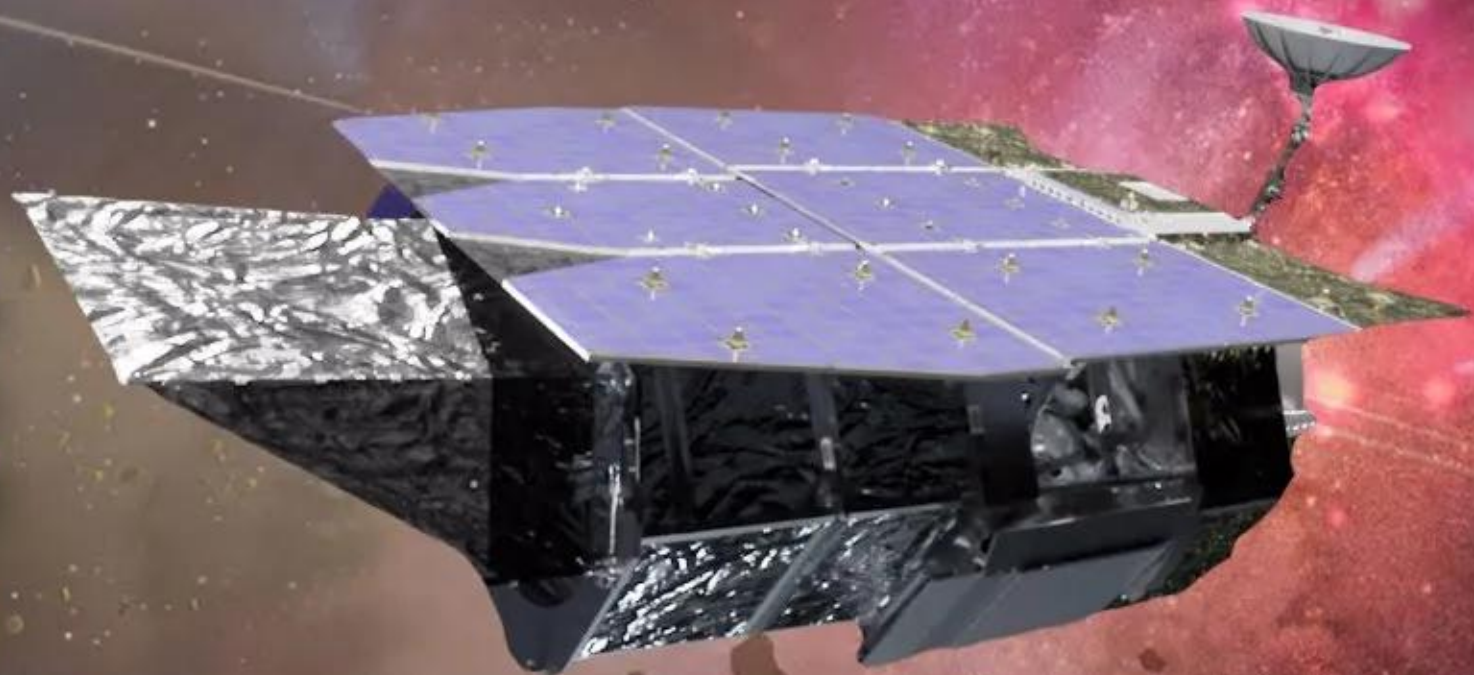


EXPANDING OUR VIEW OF THE UNIVERSE



SCIENCE LIVE

VIRTUAL EDITION

1
00:00:08,108 --> 00:00:08,808
>> HELLO, AND WELCOME

2
00:00:08,808 --> 00:00:10,310
TO ANOTHER VIRTUAL EPISODE

3
00:00:10,310 --> 00:00:12,145
OF "NASA SCIENCE LIVE."

4
00:00:12,145 --> 00:00:13,279
I'M AMBER STRAUGHN,

5
00:00:13,279 --> 00:00:15,315
AN ASTROPHYSICIST AT NASA.

6
00:00:15,315 --> 00:00:16,383
ON TODAY'S EPISODE,

7
00:00:16,383 --> 00:00:16,950
WE'RE GONNA BE

8
00:00:16,950 --> 00:00:18,084
MAKING HISTORY WITH

9
00:00:18,084 --> 00:00:20,019
A VERY SPECIAL ANNOUNCEMENT

10
00:00:20,019 --> 00:00:21,020
ABOUT AN UPCOMING MISSION

11
00:00:21,020 --> 00:00:23,356
AT NASA, SO DON'T GO ANYWHERE.

12
00:00:23,356 --> 00:00:24,357
TODAY WE'RE GONNA TALK ABOUT

13
00:00:24,357 --> 00:00:26,025

ONE OF MY FAVORITE TOPICS,

14

00:00:26,025 --> 00:00:26,760

UNSOLVED MYSTERIES

15

00:00:26,760 --> 00:00:28,328

OF OUR UNIVERSE.

16

00:00:28,328 --> 00:00:29,396

IN THE MID 2020s,

17

00:00:29,396 --> 00:00:31,364

NASA WILL LAUNCH WFIRST,

18

00:00:31,364 --> 00:00:32,632

A SPACE TELESCOPE THAT WILL

19

00:00:32,632 --> 00:00:33,933

ADVANCE OUR UNDERSTANDING

20

00:00:33,933 --> 00:00:36,069

OF DARK ENERGY, AN ENIGMA

21

00:00:36,069 --> 00:00:37,504

THAT HAS PUZZLED ASTRONOMERS

22

00:00:37,504 --> 00:00:39,472

LIKE MYSELF FOR DECADES.

23

00:00:39,472 --> 00:00:41,207

DARK ENERGY IS A FORM OF ENERGY

24

00:00:41,207 --> 00:00:42,475

THAT MAKES UP ABOUT 2/3

25

00:00:42,475 --> 00:00:44,344

OF THE ENTIRE UNIVERSE,

26

00:00:44,344 --> 00:00:45,478

AND YET WE DON'T KNOW

27

00:00:45,478 --> 00:00:47,514

MUCH ABOUT IT AT ALL.

28

00:00:47,514 --> 00:00:48,481

THE WFIRST MISSION WILL

29

00:00:48,481 --> 00:00:49,649

ALSO SEARCH FOR PLANETS

30

00:00:49,649 --> 00:00:51,251

BEYOND OUR SOLAR SYSTEM,

31

00:00:51,251 --> 00:00:52,685

KNOWN AS EXOPLANETS,

32

00:00:52,685 --> 00:00:53,653

AND WILL MEASURE LIGHT

33

00:00:53,653 --> 00:00:55,188

FROM A BILLION GALAXIES

34

00:00:55,188 --> 00:00:55,755

OVER THE COURSE

35

00:00:55,755 --> 00:00:57,657

OF THE MISSION LIFETIME.

36

00:00:57,657 --> 00:00:58,825

SOUNDS INCREDIBLE, RIGHT?

37

00:00:58,825 --> 00:01:00,059

IT WILL BE.

38

00:01:00,059 --> 00:01:01,428

LET'S TAKE A DEEPER DIVE

39

00:01:01,428 --> 00:01:02,695
INTO THE WFIRST MISSION

40

00:01:02,695 --> 00:01:04,130
TO LEARN A LITTLE MORE.

41

00:01:09,135 --> 00:01:10,703
>> THE UNIVERSE.

42

00:01:10,703 --> 00:01:11,371
FOR ALL WE HAVE

43

00:01:11,371 --> 00:01:12,505
LEARNED ABOUT IT,

44

00:01:12,505 --> 00:01:13,807
WE HAVE ONLY JUST BEGUN

45

00:01:13,807 --> 00:01:16,443
TO REVEAL ITS SECRETS.

46

00:01:16,443 --> 00:01:17,277
WHAT ARE DARK MATTER

47

00:01:17,277 --> 00:01:19,078
AND DARK ENERGY?

48

00:01:19,078 --> 00:01:20,480
HOW COMMON ARE PLANETARY

49

00:01:20,480 --> 00:01:23,149
ARRANGEMENTS LIKE OUR OWN?

50

00:01:23,149 --> 00:01:24,017
AND HOW MANY PLANETS

51
00:01:24,017 --> 00:01:25,552
IN OUR GALAXY HAVE POTENTIAL

52
00:01:25,552 --> 00:01:27,987
TO HARBOR LIFE?

53
00:01:27,987 --> 00:01:30,023
WFIRST, THE WIDE-FIELD

54
00:01:30,023 --> 00:01:32,025
INFRARED SURVEY TELESCOPE,

55
00:01:32,025 --> 00:01:32,892
WILL HELP ANSWER THESE

56
00:01:32,892 --> 00:01:35,462
FUNDAMENTAL QUESTIONS.

57
00:01:35,462 --> 00:01:37,897
WFIRST IS SIMILAR TO HUBBLE,

58
00:01:37,897 --> 00:01:38,765
BUT WITH THE BENEFIT

59
00:01:38,765 --> 00:01:39,766
OF 30 YEARS

60
00:01:39,766 --> 00:01:42,735
OF TECHNOLOGICAL IMPROVEMENT.

61
00:01:42,735 --> 00:01:43,670
EACH IMAGE FROM ITS

62
00:01:43,670 --> 00:01:44,904
WIDE-FIELD INSTRUMENT

63
00:01:44,904 --> 00:01:46,473

WILL HAVE THE DEPTH AND CLARITY

64

00:01:46,473 --> 00:01:47,941
OF HUBBLE'S BEST,

65

00:01:47,941 --> 00:01:49,275
BUT CAPTURE A SKY AREA

66

00:01:49,275 --> 00:01:51,444
100 TIMES LARGER.

67

00:01:53,847 --> 00:01:55,215
WFIRST WILL TAKE THE LEAD

68

00:01:55,215 --> 00:01:56,950
IN EXPLORING DARK ENERGY

69

00:01:56,950 --> 00:01:58,485
AND DARK MATTER.

70

00:01:58,485 --> 00:01:59,953
WE ONLY KNOW THEY EXIST

71

00:01:59,953 --> 00:02:00,787
BY THEIR EFFECTS

72

00:02:00,787 --> 00:02:02,589
ON OBSERVABLE MATTER,

73

00:02:02,589 --> 00:02:03,223
YET THESE TWO

74

00:02:03,223 --> 00:02:04,524
MYSTERIOUS COMPONENTS

75

00:02:04,524 --> 00:02:08,495
MAKE UP 95% OF THE UNIVERSE.

76

00:02:08,495 --> 00:02:09,963

WFIRST'S POWERFUL

77

00:02:09,963 --> 00:02:11,898

2.4-METER MIRROR

78

00:02:11,898 --> 00:02:13,766

AND ENORMOUS FIELD OF VIEW

79

00:02:13,766 --> 00:02:14,667

WILL ALSO HELP US

80

00:02:14,667 --> 00:02:15,902

IN THE SEARCH FOR PLANETS

81

00:02:15,902 --> 00:02:17,403

BEYOND OUR SOLAR SYSTEM,

82

00:02:17,403 --> 00:02:19,239

OR EXOPLANETS.

83

00:02:19,239 --> 00:02:19,973

IT WILL WATCH

84

00:02:19,973 --> 00:02:21,040

FOR GRAVITATIONAL

85

00:02:21,040 --> 00:02:22,775

MICROLENSING EVENTS,

86

00:02:22,775 --> 00:02:23,943

CAUSED WHEN A PLANET

87

00:02:23,943 --> 00:02:25,578

AND ITS HOST STAR PASS

88

00:02:25,578 --> 00:02:28,147

IN FRONT OF A BACKGROUND STAR.

89

00:02:28,147 --> 00:02:29,549
SUCH EVENTS ARE RARE,

90

00:02:29,549 --> 00:02:30,316
SO CATCHING THEM

91

00:02:30,316 --> 00:02:31,351
REQUIRES WATCHING

92

00:02:31,351 --> 00:02:34,287
LARGE SWATHS OF THE SKY.

93

00:02:34,287 --> 00:02:35,188
TO DEEPEN ITS STUDY

94

00:02:35,188 --> 00:02:36,623
OF EXOPLANETS,

95

00:02:36,623 --> 00:02:37,824
WFIRST WILL HOUSE

96

00:02:37,824 --> 00:02:39,192
A BEYOND-STATE-OF-THE-ART

97

00:02:39,192 --> 00:02:40,460
CORONAGRAPH THAT WILL

98

00:02:40,460 --> 00:02:42,529
DIRECTLY IMAGE AND ANALYZE

99

00:02:42,529 --> 00:02:44,597
NEPTUNE-SIZED PLANETS IN ORBITS

100

00:02:44,597 --> 00:02:46,866
SLIGHTLY LARGER THAN EARTH'S,

101
00:02:46,866 --> 00:02:48,034
A DRAMATIC IMPROVEMENT

102
00:02:48,034 --> 00:02:51,371
OVER CURRENT CAPABILITIES.

