



1
00:00:00,133 --> 00:00:01,735
>> HOUSTON ON TWO.

2
00:00:01,735 --> 00:00:03,036
NO RESPONSE REQUIRED, THIS IS

3
00:00:03,036 --> 00:01:34,527
YOUR TWO-MINUTE WARNING.

4
00:01:34,527 --> 00:01:36,129
>> WE ARE READY TO BEGIN WHEN

5
00:01:36,129 --> 00:01:41,267
YOU ARE.

6
00:01:41,267 --> 00:01:46,406
>> READY TO GO.

7
00:01:46,406 --> 00:01:54,047
>> READY TO GO ON TWO.

8
00:01:54,047 --> 00:01:54,948
>> MASSACHUSETTS INSTITUTE OF

9
00:01:54,948 --> 00:01:56,683
TECHNOLOGY, THIS IS MISSION

10
00:01:56,683 --> 00:01:57,784
CONTROL HOUSTON.

11
00:01:57,784 --> 00:02:00,220
PLEASE CALL STATION FOR A VOICE

12
00:02:00,220 --> 00:02:03,523
CHECK.

13
00:02:03,523 --> 00:02:05,825

>> STATION THIS IS DEPARTMENT OF

14
00:02:05,825 --> 00:02:11,664
AERONAUTICS AND ASTRONAUTICS AT

15
00:02:11,664 --> 00:02:13,099
M.I.T. HERE WITH OUR STUDENTS.

16
00:02:13,099 --> 00:02:18,938
ARE YOU READY?

17
00:02:18,938 --> 00:02:20,840
>> OH, YEAH, JOYCE, I AM READY.

18
00:02:20,840 --> 00:02:21,741
[APPLAUSE]

19
00:02:21,741 --> 00:02:23,676
>> JACK, I -- I AM REALLY

20
00:02:23,676 --> 00:02:24,377
SPEECHLESS.

21
00:02:24,377 --> 00:02:27,080
PERSONALLY I AM SO THRILLED FOR

22
00:02:27,080 --> 00:02:32,552
YOU I AM SO HAPPY FOR OUR

23
00:02:32,552 --> 00:02:34,087
STUDENT HERE, I HAVE BEEN

24
00:02:34,087 --> 00:02:35,288
SMILING EVER SINCE YOU GOT THE

25
00:02:35,288 --> 00:02:35,522
MISSION.

26

00:02:35,522 --> 00:02:40,493
EVER SINCE YOU LAUNCHED.

27

00:02:40,493 --> 00:02:41,928
YOU DESERVE ALL THE BEST THINGS

28

00:02:41,928 --> 00:02:42,428
IN THE WORLD.

29

00:02:42,428 --> 00:02:43,997
YOU ARE A SPECIAL PERSON.

30

00:02:43,997 --> 00:02:45,131
THAT'S WHAT HAPPENS TO M.I.T.

31

00:02:45,131 --> 00:02:45,765
STUDENTS.

32

00:02:45,765 --> 00:02:46,165
THEY ARE SPECIAL.

33

00:02:46,165 --> 00:02:53,206
AND JACK IS ONE OF OUR BEST AND

34

00:02:53,206 --> 00:02:55,108
I CAN JUST GO ON AND ON BUT I'LL

35

00:02:55,108 --> 00:02:56,809
SAVE THAT FOR LATER ONCE YOU GET

36

00:02:56,809 --> 00:03:00,046
BACK OVER DRINKS.

37

00:03:00,046 --> 00:03:04,984
>> I'LL PAY YOU WHEN I GET HOME.

38

00:03:04,984 --> 00:03:08,788

>> KIDS, THE QUESTIONERS, YO,

39

00:03:08,788 --> 00:03:10,023

FOLKS, MY PEOPLE, MY PEOPLE.

40

00:03:10,023 --> 00:03:19,465

I WILL TURNOVER TO YOU.

41

00:03:19,465 --> 00:03:21,167

>> HI, JACK, MY NAME IS BRAD, I

42

00:03:21,167 --> 00:03:22,869

AM A FIRST YEAR GRAD STUDENT

43

00:03:22,869 --> 00:03:24,003

HERE AT M.I.T. IN THE LEADER

44

00:03:24,003 --> 00:03:25,605

CIRCLE OF OPERATIONS PROGRAM.

45

00:03:25,605 --> 00:03:28,141

MY QUESTION IS NASA HAS BEEN

46

00:03:28,141 --> 00:03:29,976

SPENDING ASTRONAUTS TO SPACE FOR

47

00:03:29,976 --> 00:03:35,014

OVER HALF OF A CENTURY AND

48

00:03:35,014 --> 00:03:36,616

TRAINING HAS CONTINUED TO EVOLVE

49

00:03:36,616 --> 00:03:37,917

OVER THE YEARS AND WHAT WAS THE

50

00:03:37,917 --> 00:03:39,652

MOST SURPRISING THING TO YOU

51
00:03:39,652 --> 00:03:45,091
WHEN YOU FIRST ARRIVED IN SPACE?

52
00:03:45,091 --> 00:03:47,493
>> WELL, YOU KNOW, NO MATTER HOW

53
00:03:47,493 --> 00:03:49,529
MUCH TRAINING YOU HAVE IT JUST

54
00:03:49,529 --> 00:03:52,432
CAN'T PREPARE YOU FOR HOW

55
00:03:52,432 --> 00:03:54,167
AWESOME IT IS UP HERE.

56
00:03:54,167 --> 00:03:56,169
ONE OF MY COLLEAGUES SAID THAT I

57
00:03:56,169 --> 00:03:57,971
WAS LIKE A SMART LITTLE

58
00:03:57,971 --> 00:03:59,806
12-YEAR-OLD IN THE MIDDLE OF

59
00:03:59,806 --> 00:04:01,507
DISNEYLAND AFTER TWO SHOTS OF

60
00:04:01,507 --> 00:04:03,209
ESPRESSO.

61
00:04:03,209 --> 00:04:04,811
I AM JUST SO EXCITED.

62
00:04:04,811 --> 00:04:07,146
YOU KNOW, EIGHT MINUTES AFTER

63
00:04:07,146 --> 00:04:08,848

LIGHTING THE MOTOR, I LOOK OUT

64

00:04:08,848 --> 00:04:11,284

THE WINDOW AND I SEE, YOU KNOW

65

00:04:11,284 --> 00:04:13,586

WHAT I HAVE ONLY SEEN IN

66

00:04:13,586 --> 00:04:14,487

PICTURES.

67

00:04:14,487 --> 00:04:16,422

AND YOU JUST CAN'T GET IT FROM A

68

00:04:16,422 --> 00:04:16,823

PICTURE.

69

00:04:16,823 --> 00:04:18,524

YOU HAVE TO EXPERIENCE.

70

00:04:18,524 --> 00:04:20,126

BECAUSE THERE IS ALMOST A SOUL

71

00:04:20,126 --> 00:04:20,827

TO IT.

72

00:04:20,827 --> 00:04:22,161

AND THE REALITY IS JUST SO

73

00:04:22,161 --> 00:04:23,062

AMAZING.

74

00:04:23,062 --> 00:04:25,064

AND THEN WHEN YOU ARE HERE, AND

75

00:04:25,064 --> 00:04:27,400

I KNOW EVERYBODY THERE CAN

76
00:04:27,400 --> 00:04:29,936
RELATE TO THIS, WHEN YOU FIND A

77
00:04:29,936 --> 00:04:33,673
NEW WAY TO LOOK AT A PROBLEM, IT

78
00:04:33,673 --> 00:04:35,074
MAKES YOUR MIND GROW.

79
00:04:35,074 --> 00:04:38,511
AND THIS STATION, EVERY DAY, MY

80
00:04:38,511 --> 00:04:39,712
MIND IS GROWING.

