26:48,000 --> 00:26:53,000

You know what it looks like? It looks like the world's largest whoopee cushion.

427

00:26:56,000 --> 00:27:01,000

With both bubbler components ready to roll, the truck gets loaded and locked.

428

00:27:02,000 --> 00:27:05,000

So the myth is that it is impossible to swim in bubbly water.

429

00:27:05,000 --> 00:27:08,000

And so far we've tested that in small scale in a fish tank.

430

00:27:08,000 --> 00:27:09,000

It's not sinking.

431

00:27:09,000 --> 00:27:13,000

And in a 10,000 gallon irrigation tank in what is now only medium scale.

432

00:27:13,000 --> 00:27:15,000

I'm in trouble with the bubble, Scott!

433

00:27:15,000 --> 00:27:21,000

In both cases, we found evidence of upwelling and currents that really make us feel like we haven't fully answered this question.

434

00:27:21,000 --> 00:27:25,000

So now it's time for Mondo scale, full-sized swimming pool.

435

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

Yeah, that's it.

436

00:27:26,000 --> 00:27:32,000

We've built a bubbler that will give us a swathe of bubbles four feet wide and 16 feet long.

437

00:27:32,000 --> 00:27:35,000

I'm going to get in it and see if I can swim.

438

00:27:35,000 --> 00:27:40,000

Yeah, we recognize that you have a choice of myths and we thank you for flying myth busters.

439

00:27:40,000 --> 00:27:43,000

That's nice and stable.

440

00:27:43,000 --> 00:27:48,000

Remember those little fish tank bubblers and then that little bag that I tested out in the shop?

441

00:27:48,000 --> 00:27:49,000

That's not bad.

442

00:27:49,000 --> 00:27:55,000

Well, this is the final result of all that testing, the granddaddy bubbler.

443

00:27:55,000 --> 00:27:59,000

We've got eye beams on it to hold it down against the flotation.

444

00:27:59,000 --> 00:28:06,000

We've got a massive steel frame, the big bladder and not one but two air pumps to supply all the air we need.

445

00:28:06,000 --> 00:28:10,000

We drop it in the pool and you've got yourself a big ass bubbler.

446

00:28:10,000 --> 00:28:15,000

It's big, but will it be big enough to eliminate those supposed edge effects?

447

00:28:16,000 --> 00:28:23,000

Well, to find out, Adam, designated to do the wet work, goes under to guide it into position and make sure it's level.

448

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

It's within one or two degrees of level and I'm inclined to start up the pump and see what it looks like.

449

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

I'm on it.

450

00:28:29,000 --> 00:28:30,000

Okay.

451

00:28:30,000 --> 00:28:33,000

Okay, go ahead and let some air in.

452

00:28:35,000 --> 00:28:40,000

With the air pump on, things seem to be proceeding smoothly until...

453

00:28:40,000 --> 00:28:42,000

Cut the air.

454

00:28:42,000 --> 00:28:48,000

Luckily, Adam was clear of the rig when it made an unexpected and dangerous break for the surface

455

00:28:48,000 --> 00:28:54,000

and make no mistake, despite the muffled noise and sub-aqua slow motion,

456

00:28:54,000 --> 00:28:59,000

that was 1,600 pounds of runaway rogue steel.

457

00:28:59,000 --> 00:29:00,000

Not enough weight?

458

00:29:00,000 --> 00:29:01,000

Not enough weight.

459

00:29:01,000 --> 00:29:03,000

The whole thing started to float.

460

00:29:03,000 --> 00:29:07,000

Well, that's a bummer, but the solution is simple.

461

00:29:07,000 --> 00:29:11,000

It could simply be a matter of just placing the barbell weights in the corners.

462

00:29:11,000 --> 00:29:13,000

Well, that's why we brought the barbells.

463

00:29:13,000 --> 00:29:15,000

I'll start to break them out.

464

00:29:15,000 --> 00:29:20,000

With an additional 100 pounds on each corner totaling 2,000 pounds,

465

00:29:20,000 --> 00:29:23,000

surely they've got this covered.

466

00:29:23,000 --> 00:29:25,000

Q-Test number two.

467

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

I see little bubbles starting to come up.

468

00:29:28,000 --> 00:29:32,000

And at first, it all seems to be working beautifully.

469

00:29:32,000 --> 00:29:38,000

But once again, the astonishing force exerted by the buoyancy of the trapped air is evident.