103
00:02:51,371 --> 00:02:53,006
WFIRST WILL HELP US ANSWER

104
00:02:53,006 --> 00:02:54,007
MANY OF THE BIGGEST

105
00:02:54,007 --> 00:02:55,775
COSMIC QUESTIONS.

106
00:02:55,775 --> 00:02:56,843
ITS WIDE-FIELD VIEW

107
00:02:56,843 --> 00:02:58,077
AND CORONAGRAPH WILL

108
00:02:58,077 --> 00:02:59,145
COMPLEMENT MISSIONS

109
00:02:59,145 --> 00:03:00,413
LIKE NASA'S JAMES WEBB

110
00:03:00,413 --> 00:03:01,681
SPACE TELESCOPE

111
00:03:01,681 --> 00:03:03,082
AND TRANSITING EXOPLANET

112
00:03:03,082 --> 00:03:06,185
SURVEY SATELLITE, TESS.

113
00:03:06,185 --> 00:03:07,320

WFIRST WILL BE

114

00:03:07,320 --> 00:03:08,855
AN INDISPENSABLE PART

115

00:03:08,855 --> 00:03:10,256
OF SPACE SCIENCE DURING

116

00:03:10,256 --> 00:03:16,162
THE NEXT DECADE AND BEYOND.

117

00:03:16,162 --> 00:03:17,564
>> WHAT AN INCREDIBLE MISSION

118

00:03:17,564 --> 00:03:18,531
IS THIS GONNA BE.

119

00:03:18,531 --> 00:03:19,299
I'M SO EXCITED

120

00:03:19,299 --> 00:03:20,066
TO BE HERE TALKING

121

00:03:20,066 --> 00:03:21,601
ABOUT THIS SCIENCE TODAY.

122

00:03:21,601 --> 00:03:23,202
AND JOINING ME NOW IS

123

00:03:23,202 --> 00:03:24,704
THE ASSOCIATE ADMINISTRATOR

124

00:03:24,704 --> 00:03:26,306
FOR SCIENCE AT NASA,

125

00:03:26,306 --> 00:03:27,073
THOMAS ZURBUCHEN.

126
00:03:27,073 --> 00:03:28,741
HOW ARE YOU DOING, THOMAS?

127
00:03:28,741 --> 00:03:29,709
>> I'M DOING GREAT, AMBER.

128
00:03:29,709 --> 00:03:30,543
HOW ARE YOU?

129
00:03:30,543 --> 00:03:32,045
>> DOING GOOD, DOING GOOD.

130
00:03:32,045 --> 00:03:32,812
I UNDERSTAND YOU HAVE

131
00:03:32,812 --> 00:03:34,013
A BIG ANNOUNCEMENT

132
00:03:34,013 --> 00:03:35,715
TO SHARE WITH US TODAY.

133
00:03:35,715 --> 00:03:36,416
DO YOU WANT TO GO AHEAD

134
00:03:36,416 --> 00:03:38,518
AND TELL US WHAT THAT IS?

135
00:03:38,518 --> 00:03:39,118
>> ABSOLUTELY.

136
00:03:39,118 --> 00:03:40,386
I'M SO EXCITED THAT WE'RE

137
00:03:40,386 --> 00:03:43,323
RENAMING THE WFIRST MISSION.

138
00:03:43,323 --> 00:03:44,257

UH, WE KNEW ALL ALONG

139

00:03:44,257 --> 00:03:45,692

THAT WE WANTED TO NAME IT,

140

00:03:45,692 --> 00:03:46,626

UH, YOU KNOW, IN A WAY

141

00:03:46,626 --> 00:03:47,594

WE HAVE BEFORE,

142

00:03:47,594 --> 00:03:48,661

AFTER A PERSON WHO'S

143

00:03:48,661 --> 00:03:50,964

REALLY IMPORTANT FOR ASTRONOMY,

144

00:03:50,964 --> 00:03:52,999

VERY INFLUENTIAL FOR NASA.

145

00:03:52,999 --> 00:03:53,666

AND I THINK WE FOUND

146

00:03:53,666 --> 00:03:56,803

JUST THE RIGHT PERSON AGAIN.

147

00:03:56,803 --> 00:03:58,271

AND, UH, FRANKLY, THE PERSON

148

00:03:58,271 --> 00:03:59,939

WE WANT TO RENAME THIS AFTER

149

00:03:59,939 --> 00:04:00,873

IS A PERSON WHO HAD

150

00:04:00,873 --> 00:04:03,242

HUGE INFLUENCE IN ALL

151
00:04:03,242 --> 00:04:05,845
OF ASTRONOMY AND SPACE.

152
00:04:05,845 --> 00:04:06,412
IT'S A PERSON

153
00:04:06,412 --> 00:04:08,414
WHO IMAGINED THE INFLUENCE

154
00:04:08,414 --> 00:04:09,449
OF SPACE ASTRONOMY

155
00:04:09,449 --> 00:04:10,617
BEFORE OTHERS EVEN THOUGHT THAT

156
00:04:10,617 --> 00:04:12,118
THAT'S POSSIBLE.

157
00:04:12,118 --> 00:04:14,187
IT'S A PERSON WHO IMAGINED

158
00:04:14,187 --> 00:04:15,388
THE HUBBLE SPACE TELESCOPE

159
00:04:15,388 --> 00:04:16,756
BEFORE IT HAD A NAME,

160
00:04:16,756 --> 00:04:18,424
BEFORE IT WAS EVEN A CONCEPT,

161
00:04:18,424 --> 00:04:20,693
AND WAS THERE ALL ALONG, UH,

162
00:04:20,693 --> 00:04:22,795
FROM THE IDEA TO MAKING

163
00:04:22,795 --> 00:04:26,232

THAT TELESCOPE A REALITY.

164

00:04:26,232 --> 00:04:28,267

WHEN FACED WITH CHALLENGES,

165

00:04:28,267 --> 00:04:30,570

THIS PERSON PERSEVERED,

166

00:04:30,570 --> 00:04:32,238

PUSHED BEYOND

167

00:04:32,238 --> 00:04:34,007

THROUGH THESE CHALLENGES,

168

00:04:34,007 --> 00:04:35,041

AND, UH, BECAME

169

00:04:35,041 --> 00:04:36,309

A LEADER OF THE ENTIRE

170

00:04:36,309 --> 00:04:39,078

ASTROPHYSICS COMMUNITY

171

00:04:39,078 --> 00:04:40,513

IN A TIME WHEN WOMEN

172

00:04:40,513 --> 00:04:42,382

WERE ACTIVELY DISCOURAGED

173

00:04:42,382 --> 00:04:44,517

FROM CAREERS OF SCIENCE

174

00:04:44,517 --> 00:04:46,519

AND ASTRONOMY AND MATHEMATICS

175

00:04:46,519 --> 00:04:48,287

AND SO FORTH.

176
00:04:48,287 --> 00:04:50,456
SHE BECAME AN ASTRONOMER.

177
00:04:50,456 --> 00:04:51,557
AND SHE BECAME

178
00:04:51,557 --> 00:04:53,726
THE HIGHEST RANKING WOMAN

179
00:04:53,726 --> 00:04:56,396
IN NASA DURING A TIME

180
00:04:56,396 --> 00:04:58,598
WHERE THERE WERE VERY FEW

181
00:04:58,598 --> 00:05:01,901
THAT MADE IT UP THE LADDER.

182
00:05:01,901 --> 00:05:03,069
SHE CONTINUED TO BE

183
00:05:03,069 --> 00:05:04,070
AN ADVOCATE FOR HUBBLE

184
00:05:04,070 --> 00:05:06,172
EVEN AFTER HER RETIREMENT.

185
00:05:06,172 --> 00:05:07,073
AND THAT'S WHY, TODAY,

186
00:05:07,073 --> 00:05:10,209
I'M SO EXCITED THAT WE CAN

187
00:05:10,209 --> 00:05:11,644
RENAME THIS TELESCOPE,

188
00:05:11,644 --> 00:05:12,645

FOR IT TO BECOME

189

00:05:12,645 --> 00:05:13,913

THE NANCY GRACE ROMAN

190

00:05:13,913 --> 00:05:17,150

SPACE TELESCOPE.

191

00:05:17,150 --> 00:05:18,351

>> IT'S HARD TO DECIDE

192

00:05:18,351 --> 00:05:19,585

HOW HISTORY WILL VIEW

193

00:05:19,585 --> 00:05:21,587

MY ACCOMPLISHMENTS.

194

00:05:21,587 --> 00:05:22,655

PEOPLE GENERALLY

195

00:05:22,655 --> 00:05:24,290

AREN'T TERRIBLY INTERESTED

196

00:05:24,290 --> 00:05:27,060

IN WHAT GETS THINGS STARTED,

197

00:05:27,060 --> 00:05:28,294

AND SO I'M NOT SURE

198

00:05:28,294 --> 00:05:29,262

THEY'RE GOING TO HAVE MUCH

199

00:05:29,262 --> 00:05:32,165

OF AN IDEA OF MY ROLE.

200

00:05:32,165 --> 00:05:33,533

>> NANCY GRACE ROMAN SERVED

201
00:05:33,533 --> 00:05:35,401
AS THE FIRST CHIEF OF ASTRONOMY

202
00:05:35,401 --> 00:05:36,536
IN NASA'S OFFICE

203
00:05:36,536 --> 00:05:38,304
OF SPACE SCIENCE,

204
00:05:38,304 --> 00:05:39,472
THE FIRST WOMAN TO HOLD

205
00:05:39,472 --> 00:05:40,740
AN EXECUTIVE POSITION

206
00:05:40,740 --> 00:05:42,809
WITHIN THE AGENCY.

207
00:05:42,809 --> 00:05:43,743
SHE WAS INSTRUMENTAL

208
00:05:43,743 --> 00:05:44,711
IN THE EARLY PLANNING

209
00:05:44,711 --> 00:05:45,745
OF NASA'S FIRST

210
00:05:45,745 --> 00:05:47,580
GREAT SPACE OBSERVATORY,

211
00:05:47,580 --> 00:05:49,382
THE HUBBLE SPACE TELESCOPE,

212
00:05:49,382 --> 00:05:50,817
EARNING HER THE NICKNAME,

213
00:05:50,817 --> 00:05:53,219

"THE MOTHER OF HUBBLE."

214

00:05:53,219 --> 00:05:54,153
TO HONOR HER,

215

00:05:54,153 --> 00:05:55,388
NASA HAS GIVEN HER NAME

216

00:05:55,388 --> 00:05:56,889
TO ONE OF ITS MOST POWERFUL

217

00:05:56,889 --> 00:05:59,559
UPCOMING SPACE OBSERVATORIES.

218

00:05:59,559 --> 00:06:01,527
WFIRST, THE WIDE-FIELD

219

00:06:01,527 --> 00:06:03,463
INFRARED SURVEY TELESCOPE

220

00:06:03,463 --> 00:06:05,298
IS NOW THE NANCY GRACE ROMAN

221

00:06:05,298 --> 00:06:08,401
SPACE TELESCOPE.

222

00:06:08,401 --> 00:06:10,870
NANCY GRACE WAS BORN IN 1925

223

00:06:10,870 --> 00:06:11,738
AND DEVELOPED AN INTEREST

224

00:06:11,738 --> 00:06:14,507
IN ASTRONOMY AT AN EARLY AGE.

225

00:06:14,507 --> 00:06:16,609
>> I JUST WAS FASCINATED.

226
00:06:16,609 --> 00:06:18,478
BETWEEN FIFTH AND SIXTH GRADE

227
00:06:18,478 --> 00:06:20,646
I ORGANIZED MY FRIENDS

228
00:06:20,646 --> 00:06:22,048
INTO AN ASTRONOMY CLUB

229
00:06:22,048 --> 00:06:25,184
TO STUDY THE CONSTELLATIONS.

230
00:06:25,184 --> 00:06:26,319
I CERTAINLY DID NOT

231
00:06:26,319 --> 00:06:28,554
RECEIVE ANY ENCOURAGEMENT.

232
00:06:28,554 --> 00:06:30,223
I WAS TOLD FROM THE BEGINNING

233
00:06:30,223 --> 00:06:32,191
THAT WOMEN COULD NOT

234
00:06:32,191 --> 00:06:35,361
BE SCIENTISTS.

235
00:06:35,361 --> 00:06:36,729
>> NANCY GRACE PERSEVERED

236
00:06:36,729 --> 00:06:37,563
AND GRADUATED FROM

237
00:06:37,563 --> 00:06:38,931
THE UNIVERSITY OF CHICAGO

238
00:06:38,931 --> 00:06:40,767

IN 1949 WITH A DOCTORATE

239

00:06:40,767 --> 00:06:41,901
IN ASTRONOMY,

240

00:06:41,901 --> 00:06:42,835
DESPITE CONTINUING

241

00:06:42,835 --> 00:06:45,371
TO ENCOUNTER DISCRIMINATION.