81
00:04:39,712 --> 00:04:42,115
AND THINKING IN THREE DIMENSIONS

82
00:04:42,115 --> 00:04:45,752
AND IT IS -- IT'S AN INCREDIBLE

83
00:04:45,752 --> 00:04:47,153
EXPERIENCE THAT I THINK MAKES

84
00:04:47,153 --> 00:04:48,087
YOU BETTER.

85
00:04:48,087 --> 00:04:52,091
AND THAT'S WHY I REALLY, REALLY

86
00:04:52,091 --> 00:04:54,193
FEEL THAT WE SHOULD EXPLORE

87
00:04:54,193 --> 00:04:54,694
MORE.

88
00:04:54,694 --> 00:04:56,029

AND THAT WE SHOULD GET MORE

89

00:04:56,029 --> 00:04:57,630

PEOPLE INVOLVED IN THIS BECAUSE

90

00:04:57,630 --> 00:04:58,831

NO MATTER HOW MUCH TRAINING YOU

91

00:04:58,831 --> 00:05:01,567

HAVE, TO EXPERIENCE THIS AND TO

92

00:05:01,567 --> 00:05:04,871

HAVE THIS REGENESIS OF

93

00:05:04,871 --> 00:05:07,206

EXCITEMENT AND WANTING TO

94

00:05:07,206 --> 00:05:09,308

EXPLORE IS SOMETHING THAT WE

95

00:05:09,308 --> 00:05:10,710

JUST CAN'T CAPTURE ANY OTHER

96

00:05:10,710 --> 00:05:15,982

WAY.

97

00:05:15,982 --> 00:05:17,283

>> HI, JACK, MY NAME IS

98

00:05:17,283 --> 00:05:19,085

CHRISTINE CHAPPELLE AND I AM

99

00:05:19,085 --> 00:05:20,420

CURRENTLY A SOPHOMORE IN THE

100

00:05:20,420 --> 00:05:22,922

DEPARTMENT OF AERO ASTRO.

101
00:05:22,922 --> 00:05:24,323
I WAS WONDERING BEFORE YOU

102
00:05:24,323 --> 00:05:26,559
LAUNCHED WHAT DID YOU THINK THE

103
00:05:26,559 --> 00:05:27,960
MOST IMPORTANT PART OF YOUR

104
00:05:27,960 --> 00:05:28,661
TRAINING IS?

105
00:05:28,661 --> 00:05:29,896
AND NOW THAT YOU ARE UP THERE

106
00:05:29,896 --> 00:05:31,531
HAS THAT ANSWERED CHANGED?

107
00:05:31,531 --> 00:05:33,633
>> WELL, YOU KNOW, IT PROBABLY

108
00:05:33,633 --> 00:05:35,735
HASN'T BECAUSE EMERGENCY

109
00:05:35,735 --> 00:05:37,470
TRAINING IS KIND OF THE MOST

110
00:05:37,470 --> 00:05:37,870
IMPORTANT.

111
00:05:37,870 --> 00:05:40,273
WE HAVE TO KNOW THAT STUFF COLD

112
00:05:40,273 --> 00:05:42,709
SO THAT WE CAN JUST DO IT IN AN

113
00:05:42,709 --> 00:05:43,209

EMERGENCY.

114

00:05:43,209 --> 00:05:44,911

YOU KNOW, YOU HAVE A FIRE

115

00:05:44,911 --> 00:05:45,912

DEPRESS OR SOMETHING LIKE THAT,

116

00:05:45,912 --> 00:05:47,847

YOU CAN'T REALLY SIT THERE AND

117

00:05:47,847 --> 00:05:48,648

TALK ABOUT IT.

118

00:05:48,648 --> 00:05:50,783

SO THAT IS THE MOST IMPORTANT.

119

00:05:50,783 --> 00:05:52,385

IT'S WHAT WE SPEND THE MOST TIME

120

00:05:52,385 --> 00:05:52,685

ON.

121

00:05:52,685 --> 00:05:55,088

AND IT IS RIGHTLY SO.

122

00:05:55,088 --> 00:05:57,423

THE OTHER STUFF, OUR TRAINERS IN

123

00:05:57,423 --> 00:06:00,460

HOUSTON -- WELL, ALL AROUND THE

124

00:06:00,460 --> 00:06:02,462

WORLD FROM RUSSIA TO JAPAN TO

125

00:06:02,462 --> 00:06:05,398

GERMANY, TO HOUSTON, EVERYWHERE,

126
00:06:05,398 --> 00:06:07,800
CANADA, THEY DO A GREAT JOB OF

127
00:06:07,800 --> 00:06:09,302
GETTING US READY.

128
00:06:09,302 --> 00:06:11,337
GIVING US THE SKILLS WE NEED.

129
00:06:11,337 --> 00:06:12,739
WE ARE KIND OF JACKS OF ALL

130
00:06:12,739 --> 00:06:14,140
TRADE, MASTER OF NONE.

131
00:06:14,140 --> 00:06:16,576
SO WE NEED TO JUST BE ABLE TO

132
00:06:16,576 --> 00:06:17,877
LOOK AT A PROBLEM, HAVE THE

133
00:06:17,877 --> 00:06:20,313
GENERAL SKILLS TO FIGURE IT OUT

134
00:06:20,313 --> 00:06:21,714
AND DO IT AND THEY DO A REALLY

135
00:06:21,714 --> 00:06:22,915
GOOD JOB OF TRAINING US TO DO

136
00:06:22,915 --> 00:06:25,918
THAT.

137
00:06:25,918 --> 00:06:27,353
THE OTHER STUFF YOU PICK UP FROM

138
00:06:27,353 --> 00:06:28,654

YOUR CREW MEMBERS WHO HAVE BEEN

139

00:06:28,654 --> 00:06:28,955
HERE.

140

00:06:28,955 --> 00:06:30,890
AND I AM SUPER LUCKY, I HAVE

141

00:06:30,890 --> 00:06:33,426
PEGGY, DR. WHITSON WHO HAS MORE

142

00:06:33,426 --> 00:06:34,627
TIME ON SPACE THAN ANY U.S.

143

00:06:34,627 --> 00:06:35,528
ASTRONAUT.

144

00:06:35,528 --> 00:06:39,065
AND PETER HAS EVEN MORE, THIS IS

145

00:06:39,065 --> 00:06:41,067
HIS FIFTH SPACE FLIGHT.

146

00:06:41,067 --> 00:06:43,002
SO TWO VERY EXPERIENCED GUYS,

147

00:06:43,002 --> 00:06:46,839
PLUS THOMAS, AND OLEG NOVITSKIY,

148

00:06:46,839 --> 00:06:47,640
ARE JUST GREAT.

149

00:06:47,640 --> 00:06:49,842
SO THEY TEACH ME EVERYTHING ELSE

150

00:06:49,842 --> 00:06:50,977
I NEED TO KNOW.

151
00:06:50,977 --> 00:06:55,081
I THINK, EMERGENCY, YES, MOST

152
00:06:55,081 --> 00:06:55,581
IMPORTANT.

153
00:06:55,581 --> 00:06:56,783
AND THEY DID A GOOD JOB OF IT.

154
00:06:56,783 --> 00:06:59,719
EVERYTHING ELSE WE HAVE LEARNED

155
00:06:59,719 --> 00:07:10,196
THE SKILLS OR GET IT UP HERE.

156
00:07:10,196 --> 00:07:10,897
>> [INAUDIBLE] CERTAINLY

157
00:07:10,897 --> 00:07:11,597
FISHER.

158
00:07:11,597 --> 00:07:13,099
IT'S REFRESHING TO SEE THE

159
00:07:13,099 --> 00:07:14,500
SCIENTIFIC COMMUNITIES OF THE

160
00:07:14,500 --> 00:07:15,635
U.S. AND RUSSIA WORKING SO

161
00:07:15,635 --> 00:07:18,838
CLOSELY TO MAINTAIN MANNED SPACE

162
00:07:18,838 --> 00:07:21,574
FLIGHT AT A TIME WHEN ATTENTIONS

163
00:07:21,574 --> 00:07:22,875

BETWEEN THE COUNTRIES ARE SO

164

00:07:22,875 --> 00:07:23,676

HEIGHTENED.