470

00:29:38,000 --> 00:29:39,000

Stop.

471

00:29:39,000 --> 00:29:40,000

Cut the air.

472

00:29:40,000 --> 00:29:42,000

And that's another bummer.

473

00:29:42,000 --> 00:29:43,000

Yeah.

474

00:29:43,000 --> 00:29:45,000

It was looking so good.

475

00:29:45,000 --> 00:29:48,000

It was looking so good, but now...

476

00:29:48,000 --> 00:29:50,000

I'm going to put it back in the air.

477

00:29:50,000 --> 00:29:51,000

Yeah.

478

00:29:51,000 --> 00:29:52,000

It was looking so good.

479

00:29:52,000 --> 00:29:55,000

It was looking so good, but now...

480

00:29:55,000 --> 00:29:56,000

the whole rigging...

481

00:29:56,000 --> 00:29:58,000

Yeah.

482

00:29:58,000 --> 00:30:02,000

So far, the team has selected option F for failure.

483

00:30:02,000 --> 00:30:07,000

But it takes more than 2,000 pounds of runaway steel to throw the mythbusters off their game.

484

00:30:07,000 --> 00:30:09,000

This is just a minor setback.

485

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

All we need are heavier I-beams or bars of steel, some sort, to put on this thing.

486

00:30:13,000 --> 00:30:15,000

We'll be able to weight it down.

487

00:30:15,000 --> 00:30:16,000

We'll fix it.

488

00:30:16,000 --> 00:30:20,000

Look, when you want to rescue big things from the bottom of a body of water,

489

00:30:20,000 --> 00:30:24,000

you use what are called lift bags, these airtight canvas bags.

490

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

You fill with air and the air lifts stuff off the bottom.

491

00:30:27,000 --> 00:30:32,000

What we've essentially made here is a captured air bladder.

492

00:30:32,000 --> 00:30:34,000

And we're trying to keep it on the bottom,

493

00:30:34,000 --> 00:30:38,000

which is proving more of a challenge than we surmised.

494

00:30:38,000 --> 00:30:39,000

That's a workout, huh?

495

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

Oh, f***.

496

00:30:41,000 --> 00:30:44,000

This is where things get dangerous.

497

00:30:44,000 --> 00:30:46,000

Late in the day.

498

00:30:46,000 --> 00:30:48,000

Let's test them out.

499

00:30:48,000 --> 00:30:49,000

Yeah.

500

00:30:49,000 --> 00:30:50,000

Right in place?

501

00:30:50,000 --> 00:30:54,000

Yeah, I'm going to stay far away from this rig while you pressurize it.

502

00:30:54,000 --> 00:30:59,000

Their first unsuccessful test of the rig weighed in at 1,600 pounds.

503

00:30:59,000 --> 00:31:02,000

This time, they've got 4,200.

504

00:31:02,000 --> 00:31:03,000

But will this be enough?

505

00:31:03,000 --> 00:31:06,000

There they come.

506

00:31:06,000 --> 00:31:09,000

Yeah, baby.

507

00:31:09,000 --> 00:31:12,000

So, that may have been about halfway.

508

00:31:12,000 --> 00:31:13,000

That's perfect.

509

00:31:13,000 --> 00:31:14,000

Nothing's budging.

510

00:31:14,000 --> 00:31:15,000

It looks gorgeous.

511

00:31:15,000 --> 00:31:16,000

Excellent.

512

00:31:16,000 --> 00:31:18,000

So, we had a few bugs to work out.

513

00:31:18,000 --> 00:31:20,000

So, Sumi, we added more weight.

514

00:31:20,000 --> 00:31:22,000

It took care of the buoyancy problem.

515

00:31:22,000 --> 00:31:24,000

And we're all tested.

516

00:31:24,000 --> 00:31:25,000

Good to go.

517

00:31:25,000 --> 00:31:27,000

I think we're ready for tomorrow.

518

00:31:30,000 --> 00:31:34,000

Next, the Big Bang on the mother of all pine trees.

519

00:31:34,000 --> 00:31:36,000

That is one big tree.

520

00:31:36,000 --> 00:31:38,000

Fire!

521

00:31:43,000 --> 00:31:48,000

Now, we've already busted the myth that you can use a dynamite arrow to split a tree in two.