242

00:06:45,371 --> 00:06:46,706
>> MY THESIS PROFESSOR--

243

00:06:46,706 --> 00:06:47,940
THERE WAS A PERIOD IN WHICH

244

00:06:47,940 --> 00:06:49,175
HE WENT FOR SIX MONTHS

245

00:06:49,175 --> 00:06:50,610
WITHOUT SPEAKING TO ME,

246

00:06:50,610 --> 00:06:51,577
EVEN WHEN I SAID HELLO

247

00:06:51,577 --> 00:06:53,446
TO HIM IN THE HALL.

248

00:06:53,446 --> 00:06:54,347
HE-HE DIDN'T WANT TO HAVE

249

00:06:54,347 --> 00:06:56,516
ANYTHING TO DO WITH ME.

250

00:06:56,516 --> 00:06:57,216
>> AFTER SEVERAL YEARS

251

00:06:57,216 --> 00:06:58,451
OF RESEARCH,

252

00:06:58,451 --> 00:07:00,386
NASA CAME CALLING.

253

00:07:00,386 --> 00:07:04,357
>> I STARTED IN NASA IN 1959.

254

00:07:04,357 --> 00:07:06,325
IT WAS SIX MONTHS OLD.

255

00:07:06,325 --> 00:07:06,993
BEING THE FIRST

256

00:07:06,993 --> 00:07:08,694
EXECUTIVE WOMAN AT NASA

257

00:07:08,694 --> 00:07:10,196
TURNED OUT NOT TO BE

258

00:07:10,196 --> 00:07:12,999
TERRIBLY, UH, EVENTFUL.

259

00:07:12,999 --> 00:07:15,668
UH, I WAS ACCEPTED VERY READILY

260

00:07:15,668 --> 00:07:18,871
AS A SCIENTIST IN MY JOB.

261

00:07:18,871 --> 00:07:20,973
>> DURING HER 21 YEARS AT NASA,

262

00:07:20,973 --> 00:07:22,074
DR. ROMAN WAS INVOLVED

263

00:07:22,074 --> 00:07:23,042

IN THE DEVELOPMENT

264

00:07:23,042 --> 00:07:24,777

AND LAUNCH OF MANY SPACE-BASED

265

00:07:24,777 --> 00:07:26,245

OBSERVATORIES WHICH STUDIED

266

00:07:26,245 --> 00:07:28,414

THE SUN, DEEP SPACE,

267

00:07:28,414 --> 00:07:30,349

AND THE EARTH'S ATMOSPHERE.

268

00:07:30,349 --> 00:07:32,351

HER MOST ENDURING LEGACY AT NASA

269

00:07:32,351 --> 00:07:33,553

WAS THE PLANNING OF HUBBLE

270

00:07:33,553 --> 00:07:35,488

AND ITS SCIENCE PROGRAM.

271

00:07:35,488 --> 00:07:36,088

SHE DID MUCH

272

00:07:36,088 --> 00:07:37,323

OF THE EARLY ADVOCACY

273

00:07:37,323 --> 00:07:38,090

AND ESTABLISHED

274

00:07:38,090 --> 00:07:39,258

THE PROGRAM STRUCTURE

275

00:07:39,258 --> 00:07:40,293

WHICH LAID THE FOUNDATION

276
00:07:40,293 --> 00:07:41,994
FOR OTHER LARGE NASA MISSIONS

277
00:07:41,994 --> 00:07:43,095
THAT FOLLOWED

278
00:07:43,095 --> 00:07:43,796
AND HELPED CONVINCED

279
00:07:43,796 --> 00:07:45,198
THE ASTRONOMICAL COMMUNITY

280
00:07:45,198 --> 00:07:47,733
TO SUPPORT ASTRONOMY FROM SPACE.

281
00:07:47,733 --> 00:07:49,368
AFTER RETIRING FROM NASA,

282
00:07:49,368 --> 00:07:50,770
DR. ROMAN STAYED INVOLVED

283
00:07:50,770 --> 00:07:52,238
IN THE SPACE COMMUNITY

284
00:07:52,238 --> 00:07:53,539
AND RECEIVED NUMEROUS AWARDS

285
00:07:53,539 --> 00:07:56,142
FOR HER PIONEERING WORK.

286
00:07:56,142 --> 00:07:57,143
OVER HER CAREER,

287
00:07:57,143 --> 00:07:58,544
SHE INSPIRED GENERATIONS

288
00:07:58,544 --> 00:08:00,913

OF YOUNG ASTRONOMERS.

289

00:08:00,913 --> 00:08:02,882

NOW WITH THE NANCY GRACE ROMAN

290

00:08:02,882 --> 00:08:04,317

SPACE TELESCOPE,

291

00:08:04,317 --> 00:08:06,052

HER LEGACY CAN CONTINUE

292

00:08:06,052 --> 00:08:08,921

TO INSPIRE GENERATIONS MORE.

293

00:08:12,625 --> 00:08:14,026

>> DR. ROMAN REALLY DESERVES

294

00:08:14,026 --> 00:08:15,895

TO BE PERMANENTLY ASSOCIATED

295

00:08:15,895 --> 00:08:18,030

WITH THIS AMAZING MISSION

296

00:08:18,030 --> 00:08:19,799

THAT SHE REALLY HELPED ENABLE

297

00:08:19,799 --> 00:08:22,001

IN A DIRECT FASHION.

298

00:08:22,001 --> 00:08:23,369

AND I'M SO DELIGHTED

299

00:08:23,369 --> 00:08:24,470

TO HAVE THAT NAME THERE

300

00:08:24,470 --> 00:08:26,372

AS A LASTING LEGACY

301
00:08:26,372 --> 00:08:28,407
TO THIS AMAZING PERSON THAT

302
00:08:28,407 --> 00:08:30,843
I HAVE LEARNED SO MUCH ABOUT.

303
00:08:30,843 --> 00:08:31,677
AND, UH, ESPECIALLY

304
00:08:31,677 --> 00:08:33,212
WHAT THAT MEANS TO ME

305
00:08:33,212 --> 00:08:34,413
IS THAT REALLY

306
00:08:34,413 --> 00:08:35,748
NANCY GRACE ROMAN

307
00:08:35,748 --> 00:08:37,116
DESERVES A PLACE

308
00:08:37,116 --> 00:08:39,118
IN THE HEAVENS SHE STUDIED

309
00:08:39,118 --> 00:08:40,887
AND OPENED FOR SO MANY.

310
00:08:40,887 --> 00:08:42,455
HOW DO YOU FEEL ABOUT IT, AMBER?

311
00:08:42,455 --> 00:08:43,256
>> YEAH I MEAN IT'S--

312
00:08:43,256 --> 00:08:44,223
IT'S JUST INCREDIBLE,

313
00:08:44,223 --> 00:08:45,992

AND SHE'S SO DESERVING, UH,

314

00:08:45,992 --> 00:08:46,859

TO HAVE THIS TELESCOPE

315

00:08:46,859 --> 00:08:47,693

NAMED AFTER HER.

316

00:08:47,693 --> 00:08:48,561

YOU KNOW, I WAS IN

317

00:08:48,561 --> 00:08:49,228

THE FIFTH GRADE

318

00:08:49,228 --> 00:08:50,162

WHEN HUBBLE LAUNCHED.

319

00:08:50,162 --> 00:08:51,497

AND I REMEMBER THAT--

320

00:08:51,497 --> 00:08:52,131

BEING A KID

321

00:08:52,131 --> 00:08:53,199

AND SEEING THE HUBBLE

322

00:08:53,199 --> 00:08:54,233

SPACE TELESCOPE LAUNCH,

323

00:08:54,233 --> 00:08:55,268

AND IT WAS ONE OF THOSE THINGS

324

00:08:55,268 --> 00:08:57,236

THAT REALLY SOLIDIFIED IN ME

325

00:08:57,236 --> 00:08:59,372

MY DESIRE TO BE AN ASTRONOMER.

326

00:08:59,372 --> 00:09:00,907

SO, UM, WILL YOU TELL US

327

00:09:00,907 --> 00:09:01,607

A LITTLE BIT, THOMAS,

328

00:09:01,607 --> 00:09:03,376

ABOUT HOW THIS, UH, DECISION

329

00:09:03,376 --> 00:09:04,810

WAS MADE FOR THIS TELESCOPE

330

00:09:04,810 --> 00:09:08,114

TO BE NAMED AFTER DR. ROMAN?

331

00:09:08,114 --> 00:09:09,015

>> SO YOU SHOULD KNOW, YOU KNOW,

332

00:09:09,015 --> 00:09:10,316

IF YOU'RE IN A JOB LIKE MINE,

333

00:09:10,316 --> 00:09:11,150

THERE'S A LOT OF PEOPLE

334

00:09:11,150 --> 00:09:12,318

WITH A LOT OF IDEAS

335

00:09:12,318 --> 00:09:14,220

THAT COME TO YOU, UH,

336

00:09:14,220 --> 00:09:15,521

AND THAT DOES NOT SURPRISE YOU.

337

00:09:15,521 --> 00:09:16,555

AND-AND ONE OF THE THINGS

338

00:09:16,555 --> 00:09:18,858

I NOTICED REALLY QUICKLY

339

00:09:18,858 --> 00:09:19,458
IS THAT WHENEVER

340

00:09:19,458 --> 00:09:21,527
WE TALKED ABOUT WFIRST,

341

00:09:21,527 --> 00:09:22,695
THERE WAS ONE NAME

342

00:09:22,695 --> 00:09:24,530
THAT ALWAYS POPPED UP,

343

00:09:24,530 --> 00:09:27,099
AND IT IS NANCY GRACE ROMAN.

344

00:09:27,099 --> 00:09:27,767
OF COURSE, I STARTED

345

00:09:27,767 --> 00:09:29,602
TO LEARN ABOUT THIS

346

00:09:29,602 --> 00:09:31,470
AND, UH, ACTUALLY DID WORK.

347

00:09:31,470 --> 00:09:33,806
I ACTUALLY, YOU KNOW, UH, UH,

348

00:09:33,806 --> 00:09:35,675
LEARNED ABOUT HER PASSING AWAY,

349

00:09:35,675 --> 00:09:37,376
LEARNED ABOUT THE GREAT ARTICLES

350

00:09:37,376 --> 00:09:39,345
THAT WERE WRITTEN BY SO MANY.

351
00:09:39,345 --> 00:09:40,746
AND I LEARNED ABOUT HER LEGACY,

352
00:09:40,746 --> 00:09:42,415
INCLUDING THE FIRST

353
00:09:42,415 --> 00:09:43,983
SPACE TELESCOPE SERIES,

354
00:09:43,983 --> 00:09:44,684
THE ORBITAL

355
00:09:44,684 --> 00:09:46,118
ASTRONOMICAL OBSERVATORIES

356
00:09:46,118 --> 00:09:47,286
AND OR-ORBITAL

357
00:09:47,286 --> 00:09:48,788
SOLAR OBSERVATORIES

358
00:09:48,788 --> 00:09:50,823
IN THE '60s AND '70s.

359
00:09:50,823 --> 00:09:51,857
AND THEN OF THE MORE YOU--

360
00:09:51,857 --> 00:09:54,026
I HEARD AND LEARNED ABOUT THIS,

361
00:09:54,026 --> 00:09:54,927
THE MORE EXCITED

362
00:09:54,927 --> 00:09:56,896
I GOT ABOUT, UH,

363
00:09:56,896 --> 00:09:58,297

NAMING IT, UH, TO THAT.

364

00:09:58,297 --> 00:09:59,231
AND ULTIMATELY, OF COURSE,

365

00:09:59,231 --> 00:10:01,600
THIS IS A DECISION OF, UH--

366

00:10:01,600 --> 00:10:02,401
THE ADMINISTRATOR

367

00:10:02,401 --> 00:10:04,136
WAS JUST AS ENTHUSIASTIC

368

00:10:04,136 --> 00:10:05,571
ONCE WE TALKED ABOUT, UH,

369

00:10:05,571 --> 00:10:08,407
THE OPTIONS HERE.

370

00:10:08,407 --> 00:10:09,108
>> YEAH, IT'S--

371

00:10:09,108 --> 00:10:10,443
IT'S JUST SO EXCITING.

372

00:10:10,443 --> 00:10:12,244
UM, I THINK-- AGAIN, I THINK

373

00:10:12,244 --> 00:10:14,013
SHE'S JUST A PERFECT NAMESAKE

374

00:10:14,013 --> 00:10:15,281
FOR THIS TELESCOPE.