165

00:07:23,676 --> 00:07:25,311

WHAT WOULD YOU IDENTIFY AS SOME

166

00:07:25,311 --> 00:07:27,713

UNEXPECTED COMMONALITIES AND

167

00:07:27,713 --> 00:07:28,815

DIFFERENCES YOU HAVE FOUND

168

00:07:28,815 --> 00:07:35,488

BETWEEN YOURSELF AND SAY FYODOR

169

00:07:35,488 --> 00:07:36,422

AND OLEG?

170

00:07:36,422 --> 00:07:37,723

>> YOU DIDN'T SAY YOUR NAME, BUT

171

00:07:37,723 --> 00:07:38,825

YOU SHOULD HAVE, BECAUSE I THINK

172

00:07:38,825 --> 00:07:39,725

THAT'S JOHN.

173

00:07:39,725 --> 00:07:41,661

AND I HAVE KNOWN JOHN A WHILE.

174

00:07:41,661 --> 00:07:43,663

I ACTUALLY WORKED FOR HIS DAD

175

00:07:43,663 --> 00:07:44,964

DOWN IN EGGLAND.

176

00:07:44,964 --> 00:07:47,667

SO HELLO, JOHN GRAHAM.

177

00:07:47,667 --> 00:07:51,304

>> HELLO, CERTAINLY FISHER.

178

00:07:51,304 --> 00:07:53,940

>> YES, I THINK THAT -- I THINK

179

00:07:53,940 --> 00:07:55,741

THAT THE INTERNATIONAL SPACE

180

00:07:55,741 --> 00:07:57,376

STATION IS THE GREATEST EXAMPLE

181

00:07:57,376 --> 00:07:58,878

OF INTERNATIONAL COOPERATION IN

182

00:07:58,878 --> 00:08:01,280

THE HISTORY OF HUMANITY.

183

00:08:01,280 --> 00:08:01,981

BAR NONE.

184

00:08:01,981 --> 00:08:03,516

WE HAD 15 COUNTRIES COME

185

00:08:03,516 --> 00:08:09,021

TOGETHER AND MAKE AN AMAZING

186

00:08:09,021 --> 00:08:10,256

INTERNATIONAL LABORATORY.

187

00:08:10,256 --> 00:08:11,157

EVERY DAY WE ARE WORKING

188

00:08:11,157 --> 00:08:11,424

TOGETHER.

189

00:08:11,424 --> 00:08:13,159

WE JUST HAD AN EMERGENCY

190

00:08:13,159 --> 00:08:14,694

PROCEDURES DRILL THAT HAD PEOPLE

191

00:08:14,694 --> 00:08:17,797

ON ALL SORTS OF CONTINUE THENS

192

00:08:17,797 --> 00:08:19,899

ALL AROUND THE WORLD WORKING

193

00:08:19,899 --> 00:08:20,600

TOGETHER WITH US.

194

00:08:20,600 --> 00:08:22,134

YOU KNOW, IT'S JUST AMAZING.

195

00:08:22,134 --> 00:08:22,735

AND IT'S EVERY DAY.

196

00:08:22,735 --> 00:08:27,974

AND BEING ABLE TO SHOW THE WORLD

197

00:08:27,974 --> 00:08:29,742

AND SERVE AS AN EXAMPLE OF WHAT

198

00:08:29,742 --> 00:08:30,843

YOU CAN DO WHEN YOU WORK

199

00:08:30,843 --> 00:08:32,745

TOGETHER IS REALLY IMPORTANT TO

200

00:08:32,745 --> 00:08:34,547

US.

201
00:08:34,547 --> 00:08:36,782
FYODOR AND I HAVE AN UNOFFICIAL

202
00:08:36,782 --> 00:08:39,085
EMBLEM FOR OUR MISSION THAT'S

203
00:08:39,085 --> 00:08:42,521
MODELED AFTER APOLLO

204
00:08:42,521 --> 00:08:43,823
[INAUDIBLE] AND LOOKS JUST

205
00:08:43,823 --> 00:08:46,459
LIKE THE APOLLO MATCH.

206
00:08:46,459 --> 00:08:47,760
BUT THE SAYING IS [SPEAKING

207
00:08:47,760 --> 00:08:49,061
FOREIGN LANGUAGE] SO ONE TEAM.

208
00:08:49,061 --> 00:08:50,963
IT'S ONE TEAM WORKING TOGETHER

209
00:08:50,963 --> 00:08:53,499
TO ACCOMPLISH GREAT THINGS.

210
00:08:53,499 --> 00:08:55,801
YOU KNOW, AS FAR AS DIFFERENCES

211
00:08:55,801 --> 00:08:57,536
AND SIMILARITIES, THE

212
00:08:57,536 --> 00:08:59,338
SIMILARITIES ARE THE IMPORTANT

213
00:08:59,338 --> 00:08:59,739

THINGS.

214

00:08:59,739 --> 00:09:04,377

SO HARD WORK, INTEGRITY, A

215

00:09:04,377 --> 00:09:05,378

DESIRE TO EXPLORE.

216

00:09:05,378 --> 00:09:06,178

WE ALL HAVE THAT.

217

00:09:06,178 --> 00:09:07,613

OR WE WOULDN'T BE HERE.

218

00:09:07,613 --> 00:09:10,516

AND THE OTHER STUFF, IT'S JUST

219

00:09:10,516 --> 00:09:12,151

NOT THAT IMPORTANT TO OUR SHARED

220

00:09:12,151 --> 00:09:12,752

FUTURE.

221

00:09:12,752 --> 00:09:14,453

SO WE FOCUS ON WHAT WE HAVE IN

222

00:09:14,453 --> 00:09:15,454

COMMON.

223

00:09:15,454 --> 00:09:17,790

WE RESPECT OUR -- EACH OTHER'S

224

00:09:17,790 --> 00:09:19,191

CULTURES AND TRY TO DIVE IN TO

225

00:09:19,191 --> 00:09:21,527

THAT AND GET TO KNOW AND

226
00:09:21,527 --> 00:09:22,828
APPRECIATE THE GOODNESS THAT

227
00:09:22,828 --> 00:09:24,130
EVERYONE BRINGS.

228
00:09:24,130 --> 00:09:26,532
BUT WHEN IT COMES DOWN TO IT,

229
00:09:26,532 --> 00:09:28,067
THE MOST IMPORTANT STUFF WE

230
00:09:28,067 --> 00:09:30,202
SHARE, THOSE MORALS AND VALUES

231
00:09:30,202 --> 00:09:33,439
AND WE CAN LEVERAGE THAT TO WORK

232
00:09:33,439 --> 00:09:38,678
TOGETHER AND DO GREAT THINGS.

233
00:09:38,678 --> 00:09:40,279
>> THANK YOU, SIR, SORRY FOR

234
00:09:40,279 --> 00:09:41,580
SCREWING UP RULE NUMBER ONE OF

235
00:09:41,580 --> 00:09:44,216
AIR FORCE BRIEFINGS.

236
00:09:44,216 --> 00:09:45,518
>> HI, JACK, MY NAME IS PIPER, I

237
00:09:45,518 --> 00:09:47,653
AM A JUNIOR IN THE AEROSPACE

238
00:09:47,653 --> 00:09:48,354

DEPARTMENT HERE.

