

1

00:00:00,000 --> 00:00:27,600

What is the secret of the fake ears of the east?

2

00:00:27,600 --> 00:00:34,840

What gives them the power to defy the pain of hooks and spikes?

3

00:00:34,840 --> 00:00:38,720

How can people walk unharmed on red hot coals?

4

00:00:38,720 --> 00:00:46,040

Why do so few suffer agonizing burns?

5

00:00:46,040 --> 00:00:50,200

In the west, these Californians are hoping to walk on fire.

6

00:00:50,200 --> 00:00:54,520

They believe the power of the mind will keep them safe.

7

00:00:54,520 --> 00:00:56,440

But is faith enough?

8

00:00:56,440 --> 00:01:02,280

Is there more they should know before they take their first step onto the fire?

9

00:01:02,280 --> 00:01:08,080

Mysteries from the files of Arthur C. Clarke, scientist, writer and visionary, the scientist

10

00:01:08,080 --> 00:01:13,880

who invented the communication satellite, the writer of 2010, and now in retreat in

11

00:01:13,880 --> 00:01:18,320

Sri Lanka, the visionary who ponders the riddles of this and other worlds.

12

00:01:26,440 --> 00:01:56,040

This is Katharangama, perhaps the holiest place in Sri Lanka, and one of the great shrines

13

00:01:56,040 --> 00:01:57,680

of the world.

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00:01:57,680 --> 00:02:01,080

It's sacred to Hindus, Muslims and Buddhists.

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00:02:01,080 --> 00:02:07,240

And throughout the year, pilgrims come to make offerings at the temple.

16

00:02:07,240 --> 00:02:12,240

And to bathe in the manic ganga.

17

00:02:12,240 --> 00:02:17,680

For two weeks every August, Katharangama is an extraordinary sight, thronged with crowds

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00:02:17,680 --> 00:02:23,920

of pilgrims, undergoing painful ordeals to atone for past misdeeds.

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00:02:23,920 --> 00:02:27,680

Some walk here from miles on shoes of nails.

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00:02:27,680 --> 00:02:33,360

Others pierce their flesh with hooks and spikes.

21

00:02:33,360 --> 00:02:46,560

The crowds come from all over Sri Lanka to honour Scanda, the Katharangama god.

22

00:02:46,560 --> 00:02:51,240

Those who make the pilgrimage of pain believe that the greater their suffering, the more

23

00:02:51,240 --> 00:02:59,360

the god will look on them with favour.

24

00:02:59,360 --> 00:03:03,160

To onlookers, these feats of faith look unbearably painful.

25

00:03:03,160 --> 00:03:07,840

But strangely, the pilgrims who perform them don't really seem to be in agony.

26

00:03:07,840 --> 00:03:13,640

Their convinced Scanda protects them with a supernatural power.

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00:03:13,640 --> 00:03:17,720

Putting such miracles under the microscope is the speciality of physiology professor

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00:03:17,720 --> 00:03:19,680

Carlo Fonseca.

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00:03:19,800 --> 00:03:25,120

He studied the strangest of all the Katharangama rituals, hook-hanging.

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00:03:25,120 --> 00:03:33,360

Many people believe that this is in fact miracle, because on the face of it there are several

31

00:03:33,360 --> 00:03:36,720

fantastic things about the whole procedure.

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00:03:36,720 --> 00:03:43,000

But I have looked into this rather carefully and I am quite convinced that it can be explained

33

00:03:43,000 --> 00:03:47,680

in terms of physics and physiology.

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00:03:47,680 --> 00:03:55,760

At the Colombo Medical Faculty, this volunteer hook-hanger has been helping Fonseca's investigations.

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00:03:55,760 --> 00:03:59,280

The experiment is strictly supervised by the doctors.

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00:03:59,280 --> 00:04:02,680

Each hook is sterilised to keep infection at bay.

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00:04:02,680 --> 00:04:06,800

For hook-hanging is dangerous.

38

00:04:06,800 --> 00:04:11,680

Fonseca first set out to discover why the hooks cause so little bleeding.

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00:04:11,680 --> 00:04:14,920

He found that the trick is to pinch up the hangers' skin.