375

00:10:15,281 --> 00:10:15,848
UH, CAN YOU TALK

376

00:10:15,848 --> 00:10:16,482

A LITTLE BIT ABOUT

377

00:10:16,482 --> 00:10:17,850

SOME OF HER ACCOMPLISHMENTS

378

00:10:17,850 --> 00:10:19,051

THAT, UH, SORT OF LED

379

00:10:19,051 --> 00:10:21,220

TO THIS DECISION?

380

00:10:21,220 --> 00:10:21,687

>> YOU KNOW,

381

00:10:21,687 --> 00:10:22,521

ONE OF THE COOLEST THINGS

382

00:10:22,521 --> 00:10:23,489

ABOUT HER IS THAT

383

00:10:23,489 --> 00:10:25,191

SHE JOINED THE AGENCY,

384

00:10:25,191 --> 00:10:26,158

LIKE, WHEN THE AGENCY

385

00:10:26,158 --> 00:10:27,927

WAS SIX MONTHS OLD, RIGHT?

386

00:10:27,927 --> 00:10:28,794

SO AS REALLY ONE

387

00:10:28,794 --> 00:10:30,496

OF THE PIONEERS, UH,

388

00:10:30,496 --> 00:10:31,964

FROM THE BEGINNING THERE--

389

00:10:31,964 --> 00:10:34,600

AND-AND REALLY, SHE ESTABLISHED

390

00:10:34,600 --> 00:10:36,068

THE MOST IMPORTANT KIND

391

00:10:36,068 --> 00:10:38,004

OF POLICIES AND ORGANIZATIONS

392

00:10:38,004 --> 00:10:39,872

THAT HAVE GOTTEN US

393

00:10:39,872 --> 00:10:41,307

TO WHERE WE ARE IN,

394

00:10:41,307 --> 00:10:42,942

UH, SPACE ASTRONOMY.

395

00:10:42,942 --> 00:10:43,542

AND SO FOR ME,

396

00:10:43,542 --> 00:10:44,810

IT'S JUST FOR THAT REASON,

397

00:10:44,810 --> 00:10:46,679

THAT VISION, THAT FORESIGHT.

398

00:10:46,679 --> 00:10:47,480

YOU KNOW, OF COURSE,

399

00:10:47,480 --> 00:10:48,247

THERE'S SOME OF THE OTHERS

400

00:10:48,247 --> 00:10:49,115

ON THE OUTSIDE,

401
00:10:49,115 --> 00:10:50,449
BUT WITH THAT LEADERSHIP

402
00:10:50,449 --> 00:10:52,551
ON THE INSIDE OF THE AGENCY,

403
00:10:52,551 --> 00:10:54,353
UH, THAT REALLY MAKES HER,

404
00:10:54,353 --> 00:10:55,688
I THINK, THE ONLY NAME

405
00:10:55,688 --> 00:10:56,655
THAT IS APPROPRIATE

406
00:10:56,655 --> 00:10:58,557
FOR THIS LARGE SPACE TELESCOPE

407
00:10:58,557 --> 00:11:00,026
THAT WE'RE BUILDING NOW,

408
00:11:00,026 --> 00:11:01,193
UH, THE NANCY GRACE ROMAN

409
00:11:01,193 --> 00:11:02,595
SPACE TELESCOPE.

410
00:11:02,595 --> 00:11:03,229
BUT HOW DO YOU THINK

411
00:11:03,229 --> 00:11:04,597
ABOUT IT, AMBER?

412
00:11:04,597 --> 00:11:05,464
>> YEAH, I MEAN IT'S--

413
00:11:05,464 --> 00:11:06,766

SEEING WOMEN LIKE THIS

414

00:11:06,766 --> 00:11:07,833

WHO ARE TRAILBLAZERS

415

00:11:07,833 --> 00:11:09,402

IN ASTRONOMY BE HONORED

416

00:11:09,402 --> 00:11:10,870

IN THIS WAY IS-- IT'S JUST--

417

00:11:10,870 --> 00:11:12,104

IT'S REALLY ENCOURAGING.

418

00:11:12,104 --> 00:11:13,672

AND, UM, YOU KNOW, PERSONALLY

419

00:11:13,672 --> 00:11:14,807

I'VE LOOKED UP TO WOMEN

420

00:11:14,807 --> 00:11:16,042

LIKE NANCY GRACE ROMAN

421

00:11:16,042 --> 00:11:17,676

AND SOME OF THE OTHER PIONEERS

422

00:11:17,676 --> 00:11:19,412

IN ASTRONOMY OVER THE YEARS.

423

00:11:19,412 --> 00:11:20,713

AND SO IT-- IT REALLY--

424

00:11:20,713 --> 00:11:21,547

IT MAKES ME FEEL GREAT

425

00:11:21,547 --> 00:11:22,548

TO KNOW THAT THIS AWESOME

426
00:11:22,548 --> 00:11:24,083
SPACE TELESCOPE HAS BEEN,

427
00:11:24,083 --> 00:11:26,252
UH, NAMED AFTER HER.

428
00:11:26,252 --> 00:11:27,353
SO THANK YOU SO MUCH

429
00:11:27,353 --> 00:11:28,287
FOR JOINING US, THOMAS,

430
00:11:28,287 --> 00:11:28,888
TO MAKE THIS

431
00:11:28,888 --> 00:11:31,424
EXCITING ANNOUNCEMENT.

432
00:11:31,424 --> 00:11:33,259
>> THANKS TO YOU.

433
00:11:33,259 --> 00:11:34,827
>> WHAT AN INCREDIBLE WOMAN.

434
00:11:34,827 --> 00:11:35,861
RAISED IN A TIME WHEN

435
00:11:35,861 --> 00:11:36,996
WOMEN WERE DISCOURAGED

436
00:11:36,996 --> 00:11:38,764
FROM PURSUING SCIENCE,

437
00:11:38,764 --> 00:11:39,932
SHE NOT ONLY SUCCEEDED

438
00:11:39,932 --> 00:11:41,067

IN ESTABLISHING HERSELF

439

00:11:41,067 --> 00:11:42,435
AS A SCIENTIFIC LEADER,

440

00:11:42,435 --> 00:11:43,803
BUT SHE'S LEFT A LEGACY

441

00:11:43,803 --> 00:11:44,570
FOR THE ASTRONOMERS

442

00:11:44,570 --> 00:11:46,906
OF TODAY AND TOMORROW.

443

00:11:46,906 --> 00:11:47,540
I'M JOINED NOW

444

00:11:47,540 --> 00:11:49,108
BY TWO MORE EXPERTS,

445

00:11:49,108 --> 00:11:50,943
JULIE McENERNY, NASA ROMAN

446

00:11:50,943 --> 00:11:52,745
DEPUTY PROJECT SCIENTIST,

447

00:11:52,745 --> 00:11:53,946
AND ELISA QUINTANA,

448

00:11:53,946 --> 00:11:56,115
NASA ROMAN DEPUTY SCIENTIST

449

00:11:56,115 --> 00:11:58,451
FOR COMMUNICATIONS.

450

00:11:58,451 --> 00:11:59,485
ELISA AND JULIE,

451
00:11:59,485 --> 00:12:00,619
AS MEMBERS OF THE TEAM,

452
00:12:00,619 --> 00:12:01,854
WHAT DOES IT MEAN TO YOU

453
00:12:01,854 --> 00:12:02,521
THAT THIS MISSIONS

454
00:12:02,521 --> 00:12:03,322
IS BEING NAMED

455
00:12:03,322 --> 00:12:06,959
AFTER NANCY GRACE ROMAN?

456
00:12:06,959 --> 00:12:07,426
>> I FOUND IT

457
00:12:07,426 --> 00:12:08,594
TREMENDOUSLY EXCITING,

458
00:12:08,594 --> 00:12:09,728
UH, THAT THE OBSERVATORY

459
00:12:09,728 --> 00:12:11,730
IS BEING-- ER, BEING RENAMED,

460
00:12:11,730 --> 00:12:13,099
UH, FOR TWO REASONS.

461
00:12:13,099 --> 00:12:14,100
UM, FIRSTLY I THINK

462
00:12:14,100 --> 00:12:15,334
IT'S A MARK OF HOW FAR

463
00:12:15,334 --> 00:12:16,802

THE MISSION HAS COME,

464

00:12:16,802 --> 00:12:19,138

UM, THAT WE ARE BEING RENAMED.

465

00:12:19,138 --> 00:12:20,206

UM, IT SAYS SOMETHING

466

00:12:20,206 --> 00:12:21,841

ABOUT HOW FAR, UH,

467

00:12:21,841 --> 00:12:23,375

THE DEVELOPMENT OF THE MISSION--

468

00:12:23,375 --> 00:12:25,010

THAT WE'RE A REAL THING,

469

00:12:25,010 --> 00:12:26,745

UM, THAT, UH-- THAT STUFF IS

470

00:12:26,745 --> 00:12:28,380

ACTUALLY REALLY BEING BUILT.

471

00:12:28,380 --> 00:12:29,682

BUT MORE IMPORTANTLY THAN THAT

472

00:12:29,682 --> 00:12:31,050

AND FROM A PERSONAL PERSPECTIVE,

473

00:12:31,050 --> 00:12:32,485

I'M REALLY EXCITED THAT

474

00:12:32,485 --> 00:12:33,719

THE MISSION IS BEING RENAMED

475

00:12:33,719 --> 00:12:36,088

AFTER NANCY GRACE ROMAN.

476
00:12:36,088 --> 00:12:37,089
UH, SHE'S SOMEBODY I REALLY,

477
00:12:37,089 --> 00:12:39,325
UM-- I'VE REALLY ADMIRED.

478
00:12:39,325 --> 00:12:40,426
UM, AND I-- IT MAKES ME

479
00:12:40,426 --> 00:12:42,094
EXCITED AND PROUD, UH,

480
00:12:42,094 --> 00:12:44,230
TO BE ASSOCIATED WITH, UM--

481
00:12:44,230 --> 00:12:45,030
UH, WITH A MISSION

482
00:12:45,030 --> 00:12:46,198
THAT'S NAMED AFTER HER,

483
00:12:46,198 --> 00:12:47,566
AND THAT THIS IS SOMETHING THAT,

484
00:12:47,566 --> 00:12:50,836
UM, I'M GOING TO, UH, ENJOY

485
00:12:50,836 --> 00:12:51,904
DAY AFTER DAY AFTER DAY

486
00:12:51,904 --> 00:12:53,639
AS THE MISSION CONTINUES.

487
00:12:56,375 --> 00:12:56,909
>> GREAT.

488
00:12:56,909 --> 00:12:59,945

ELISA, WHAT ARE YOUR THOUGHTS?

489

00:12:59,945 --> 00:13:00,479

>> WELL, I HAVE

490

00:13:00,479 --> 00:13:01,280

SO MUCH ADMIRATION

491

00:13:01,280 --> 00:13:02,815

FOR NANCY GRACE ROMAN.

492

00:13:02,815 --> 00:13:04,316

UM, SHE BELIEVED THAT

493

00:13:04,316 --> 00:13:06,051

SHE COULD BE AN ASTRONOMER,

494

00:13:06,051 --> 00:13:06,785

UH, DURING A TIME

495

00:13:06,785 --> 00:13:07,753

WHEN THERE WERE

496

00:13:07,753 --> 00:13:09,288

SO MANY BARRIERS TO WOMEN,

497

00:13:09,288 --> 00:13:11,824

UH, PURSUING CAREERS IN SCIENCE.

498

00:13:11,824 --> 00:13:12,658

UH, SHE THEN WENT ON

499

00:13:12,658 --> 00:13:13,492

TO BECOME A LEADER

500

00:13:13,492 --> 00:13:15,761

AND A VISIONARY AT NASA,

501
00:13:15,761 --> 00:13:16,462
UM, REALLY WORKING

502
00:13:16,462 --> 00:13:17,696
TO FACILITATE, YOU KNOW,

503
00:13:17,696 --> 00:13:18,597
THE DEVELOPMENT

504
00:13:18,597 --> 00:13:20,299
OF ASTRONOMY MISSIONS.

505
00:13:20,299 --> 00:13:22,134
UM, WHAT SHE REALLY BELIEVED IN

506
00:13:22,134 --> 00:13:23,369
WAS INVESTING IN MISSIONS

507
00:13:23,369 --> 00:13:24,336
THAT WOULD BE USEFUL FOR,

508
00:13:24,336 --> 00:13:26,172
YOU KNOW, FUTURE GENERATIONS.

509
00:13:26,172 --> 00:13:27,773
AND SO I'M REALLY HONORED

510
00:13:27,773 --> 00:13:29,074
TO BE PART OF THE ROMAN

511
00:13:29,074 --> 00:13:31,410
SPACE TELESCOPE, UM, MISSION.