239

00:09:48,354 --> 00:09:51,157

AND IN HIGH SCHOOL MY SENIOR

240

00:09:51,157 --> 00:09:52,258

YEAR I HAD THE REMARKABLE

241

00:09:52,258 --> 00:09:53,059

OPPORTUNITY TO MEET AND TALK

242

00:09:53,059 --> 00:09:55,094

WITH SOME ASTRONAUTS AND HELPED

243

00:09:55,094 --> 00:09:57,496

ME REALIZE MY OWN CALLING TO BE

244

00:09:57,496 --> 00:09:59,532

AN ENGINEER AND CHOOSE TO STUDY

245

00:09:59,532 --> 00:10:01,033

AT M.I.T., I AM CURIOUS WHAT DO

246

00:10:01,033 --> 00:10:02,335

YOU THINK WE CAN DO TO CONTINUE

247

00:10:02,335 --> 00:10:03,369

INSPIRING YOUNG PEOPLE ABOUT

248

00:10:03,369 --> 00:10:06,072

AEROSPACE AND ENGAGE THEM IN

249

00:10:06,072 --> 00:10:08,374

SPACE EXPLORATION?

250

00:10:08,374 --> 00:10:11,310

>> YOU KNOW, THE ANSWER IS ALL

251
00:10:11,310 --> 00:10:13,612
OF US NEED TO DO IT.

252
00:10:13,612 --> 00:10:15,748
YOU KNOW, A LOT OF TIMES WE ARE

253
00:10:15,748 --> 00:10:17,850
LIKE, OH, WELL, NASA SHOULD HAVE

254
00:10:17,850 --> 00:10:20,987
THIS PROGRAM OR THIS EDUCATION

255
00:10:20,987 --> 00:10:22,288
OUT REACH, YEAH, WE SHOULD.

256
00:10:22,288 --> 00:10:24,190
BUT IT'S ON ALL OF US.

257
00:10:24,190 --> 00:10:26,926
YOU, MEAN, PEOPLE AT NASA,

258
00:10:26,926 --> 00:10:30,596
PEOPLE AT M.I.T., WE NEED TO

259
00:10:30,596 --> 00:10:32,398
INSPIRE THOSE WHO FOLLOW US.

260
00:10:32,398 --> 00:10:34,133
WHEN I WAS AT M.I.T., YOU KNOW,

261
00:10:34,133 --> 00:10:37,236
I WAS HELPING WITH THE ROSSI

262
00:10:37,236 --> 00:10:39,038
DETACHMENT AND GOING DOWN TO A

263
00:10:39,038 --> 00:10:40,473

LOCAL ELEMENTARY SCHOOL AND

264

00:10:40,473 --> 00:10:41,874

EVERY NOW AND AGAIN TEACHING A

265

00:10:41,874 --> 00:10:43,576

SCIENCE LESSON IT, DOESN'T SOUND

266

00:10:43,576 --> 00:10:44,810

LIKE MUCH, BUT YOU NEVER KNOW

267

00:10:44,810 --> 00:10:47,213

WHAT THAT SEED IS, THAT'S GOING

268

00:10:47,213 --> 00:10:48,247

TO IGNITE?

269

00:10:48,247 --> 00:10:49,448

SOMEONE JUST LIKE IT DID FOR

270

00:10:49,448 --> 00:10:50,149

YOU.

271

00:10:50,149 --> 00:10:54,153

SO TAKE YOUR PASSION, YOU PEOPLE

272

00:10:54,153 --> 00:10:57,289

AT M.I.T., I GUARANTEE, ARE

273

00:10:57,289 --> 00:10:58,391

SUPER PASSIONATE ABOUT WHAT YOU

274

00:10:58,391 --> 00:10:59,291

ARE DOING.

275

00:10:59,291 --> 00:11:01,227

YOU LOVE -- YOU LOVE THE

276

00:11:01,227 --> 00:11:03,429

SCIENTISTS, YOU LIVE IT.

277

00:11:03,429 --> 00:11:04,930

SO SPREAD THAT.

278

00:11:04,930 --> 00:11:05,965

TAKE WHAT YOU HAVE AND SPREAD

279

00:11:05,965 --> 00:11:06,665

IT.

280

00:11:06,665 --> 00:11:08,968

WE ARE AT PROBABLY THE MOST

281

00:11:08,968 --> 00:11:10,069

EXCITING TIME IN SPACE

282

00:11:10,069 --> 00:11:12,571

EXPLORATION IN MY LIFETIME FOR

283

00:11:12,571 --> 00:11:14,306

SURE, BECAUSE THERE IS SO MUCH

284

00:11:14,306 --> 00:11:15,207

GOING ON.

285

00:11:15,207 --> 00:11:17,309

WE GOT THIS SWEET, SWEET

286

00:11:17,309 --> 00:11:20,646

STATION, WE HAVE COMMERCIAL CREW

287

00:11:20,646 --> 00:11:21,847

COMING ONLINE, WE ARE BUILDING

288

00:11:21,847 --> 00:11:23,382

THE BIGGEST ROCKET IN THE

289

00:11:23,382 --> 00:11:25,184

HISTORY OF MANKIND.

290

00:11:25,184 --> 00:11:28,087

WE ARE DOING ALL SORTS OF THINGS

291

00:11:28,087 --> 00:11:30,022

AND IT'S GAINING MOMENTUM.

292

00:11:30,022 --> 00:11:30,923

WE ARE BUILDING AN

293

00:11:30,923 --> 00:11:32,124

INFRASTRUCTURE THAT WE CAN

294

00:11:32,124 --> 00:11:33,826

REALLY LAUNCH OFF OF.

295

00:11:33,826 --> 00:11:34,960

THERE IS PROBABLY SOMEBODY IN

296

00:11:34,960 --> 00:11:37,163

THAT ROOM WHO IS GOING TO WALK

297

00:11:37,163 --> 00:11:37,963

ON MARS.

298

00:11:37,963 --> 00:11:40,800

I GUARANTEE THERE IS PLENTY OF

299

00:11:40,800 --> 00:11:42,701

PEOPLE IN THAT ROOM THAT WILL

300

00:11:42,701 --> 00:11:43,102

CONTRIBUTE TO IT.

301
00:11:43,102 --> 00:11:46,739
TAKE WHAT YOU HAVE AND SPREAD IT

302
00:11:46,739 --> 00:11:47,440
BEHIND YOU.

303
00:11:47,440 --> 00:11:52,778
WE ALL NEED TO TAKE A PART IN

304
00:11:52,778 --> 00:11:53,179
THAT.

305
00:11:53,179 --> 00:11:54,914
ANY FORM OF MEDIA THAT YOU HAVE,

306
00:11:54,914 --> 00:11:56,515
TWITTER, SNAP CHAT, WHATEVER,

307
00:11:56,515 --> 00:11:57,116
SPREAD IT.

308
00:11:57,116 --> 00:11:59,118
SPREAD THE GOSPEL OF SPACE

309
00:11:59,118 --> 00:12:00,719
FLIGHT.

310
00:12:00,719 --> 00:12:12,098
>> THANK YOU.

311
00:12:12,098 --> 00:12:14,033
>> HI, JACK, MY NAME IS MARTINA

312
00:12:14,033 --> 00:12:15,634
AND I AM A JUNIOR HERE.

313
00:12:15,634 --> 00:12:16,936

I WAS WONDERING, WHAT ARE YOUR

314

00:12:16,936 --> 00:12:18,437

INTERACTIONS WITH THE REST OF

315

00:12:18,437 --> 00:12:21,774

YOUR ASTRONAUTS LIKE IN TERMS OF

316

00:12:21,774 --> 00:12:22,274

SENIORITY?

317

00:12:22,274 --> 00:12:24,477

IS THERE A HIERARCHY?

318

00:12:24,477 --> 00:12:25,611

ALSO, WHAT PERCENTAGE OF YOUR

319

00:12:25,611 --> 00:12:28,414

TASKS ARE INDIVIDUAL VERSUS

320

00:12:28,414 --> 00:12:35,287

COLLABORATIVE?

321

00:12:35,287 --> 00:12:36,288

>> THAT'S A GREAT QUESTION.

322

00:12:36,288 --> 00:12:37,923

IT'S NOT QUITE AS REGIMENTED AS

323

00:12:37,923 --> 00:12:39,225

WHAT I WAS USED TO IN THE

324

00:12:39,225 --> 00:12:40,826

MILITARY BUT IT CERTAINLY IS.