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00:04:14,920 --> 00:04:22,800

If you watch how they actually do it, the skin and the underlying tissues are pinched up.

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00:04:22,800 --> 00:04:27,360

Pinching up tissues obliterates the blood vessels in the region.

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00:04:27,360 --> 00:04:34,160

The hook is inserted and tension is maintained on the hook by means of a string, so that

43

00:04:34,160 --> 00:04:37,480

it remains pinched up.

44

00:04:37,480 --> 00:04:40,320

But why don't the hooks tear the hangers back?

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00:04:40,320 --> 00:04:43,080

Fonseca realised that the number of hooks was crucial.

46

00:04:43,520 --> 00:04:47,040

There must be enough to spread the load.

47

00:04:47,040 --> 00:04:51,600

Hook-hangers use at least six hooks.

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00:04:51,600 --> 00:05:00,920

And these six hooks are so placed that there is an even distribution of the weight.

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00:05:00,920 --> 00:05:04,520

This young man, he is about 120 pounds in weight.

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00:05:04,520 --> 00:05:10,680

So each hook has a strain of 120 divided by 6.

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00:05:10,680 --> 00:05:12,160

That's 20 pounds.

52

00:05:12,160 --> 00:05:18,880

And such a strain, normal, healthy human tissue can bear without snapping.

53

00:05:18,880 --> 00:05:25,840

On the other hand, if any devotee hangs by one hook, undoubtedly the hook will tear through

54

00:05:25,840 --> 00:05:30,440

the flesh and he will plummet to the ground.

55

00:05:30,440 --> 00:05:34,640

Yet this does not fully explain why the hooks cause so little pain.

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00:05:42,160 --> 00:05:56,920

Fonseca concluded that mental attitude is the key, that for devotees ecstasy is a powerful

57

00:05:56,920 --> 00:06:02,160

anaesthetic, but that this experiment shows religious belief is not necessary.

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00:06:02,160 --> 00:06:07,480

For this man's happy to hang about and smoke, putting his faith in science instead of the

59

00:06:07,480 --> 00:06:09,480

supernatural.

60

00:06:09,480 --> 00:06:16,480

But Caliph Fonseca, his calm behaviour proves the point.

61

00:06:16,480 --> 00:06:21,160

This is a manifestation of his lack of faith in religious ritual.

62

00:06:21,160 --> 00:06:24,040

He needs no divine aid of any kind to do this.

63

00:06:24,040 --> 00:06:37,360

This is entirely of his own steam.

64

00:06:37,360 --> 00:06:41,680

So effective is the pinching up procedure that even when the hooks are taken out, the

65

00:06:41,680 --> 00:06:48,000

wounds do not bleed.

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00:06:48,000 --> 00:06:53,360

And Fonseca believes the same elementary principles of physics and physiology protect even the

67

00:06:53,360 --> 00:07:02,640

devotees at Caterugama.

68

00:07:02,640 --> 00:07:07,160

The climax of the festival is a fire walk on the final day.

69

00:07:07,160 --> 00:07:13,040

To a mere spectator, it's amazing to see the pilgrims walking on red hot coals with their

70

00:07:13,040 --> 00:07:14,040

bare feet.

71

00:07:14,040 --> 00:07:17,360

There's no doubt that they do walk on fire.

72

00:07:17,360 --> 00:07:19,120

Why don't they get burnt?

73

00:07:19,120 --> 00:07:25,320

Why do they feel no pain?

74

00:07:25,320 --> 00:07:29,320

At Caterugama, dozens of pilgrims brave the fire pit.

75

00:07:29,320 --> 00:07:35,760

They believe the heat will purge their sins.

76

00:07:35,760 --> 00:07:42,280

The temperature of the coals measured by skeptical scientists reaches 800 degrees centigrade,

77

00:07:42,280 --> 00:07:50,960

yet men and women stroll across them without blisters or burns.

78

00:07:50,960 --> 00:07:58,200

The Caterugama fire walk is one of many that take place throughout the world.