512
00:13:31,410 --> 00:13:32,678
AND Y-- I'M REALLY PLEASED,

513
00:13:32,678 --> 00:13:33,946

UM, THAT THIS MISSION

514

00:13:33,946 --> 00:13:36,148
IS BEING NAMED AFTER HER.

515

00:13:36,148 --> 00:13:37,049
>> I HAVE A FEW MORE QUESTIONS

516

00:13:37,049 --> 00:13:39,218
FOR YOU, JULIE AND ELISA.

517

00:13:39,218 --> 00:13:40,886
FIRST, WHY IS IT APPROPRIATE

518

00:13:40,886 --> 00:13:42,421
TO NAME WFIRST AFTER

519

00:13:42,421 --> 00:13:45,624
NANCY GRACE ROMAN?

520

00:13:45,624 --> 00:13:46,325
>> NANCY GRACE ROMAN

521

00:13:46,325 --> 00:13:48,561
WAS THE, UM, DRIVING FORCE

522

00:13:48,561 --> 00:13:50,763
BEHIND, UH-- BEHIND HUBBLE.

523

00:13:50,763 --> 00:13:52,364
UM, YOU KNOW, SHE WAS, UH,

524

00:13:52,364 --> 00:13:53,299
REALLY ONE OF THE PEOPLE

525

00:13:53,299 --> 00:13:55,234
WHO, UH, MADE THAT MISSION

526

00:13:55,234 --> 00:13:57,469

COME INTO, UH, BEING.

527

00:13:57,469 --> 00:13:58,204

AND ONE-- ONE OF THE THINGS

528

00:13:58,204 --> 00:13:59,171

I REALLY ADMIRE ABOUT

529

00:13:59,171 --> 00:14:00,039

NANCY GRACE ROMAN

530

00:14:00,039 --> 00:14:03,542

IS THAT SHE, UM-- SHE HAD, UH,

531

00:14:03,542 --> 00:14:04,410

THE SCIENTIFIC SKILLS

532

00:14:04,410 --> 00:14:06,412

AND THE TECHNICAL SKILLS

533

00:14:06,412 --> 00:14:07,680

AND THE MANAGEMENT SKILLS

534

00:14:07,680 --> 00:14:08,981

AND THE, UH, UNDERSTANDING

535

00:14:08,981 --> 00:14:10,015

AND KNOWLEDGE OF HOW

536

00:14:10,015 --> 00:14:11,350

THE SYSTEM WORKED, UM,

537

00:14:11,350 --> 00:14:12,318

SO THAT SHE WAS ABLE TO BRING

538

00:14:12,318 --> 00:14:13,886

ALL OF THESE THINGS-- UM,

539

00:14:13,886 --> 00:14:15,921

THESE THINGS TOGETHER TO,

540

00:14:15,921 --> 00:14:17,356

UM, MAKE HUBBLE HAPPEN.

541

00:14:17,356 --> 00:14:19,458

UM, SHE WAS VERY INSIGHTFUL.

542

00:14:19,458 --> 00:14:20,392

AND I THINK IT'S--

543

00:14:20,392 --> 00:14:22,194

UH, I THINK IT'S VERY IMPORTANT,

544

00:14:22,194 --> 00:14:24,263

UM, TO RECOGNIZE THAT,

545

00:14:24,263 --> 00:14:25,998

UH, LARGE NASA MISSIONS

546

00:14:25,998 --> 00:14:27,166

TAKE MORE THAN JUST BEING

547

00:14:27,166 --> 00:14:27,900

A GOOD SCIENTIST

548

00:14:27,900 --> 00:14:29,301

OR TAKE MORE THAN JUST BEING--

549

00:14:29,301 --> 00:14:31,470

UM, UH, BEING A GOOD ENGINEER.

550

00:14:31,470 --> 00:14:33,172

THAT YOU HAVE TO HAVE, UH,

551
00:14:33,172 --> 00:14:34,607
PEOPLE LIKE NANCY GRACE ROMAN

552
00:14:34,607 --> 00:14:35,708
WHO REALLY UNDERSTOOD

553
00:14:35,708 --> 00:14:36,775
THE DETAILS OF ALL

554
00:14:36,775 --> 00:14:38,344
OF THOSE THINGS AND COULD--

555
00:14:38,344 --> 00:14:40,045
UM, UH, COULD BRING THEM,

556
00:14:40,045 --> 00:14:42,248
UH, TOGETHER.

557
00:14:42,248 --> 00:14:43,082
>> TOTALLY AGREE.

558
00:14:43,082 --> 00:14:43,716
ELISA, COULD YOU

559
00:14:43,716 --> 00:14:46,218
TELL US YOUR THOUGHTS?

560
00:14:46,218 --> 00:14:47,353
>> SURE, UM, SO I THINK

561
00:14:47,353 --> 00:14:49,021
IT'S REALLY COOL THAT SHE,

562
00:14:49,021 --> 00:14:51,724
UM, JOINED NASA IN 1959.

563
00:14:51,724 --> 00:14:52,591

SO THIS IS VERY SOON

564

00:14:52,591 --> 00:14:54,360
AFTER NASA WAS CREATED.

565

00:14:54,360 --> 00:14:55,761
UM, SHE WAS THE FIRST

566

00:14:55,761 --> 00:14:57,162
CHIEF OF ASTRONOMY,

567

00:14:57,162 --> 00:14:57,997
UH, THE FIRST WOMAN

568

00:14:57,997 --> 00:14:59,565
EXECUTIVE AT NASA.

569

00:14:59,565 --> 00:15:01,667
AND SHE REALLY ADVOCATED,

570

00:15:01,667 --> 00:15:02,534
UM, YOU KNOW PUTTING

571

00:15:02,534 --> 00:15:04,637
ASTRONOMY INSTRUMENTS IN SPACE.

572

00:15:04,637 --> 00:15:06,171
UM, AND IT'S BECAUSE

573

00:15:06,171 --> 00:15:07,373
OF HER AND PEOPLE

574

00:15:07,373 --> 00:15:08,507
LIKE HER THAT, YOU KNOW,

575

00:15:08,507 --> 00:15:10,976
WE HAVE MISSIONS LIKE WFIRST.

576

00:15:10,976 --> 00:15:12,578

AND SO, UH, YOU KNOW,

577

00:15:12,578 --> 00:15:13,479

NASA DOESN'T JUST BUILD

578

00:15:13,479 --> 00:15:14,780

MISSIONS FOR SCIENCE

579

00:15:14,780 --> 00:15:16,181

THAT WE KNOW ABOUT TODAY.

580

00:15:16,181 --> 00:15:17,483

UH, YOU REALLY HAVE TO BE

581

00:15:17,483 --> 00:15:18,584

A VISIONARY LIKE

582

00:15:18,584 --> 00:15:19,952

NANCY GRACE ROMAN,

583

00:15:19,952 --> 00:15:21,620

UM, TO DEVELOP INSTRUMENTS

584

00:15:21,620 --> 00:15:23,722

THAT ARE GONNA LET US EXPLORE

585

00:15:23,722 --> 00:15:24,456

AND, YOU KNOW,

586

00:15:24,456 --> 00:15:25,357

REALLY TRY TO UNDERSTAND

587

00:15:25,357 --> 00:15:26,959

THE UNKNOWN MYSTERIES,

588

00:15:26,959 --> 00:15:28,127

UM, IN THE UNIVERSE.

589

00:15:28,127 --> 00:15:29,561

AND, UH, WFIRST IS

590

00:15:29,561 --> 00:15:31,063

GONNA BE REALLY EXCITING.

591

00:15:31,063 --> 00:15:33,265

UM, WE ANTICIPATE MANY,

592

00:15:33,265 --> 00:15:35,067

MANY NEW DISCOVERIES.

593

00:15:35,067 --> 00:15:36,735

AND, YOU KNOW, ALL OF THIS IS-

594

00:15:36,735 --> 00:15:38,237

IS BECAUSE OF THE FOUNDATION

595

00:15:38,237 --> 00:15:39,571

THAT NANCY GRACE ROMAN,

596

00:15:39,571 --> 00:15:41,573

UH, PUT DOWN.

597

00:15:41,573 --> 00:15:42,241

>> ABSOLUTELY.

598

00:15:42,241 --> 00:15:43,509

COULDN'T AGREE MORE.

599

00:15:43,509 --> 00:15:44,176

SO COULD YOU BOTH

600

00:15:44,176 --> 00:15:45,477

TELL US A LITTLE BIT MORE

601
00:15:45,477 --> 00:15:46,912
ABOUT THE MISSION?

602
00:15:46,912 --> 00:15:47,446
WHAT ARE SOME OF

603
00:15:47,446 --> 00:15:48,147
THE SCIENCE GOALS

604
00:15:48,147 --> 00:15:48,947
OF THE NANCY GRACE ROMAN

605
00:15:48,947 --> 00:15:51,817
SPACE TELESCOPE?

606
00:15:51,817 --> 00:15:52,651
>> SO TO TELL YOU A LITTLE BIT

607
00:15:52,651 --> 00:15:54,053
ABOUT THE, UH, SCIENCE

608
00:15:54,053 --> 00:15:55,154
GAIL-- ER, GOALS

609
00:15:55,154 --> 00:15:57,122
OF THE ROMAN SPACE TELESCOPE,

610
00:15:57,122 --> 00:15:57,956
UM, I NEED TO TELL YOU FIRST

611
00:15:57,956 --> 00:15:58,924
A LITTLE BIT ABOUT

612
00:15:58,924 --> 00:16:00,592
HOW, UH-- ABOUT, UH--

613
00:16:00,592 --> 00:16:02,428

ABOUT THE OBSERVATORY ITSELF.

614

00:16:02,428 --> 00:16:04,730

UM, THE MIRROR ON, UH,

615

00:16:04,730 --> 00:16:06,365

THE ROMAN SPACE TELESCOPE

616

00:16:06,365 --> 00:16:08,867

IS THE SAME SIZE AS THE MIRROR

617

00:16:08,867 --> 00:16:11,070

ON THE HUBBLE SPACE TELESCOPE.

618

00:16:11,070 --> 00:16:12,805

BUT THE MAIN SCIENCE INSTRUMENT,

619

00:16:12,805 --> 00:16:14,006

UH, THE WIDE-FIELD INSTRUMENT,

620

00:16:14,006 --> 00:16:15,441

HAS A FIELD OF VIEW

621

00:16:15,441 --> 00:16:17,276

A 100 TIMES LARGER.

622

00:16:17,276 --> 00:16:19,211

THAT MEANS THAT AT ANY INSTANT

623

00:16:19,211 --> 00:16:20,879

WHEN, UH, THE ROMAN OBSERVATORY

624

00:16:20,879 --> 00:16:22,214

IS VIEWING THE UNIVERSE,

625

00:16:22,214 --> 00:16:23,849

IT WILL SEE A SWATH OF THE SKY

626
00:16:23,849 --> 00:16:26,251
THAT IS 100 TIMES LARGER.

627
00:16:26,251 --> 00:16:28,721
THE ROMAN SPACE TELESCOPE, UH,

628
00:16:28,721 --> 00:16:30,656
ALSO OBSERVES MORE EFFICIENTLY,

629
00:16:30,656 --> 00:16:31,623
CAN MOVE FROM ONE PLACE

630
00:16:31,623 --> 00:16:32,825
TO THE OTHER MORE QUICKLY.

631
00:16:32,825 --> 00:16:34,159
IT SPENDS A LARGER FRACTION

632
00:16:34,159 --> 00:16:35,561
OF ITS TIME, UM,

633
00:16:35,561 --> 00:16:37,396
LOOKING AT THE SKY.

634
00:16:37,396 --> 00:16:38,497
UM, SO WITH THIS WE'RE

635
00:16:38,497 --> 00:16:39,765
GOING TO BE ABLE TO VIEW

636
00:16:39,765 --> 00:16:41,433
THE SKY IN A NEW WAY.

637
00:16:41,433 --> 00:16:42,801
UH, WE WILL BE SURVEYING

638
00:16:42,801 --> 00:16:45,671

THE SKY, UM, LOOKING ACROSS

639

00:16:45,671 --> 00:16:47,072

LARGE AREAS-- OR LOOKING

640

00:16:47,072 --> 00:16:48,374

AT PLACES WHERE WE DON'T KNOW

641

00:16:48,374 --> 00:16:50,109

WHEN TO EXPECT SOMETHING, UH,

642

00:16:50,109 --> 00:16:51,310

BUT WE'RE SIMPLY MONITORING IT.

643

00:16:51,310 --> 00:16:52,544

AND THIS IS A DIFFERENT--

644

00:16:52,544 --> 00:16:53,946

VERY DIFFERENT TO POINTING

645

00:16:53,946 --> 00:16:56,281

AT A SPECIFIC, UH, OBJECT

646

00:16:56,281 --> 00:16:57,249

WITH A TELESCOPE

647

00:16:57,249 --> 00:16:58,484

THAT HAS A MUCH, UH,

648

00:16:58,484 --> 00:17:00,085

SMALLER PART OF THE SKY

649

00:17:00,085 --> 00:17:02,154

THAT IT VIEWS AT ANY INSTANT.