522

00:31:48,000 --> 00:31:52,000

But we wanted to find out if you can use explosives to create that perfect cleave.

523

00:31:52,000 --> 00:31:54,000

So, we did a few experiments.

524

00:31:54,000 --> 00:31:56,000

We tried TNT, we tried Ampho.

525

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

As you can see, it didn't quite work from a singular point.

526

00:32:00,000 --> 00:32:02,000

So, we went and took it one step further.

527

00:32:02,000 --> 00:32:07,000

We made sort of a zipper by perforating the tree with little slits and filling them with Ampho.

528

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

And we did get a split.

529

00:32:09,000 --> 00:32:12,000

So, now it's time to take it to full scale.

530

00:32:12,000 --> 00:32:16,000

We've come out to the forest to make a tree split mythbusters style.

531

00:32:16,000 --> 00:32:20,000

Doing it mythbusters style means driving to an isolated tree farm.

532

00:32:20,000 --> 00:32:23,000

Man, this is way out there, isn't it?

533

00:32:23,000 --> 00:32:25,000

And blowing the biggest tree they can see.

534

00:32:25,000 --> 00:32:29,000

With the technique they sort of perfected in small scale.

535

00:32:29,000 --> 00:32:31,000

It's like a winter wonderland out here.

536

00:32:31,000 --> 00:32:34,000

You can't see the trees for the forest.

537

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

Here's the tree.

538

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

Wow, that is one big tree.

539

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

Definitely.

540

00:32:41,000 --> 00:32:44,000

This is a 100 foot tall ponderosa pine.

541

00:32:44,000 --> 00:32:48,000

Now, you might be a little freaked out that we're using a perfectly good tree in our experiment.

542

00:32:48,000 --> 00:32:50,000

But, it's already been earmarked for lumber.

543

00:32:50,000 --> 00:32:53,000

And it will be recycled at the end of the experiment.

544

00:32:53,000 --> 00:32:59,000

Depending on how successful we are, it'll either be lumber, or if we manage to split it, firewood.

545

00:32:59,000 --> 00:33:05,000

Given their early results, splitting this tall tree seems like an even taller order.

546

00:33:05,000 --> 00:33:08,000

But Tori for one is confident.

547

00:33:08,000 --> 00:33:12,000

Now, we learned from our small scale that amphi was the best type of explosive.

548

00:33:12,000 --> 00:33:15,000

It was slower moving, more pushing.

549

00:33:15,000 --> 00:33:20,000

And what we also learned is cutting grooves along the vertical of the tree

550

00:33:20,000 --> 00:33:23,000

will give us a better chance of splitting the tree.

551

00:33:23,000 --> 00:33:25,000

So, we're going to do just that.

552

00:33:25,000 --> 00:33:27,000

We're going to cut a bunch of grooves up the length of the tree

553

00:33:27,000 --> 00:33:29,000

so that way the force of the explosion is vertical.

554

00:33:29,000 --> 00:33:32,000

And hopefully we can replicate the results.

555

00:33:32,000 --> 00:33:36,000

In other words, going big means thinking small.

556

00:33:36,000 --> 00:33:41,000

Cutting lots of vertical slots near the core to house small bags of boom.

557

00:33:44,000 --> 00:33:49,000

Alright, so we finished cutting 15 slots up the length of the tree.

558

00:33:49,000 --> 00:33:53,000

Now, what we're going to do is we're going to fill those slots with ampho, ignite them,

559

00:33:53,000 --> 00:33:56,000

and see if we can split this tree up the middle.

560

00:33:56,000 --> 00:34:02,000

But first, they need to do a serious calculation of just how much bang they need for their buck.

561

00:34:02,000 --> 00:34:06,000

Okay, now when you usually see explosives into the myth busters scene,

562

00:34:06,000 --> 00:34:12,000

you're used to seeing mass quantities like the 850 pounds we used in the cement truck.

563

00:34:17,000 --> 00:34:22,000

Now, for this experiment, we actually want a pushing rather than a huge destruction.

564

00:34:22,000 --> 00:34:26,000

So, we're only going to use about 25 pounds of amphi in small bags

565

00:34:26,000 --> 00:34:29,000

strung evenly up the side of the tree.

566

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

That way, hopefully we get a nice clean clean.

567

00:34:32,000 --> 00:34:37,000

It's a delicate operation. Too much amphi and the tree will be blown apart.