325

00:12:40,826 --> 00:12:42,161

ESPECIALLY IN -- WE MENTIONED

326

00:12:42,161 --> 00:12:44,063

EMERGENCY SITUATIONS.

327

00:12:44,063 --> 00:12:45,164

PEGGY IS OUR COMMANDER RIGHT

328

00:12:45,164 --> 00:12:46,065

NOW.

329

00:12:46,065 --> 00:12:46,999

SHE IS THE BOSS.

330

00:12:46,999 --> 00:12:49,101

SO IN THOSE EMERGENCY

331

00:12:49,101 --> 00:12:50,402

SITUATIONS, WE NEED TO FOLLOW

332

00:12:50,402 --> 00:12:52,738

WHAT SHE IS DIRECTING US TO DO

333

00:12:52,738 --> 00:12:54,340

BECAUSE THERE IS NOT TIME FOR A

334

00:12:54,340 --> 00:12:55,040

DEMOCRACY.

335

00:12:55,040 --> 00:12:57,576

YOU JUST GOTTA GET IT DONE.

336

00:12:57,576 --> 00:12:59,879

HERE IN A MONTH OR TWO, FYODOR

337

00:12:59,879 --> 00:13:01,080

WILL TAKE OVER AND HE WILL BE

338

00:13:01,080 --> 00:13:02,515

THE COMMANDER AND IT'S THE SAME

339

00:13:02,515 --> 00:13:04,016

THING, AND OBVIOUSLY THEY HAVE

340

00:13:04,016 --> 00:13:05,317

SO MUCH EXPERIENCE THAT JUST

341

00:13:05,317 --> 00:13:07,052

MAKES SENSE.

342

00:13:07,052 --> 00:13:10,055

OTHER THAN THAT, WE ARE SUCH A

343

00:13:10,055 --> 00:13:14,393

SMALL CREW AND WE, IN THE USO

344

00:13:14,393 --> 00:13:15,694

SECTION THE THREE OF US ARE

345

00:13:15,694 --> 00:13:16,729

TOGETHER MOST OF THE DAY.

346

00:13:16,729 --> 00:13:17,930

THE RUSSIANS ARE TOGETHER MOST

347

00:13:17,930 --> 00:13:18,330

OF THE DAY.

348

00:13:18,330 --> 00:13:19,832

WE COME TOGETHER FOR MEALS.

349

00:13:19,832 --> 00:13:21,567

YOU KNOW, DEFINITELY SPEND A LOT

350

00:13:21,567 --> 00:13:22,268

OF TIME TOGETHER.

351

00:13:22,268 --> 00:13:24,170

BUT AS FAR AS DELINEATION

352

00:13:24,170 --> 00:13:26,505

BETWEEN DOING TASKS ON YOUR OWN

353

00:13:26,505 --> 00:13:30,042

OR TOGETHER, WE HAVE A LOT OF

354

00:13:30,042 --> 00:13:31,777

INDIVIDUAL TASKS.

355

00:13:31,777 --> 00:13:33,479

WE TRY TO GET THEM DONE AND BE

356

00:13:33,479 --> 00:13:35,181

EFFICIENT AND WHEN WE WALK BY

357

00:13:35,181 --> 00:13:37,183

AND SEE SOMEBODY HAVING A -- I

358

00:13:37,183 --> 00:13:39,318

AM SORRY, I SAID WALK BY.

359

00:13:39,318 --> 00:13:41,420

WHEN WE FLOAT BY, BECAUSE THAT'S

360

00:13:41,420 --> 00:13:43,556

AWESOME, WHEN WE FLOAT BY AND WE

361

00:13:43,556 --> 00:13:44,657

SEE THEY ARE HAVING AN ISSUE

362

00:13:44,657 --> 00:13:46,492

THEN WE STOP AND HELP THEM.

363

00:13:46,492 --> 00:13:47,993

AND THEN FOR THE REALLY BIG

364

00:13:47,993 --> 00:13:49,795

STUFF, THEY ACTUALLY SCHEDULE

365

00:13:49,795 --> 00:13:51,697

BOTH OF US OR EVEN THREE OF US

366

00:13:51,697 --> 00:13:53,732

TO WORK ON THE SAME ITEM.

367

00:13:53,732 --> 00:13:55,834

SO IT JUST DEPENDS ON WHAT TASK

368

00:13:55,834 --> 00:13:57,069

YOU ARE DOING.

369

00:13:57,069 --> 00:13:59,271

FITS A REALLY BIG, COMPLICATED

370

00:13:59,271 --> 00:14:00,272

THING THERE MIGHT BE MORE THAN

371

00:14:00,272 --> 00:14:00,873

ONE PERSON.

372

00:14:00,873 --> 00:14:03,209

BUT WE TRY TO WORK TOGETHER AS A

373

00:14:03,209 --> 00:14:05,010

TEAM REGARDLESS AND JUST GET THE

374

00:14:05,010 --> 00:14:07,413

JOB DONE.

375

00:14:07,413 --> 00:14:09,848

>> THANK YOU.

376

00:14:09,848 --> 00:14:10,749

>> HI, JACK.

377

00:14:10,749 --> 00:14:15,888

I AM LOGAN I AM UNDERGRADUATE

378

00:14:15,888 --> 00:14:17,089

CLASS OF 2019.

379

00:14:17,089 --> 00:14:17,990

FIRST OF ALL THANK YOU FOR

380

00:14:17,990 --> 00:14:18,824

GIVING US THIS OPPORTUNITY TO

381

00:14:18,824 --> 00:14:19,725

TALK TO YOU, IT'S REALLY

382

00:14:19,725 --> 00:14:20,226

AWESOME.

383

00:14:20,226 --> 00:14:22,628

AND MY QUESTION IS, IS HOW

384

00:14:22,628 --> 00:14:24,129

REGIMENTED IS YOUR TIME ON THE

385

00:14:24,129 --> 00:14:24,763

STATION?

386

00:14:24,763 --> 00:14:26,365

AND WHEN YOU DO HAVE FREE TIME,

387

00:14:26,365 --> 00:14:30,936

WHAT DO YOU DO?

388

00:14:30,936 --> 00:14:32,838

>> IT'S PRETTY DARN REGIMENTED.

389

00:14:32,838 --> 00:14:34,640

FIRST OFF, THANK JOYCE, BECAUSE

390

00:14:34,640 --> 00:14:35,774

SHE PUT IT TOGETHER AND SHE'S

391

00:14:35,774 --> 00:14:36,375

AWESOME.

392

00:14:36,375 --> 00:14:38,277

SHE'S MY GIRL.

393

00:14:38,277 --> 00:14:42,514

SECOND, AS FAR AS REGIMENTATION,

394

00:14:42,514 --> 00:14:43,816

WE HAVE THIS LITTLE RED LINE

395

00:14:43,816 --> 00:14:49,755

THAT GOES ACROSS OUR SCHEDULE,

396

00:14:49,755 --> 00:14:51,457

THEY ARE ANYWHERE FROM A

397

00:14:51,457 --> 00:14:53,492

THREE-HOUR TASK TO A FIVE-MINUTE

398

00:14:53,492 --> 00:14:53,792

TASK.

399

00:14:53,792 --> 00:14:55,294

DEPENDING ON WHAT YOU ARE DOING

400

00:14:55,294 --> 00:14:56,795

IT GETS TRICKY TO KEEP UP.

401
00:14:56,795 --> 00:15:00,833
WE HAVE TO WORK OUT SIX DAYS A

402
00:15:00,833 --> 00:15:04,236
WEEK, TWO AND-A-HALF HOURS A DAY

403
00:15:04,236 --> 00:15:05,871
SO WE DON'T COME BACK WALKING

404
00:15:05,871 --> 00:15:07,273
LIKE A 90-YEAR-OLD DUDE WITH

405
00:15:07,273 --> 00:15:08,874
BONE AND MUSCLE LOSS.