650

00:17:02,154 --> 00:17:03,021

SO WITH THE ROMAN

651
00:17:03,021 --> 00:17:03,822
SPACE TELESCOPE,

652
00:17:03,822 --> 00:17:05,591
WE'RE GOING TO SEE HUNDREDS

653
00:17:05,591 --> 00:17:08,327
OF MILLIONS OF GALAXIES.

654
00:17:08,327 --> 00:17:08,894
AND WE'RE GONNA MEASURE

655
00:17:08,894 --> 00:17:10,462
PRECISELY THE DISTANCE

656
00:17:10,462 --> 00:17:11,397
AND POSITION OF EACH

657
00:17:11,397 --> 00:17:12,564
OF THOSE GALAXIES.

658
00:17:12,564 --> 00:17:13,532
FOR A FRACTION OF THEM,

659
00:17:13,532 --> 00:17:14,867
WE'RE GOING TO VERY PRECISELY

660
00:17:14,867 --> 00:17:15,634
MEASURE THE SHAPE

661
00:17:15,634 --> 00:17:16,468
OF THOSE GALAXIES.

662
00:17:16,468 --> 00:17:18,470
AND WE CAN USE THIS INFORMATION,

663
00:17:18,470 --> 00:17:20,272

UM, TO STUDY THE STRUCTURE

664

00:17:20,272 --> 00:17:23,142

AND EVOLUTION OF THE UNIVERSE.

665

00:17:23,142 --> 00:17:24,109

WE CAN ALSO EXPLORE,

666

00:17:24,109 --> 00:17:26,111

UM, OUR, UH, SKY

667

00:17:26,111 --> 00:17:27,346

IN OTHER WAYS AS WELL.

668

00:17:27,346 --> 00:17:29,348

WE PLAN TO PICK A REGION

669

00:17:29,348 --> 00:17:31,216

OF THE SKY AND GO BACK

670

00:17:31,216 --> 00:17:33,819

TIME AND TIME AND TIME AGAIN.

671

00:17:33,819 --> 00:17:35,120

AND IN THIS REGION OF THE SKY

672

00:17:35,120 --> 00:17:35,954

WHERE THERE ARE HUNDREDS

673

00:17:35,954 --> 00:17:37,623

OF THOUSANDS OF GALAXIES,

674

00:17:37,623 --> 00:17:39,324

UM, IF A STAR

675

00:17:39,324 --> 00:17:41,493

IN ANY OF THOSE GALAXIES,

676
00:17:41,493 --> 00:17:43,028
UH, GOES SUPERNOVA--

677
00:17:43,028 --> 00:17:43,829
THAT MEANS IT EXPLODES

678
00:17:43,829 --> 00:17:45,063
AT THE END OF ITS LIFE--

679
00:17:45,063 --> 00:17:45,798
WFIRST WILL BE ABLE

680
00:17:45,798 --> 00:17:46,865
TO FIND THAT.

681
00:17:46,865 --> 00:17:48,000
AND WE WILL HAVE, UH,

682
00:17:48,000 --> 00:17:50,369
TENS OF THOUSANDS OF SUPERNOVA,

683
00:17:50,369 --> 00:17:51,904
UH, DISCOVERED WITH WFIRST

684
00:17:51,904 --> 00:17:53,806
BY THE, UH, END OF THE MISSION.

685
00:17:53,806 --> 00:17:54,573
AND WE CAN USE THOSE

686
00:17:54,573 --> 00:17:56,175
TO STUDY THOSE EXPLODING STARS.

687
00:17:56,175 --> 00:17:57,376
WE CAN USE, ER,

688
00:17:57,376 --> 00:17:59,278

THE INFORMATION FROM THAT

689

00:17:59,278 --> 00:18:00,279

AS A DIFFERENT WAY

690

00:18:00,279 --> 00:18:01,814

TO UNDERSTAND THE STRUCTURE

691

00:18:01,814 --> 00:18:03,115

AND EVOLUTION OF THE--

692

00:18:03,115 --> 00:18:04,283

OF THE UNIVERSE.

693

00:18:04,283 --> 00:18:05,317

AND THEN FINALLY

694

00:18:05,317 --> 00:18:07,786

WHEN YOU EXPLORE THE UNIVERSE

695

00:18:07,786 --> 00:18:09,087

IN A WAY THAT YOU'RE JUST

696

00:18:09,087 --> 00:18:10,722

LOOKING TO SEE WHAT'S THERE,

697

00:18:10,722 --> 00:18:11,423

RATHER THAN LOOKING

698

00:18:11,423 --> 00:18:12,791

AT A PARTICULAR SPOT,

699

00:18:12,791 --> 00:18:13,525

YOU'RE NO LONGER LOOKING

700

00:18:13,525 --> 00:18:15,761

UNDER THE, UH, LAMP POST.

701
00:18:15,761 --> 00:18:16,695
UM, YOU'RE GOING TO BE ABLE

702
00:18:16,695 --> 00:18:17,696
TO FIND THE THINGS

703
00:18:17,696 --> 00:18:18,797
THAT YOU DIDN'T EXPECT,

704
00:18:18,797 --> 00:18:19,531
SO I'M CONFIDENT THAT

705
00:18:19,531 --> 00:18:21,467
THE MOST EXCITING SCIENCE RETURN

706
00:18:21,467 --> 00:18:23,969
FROM THE ROMAN SPACE TELESCOPE

707
00:18:23,969 --> 00:18:24,503
WILL BE THINGS THAT

708
00:18:24,503 --> 00:18:26,638
WE DIDN'T EXPECT TO FIND.

709
00:18:26,638 --> 00:18:27,306
>> THAT'S SO GREAT.

710
00:18:27,306 --> 00:18:28,240
AND FOR ME THAT'S ONE

711
00:18:28,240 --> 00:18:29,174
OF THE MOST EXCITING THINGS

712
00:18:29,174 --> 00:18:30,676
ABOUT ANY TELESCOPE THAT NASA

713
00:18:30,676 --> 00:18:32,211

PUTS INTO SPACE IS THOSE--

714

00:18:32,211 --> 00:18:32,978
SORT OF THOSE SURPRISES

715

00:18:32,978 --> 00:18:34,346
THAT ARE OUT THERE

716

00:18:34,346 --> 00:18:35,080
IN THE UNIVERSE

717

00:18:35,080 --> 00:18:37,382
WAITING FOR US TO-TO FIND THEM.

718

00:18:37,382 --> 00:18:38,217
ELISA, WHAT ARE YOUR THOUGHTS

719

00:18:38,217 --> 00:18:39,952
ON THE EXCITING SCIENCE

720

00:18:39,952 --> 00:18:41,019
OF THIS MIS-- THIS NEW MISSION

721

00:18:41,019 --> 00:18:42,721
WILL DISCOVER?

722

00:18:42,721 --> 00:18:43,789
>> SURE, SO IN ADDITION

723

00:18:43,789 --> 00:18:45,824
TO ALL THE AMAZING DISCOVERIES,

724

00:18:45,824 --> 00:18:47,326
UM, ONE OF THE OTHER GOALS

725

00:18:47,326 --> 00:18:49,595
OF WFIRST IS TO DISCOVER

726
00:18:49,595 --> 00:18:51,296
AND EXPLORE EXOPLANETS.

727
00:18:51,296 --> 00:18:52,164
SO THESE ARE PLANETS

728
00:18:52,164 --> 00:18:53,265
ORBITING STARS OUTSIDE

729
00:18:53,265 --> 00:18:54,733
OF OUR SOLAR SYSTEM.

730
00:18:54,733 --> 00:18:55,868
UH, WE CURRENTLY KNOW

731
00:18:55,868 --> 00:18:57,536
OF OVER 4,000 PLANETS

732
00:18:57,536 --> 00:18:58,904
OUTSIDE OF OUR SOLAR SYSTEM.

733
00:18:58,904 --> 00:18:59,738
UM, BOTH MOST OF THESE

734
00:18:59,738 --> 00:19:00,572
WERE DISCOVERED WITH

735
00:19:00,572 --> 00:19:01,473
A TECHNIQUE CALLED

736
00:19:01,473 --> 00:19:02,608
THE TRANSIT TECHNIQUE.

737
00:19:02,608 --> 00:19:03,709
UM, SO YOU MAY BE FAMILIAR

738
00:19:03,709 --> 00:19:04,309

WITH THE KEPLER

739

00:19:04,309 --> 00:19:05,811
AND TESS MISSIONS.

740

00:19:05,811 --> 00:19:07,112
UM, SO WFIRST WILL USE

741

00:19:07,112 --> 00:19:08,180
A DIFFERENT TECHNIQUE

742

00:19:08,180 --> 00:19:09,581
CALLED MICROLENSING.

743

00:19:09,581 --> 00:19:10,215
UM, IT USES

744

00:19:10,215 --> 00:19:12,251
A LIGHT-BENDING PHENOMENON,

745

00:19:12,251 --> 00:19:13,385
UH, TO DISCOVER PLANETS

746

00:19:13,385 --> 00:19:14,686
ON MUCH WIDER ORBITS

747

00:19:14,686 --> 00:19:16,455
THAN WE PREVIOUSLY KNEW OF.

748

00:19:16,455 --> 00:19:17,890
AND SO, UM, THESE ARE

749

00:19:17,890 --> 00:19:19,324
ORBITS COMPARABLE, UH,

750

00:19:19,324 --> 00:19:21,393
TO VENUS'S OUT TO PLUTO,

751
00:19:21,393 --> 00:19:22,628
UM, THESE PLANETS ON THESE,

752
00:19:22,628 --> 00:19:24,630
YOU KNOW, COLDER ORBITS.

753
00:19:24,630 --> 00:19:25,764
UH, SO WHAT WE LEARN

754
00:19:25,764 --> 00:19:27,599
WITH WFIRST MICROLENSING

755
00:19:27,599 --> 00:19:28,333
COMBINED WITH KEPLER

756
00:19:28,333 --> 00:19:29,201
AND TESS IS REALLY

757
00:19:29,201 --> 00:19:30,702
GONNA ALLOW US TO COMPLETE

758
00:19:30,702 --> 00:19:32,037
THE CENSUS OF PLANETARY

759
00:19:32,037 --> 00:19:33,505
SYSTEM ARCHITECTURES.

760
00:19:33,505 --> 00:19:34,773
UM, THIS IS GONNA ALLOW US

761
00:19:34,773 --> 00:19:35,841
TO UNDERSTAND, YOU KNOW,

762
00:19:35,841 --> 00:19:37,309
QUESTIONS LIKE HOW DOES

763
00:19:37,309 --> 00:19:40,112

OUR SOLAR SYSTEM FIT, UM,

764

00:19:40,112 --> 00:19:41,480

YOU KNOW, IN THE GRAND PICTURE

765

00:19:41,480 --> 00:19:43,348

OF PLANET FORMATION?

766

00:19:43,348 --> 00:19:44,983

UM, WFIRST WILL ALSO HAVE

767

00:19:44,983 --> 00:19:46,752

A CORONAGRAPH TECHNOLOGY,

768

00:19:46,752 --> 00:19:48,720

UH, DEMO INSTRUMENT.

769

00:19:48,720 --> 00:19:49,922

UM, THIS IS AN INSTRUMENT

770

00:19:49,922 --> 00:19:51,189

THAT'S GOING TO DIRECTLY

771

00:19:51,189 --> 00:19:52,758

IMAGE EXOPLANETS, UH,

772

00:19:52,758 --> 00:19:54,626

BY BLOCKING OUT A STAR'S LIGHT.

773

00:19:54,626 --> 00:19:55,127

SO YOU CAN SEE

774

00:19:55,127 --> 00:19:56,662

MUCH FAINTER, PLANETS,

775

00:19:56,662 --> 00:19:58,564

UM, ORBITING THESE.

776

00:19:58,564 --> 00:20:00,165

AND, UH, WE'LL ALSO BE ABLE

777

00:20:00,165 --> 00:20:02,000

TO IMAGE DUSTY DISKS WHICH FORM

778

00:20:02,000 --> 00:20:03,569

THE BUILDING BLOCKS OF PLANETS.

779

00:20:03,569 --> 00:20:05,704

AND SO IT'S REALLY GONNA,

780

00:20:05,704 --> 00:20:07,606

UM, ALLOW US TO EXPLORE

781

00:20:07,606 --> 00:20:08,874

THIS WHOLE NEW DISCOVERY SPACE

782

00:20:08,874 --> 00:20:09,875

OF PLANETS AND-

783

00:20:09,875 --> 00:20:10,842

AND HOW THEY FORM

784

00:20:10,842 --> 00:20:11,944

AND ALSO PUSH THE LIMITS

785

00:20:11,944 --> 00:20:13,045

WITH TECHNOLOGY.