568

00:34:37,000 --> 00:34:40,000

Too little and the explosive may not even detonate.

569

00:34:40,000 --> 00:34:43,000

Alright, so, one pound bags.

570

00:34:43,000 --> 00:34:44,000

One pound bags.

571

00:34:44,000 --> 00:34:48,000

Luckily, bomb expert Frank is on hand to take charge of the charge.

572

00:34:48,000 --> 00:34:49,000

Okay.

573

00:34:49,000 --> 00:34:50,000

What do you think, Frank?

574

00:34:50,000 --> 00:34:52,000

Am I going to be able to join the bomb squad after this?

575

00:34:52,000 --> 00:34:54,000

Hey, we're signing you up right now.

576

00:34:54,000 --> 00:34:57,000

Alright, ready to decorate the tree?

577

00:34:57,000 --> 00:34:58,000

Right away, you're in.

578

00:35:02,000 --> 00:35:03,000

Anpho.

579

00:35:03,000 --> 00:35:04,000

There you go.

580

00:35:04,000 --> 00:35:12,000

Working somewhat gingerly, Carrie and Grant carefully placed the 25 one pound bags along the entire trunk.

581

00:35:12,000 --> 00:35:16,000

You know what, the sap is a natural adhesive to hold the bags in.

582

00:35:16,000 --> 00:35:21,000

So, add wiring explosives at heights to my resume.

583

00:35:21,000 --> 00:35:22,000

Alright, you done?

584

00:35:22,000 --> 00:35:23,000

I'm done.

585

00:35:23,000 --> 00:35:25,000

Add as the saying goes.

586

00:35:25,000 --> 00:35:27,000

Let's make like a tree and leave.

587

00:35:28,000 --> 00:35:33,000

Going down on this level, we have explosives, timber and ladies lingerie.

588

00:35:34,000 --> 00:35:39,000

Okay, this is the very last bag of explosives going in the tree.

589

00:35:39,000 --> 00:35:41,000

We've wired them all the way up.

590

00:35:41,000 --> 00:35:43,000

I think we might actually have a shot at this one.

591

00:35:43,000 --> 00:35:48,000

I mean, we've given it all the advantage we possibly could using this nice low velocity explosive.

592

00:35:48,000 --> 00:35:52,000

We've given it perforation so that it could go really, really well.

593

00:35:52,000 --> 00:35:54,000

I think we might get a nice clean split.

594

00:35:54,000 --> 00:35:57,000

But the guys on the other hand aren't so sure.

595

00:35:57,000 --> 00:35:59,000

So, do I think the tree's going to split?

596

00:35:59,000 --> 00:36:01,000

There's a lot of factors that go into it.

597

00:36:01,000 --> 00:36:05,000

Too much explosive, too little, the weight of the branches.

598

00:36:05,000 --> 00:36:07,000

Given all that, I think we are going to get a split.

599

00:36:07,000 --> 00:36:10,000

Maybe not super clean, but it's going to split.

600

00:36:10,000 --> 00:36:15,000

Looking at all this ampo in this tree, I have a feeling we're just going to blow this tree in a bunch of pieces.

601

00:36:16,000 --> 00:36:18,000

Yeah, this looks safe enough for you.

602

00:36:18,000 --> 00:36:21,000

All right, I guess we're all set. You guys ready?

603

00:36:21,000 --> 00:36:23,000

I'm so ready.

604

00:36:23,000 --> 00:36:27,000

Fire in the hole! Fire in the hole!

605

00:36:27,000 --> 00:36:31,000

Okay, so this is splitting a tree with ampo.

606

00:36:32,000 --> 00:36:37,000

Here we go. In three, two, one.

607

00:36:38,000 --> 00:36:43,000

After the break, Sincor swim in the mythical fable of Fizz.

608

00:36:43,000 --> 00:36:45,000

Swim harder!

609

00:37:07,000 --> 00:37:09,000

Cut the air.

610

00:37:09,000 --> 00:37:15,000

Adam and Jamie are ready to test the myth that it's impossible to swim in bubbly water.

611

00:37:15,000 --> 00:37:17,000

Okay, swimming with bubbles.

612

00:37:17,000 --> 00:37:22,000

In three, two, one, go!

613

00:37:23,000 --> 00:37:29,000

On the first lap, displaying all of his exemplary style and technique, Adam powers through the bubbles.