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00:07:58,320 --> 00:08:03,320

Each May at Langadas in Greece, the villagers celebrate the festival of St. Constantine

80

00:08:03,320 --> 00:08:14,440

and St. Catherine with a night of fire walking.

81

00:08:14,440 --> 00:08:30,840

In Japan, the Yamabushi regularly lead the faithful over searing cinders.

82

00:08:30,840 --> 00:08:36,240

At San Pedro Manrique, Spain, there's a fire walk on St. John's Eve.

83

00:08:36,240 --> 00:08:41,520

In 1969, the villagers were joined by a visiting American, John Harmon McElroy.

84

00:08:41,520 --> 00:08:46,320

We were the kind of coals that are pulsing white on the edges.

85

00:08:46,320 --> 00:08:49,240

It wasn't orgy, it was white hot.

86

00:08:49,240 --> 00:08:51,400

The instructions we had were very simple.

87

00:08:51,400 --> 00:08:55,560

They brushed their feet clean of twigs or anything else that was flammable before they

88

00:08:55,560 --> 00:08:59,000

stepped up on the coals.

89

00:08:59,000 --> 00:09:06,320

They put their feet down very flat and very hard and they kept moving.

90

00:09:06,320 --> 00:09:08,040

We followed those simple instructions.

91

00:09:08,040 --> 00:09:12,720

My friend and I had what was for me the most exhilarating experience I think that I've

92

00:09:12,720 --> 00:09:15,440

ever had in my life.

93

00:09:15,440 --> 00:09:20,640

In the South Pacific, islanders amble regularly over roasting rocks.

94

00:09:20,640 --> 00:09:26,680

And on Bora Bora, curiosity impelled a surgeon to risk his skin, Dr. Gerald Fegan.

95

00:09:26,680 --> 00:09:29,200

It was a pretty formidable looking thing.

96

00:09:29,200 --> 00:09:35,680

It was just a long bed of incandescent red rocks.

97

00:09:36,280 --> 00:09:43,160

Anyway, I found myself leaning down, taking off my shoes and socks, and walking over to

98

00:09:43,160 --> 00:09:45,200

the front of the fire walk.

99

00:09:45,200 --> 00:09:48,080

And one of the natives took my hand.

100

00:09:48,080 --> 00:09:54,120

And it felt so hot when you got close to it that you felt you were being fried.

101

00:09:54,120 --> 00:09:59,480

And yet when you walked on it, your feet and your knees, up to your knees, felt cold.

102

00:09:59,480 --> 00:10:02,160

I have no explanation for it at all.

103

00:10:02,160 --> 00:10:09,880

I can explain a lot of medical things, but not that.

104

00:10:09,880 --> 00:10:14,400

But one American group claims it can explain the fire walking mystery.

105

00:10:14,400 --> 00:10:21,040

At the Insights Center on Wilshire Boulevard in Santa Monica, the answer costs only \$100.

106

00:10:21,040 --> 00:10:29,040

A fire walk is the climax of a seminar designed to boost people's confidence and help them

107

00:10:29,040 --> 00:10:39,040

conquer their fears.

108

00:10:39,040 --> 00:10:43,480

Instructor Tony Robbins believes positive thinking is all that's needed.

109

00:10:43,480 --> 00:10:47,640

I've taken 3,500 people across the coals in the last eight months alone, everything from

110

00:10:47,640 --> 00:10:51,040

a seven-year-old boy to a 78-year-old man.

111

00:10:51,040 --> 00:10:55,040

In that time, I've also seen people who had burned, and they all had equal thickness of

112

00:10:55,040 --> 00:10:56,040

skin.

113

00:10:56,040 --> 00:10:57,800

They all had equal supposed perspiration.

114

00:10:57,800 --> 00:11:01,640

The difference was, when that person's thinking was, how are they thinking and what were their

115

00:11:01,640 --> 00:11:02,640

belief systems?

116

00:11:02,640 --> 00:11:06,480

So this process teaches them how to align their beliefs to get whatever they want out

117

00:11:06,480 --> 00:11:07,480

of their life.

118

00:11:07,480 --> 00:11:11,680

And the fire walk is just a symbol, a practical example of what they can do.