406
00:15:08,874 --> 00:15:11,010
THEN WE HAVE, TO YOU KNOW, JUST

407
00:15:11,010 --> 00:15:12,911
LIVING UP HERE IS, YOU KNOW, YOU

408
00:15:12,911 --> 00:15:14,013
GOTTA DO THINGS THAT YOU DON'T

409
00:15:14,013 --> 00:15:15,848
HAVE TO DO ON THE GROUND.

410
00:15:15,848 --> 00:15:17,449
YOU KNOW, HYGIENE IS DIFFERENT.

411
00:15:17,449 --> 00:15:19,785
AND GETTING OUR FOOD OUT OF A,

412
00:15:19,785 --> 00:15:22,388
YOU KNOW, SPIGOT IN THE WALL IS

413
00:15:22,388 --> 00:15:22,688

DIFFERENT.

414

00:15:22,688 --> 00:15:24,623

SO THERE IS JUST STUFF THAT YOU

415

00:15:24,623 --> 00:15:27,726

HAVE TO DO TO SURVIVE.

416

00:15:27,726 --> 00:15:30,396

SO THAT TAKES UP TIME.

417

00:15:30,396 --> 00:15:31,997

AND THEN YOU HAVE TO LOOK AT THE

418

00:15:31,997 --> 00:15:32,698

NEXT DAY.

419

00:15:32,698 --> 00:15:35,334

SO WHEN YOU PUT ALL THAT

420

00:15:35,334 --> 00:15:36,435

TOGETHER THERE IS NOT A LOT OF

421

00:15:36,435 --> 00:15:36,935

FREE TIME.

422

00:15:36,935 --> 00:15:38,270

BUT THE FREE TIME THAT YOU HAVE,

423

00:15:38,270 --> 00:15:40,372

YOU ARE REWARDED WITH THE MOST

424

00:15:40,372 --> 00:15:42,775

AMAZING VIEWS YOU COULD EVER

425

00:15:42,775 --> 00:15:44,376

IMAGINE.

426

00:15:44,376 --> 00:15:46,011

I CAN FLOAT OVER TO ANY ONE OF

427

00:15:46,011 --> 00:15:47,713

THESE WINDOWS, OPEN IT UP, YOU

428

00:15:47,713 --> 00:15:49,548

KNOW, DAY OR NIGHT, LOOK OUTSIDE

429

00:15:49,548 --> 00:15:51,550

AND SEE THINGS YOU JUST CAN'T

430

00:15:51,550 --> 00:15:51,850

IMAGINE.

431

00:15:51,850 --> 00:15:53,852

IT JUST -- IT DOESN'T EVEN MAKE

432

00:15:53,852 --> 00:15:56,488

SENSE TO ME, YOU KNOW, BEFORE I

433

00:15:56,488 --> 00:15:57,589

SAW THEM LAST NIGHT WE WERE

434

00:15:57,589 --> 00:15:58,991

TALKING PICTURES OF WHERE WE ARE

435

00:15:58,991 --> 00:16:02,127

GOING TO GO TO E.V.A.S AND I

436

00:16:02,127 --> 00:16:05,230

WAS IN THE RUSSIAN, RUN OF THE

437

00:16:05,230 --> 00:16:06,665

MODULES LOOKING DOWN WAITING FOR

438

00:16:06,665 --> 00:16:08,067

THE SUNRISE TO TAKE THESE

439

00:16:08,067 --> 00:16:09,568

PICTURES AND THERE IS THERE HUGE

440

00:16:09,568 --> 00:16:10,903

THUNDERSTORM OVER CHINA.

441

00:16:10,903 --> 00:16:13,405

AND YOU KNOW, WE ALWAYS SEE

442

00:16:13,405 --> 00:16:14,807

THUNDERSTORMS FROM BELOW AND

443

00:16:14,807 --> 00:16:16,208

SOMETIMES YOU'LL SEE CLOUD TO

444

00:16:16,208 --> 00:16:17,643

CLOUD LIGHTNING, BUT I WAS

445

00:16:17,643 --> 00:16:19,845

SEEING CLOUD TO CLOUD, CLOUD TO

446

00:16:19,845 --> 00:16:22,081

GROUND, OVER TOP LIGHTNING.

447

00:16:22,081 --> 00:16:23,882

IT WAS LIKE AWESOME.

448

00:16:23,882 --> 00:16:25,017

IT WAS SO BEAUTIFUL.

449

00:16:25,017 --> 00:16:26,418

IT WAS LIKE IT WAS ALIVE.

450

00:16:26,418 --> 00:16:28,520

SO, YOU KNOW, IF WE HAVE FREE

451
00:16:28,520 --> 00:16:29,655
TIME, WE ARE PROBABLY TAKING

452
00:16:29,655 --> 00:16:32,091
PICTURES OR CALLING HOME OR, YOU

453
00:16:32,091 --> 00:16:34,193
KNOW, TRYING TO SHARE THESE --

454
00:16:34,193 --> 00:16:35,527
THIS AMAZING EXPERIENCE WITH THE

455
00:16:35,527 --> 00:16:39,865
WORLD WITH TWEETS OR WHATEVER.

456
00:16:39,865 --> 00:16:44,970
>> THANK YOU.

457
00:16:44,970 --> 00:16:46,605
>> I AM MIKE COLLINS, JACK, I

458
00:16:46,605 --> 00:16:49,508
WISH I WAS UP THERE WITH YOU.

459
00:16:49,508 --> 00:16:51,844
I KNOW YOU ARE SHEPHERDING

460
00:16:51,844 --> 00:16:52,544
DOZENS --

461
00:16:52,544 --> 00:17:03,789
[LAUGHTER]

462
00:17:03,789 --> 00:17:04,223
>> [INAUDIBLE]

463
00:17:04,223 --> 00:17:06,925

IS THAT THE MIKE COLLINS?

464

00:17:06,925 --> 00:17:07,326

[LAUGHTER]

465

00:17:07,326 --> 00:17:07,626

>> NO.

466

00:17:07,626 --> 00:17:08,727

NO.

467

00:17:08,727 --> 00:17:11,063

[LAUGHTER]

468

00:17:11,063 --> 00:17:12,865

>> IMPOSTOR, BUT I DO HAVE A

469

00:17:12,865 --> 00:17:13,265

QUESTION FOR YOU.

470

00:17:13,265 --> 00:17:15,200

AND THAT IS I KNOW YOU ARE

471

00:17:15,200 --> 00:17:18,003

SHEPHERDING DOZENS OF EXPERTS

472

00:17:18,003 --> 00:17:18,604

THERE.

473

00:17:18,604 --> 00:17:20,806

WHICH ONE IS YOUR FAVORITE OR

474

00:17:20,806 --> 00:17:22,241

MAYBE BETTER WHICH ONE DO YOU

475

00:17:22,241 --> 00:17:23,942

THINK IS MOST IMPORTANT?

476
00:17:23,942 --> 00:17:25,744
WHAT IS SHOWING EVIDENCE OF

477
00:17:25,744 --> 00:17:27,880
BEING ABLE TO IMPROVE OUR LIVES

478
00:17:27,880 --> 00:17:32,651
HERE ON EARTH?

479
00:17:32,651 --> 00:17:34,353
>> MAN, SIR, IT'S A PLEASURE TO

480
00:17:34,353 --> 00:17:34,953
TALK TO YOU.

481
00:17:34,953 --> 00:17:35,654
I DON'T KNOW IF YOU REMEMBER,

482
00:17:35,654 --> 00:17:37,656
BUT I GOT TO SIT WITH YOU A FEW

483
00:17:37,656 --> 00:17:41,794
YEARS AGO AT THE M.I.T. BANQUET.

484
00:17:41,794 --> 00:17:43,295
WHAT AN HONOR.