614

00:37:29,000 --> 00:37:32,000

But on the way back, it's not so easy.

615

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

Just like the small-scale tests, the upwelling current pushes into the side.

616

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

And outweighs any effect the lower density may have.

617

00:37:40,000 --> 00:37:42,000

No, okay.

618

00:37:42,000 --> 00:37:47,000

At this stage, it seems that the myth that it's impossible to swim in bubbly water is pretty much busted.

619

00:37:47,000 --> 00:37:51,000

It does, however, seem to be more difficult to swim in bubbly water.

620

00:37:51,000 --> 00:37:55,000

And the timings we've been taking from my testing seem to bear that out.

621

00:37:55,000 --> 00:37:59,000

So given that there might be a grain of truth to this story, that it might be more difficult,

622

00:37:59,000 --> 00:38:03,000

but not impossible to swim in bubbly water, we're going to ramp it up as far as we can go

623

00:38:03,000 --> 00:38:06,000

and see if we can't make that artifact more pronounced.

624

00:38:06,000 --> 00:38:09,000

We've done our testing at one-quarter compressor capacity.

625

00:38:09,000 --> 00:38:14,000

And the results were interesting, but perhaps not conclusive.

626

00:38:14,000 --> 00:38:17,000

So I think now it's time to ramp it up.

627

00:38:17,000 --> 00:38:19,000

That's more like it.

628

00:38:19,000 --> 00:38:22,000

And that means we're going to go full power with those compressors.

629

00:38:22,000 --> 00:38:24,000

We'll see what happens.

630

00:38:24,000 --> 00:38:27,000

Wow! That's a lot of bubbles!

631

00:38:28,000 --> 00:38:29,000

You ready?

632

00:38:29,000 --> 00:38:30,000

Ready!

633

00:38:30,000 --> 00:38:33,000

All right. Full-scale bubble test.

634

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

In three, two, one, go!

635

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

With the dial turned to 11, the forces Adam has to deal with are clearly evident.

636

00:38:44,000 --> 00:38:49,000

Despite looking quite serene below, it's a broiling, frothing volcano at the surface,

637

00:38:49,000 --> 00:38:53,000

and the current is just too strong to swim across.

638

00:38:53,000 --> 00:38:55,000

Ah! Swim harder!

639

00:38:55,000 --> 00:38:59,000

Meaning in this case, it is impossible to swim in.

640

00:38:59,000 --> 00:39:02,000

Like any good myth, this one has a grain of truth that it's hard.

641

00:39:02,000 --> 00:39:07,000

And that is that when you mix air with water, it is going to make that water less dense.

642

00:39:07,000 --> 00:39:11,000

The thing is that by taking it to ridiculous extremes like we have,

643

00:39:11,000 --> 00:39:13,000

you're just not trying hard enough.

644

00:39:13,000 --> 00:39:15,000

Stop screwing around.

645

00:39:15,000 --> 00:39:23,000

That decrease in density relative to its surroundings causes an upwelling and a very vigorous current, in fact.

646

00:39:23,000 --> 00:39:29,000

That current is so vigorous that it makes it virtually impossible to swim through it.

647

00:39:29,000 --> 00:39:31,000

I swallowed some water.

648

00:39:31,000 --> 00:39:37,000

After small-scale, medium-scale, and full-scale, it wasn't until super-full-scale

649

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

that they got the result they were looking for.

650

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

And Adam, for one, is buoyant.

651

00:39:42,000 --> 00:39:46,000

This myth is a letter-perfect case for why I love doing this show.

652

00:39:46,000 --> 00:39:49,000

We started out with a myth about it being impossible to swim in bubbly water.

653

00:39:49,000 --> 00:39:54,000

The conventional wisdom being that bubbles make the water less dense and thus you would sink.

654

00:39:54,000 --> 00:39:59,000

When in fact it turns out that the bubbles create this churning upwelling of current

655

00:39:59,000 --> 00:40:07,000

as they rise to the surface and it is the current and not the bubbles that makes it, in fact, impossible to swim in bubbly water.

656

00:40:07,000 --> 00:40:10,000

I love being surprised by results like that.

657

00:40:10,000 --> 00:40:12,000

Well, that's pretty neat.

658

00:40:12,000 --> 00:40:14,000

We had a build that was more difficult than we thought.

659

00:40:14,000 --> 00:40:21,000

A surprise ending and a myth that is, I gotta say, plausible but not for the reasons we originally thought.