119

00:11:11,680 --> 00:11:16,240

The students spend four hours psyching themselves up to face the fire.

120

00:11:16,240 --> 00:11:21,040

One technique is to shout cool moss to convince themselves their feet won't burn.

121

00:11:21,040 --> 00:11:30,800

One, two, three.

122

00:11:30,800 --> 00:11:44,480

The fire is almost ready, and so are the fire walkers.

123

00:11:44,480 --> 00:11:46,480

All they need is belief.

124

00:11:46,480 --> 00:11:59,360

As I take the first step, my body will do whatever it takes to protect itself.

125

00:11:59,360 --> 00:12:09,120

As I take the first step, my body will do whatever it takes to protect itself.

126

00:12:09,120 --> 00:12:31,080

Take a look at the coals.

127

00:12:31,080 --> 00:12:35,120

Aren't they pretty?

128

00:12:35,120 --> 00:12:39,080

Look at the coals right now, and as you look at them, make your fist.

129

00:12:39,520 --> 00:12:42,720

Breathing like you would, what will you say?

130

00:12:42,720 --> 00:12:43,720

That's right.

131

00:12:43,720 --> 00:12:44,720

I can do it.

132

00:12:44,720 --> 00:12:45,720

That's right, you can.

133

00:12:45,720 --> 00:12:46,720

Come forward.

134

00:12:46,720 --> 00:12:47,720

Come forward.

135

00:12:47,720 --> 00:12:50,720

Here's your own pace.

136

00:12:50,720 --> 00:12:57,720

Cool moss, cool moss, cool moss, cool moss, cool moss, cool moss.

137

00:12:57,720 --> 00:12:58,720

I just think I can do it.

138

00:12:58,720 --> 00:12:59,720

Oh, man!

139

00:12:59,720 --> 00:13:08,240

Come on, come on, come on!

140

00:13:08,240 --> 00:13:13,200

All right, take a deep breath.

141

00:13:13,200 --> 00:13:20,200

Cool moss, cool moss, cool moss, cool moss.

142

00:13:20,200 --> 00:13:21,200

Great!

143

00:13:21,200 --> 00:13:22,100

Oh, wow.

144

00:13:22,100 --> 00:13:23,000

Yeah!

145

00:13:23,000 --> 00:13:23,900

Ah!

146

00:13:29,900 --> 00:13:30,600

Oh, my God.

147

00:13:30,600 --> 00:13:32,400

I did it.

148

00:13:32,400 --> 00:13:34,520

I ever, it's fantastic.

149

00:13:34,520 --> 00:13:36,920

I've never done anything like it in my life.

150

00:13:36,920 --> 00:13:37,420

Oh.

151

00:13:37,420 --> 00:13:39,160

Ah.

152

00:13:39,160 --> 00:13:41,360

At the medical faculty in Colombo,

153

00:13:41,360 --> 00:13:44,640

a series of experiments has convinced Professor Fonseca

154

00:13:44,640 --> 00:13:47,960

that there's more to fire walking than positive thinking.

155

00:13:47,960 --> 00:13:50,840

There is a lot of clap, trap, and mumbo-jumbo

156

00:13:50,840 --> 00:13:53,000

associated with this phenomenon.

157

00:13:53,000 --> 00:13:55,080

I have looked into this very carefully.

158

00:13:55,080 --> 00:13:57,800

And as of now, I am quite convinced

159

00:13:57,800 --> 00:14:01,120

that the whole phenomenon is explicable in terms

160

00:14:01,120 --> 00:14:05,560

of quite elementary physics and physiology.

161

00:14:05,560 --> 00:14:08,720

Well, of course, we're not the first to do this kind of experiment.

162

00:14:08,720 --> 00:14:10,800

Many other doctors and scientists

163

00:14:10,800 --> 00:14:14,000

have tried this and come up with a rather wide range of clues

164

00:14:14,000 --> 00:14:16,520

to the fire walking mystery.

165

00:14:16,520 --> 00:14:18,880

Harry Price was one of the first.

166

00:14:18,880 --> 00:14:25,360

In 1935, he organized this fire walk at Carshelton in Surrey.