485
00:17:43,295 --> 00:17:46,732
AS FAR AS EXPERIMENTS, SIR, YOU

486
00:17:46,732 --> 00:17:50,569
KNOW, I THINK THAT YOU PROVED IN

487
00:17:50,569 --> 00:17:52,671
APOLLO AND IN THE EARLY SPACE

488
00:17:52,671 --> 00:17:56,008

PROGRAM THAT SOMETIMES THE MOST

489

00:17:56,008 --> 00:17:56,909

IMPACT.

490

00:17:56,909 --> 00:17:58,410

THINGS THAT WE DISCOVER ARE

491

00:17:58,410 --> 00:17:59,711

ANSWERS TO QUESTIONS WE DIDN'T

492

00:17:59,711 --> 00:18:00,913

KNOW WE HAD.

493

00:18:00,913 --> 00:18:03,649

AND I THINK THAT, YOU KNOW, I

494

00:18:03,649 --> 00:18:05,350

CAN GO THROUGH AND LIST DOZENS

495

00:18:05,350 --> 00:18:06,885

OF EXPERIMENTS THAT I AM WORKING

496

00:18:06,885 --> 00:18:08,587

ON BECAUSE OF THIS UNIQUE

497

00:18:08,587 --> 00:18:10,389

ENVIRONMENT WITHOUT GRAVITY AND

498

00:18:10,389 --> 00:18:13,425

CONVECTION AND SEDIMENTATION WE

499

00:18:13,425 --> 00:18:15,427

CAN GROW PERFECT CRYSTALS AND DO

500

00:18:15,427 --> 00:18:17,262

ALL OF THESE WONDERFUL THINGS,

501
00:18:17,262 --> 00:18:18,664
BUT IT MIGHT BE THE MOST

502
00:18:18,664 --> 00:18:20,666
INNOCUOUS EXPERIMENT THAT HAS

503
00:18:20,666 --> 00:18:21,700
THE BIGGEST EFFECT.

504
00:18:21,700 --> 00:18:26,805
AND I ALSO THINK INSPIRATION IS

505
00:18:26,805 --> 00:18:34,313
HARD TO QUANTIFY YOU ABOUT, HAS

506
00:18:34,313 --> 00:18:35,214
SUCH A HUGE IMPACT.

507
00:18:35,214 --> 00:18:36,315
WHEN I WAS WORKING ON THE

508
00:18:36,315 --> 00:18:36,715
RAPTOR.

509
00:18:36,715 --> 00:18:38,150
THEY FOUND OUT THAT I WANTED TO

510
00:18:38,150 --> 00:18:39,551
APPLY FOR THE ASTRONAUT PROGRAM

511
00:18:39,551 --> 00:18:41,753
AND I SAID, WELL, HOW MANY OF

512
00:18:41,753 --> 00:18:43,188
YOU GUYS, YOU KNOW, GOT

513
00:18:43,188 --> 00:18:44,389

INTERESTED IN ENGINEERING

514

00:18:44,389 --> 00:18:46,992

BECAUSE OF SPACE?

515

00:18:46,992 --> 00:18:49,127

EVERY SINGLE PERSON IN THE ROOM

516

00:18:49,127 --> 00:18:50,329

RAISED THEIR HAND.

517

00:18:50,329 --> 00:18:53,632

IT WAS GUYS FROM 20 TO 60 AND

518

00:18:53,632 --> 00:18:54,566

EVERY SINGLE ONE RAISED THEIR

519

00:18:54,566 --> 00:18:55,968

HAND.

520

00:18:55,968 --> 00:18:58,871

SO THAT'S WHAT YOU DO, SIR, AND

521

00:18:58,871 --> 00:19:01,006

THAT'S WHAT WE HOPE WE CAN

522

00:19:01,006 --> 00:19:03,609

CONTINUE TO DO TO GET THE NEXT

523

00:19:03,609 --> 00:19:06,545

GENERATION GOING AND TO REALLY

524

00:19:06,545 --> 00:19:08,447

GET THIS WHOLE SPACE EXPLORATION

525

00:19:08,447 --> 00:19:12,284

THING MOVING FOR GOOD.

526

00:19:12,284 --> 00:19:13,785

>> YOU CERTAINLY ARE DOING IT,

527

00:19:13,785 --> 00:19:15,587

JACK, BIG TIME, AND A LOT BETTER

528

00:19:15,587 --> 00:19:16,922

THAN WE EVER DID, THANK YOU FOR

529

00:19:16,922 --> 00:19:17,623

YOUR WORK UP THERE.

530

00:19:17,623 --> 00:19:27,666

[APPLAUSE]

531

00:19:27,666 --> 00:19:28,800

>> I KNOW WE ARE RUNNING OUT OF

532

00:19:28,800 --> 00:19:30,235

TIME SO I WILL TRY TO BE QUICK,

533

00:19:30,235 --> 00:19:33,138

I AM ANDREW OWN I AM A PH.D

534

00:19:33,138 --> 00:19:35,073

CANDIDATE AT M.I.T. AND DID MY

535

00:19:35,073 --> 00:19:37,075

UNDER GRAD AT RICE UNIVERSITY.

536

00:19:37,075 --> 00:19:39,011

I ALSO HAD A QUESTION ABOUT

537

00:19:39,011 --> 00:19:40,412

TECHNOLOGY OR DEPARTMENT.

538

00:19:40,412 --> 00:19:42,447

WHAT INNOVATIVE TECHNOLOGIES DO

539

00:19:42,447 --> 00:19:43,549

YOU THINK HAVE THE POTENTIAL FOR

540

00:19:43,549 --> 00:19:44,449

THE MOST BENEFIT?

541

00:19:44,449 --> 00:19:45,751

AND HOW WOULD YOUR LIFE ON THE

542

00:19:45,751 --> 00:19:46,852

STATION BE DIFFERENT NOW IF WE

543

00:19:46,852 --> 00:19:52,090

HAD THOSE TECHNOLOGIES TODAY?

544

00:19:52,090 --> 00:19:53,492

>> YOU KNOW, I AM SORRY, I AM

545

00:19:53,492 --> 00:19:54,927

PROBABLY TALKING TOO LONG FOR

546

00:19:54,927 --> 00:19:57,029

EACH QUESTION AND I WANT TO GET

547

00:19:57,029 --> 00:19:58,964

EVERYBODY THROUGH.

548

00:19:58,964 --> 00:20:00,966

AS FAR AS YOUR QUESTION UP HERE

549

00:20:00,966 --> 00:20:04,269

IN THE SPACE STATION, THE SPACE

550

00:20:04,269 --> 00:20:06,104

STATION IS AN EVOLUTION OF

551
00:20:06,104 --> 00:20:06,705
TECHNOLOGY.

552
00:20:06,705 --> 00:20:09,141
SO WE JUST KEEP UPDATING IT AS

553
00:20:09,141 --> 00:20:09,541
WE GO.

554
00:20:09,541 --> 00:20:11,043
IT'S 15 YEARS OLD, BUT WE HAVE

555
00:20:11,043 --> 00:20:12,244
SOME OF THE MOST MODERN

556
00:20:12,244 --> 00:20:12,945
EQUIPMENT IN THE WORLD.

557
00:20:12,945 --> 00:20:16,582
SO IT'S NOT THE BIGGEST -- IT

558
00:20:16,582 --> 00:20:17,382
WOULDN'T HAVE THE BIGGEST

559
00:20:17,382 --> 00:20:17,883
IMPACT.

560
00:20:17,883 --> 00:20:20,719
THE BIGGEST IMPACTS FOR US ARE

561
00:20:20,719 --> 00:20:22,421
THE EFFICIENCY THAT WE SEE

562
00:20:22,421 --> 00:20:24,856
COMING WITH THE COMMERCIAL

563
00:20:24,856 --> 00:20:27,859

PROVIDERS MAKING SPACE MORE

564

00:20:27,859 --> 00:20:29,194

ACCESSIBLE.