786

00:20:13,045 --> 00:20:13,812

WHAT ELSE CAN WE SPEND--

787

00:20:13,812 --> 00:20:16,882

ER, SEND UP INTO SPACE?

788

00:20:16,882 --> 00:20:17,616

>> THAT'S SO EXCITING.

789

00:20:17,616 --> 00:20:18,250
YOU KNOW, MY OWN

790

00:20:18,250 --> 00:20:19,751
PERSONAL RESEARCH IS,

791

00:20:19,751 --> 00:20:20,719
UH, ABOUT GALAXIES.

792

00:20:20,719 --> 00:20:21,386
I'M INTERESTED

793

00:20:21,386 --> 00:20:22,321
IN HOW GALAXIES CHANGE

794

00:20:22,321 --> 00:20:24,022
OVER BILLIONS OF YEARS.

795

00:20:24,022 --> 00:20:24,923
BUT I THINK SOME

796

00:20:24,923 --> 00:20:26,325
OF THE EXOPLANET SCIENCE

797

00:20:26,325 --> 00:20:27,759
THAT THE ROMAN SPACE TELESCOPE

798

00:20:27,759 --> 00:20:28,493
WILL DO IS GONNA BE

799

00:20:28,493 --> 00:20:29,461
SOME OF THE MOST EXCITING

800

00:20:29,461 --> 00:20:31,163
STUFF THAT WE LEARN.

801
00:20:31,163 --> 00:20:33,031
SO, UH, WE'VE HEARD A LOT TODAY

802
00:20:33,031 --> 00:20:33,832
ABOUT THE IMPACT

803
00:20:33,832 --> 00:20:34,733
THAT NANCY GRACE ROMAN

804
00:20:34,733 --> 00:20:35,968
HAS HAD ON THE FIELD

805
00:20:35,968 --> 00:20:37,903
OF ASTRONOMY IN GENERAL.

806
00:20:37,903 --> 00:20:39,338
HOW WILL THIS ENCOURAGE

807
00:20:39,338 --> 00:20:41,740
FUTURE GENERATIONS OF GIRLS?

808
00:20:44,309 --> 00:20:45,444
>> YOU KNOW, IT'S-- I MEAN,

809
00:20:45,444 --> 00:20:47,546
IT'S FANTASTIC THAT THIS

810
00:20:47,546 --> 00:20:48,880
OBSERVATORY IS BEING, UH--

811
00:20:48,880 --> 00:20:50,048
BEING, UH, NAMED

812
00:20:50,048 --> 00:20:52,384
AFTER NANCY GRACE, UH, ROMAN.

813
00:20:52,384 --> 00:20:54,052

UM, SHE DESERVES IT.

814

00:20:54,052 --> 00:20:56,521

HER CONTRIBUTIONS, UM,

815

00:20:56,521 --> 00:20:59,091

NOT JUST TO, UM,

816

00:20:59,091 --> 00:21:00,192

UH, DEVELOPING

817

00:21:00,192 --> 00:21:01,693

THE HUBBLE SPACE TELESCOPE,

818

00:21:01,693 --> 00:21:04,029

BUT IN DEVELOPING ASTRONOMY, UM,

819

00:21:04,029 --> 00:21:05,764

UH, IN THE EARLY DAYS OF NASA,

820

00:21:05,764 --> 00:21:07,466

UH, ALL ACROSS, UM,

821

00:21:07,466 --> 00:21:08,600

THE VARIOUS DIFFERENT, UH,

822

00:21:08,600 --> 00:21:09,901

ASTRONOMICAL OBSERVATORIES

823

00:21:09,901 --> 00:21:11,169

THAT NASA LAUNCHED IS-IS

824

00:21:11,169 --> 00:21:12,838

REALLY, TRULY EXTRAORDINARY.

825

00:21:12,838 --> 00:21:13,805

I'M DELIGHTED THAT

826

00:21:13,805 --> 00:21:14,773

THIS OBSERVATORY HAS BEEN

827

00:21:14,773 --> 00:21:16,141

CHOSEN TO BE NAMED AFTER,

828

00:21:16,141 --> 00:21:18,910

UH, NANCY GRACE, UH, ROMAN.

829

00:21:18,910 --> 00:21:19,711

UM, BUT WHAT--

830

00:21:19,711 --> 00:21:21,413

IT'S ALSO REALLY, UH, NICE

831

00:21:21,413 --> 00:21:23,148

THAT SHE HAPPENS TO BE, UH--

832

00:21:23,148 --> 00:21:23,749

TO BE A WOMAN.

833

00:21:23,749 --> 00:21:25,183

I THINK, UH, THAT IS

834

00:21:25,183 --> 00:21:27,419

IMPORTANT FOR, UM, UH--

835

00:21:27,419 --> 00:21:29,054

FOR YOUNG GIRLS TO SEE,

836

00:21:29,054 --> 00:21:30,055

UM, WHAT'S POSSIBLE

837

00:21:30,055 --> 00:21:32,290

AND TO SEE SOMEBODY WHO IS,

838

00:21:32,290 --> 00:21:35,661

UM, MORE LIKE THEM, UM, BEING,

839

00:21:35,661 --> 00:21:36,762

UH, ACKNOWLEDGED IN THIS WAY,

840

00:21:36,762 --> 00:21:37,896

WHICH WILL ENCOURAGE,

841

00:21:37,896 --> 00:21:39,264

UH, PEOPLE TO LOOK MORE CLOSELY

842

00:21:39,264 --> 00:21:40,432

AT WHAT SHE DID ACHIEVE,

843

00:21:40,432 --> 00:21:41,366

UM, THROUGH HER LIFE.

844

00:21:41,366 --> 00:21:42,234

AND I THINK WE CAN ALL DERIVE

845

00:21:42,234 --> 00:21:44,469

SOME INSPIRATION FROM THAT.

846

00:21:44,469 --> 00:21:45,537

>> ABSOLUTELY AGREE.

847

00:21:45,537 --> 00:21:48,674

ELISA, WHAT ARE YOUR THOUGHTS?

848

00:21:48,674 --> 00:21:49,941

>> UM, SO YOU KNOW,

849

00:21:49,941 --> 00:21:51,243

NANCY GRACE ROMAN ACCOMPLISHED

850

00:21:51,243 --> 00:21:52,744

SO MUCH IN HER LIFE.

851
00:21:52,744 --> 00:21:54,246
UM, I-I REALLY RESPECT

852
00:21:54,246 --> 00:21:55,447
HOW MUCH SHE WAS ABLE

853
00:21:55,447 --> 00:21:56,648
TO ACCOMPLISH, YOU KNOW,

854
00:21:56,648 --> 00:21:58,617
DURING THIS TIME WHEN

855
00:21:58,617 --> 00:21:59,584
THERE REALLY WEREN'T

856
00:21:59,584 --> 00:22:01,520
VERY MANY ROLE MODELS OF,

857
00:22:01,520 --> 00:22:02,688
YOU KNOW, WOMEN IN SCIENCE

858
00:22:02,688 --> 00:22:05,357
OR IN SPACE DEVELOPMENT.

859
00:22:05,357 --> 00:22:07,859
UM, SO YOU KNOW, NOWADAYS

860
00:22:07,859 --> 00:22:08,794
ALMOST EVERYONE KNOWS ABOUT

861
00:22:08,794 --> 00:22:10,262
THE HUBBLE SPACE TELESCOPE.

862
00:22:10,262 --> 00:22:11,563
IT'S ENABLED SO MUCH SCIENCE

863
00:22:11,563 --> 00:22:13,031

OVER THE PAST FEW DECADES

864

00:22:13,031 --> 00:22:15,634

AND, YOU KNOW, PROVIDES SUCH--

865

00:22:15,634 --> 00:22:17,069

SO MANY AMAZING DISCOVERIES.

866

00:22:17,069 --> 00:22:19,204

AND SO COMING UP IN--

867

00:22:19,204 --> 00:22:20,605

YOU KNOW, SOON AND OVER

868

00:22:20,605 --> 00:22:21,873

THE NEXT FEW DECADES,

869

00:22:21,873 --> 00:22:22,874

UH, WE'RE GONNA HAVE

870

00:22:22,874 --> 00:22:23,709

THE SAME EXPERIENCE

871

00:22:23,709 --> 00:22:25,310

WITH THE ROMAN SPACE TELESCOPE.

872

00:22:25,310 --> 00:22:25,977

UH, PEOPLE ARE GONNA

873

00:22:25,977 --> 00:22:27,512

LEARN HER NAME, UM,

874

00:22:27,512 --> 00:22:29,181

READ ALL ABOUT HER BACKGROUND

875

00:22:29,181 --> 00:22:30,348

AND HER PERSEVERANCE

876

00:22:30,348 --> 00:22:31,116

AND HER STRENGTH,

877

00:22:31,116 --> 00:22:33,118

AND I THINK THAT IS JUST

878

00:22:33,118 --> 00:22:35,387

IN ITSELF REALLY INSPIRING.

879

00:22:35,387 --> 00:22:36,455

AND LOOKING TO SEE HOW

880

00:22:36,455 --> 00:22:39,291

MUCH SHE ACCOMPLISHED AND, UM--

881

00:22:39,291 --> 00:22:41,159

REALLY INSPIRING FOR ME

882

00:22:41,159 --> 00:22:41,693

>> THAT'S GREAT.

883

00:22:41,693 --> 00:22:43,795

I COULDN'T AGREE MORE.

884

00:22:43,795 --> 00:22:44,763

WELL, THAT'S ALL THE TIME

885

00:22:44,763 --> 00:22:46,364

WE HAVE FOR OUR SHOW TODAY.

886

00:22:46,364 --> 00:22:47,599

ELISA, THANK YOU SO MUCH

887

00:22:47,599 --> 00:22:49,501

FOR JOINING US.

888

00:22:49,501 --> 00:22:49,968

>> THANK YOU SO MUCH

889

00:22:49,968 --> 00:22:51,837
FOR HAVING ME.

890

00:22:51,837 --> 00:22:53,138
>> AND, JULIE, THANK YOU AS WELL

891

00:22:53,138 --> 00:22:55,207
FOR JOINING US TODAY.

892

00:22:55,207 --> 00:22:57,209
>> THANK YOU, IT WAS A PLEASURE.

893

00:22:57,209 --> 00:22:58,577
>> WE'RE SO EXCITED FOR WHAT

894

00:22:58,577 --> 00:22:59,444
THE NANCY GRACE ROMAN

895

00:22:59,444 --> 00:23:00,345
SPACE TELESCOPE

896

00:23:00,345 --> 00:23:02,714
WILL REVEAL ABOUT OUR UNIVERSE.

897

00:23:02,714 --> 00:23:04,583
AND TO HONOR THE EXTRAORDINARY

898

00:23:04,583 --> 00:23:06,184
AND PIONEERING WOMAN

899

00:23:06,184 --> 00:23:07,085
THAT THIS TELESCOPE

900

00:23:07,085 --> 00:23:08,854
IS NOW NAMED AFTER.

901
00:23:08,854 --> 00:23:10,021
FOR MORE INFORMATION ABOUT

902
00:23:10,021 --> 00:23:11,356
THE ROMAN SPACE TELESCOPE,

903
00:23:11,356 --> 00:23:12,023
YOU CAN VISIT

904
00:23:12,023 --> 00:23:14,926
NASA.GOV/ROMAN.

905
00:23:14,926 --> 00:23:16,361
THANKS FOR WATCHING.

906
00:23:57,269 --> 00:23:32,277
[MUSIC]

907
00:24:29,768 --> 00:24:31,236
>> THE UNIVERSE.

908
00:24:31,236 --> 00:24:31,970
FOR ALL WE HAVE

909
00:24:31,970 --> 00:24:33,171
LEARNED ABOUT IT,

910
00:24:33,171 --> 00:24:34,472
WE HAVE ONLY JUST BEGUN

911
00:24:34,472 --> 00:24:37,042
TO REVEAL ITS SECRETS.

912
00:24:37,042 --> 00:24:37,809
WHAT ARE DARK MATTER

913
00:24:37,809 --> 00:24:39,678

AND DARK ENERGY?

914

00:24:39,678 --> 00:24:41,079

HOW COMMON ARE PLANETARY

915

00:24:41,079 --> 00:24:43,715

ARRANGEMENTS LIKE OUR OWN?

916

00:24:43,715 --> 00:24:44,616

AND HOW MANY PLANETS

917

00:24:44,616 --> 00:24:45,617

IN OUR GALAXY HAVE

918

00:24:45,617 --> 00:24:48,320

THE POTENTIAL TO HARBOR LIFE?