167

00:14:25,360 --> 00:14:29,280

He burned eight tons of oak and pine in a 25-foot trench.

168

00:14:34,040 --> 00:14:37,080

After several hours, the logs were burning fiercely.

169

00:14:37,080 --> 00:14:38,360

The heat was intense.

170

00:14:48,880 --> 00:14:51,960

Carshmiri Kudabucks was the subject of the experiment.

171

00:14:51,960 --> 00:14:54,880

He'd done the fire walk many times.

172

00:14:54,880 --> 00:14:58,680

The doctor confirmed that Bucks' feet showed no signs

173

00:14:58,680 --> 00:15:00,400

of special preparation.

174

00:15:18,880 --> 00:15:21,320

An amateur quickly came to grief,

175

00:15:21,320 --> 00:15:24,880

but Kudabucks survived both walks unsinged.

176

00:15:32,600 --> 00:15:34,760

Harry Price did remarkably well

177

00:15:34,760 --> 00:15:37,160

and learned a great deal from his experiments.

178

00:15:37,160 --> 00:15:38,880

His main conclusions were,

179

00:15:38,880 --> 00:15:42,480

fasting and trances were completely unnecessary.

180

00:15:42,480 --> 00:15:44,680

And he was able to do the same.

181

00:15:44,680 --> 00:15:47,920

Finally, he noticed that the walkers' feet

182

00:15:47,920 --> 00:15:50,120

never stayed in contact with the coals

183

00:15:50,120 --> 00:15:51,960

for more than half a second.

184

00:15:55,080 --> 00:15:58,120

One theory is that fire walkers wet their feet,

185

00:15:58,120 --> 00:16:00,920

which would cool them and help to quench the fire.

186

00:16:00,920 --> 00:16:02,520

But there may be more to it than that,

187

00:16:02,520 --> 00:16:04,400

as this experiment may demonstrate.

188

00:16:04,400 --> 00:16:06,080

I have a hot plate here.

189

00:16:06,080 --> 00:16:07,080

It's fairly warm.

190

00:16:07,080 --> 00:16:08,560

I'm going to spread it out.

191

00:16:08,560 --> 00:16:10,040

I'm going to spread it out.

192

00:16:10,040 --> 00:16:11,560

I'm going to spread it out.

193

00:16:11,560 --> 00:16:13,080

I'm going to spread it out.

194

00:16:13,360 --> 00:16:16,440

Every other one of these ■ome plates

195

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

ready to■aose pat forget the hot plate here.

196

00:16:19,440 --> 00:16:20,440

It's fairly warm,

197

00:16:20,440 --> 00:16:23,280

and I'm going to sprinkle a little water onto it

198

00:16:23,280 --> 00:16:25,140

and you see the drops—

199

00:16:25,140 --> 00:16:28,480

quickly spread out and evaporate.

200

00:16:28,480 --> 00:16:30,360

But if this plate is really hot,

201

00:16:30,360 --> 00:16:32,240

something quite different happens.

202

00:16:36,160 --> 00:16:39,800

Now the hot plate is really hot, almost glowing.

203

00:16:39,800 --> 00:16:42,240

I'm going to sprinkle some water up.

204

00:16:42,240 --> 00:16:45,880

forms a little bead and skitters around like a tiny hovercraft,

205

00:16:45,880 --> 00:16:47,380

floating on a cushion of steam,

206

00:16:47,380 --> 00:16:50,180

which protects it from the heat of the hot plate.

207

00:16:50,180 --> 00:16:52,380

And it could survive for many seconds,

208

00:16:52,380 --> 00:16:54,180

sometimes as long as a minute.

209

00:16:54,180 --> 00:16:56,460

This is called the Leidenfrost effect.

210

00:16:56,460 --> 00:17:00,460

An American scientist, Dr. Gerald Walker of Ohio,

211

00:17:00,460 --> 00:17:03,760

thinks that this explains the firework and phenomenon,

212

00:17:03,760 --> 00:17:06,460

and has put the matter to the test personally.

213

00:17:06,460 --> 00:17:09,100

I've got two layers of socks on my feet

214

00:17:09,220 --> 00:17:12,360

and some cellophane inside the socks.