660

00:40:21,000 --> 00:40:25,000

And bubbly water is kind of festive, isn't it?

661

00:40:25,000 --> 00:40:27,000

Yes, yes it is.

662

00:40:34,000 --> 00:40:39,000

Busting the myth of the explosive tree split has been a bit of a misfire.

663

00:40:39,000 --> 00:40:41,000

From big-scale failure...

664

00:40:41,000 --> 00:40:44,000

The tree is still in one piece.

665

00:40:44,000 --> 00:40:46,000

To some small-scale success...

666

00:40:46,000 --> 00:40:50,000

Wow, that is definitely a better technique.

667

00:40:50,000 --> 00:40:52,000

But now, the moment of truth.

668

00:40:52,000 --> 00:40:53,000

Here we go!

669

00:40:53,000 --> 00:40:59,000

To replicate the results of this myth, it all comes down to this one-shot wonder.

670

00:40:59,000 --> 00:41:04,000

One monster pine tree filled with 25 bags of explosives.

671

00:41:04,000 --> 00:41:08,000

They're using the smallest amount of anfo that will still detonate.

672

00:41:08,000 --> 00:41:10,000

But will it be small enough?

673

00:41:10,000 --> 00:41:12,000

In three...

674

00:41:12,000 --> 00:41:13,000

Two...

675

00:41:13,000 --> 00:41:14,000

One...

676

00:41:14,000 --> 00:41:16,000

Fire!

677

00:41:20,000 --> 00:41:23,000

Wow, that was a good one!

678

00:41:25,000 --> 00:41:27,000

Well, the tree's down.

679

00:41:29,000 --> 00:41:31,000

Let's see if it's split.

680

00:41:31,000 --> 00:41:33,000

If there's anything left of it...

681

00:41:33,000 --> 00:41:35,000

Wow!

682

00:41:36,000 --> 00:41:39,000

Well, what's clear is the anfo detonated.

683

00:41:39,000 --> 00:41:42,000

But what is not clear is what happened to the tree.

684

00:41:42,000 --> 00:41:46,000

Wow, there are bits of tree everywhere.

685

00:41:48,000 --> 00:41:51,000

With the smoke gone, it's bad news for the myth.

686

00:41:51,000 --> 00:41:57,000

Instead of a split, the tree's been diced into a nice pile of kindling for Bear Grills.

687

00:41:58,000 --> 00:42:01,000

The result that we're looking for for this experiment was two pieces.

688

00:42:01,000 --> 00:42:04,000

One left, one right, split right down the middle.

689

00:42:05,000 --> 00:42:08,000

What we got was 200 pieces.

690

00:42:08,000 --> 00:42:11,000

The tree shattered all over the forest.

691

00:42:11,000 --> 00:42:12,000

There's bits everywhere.

692

00:42:12,000 --> 00:42:15,000

It turns out the anfo was just too much.

693

00:42:15,000 --> 00:42:21,000

Even at the minimum amount to detonate, to sustain that crack all the way to the top.

694

00:42:21,000 --> 00:42:24,000

And that leaves only one conclusion.

695

00:42:24,000 --> 00:42:28,000

Alright, no matter how you look at this myth, this one is busted.

696

00:42:28,000 --> 00:42:29,000

Busted.

697

00:42:29,000 --> 00:42:30,000

Busted.

698

00:42:30,000 --> 00:42:32,000

Can't have all this firewood and kindling now.

699

00:42:32,000 --> 00:42:34,000

This isn't a split. This is a shatter.

700

00:42:36,000 --> 00:42:39,000

The tree and the myth are both shattered.

701

00:42:39,000 --> 00:42:45,000

And let's face it, if this method didn't work, then a dynamite arrow is not even a long shot.

702

00:42:47,000 --> 00:42:49,000

Alright, I got some seedlings.

703

00:42:49,000 --> 00:42:50,000

Okay.

704

00:42:50,000 --> 00:42:52,000

The myth might be busted.

705

00:42:52,000 --> 00:42:53,000

Let's do our part.

706

00:42:53,000 --> 00:42:56,000

But at least the team is given something back to the forest.

707

00:42:56,000 --> 00:42:59,000

Sort of the strange myth buster circle of life.

708

00:42:59,000 --> 00:43:02,000

I think it's a good deal for the forest. I mean three for one.