565

00:20:29,194 --> 00:20:33,231

YOU KNOW, FIRST REUSING FIRST

566

00:20:33,231 --> 00:20:35,367

STAGE NEW ENGINES, LIKE BLUE

567

00:20:35,367 --> 00:20:37,970

ORIGIN SPACE X.

568

00:20:37,970 --> 00:20:40,806

SIERRA NEVADA, SIGNUS, ALL OF

569

00:20:40,806 --> 00:20:43,008

THESE ORBITAL, ALL OF THESE

570

00:20:43,008 --> 00:20:44,409

COMPANIES ARE MAKE SPACE MORE

571

00:20:44,409 --> 00:20:45,410

AFFORDABLE AND THIS IS

572

00:20:45,410 --> 00:20:45,677

IMPORTANT.

573

00:20:45,677 --> 00:20:51,249

THE OTHER THING WE NEED IS FOR

574

00:20:51,249 --> 00:20:52,484

ANY DEEPER EXPLORATION IS

575

00:20:52,484 --> 00:20:53,085

PROPULSION.

576
00:20:53,085 --> 00:20:54,086
RIGHT NOW, YOU KNOW, WE ARE

577
00:20:54,086 --> 00:20:55,687
TALKING SPECIFIC IMPULSE AROUND

578
00:20:55,687 --> 00:20:55,988
400.

579
00:20:55,988 --> 00:21:02,227
THAT'S AS GOOD AS WE GET WITH

580
00:21:02,227 --> 00:21:02,961
THE LIQUID.

581
00:21:02,961 --> 00:21:04,262
WE NEED TO DO BETTER.

582
00:21:04,262 --> 00:21:05,564
SOME OF THE NEW TECHNOLOGIES ARE

583
00:21:05,564 --> 00:21:10,702
IN TO THE 10S OF THOUSANDS

584
00:21:10,702 --> 00:21:13,005
EVEN THOUGH IT'S THE THRUST OF A

585
00:21:13,005 --> 00:21:13,438
BUTTERFLY.

586
00:21:13,438 --> 00:21:15,240
IF YOU POINT HIM IN THE RIGHT

587
00:21:15,240 --> 00:21:16,441
DIRECTION AND KEEP HIM PARTING

588
00:21:16,441 --> 00:21:17,876

HE WILL GET FAR IN SPACE.

589

00:21:17,876 --> 00:21:19,878

WE NEED TO DEVELOP THESE

590

00:21:19,878 --> 00:21:21,780

TECHNOLOGIES SO THE SIX-MONTH

591

00:21:21,780 --> 00:21:23,215

TRIP TO MARS IS 30 DAYS AND WE

592

00:21:23,215 --> 00:21:24,216

DON'T HAVE TO WORRY ABOUT THE

593

00:21:24,216 --> 00:21:28,453

RADIATION, THAT'S THE KEY FOR US

594

00:21:28,453 --> 00:21:34,893

TO PUSH DEEPER IN TO THE GALAXY.

595

00:21:34,893 --> 00:21:35,994

>> JACK, WE HAVE GONE ON TOO

596

00:21:35,994 --> 00:21:36,895

LONG, I LOVE YOU.

597

00:21:36,895 --> 00:21:38,330

EVERYBODY THAT DIDN'T GET TO ASK

598

00:21:38,330 --> 00:21:39,331

A QUESTION, YOU ARE USING MY

599

00:21:39,331 --> 00:21:41,433

TIME, SAY YOUR NAME, SAY JACK,

600

00:21:41,433 --> 00:21:42,668

WE'LL DO THIS AGAIN.

601
00:21:42,668 --> 00:21:43,568
>> HI, MATT.

602
00:21:43,568 --> 00:21:44,770
GOOD TO SEE YOU AGAIN.

603
00:21:44,770 --> 00:21:46,605
IT WAS GREAT TO MEET YOU AT

604
00:21:46,605 --> 00:21:48,106
SPACE X AND I AM REALLY HAPPY TO

605
00:21:48,106 --> 00:21:51,910
FINALLY SEE NEW SPACE.

606
00:21:51,910 --> 00:21:53,245
>> I AM FOR SHORT FOR THIS, I AM

607
00:21:53,245 --> 00:21:55,147
KAYLA, WE WILL TAKE A RAIN

608
00:21:55,147 --> 00:21:56,948
CHECK.

609
00:21:56,948 --> 00:21:58,784
>> HI, JACK, I AM ERIC, I'LL

610
00:21:58,784 --> 00:22:00,085
SHOOT YOU AT TEXT AND WE'LL TALK

611
00:22:00,085 --> 00:22:01,620
ABOUT VIRTUAL REALITY LATER.

612
00:22:01,620 --> 00:22:02,821
>> OKAY.

613
00:22:02,821 --> 00:22:04,523

>> HI, JACK, I AM RONNIE FOREMAN

614

00:22:04,523 --> 00:22:06,224

SECOND YEAR CANDIDATE HERE AND

615

00:22:06,224 --> 00:22:07,959

DID NIGH UNDER GRAD AT GEORGIA

616

00:22:07,959 --> 00:22:08,860

TECH, AND I WILL TALK TO YOU

617

00:22:08,860 --> 00:22:09,561

NEXT TIME.

618

00:22:09,561 --> 00:22:10,262

THANKS VERY MUCH.

619

00:22:10,262 --> 00:22:11,897

>> JACK, YOU DID A PHENOMENAL

620

00:22:11,897 --> 00:22:12,497

JOB.

621

00:22:12,497 --> 00:22:18,336

WE ARE SO PROUD OF YOU HERE.

622

00:22:18,336 --> 00:22:19,938

>> YOU CANNOT BEGIN TO IMAGINE.

623

00:22:19,938 --> 00:22:21,339

>> SORRY I TALKED SO LONG.

624

00:22:21,339 --> 00:22:23,775

>> I ADORE YOU, JACK, YOU CAN

625

00:22:23,775 --> 00:22:25,377

TALK UNTIL YOU ARE BLUE IN THE

626
00:22:25,377 --> 00:22:25,677
FACE.

627
00:22:25,677 --> 00:22:26,578
YOU ARE AWESOME.

628
00:22:26,578 --> 00:22:30,649
YOU ARE COVERED IN SAW SOME

629
00:22:30,649 --> 00:22:32,050
SAUCE, MY FRIEND.

630
00:22:32,050 --> 00:22:32,851
>> BURRITO.

631
00:22:32,851 --> 00:22:34,286
OH, WATCH, I AM GOING TO DO A

632
00:22:34,286 --> 00:22:34,586
FLIP.

633
00:22:34,586 --> 00:22:35,187
ARE YOU READY?

634
00:22:35,187 --> 00:22:36,788
HERE WE GO.

635
00:22:36,788 --> 00:22:44,629
READ NIGH SOCKS.

636
00:22:44,629 --> 00:22:45,831
>> DID YOU READ THEM?

637
00:22:45,831 --> 00:22:47,265
>> ONE MORE TIME.

638
00:22:47,265 --> 00:22:53,305

SLOWER.

639

00:22:53,305 --> 00:22:53,905

>> OH.

640

00:22:53,905 --> 00:22:55,307

>> MY WIFE GAVE ME THESE.

641

00:22:55,307 --> 00:23:02,748

[LAUGHTER]

642

00:23:02,748 --> 00:23:04,583

>> STATION, THIS IS HOUSTON

643

00:23:04,583 --> 00:23:05,884

A.C.R. THAT CONCLUDES THE

644

00:23:05,884 --> 00:23:12,124

EVENTS.

645

00:23:12,124 --> 00:23:13,024

>> THANK YOU TO ALL PARTICIPANTS

646

00:23:13,024 --> 00:23:14,226

AND GUESTS FROM MASSACHUSETTS

647

00:23:14,226 --> 00:23:15,527

INSTITUTE OF TECHNOLOGY.

648

00:23:15,527 --> 00:23:16,962

STAYS, WE ARE NOW RESUMING