215

00:17:12,360 --> 00:17:16,040

I'm trying to trap the sweat inside my feet,

216

00:17:16,040 --> 00:17:17,700

and I'm hoping that the sweat, boy,

217

00:17:17,700 --> 00:17:20,100

this whole area is really hot.

218

00:17:20,100 --> 00:17:23,780

I'm hoping that the sweat will do two things for me.

219

00:17:23,780 --> 00:17:26,440

Part of the sweat will help quench part of the coals

220

00:17:26,440 --> 00:17:29,220

that I touch when I walk across these hot coals,

221

00:17:29,220 --> 00:17:30,980

and I'll get a little bit of dead ash.

222

00:17:30,980 --> 00:17:33,360

And I hope some of the other sweat

223

00:17:33,360 --> 00:17:35,080

might give me some Leidenfrost effect,

224

00:17:35,080 --> 00:17:36,480

where I get a little bit of vapor layer

225

00:17:36,540 --> 00:17:39,000

between the hot coals and my skin.

226

00:17:40,500 --> 00:17:41,840

I'm gonna sit down.

227

00:17:41,840 --> 00:17:44,080

Even the chair is extremely hot.

228

00:17:44,080 --> 00:17:48,580

But I'm very quickly gonna take off my shoes and socks,

229

00:17:48,580 --> 00:17:51,820

and this piece of cellophane, and walk right across.

230

00:17:51,820 --> 00:17:52,980

I've gotta do it very quickly,

231

00:17:52,980 --> 00:17:55,920

so that the kind of a little breeze through the area

232

00:17:55,920 --> 00:17:58,060

doesn't evaporate all the sweat off my feet,

233

00:17:58,060 --> 00:18:00,360

before I have a chance to get across the coals.

234

00:18:00,360 --> 00:18:02,360

And boy, am I scared.

235

00:18:02,360 --> 00:18:05,260

I just hope that there's enough protection,

236

00:18:05,280 --> 00:18:09,960

Leidenfrost effect, and a little bit quenching of the fire

237

00:18:09,960 --> 00:18:11,560

to make this work.

238

00:18:11,560 --> 00:18:13,060

I'm gonna do this very quickly.

239

00:18:14,620 --> 00:18:17,400

Both layers, cellophane, and here we go.

240

00:18:22,640 --> 00:18:25,440

A little bit of heat in a few places,

241

00:18:25,440 --> 00:18:27,540

but no massive damage at all.

242

00:18:27,540 --> 00:18:30,720

Leidenfrost effect helped protect my feet,

243

00:18:30,720 --> 00:18:32,140

a little bit of vapor layer,

244

00:18:32,140 --> 00:18:35,080

and probably quenched a little bit of the fire

245

00:18:35,080 --> 00:18:36,500

as I went across.

246

00:18:36,500 --> 00:18:38,880

I don't have thick calluses to protect my feet,

247

00:18:38,880 --> 00:18:41,680

just a kind of tender little skin there,

248

00:18:41,680 --> 00:18:45,020

and those physics have protected my feet.

249

00:18:45,020 --> 00:18:47,520

But boy, howdy, don't do this for yourself,

250

00:18:47,520 --> 00:18:49,380

because this is extremely dangerous.

251

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

You can do massive damage to yourself,

252

00:18:51,620 --> 00:18:54,860

and it's just not worth that kind of damage to your feet.

253

00:18:54,860 --> 00:18:57,860

But that's the Leidenfrost effect in action.

254

00:19:00,360 --> 00:19:03,600

If wet feet are the key to fire walking,

255

00:19:03,600 --> 00:19:06,160

what about the sad case of Methodist minister,

256

00:19:06,160 --> 00:19:07,860

Erlich Robinson?

257

00:19:07,860 --> 00:19:10,600

Here in Sri Lanka, in 1952,

258

00:19:10,600 --> 00:19:12,640

he carefully soaked his feet,

259

00:19:12,640 --> 00:19:14,740

then jumped on the coals.

260

00:19:14,740 --> 00:19:16,600

He was badly burned.

261

00:19:16,600 --> 00:19:19,200

It was like animals tearing at my feet, he said.

262

00:19:21,180 --> 00:19:23,140

The state of the fire walker's feet

263

00:19:23,140 --> 00:19:25,320

may be part of the answer.

264

00:19:25,320 --> 00:19:27,220

Karl von Seker has been finding out

265

00:19:27,220 --> 00:19:29,280

how long they can withstand the heat

266

00:19:29,280 --> 00:19:30,820

from an electric light bulb.

267

00:19:34,600 --> 00:19:38,600

He's invented this apparatus to study their souls.

268

00:19:38,600 --> 00:19:42,600

I take the foot of the fire walker,

269

00:19:42,600 --> 00:19:45,600

and I place it,

270

00:19:45,600 --> 00:19:48,600

and switch the light on.

271

00:19:48,600 --> 00:19:51,600

Simultaneously, I start the stopwatch.

272

00:19:51,600 --> 00:19:53,600

I have good evidence,

273

00:19:53,600 --> 00:19:56,600

obtained mainly by using this apparatus,

274

00:19:56,600 --> 00:20:02,600

that rough, thick, cold,

275

00:20:03,600 --> 00:20:07,600

wet, and dirty souls

276

00:20:07,600 --> 00:20:11,600

are much more resistant to heat

277

00:20:11,600 --> 00:20:15,600

than souls with the opposite characteristics.

278

00:20:15,600 --> 00:20:19,600

He kept it for as long as 85 seconds.

279

00:20:19,600 --> 00:20:23,600

That is because he is a habitually unshot person,

280

00:20:23,600 --> 00:20:28,600

and his souls are quite thick.

281

00:20:28,600 --> 00:20:31,600

You have to feel them to actually believe

282

00:20:31,600 --> 00:20:33,600

how thick they are.

283

00:20:33,600 --> 00:20:35,600

A soft foot,

284

00:20:35,600 --> 00:20:41,600

this boy, he's 15 years old.

285

00:20:41,600 --> 00:20:43,600

He belongs to the younger generation,

286

00:20:43,600 --> 00:20:48,600

and so they are usually shod all the time,

287

00:20:48,600 --> 00:20:51,600

and the feet are quite soft.

288

00:20:51,600 --> 00:20:53,600

Keep his foot on,

289

00:20:53,600 --> 00:20:55,600

heat source,

290

00:20:55,600 --> 00:20:57,600

start this.

291

00:21:01,600 --> 00:21:03,600

Well, that was only five seconds.

292

00:21:03,600 --> 00:21:05,600

So if he does fire walking,

293

00:21:05,600 --> 00:21:10,600

he'll have to traverse the fire pretty fast.

294

00:21:10,600 --> 00:21:12,600

In West Germany,

295

00:21:12,600 --> 00:21:14,600

yet another theory is being tested.

296

00:21:14,600 --> 00:21:16,600

It springs from new discoveries

297

00:21:16,600 --> 00:21:19,600

about the workings of the brain.

298

00:21:19,600 --> 00:21:22,600

Oh, oh, oh, oh, now there's the other side.

299

00:21:22,600 --> 00:21:24,600

That was bad.

300

00:21:24,600 --> 00:21:26,600

That's great.

301

00:21:27,600 --> 00:21:31,600

The experimenters come from the University of Tübingen.

302

00:21:31,600 --> 00:21:36,600

All they get for their pains is a slice of apostrudel.

303

00:21:38,600 --> 00:21:40,600

The man in charge is an expert on pain,

304

00:21:40,600 --> 00:21:42,600

Dr. Wolfgang Labeck.

305

00:21:42,600 --> 00:21:45,600

He wired up an Indian fake ear to an EEG machine

306

00:21:45,600 --> 00:21:47,600

to study his brain waves,

307

00:21:47,600 --> 00:21:50,600

transfixed by spikes through chest, throat and tongue.

308

00:21:50,600 --> 00:21:53,600

He produced special slow waves called theta rhythms,

309

00:21:53,600 --> 00:21:55,600

usually found only in deep sleep.

310

00:21:55,600 --> 00:21:59,600

So can fake ears put their brains to sleep to kill pain,

311

00:21:59,600 --> 00:22:02,600

and can fire walkers do the same?

312

00:22:02,600 --> 00:22:05,600

Now we will see a view as an untrained person

313

00:22:05,600 --> 00:22:07,600

will develop the same rhythms,

314

00:22:07,600 --> 00:22:10,600

which are connected with not feeling pain,

315

00:22:10,600 --> 00:22:16,600

because I have the theory that these slowing of the EEG

316

00:22:16,600 --> 00:22:20,600

will mean that the pain perception would be reduced.

317

00:22:20,600 --> 00:22:23,600

Dr. Miltener is wired up to the EEG,

318

00:22:23,600 --> 00:22:25,600

and when he walks on the fire,

319

00:22:25,600 --> 00:22:29,600

any theta rhythms will be recorded via his radio transmitter.

320

00:22:29,600 --> 00:22:34,600

I hope I can control the pain impulses,

321

00:22:34,600 --> 00:22:38,600

and the heat impulses I will show you.

322

00:22:38,600 --> 00:22:40,600

I will show you.

323

00:22:40,600 --> 00:22:42,600

Ah.

324

00:23:05,600 --> 00:23:08,600

Next morning, at his lab in the University of Tübingen,

325

00:23:08,600 --> 00:23:13,600

Dr. Labeck analyses the recordings, searching for theta rhythms.

326

00:23:16,600 --> 00:23:19,600

Let us see if we can find some theta rhythm.

327

00:23:21,600 --> 00:23:24,600

Here is the developing theta rhythm,

328

00:23:24,600 --> 00:23:26,600

is mixed up with alpha,

329

00:23:26,600 --> 00:23:29,600

but it's the beginning, theta activity.

330

00:23:30,600 --> 00:23:33,600

So what we have learned from our experiment last day

331

00:23:33,600 --> 00:23:38,600

is that they are even untrained person can develop theta rhythm

332

00:23:38,600 --> 00:23:43,600

so that they can switch off their pain perception in fire walking.

333

00:23:47,600 --> 00:23:50,600

In Colombo, the fire is ready at last.

334

00:23:56,600 --> 00:23:59,600

But first, to show they have no supernatural protection,

335

00:23:59,600 --> 00:24:02,600

the walkers deliberately flaunt local religious laws,

336

00:24:02,600 --> 00:24:05,600

downing liquor and chewing pork.

337

00:24:13,600 --> 00:24:17,600

Instead, they have learned to put their faith in science.

338

00:24:17,600 --> 00:24:19,600

They accept that a combination of factors

339

00:24:19,600 --> 00:24:22,600

will take them safely through the fire.

340

00:24:25,600 --> 00:24:27,600

Right.

341

00:24:27,600 --> 00:24:29,600

Speed across the coals,

342

00:24:29,600 --> 00:24:31,600

the rough skin on the soles of their feet,

343

00:24:31,600 --> 00:24:36,600

sweat and the mysterious theta rhythms that seem to banish pain.

344

00:24:39,600 --> 00:24:42,600

Even the professor practices what he preaches.

345

00:24:42,600 --> 00:24:44,600

Hello.

346

00:24:57,600 --> 00:25:00,600

I don't pretend we have all the answers,

347

00:25:00,600 --> 00:25:02,600

but I'm sure we have most of them.

348

00:25:02,600 --> 00:25:05,600

There's nothing supernatural involved in fire walking.

349

00:25:06,600 --> 00:25:09,600

Well, if I'm such an authority on fire walking,

350

00:25:09,600 --> 00:25:11,600

am I good to try it myself?

351

00:25:11,600 --> 00:25:14,600

In the immortal words of Eliza Dutton,

352

00:25:14,600 --> 00:25:16,600

not likely.

353

00:25:16,600 --> 00:25:19,600

I'm content to leave it to the real experts,

354

00:25:19,600 --> 00:25:21,600

and so should you.

355

00:25:35,600 --> 00:25:38,600

Next week, Messages From the Dead.

356

00:26:05,600 --> 00:26:08,600

You