919

00:24:48,320 --> 00:24:49,888

THE NANCY GRACE ROMAN

920

00:24:49,888 --> 00:24:50,956

SPACE TELESCOPE

921

00:24:50,956 --> 00:24:51,857

WILL HELP ANSWER

922

00:24:51,857 --> 00:24:54,392

THESE FUNDAMENTAL QUESTIONS.

923

00:24:54,392 --> 00:24:56,361

FORMERLY KNOWN AS WFIRST,

924

00:24:56,361 --> 00:24:57,829

THE ROMAN SPACE TELESCOPE

925

00:24:57,829 --> 00:24:59,397

IS SIMILAR TO HUBBLE,

926
00:24:59,397 --> 00:25:01,132
BUT WITH THE BENEFIT OF 30 YEARS

927
00:25:01,132 --> 00:25:03,935
OF TECHNOLOGICAL IMPROVEMENT,

928
00:25:03,935 --> 00:25:05,503
EACH IMAGE FROM ITS WIDE-FIELD

929
00:25:05,503 --> 00:25:06,404
INSTRUMENT WILL HAVE

930
00:25:06,404 --> 00:25:07,672
THE DEPTH AND CLARITY

931
00:25:07,672 --> 00:25:09,107
OF HUBBLE'S BEST,

932
00:25:09,107 --> 00:25:10,475
BUT CAPTURE A SKY AREA

933
00:25:10,475 --> 00:25:13,745
100 TIMES LARGER.

934
00:25:13,745 --> 00:25:15,146
THE ROMAN SPACE TELESCOPE

935
00:25:15,146 --> 00:25:16,848
WILL TAKE THE LEAD IN EXPLORING

936
00:25:16,848 --> 00:25:19,484
DARK ENERGY AND DARK MATTER.

937
00:25:19,484 --> 00:25:20,852
WE ONLY KNOW THEY EXIST

938
00:25:20,852 --> 00:25:21,686

BY THEIR EFFECTS

939

00:25:21,686 --> 00:25:23,555

ON OBSERVABLE MATTER,

940

00:25:23,555 --> 00:25:24,189

YET THESE TWO

941

00:25:24,189 --> 00:25:25,523

MYSTERIOUS COMPONENTS

942

00:25:25,523 --> 00:25:29,327

MAKE UP 95% OF THE UNIVERSE.

943

00:25:29,327 --> 00:25:30,929

THE ROMAN SPACE TELESCOPE'S

944

00:25:30,929 --> 00:25:33,498

POWERFUL 2.4-METER MIRROR

945

00:25:33,498 --> 00:25:34,933

AND ENORMOUS FIELD OF VIEW

946

00:25:34,933 --> 00:25:36,234

WILL ALSO HELP US

947

00:25:36,234 --> 00:25:37,435

IN THE SEARCH FOR PLANETS

948

00:25:37,435 --> 00:25:38,970

BEYOND OUR SOLAR SYSTEM,

949

00:25:38,970 --> 00:25:41,006

OR EXOPLANETS.

950

00:25:41,006 --> 00:25:41,640

IT WILL WATCH

951
00:25:41,640 --> 00:25:42,641
FOR GRAVITATIONAL

952
00:25:42,641 --> 00:25:44,242
MICROLENSING EVENTS

953
00:25:44,242 --> 00:25:45,410
CAUSED WHEN A PLANET

954
00:25:45,410 --> 00:25:47,012
AND ITS HOST STAR PASS

955
00:25:47,012 --> 00:25:49,381
IN FRONT OF A BACKGROUND STAR.

956
00:25:49,381 --> 00:25:50,782
SUCH EVENTS ARE RARE,

957
00:25:50,782 --> 00:25:51,516
SO CATCHING THEM

958
00:25:51,516 --> 00:25:52,517
REQUIRES WATCHING

959
00:25:52,517 --> 00:25:55,487
LARGE SWATHS OF THE SKY.

960
00:25:55,487 --> 00:25:56,554
TO DEEPEN ITS STUDY

961
00:25:56,554 --> 00:25:57,822
OF EXOPLANETS,

962
00:25:57,822 --> 00:25:59,190
THE ROMAN SPACE TELESCOPE

963
00:25:59,190 --> 00:26:00,425

WILL HOUSE A BEYOND-

964

00:26:00,425 --> 00:26:01,359

STATE-OF-THE-ART

965

00:26:01,359 --> 00:26:02,727

CORONAGRAPH THAT WILL

966

00:26:02,727 --> 00:26:04,729

DIRECTLY IMAGE AND ANALYZE

967

00:26:04,729 --> 00:26:06,331

NEPTUNE-SIZED PLANETS

968

00:26:06,331 --> 00:26:07,899

IN ORBITS SLIGHTLY LARGER

969

00:26:07,899 --> 00:26:09,200

THAN EARTH'S,

970

00:26:09,200 --> 00:26:10,468

A DRAMATIC IMPROVEMENT

971

00:26:10,468 --> 00:26:13,471

OVER CURRENT CAPABILITIES.

972

00:26:13,471 --> 00:26:14,706

THE NANCY GRACE ROMAN

973

00:26:14,706 --> 00:26:15,807

SPACE TELESCOPE

974

00:26:15,807 --> 00:26:17,108

WILL HELP US ANSWER MANY

975

00:26:17,108 --> 00:26:19,477

OF THE BIGGEST COSMIC QUESTIONS.

976
00:26:19,477 --> 00:26:20,512
ITS WIDE-FIELD VIEW

977
00:26:20,512 --> 00:26:21,613
AND CORONAGRAPH

978
00:26:21,613 --> 00:26:22,781
WILL COMPLEMENT MISSIONS

979
00:26:22,781 --> 00:26:24,282
LIKE NASA'S JAMES WEBB

980
00:26:24,282 --> 00:26:25,350
SPACE TELESCOPE

981
00:26:25,350 --> 00:26:26,818
AND TRANSITING EXOPLANET

982
00:26:26,818 --> 00:26:29,988
SURVEY SATELLITE, TESS.

983
00:26:29,988 --> 00:26:31,456
THE ROMAN SPACE TELESCOPE

984
00:26:31,456 --> 00:26:33,191
WILL BE AN INDISPENSABLE PART

985
00:26:33,191 --> 00:26:34,793
OF SPACE SCIENCE DURING

986
00:26:34,793 --> 00:26:37,495
THE NEXT DECADE AND BEYOND.

987
00:26:45,470 --> 00:26:46,671
>> IT'S HARD TO DECIDE

988
00:26:46,671 --> 00:26:47,839

HOW HISTORY WILL VIEW

989

00:26:47,839 --> 00:26:49,941
MY ACCOMPLISHMENTS.

990

00:26:49,941 --> 00:26:51,309
PEOPLE GENERALLY AREN'T

991

00:26:51,309 --> 00:26:52,811
TERRIBLY INTERESTED IN

992

00:26:52,811 --> 00:26:55,413
WHAT GETS THINGS STARTED.

993

00:26:55,413 --> 00:26:56,648
AND SO I'M NOT SURE

994

00:26:56,648 --> 00:26:57,615
THEY'RE GOING TO HAVE MUCH

995

00:26:57,615 --> 00:27:00,518
OF AN IDEA OF MY ROLE.

996

00:27:00,518 --> 00:27:01,553
>> NANCY GRACE ROMAN

997

00:27:01,553 --> 00:27:02,887
SERVED AS THE FIRST CHIEF

998

00:27:02,887 --> 00:27:04,356
OF ASTRONOMY IN NASA'S

999

00:27:04,356 --> 00:27:06,558
OFFICE OF SPACE SCIENCE,

1000

00:27:06,558 --> 00:27:07,692
THE FIRST WOMAN TO HOLD

1001
00:27:07,692 --> 00:27:09,027
AN EXECUTIVE POSITION

1002
00:27:09,027 --> 00:27:11,096
WITHIN THE AGENCY.

1003
00:27:11,096 --> 00:27:12,063
SHE WAS INSTRUMENTAL

1004
00:27:12,063 --> 00:27:12,964
IN THE EARLY PLANNING

1005
00:27:12,964 --> 00:27:13,999
OF NASA'S FIRST

1006
00:27:13,999 --> 00:27:15,900
GREAT SPACE OBSERVATORY,

1007
00:27:15,900 --> 00:27:17,669
THE HUBBLE SPACE TELESCOPE,

1008
00:27:17,669 --> 00:27:18,903
EARNING HER THE NICKNAME,

1009
00:27:18,903 --> 00:27:21,539
"THE MOTHER OF HUBBLE."

1010
00:27:21,539 --> 00:27:22,440
TO HONOR HER,

1011
00:27:22,440 --> 00:27:23,942
NASA HAS GIVEN HER NAME TO ONE

1012
00:27:23,942 --> 00:27:25,677
OF ITS MOST POWERFUL UPCOMING

1013
00:27:25,677 --> 00:27:27,846

SPACE OBSERVATORIES.

1014

00:27:27,846 --> 00:27:29,881

WFIRST, THE WIDE-FIELD

1015

00:27:29,881 --> 00:27:31,750

INFRARED SURVEY TELESCOPE

1016

00:27:31,750 --> 00:27:33,651

IS NOW THE NANCY GRACE ROMAN

1017

00:27:33,651 --> 00:27:36,721

SPACE TELESCOPE.

1018

00:27:36,721 --> 00:27:39,190

NANCY GRACE WAS BORN IN 1925

1019

00:27:39,190 --> 00:27:40,125

AND DEVELOPED AN INTEREST

1020

00:27:40,125 --> 00:27:42,827

IN ASTRONOMY AT AN EARLY AGE.

1021

00:27:42,827 --> 00:27:44,929

>> I JUST WAS FASCINATED.

1022

00:27:44,929 --> 00:27:46,798

BETWEEN FIFTH AND SIXTH GRADE

1023

00:27:46,798 --> 00:27:48,967

I ORGANIZED MY FRIENDS

1024

00:27:48,967 --> 00:27:50,368

INTO AN ASTRONOMY CLUB

1025

00:27:50,368 --> 00:27:53,471

TO STUDY THE CONSTELLATIONS.

1026
00:27:53,471 --> 00:27:55,206
I CERTAINLY DID NOT RECEIVE

1027
00:27:55,206 --> 00:27:56,841
ANY ENCOURAGEMENT.

1028
00:27:56,841 --> 00:27:58,510
I WAS TOLD FROM THE BEGINNING

1029
00:27:58,510 --> 00:28:00,478
THAT WOMEN COULD NOT

1030
00:28:00,478 --> 00:28:03,681
BE SCIENTISTS.

1031
00:28:03,681 --> 00:28:05,083
>> NANCY GRACE PERSEVERED

1032
00:28:05,083 --> 00:28:05,917
AND GRADUATED FROM

1033
00:28:05,917 --> 00:28:07,252
THE UNIVERSITY OF CHICAGO

1034
00:28:07,252 --> 00:28:09,154
IN 1949 WITH A DOCTORATE

1035
00:28:09,154 --> 00:28:10,121
IN ASTRONOMY

1036
00:28:10,121 --> 00:28:11,122
DESPITE CONTINUING

1037
00:28:11,122 --> 00:28:13,658
TO ENCOUNTER DISCRIMINATION.

1038
00:28:13,658 --> 00:28:14,993

>> MY THESIS PROFESSOR--

1039

00:28:14,993 --> 00:28:15,794

THERE WAS A PERIOD

1040

00:28:15,794 --> 00:28:17,495

IN WHICH HE WENT FOR SIX MONTHS

1041

00:28:17,495 --> 00:28:18,897

WITHOUT SPEAKING TO ME

1042

00:28:18,897 --> 00:28:19,931

EVEN WHEN I SAID HELLO

1043

00:28:19,931 --> 00:28:21,599

TO HIM IN THE HALL.

1044

00:28:21,599 --> 00:28:22,600

HE DIDN'T WANT TO HAVE

1045

00:28:22,600 --> 00:28:24,869

ANYTHING TO DO WITH ME.

1046

00:28:24,869 --> 00:28:25,603

>> AFTER SEVERAL YEARS

1047

00:28:25,603 --> 00:28:28,740

OF RESEARCH, NASA CAME CALLING.

1048

00:28:28,740 --> 00:28:32,610

>> I STARTED IN NASA IN 1959.

1049

00:28:32,610 --> 00:28:34,446

IT WAS SIX MONTHS OLD.

1050

00:28:34,446 --> 00:28:35,213

BEING THE FIRST

1051
00:28:35,213 --> 00:28:36,981
EXECUTIVE WOMAN AT NASA

1052
00:28:36,981 --> 00:28:38,450
TURNED OUT NOT TO BE

1053
00:28:38,450 --> 00:28:41,352
TERRIBLY, UH, EVENTFUL.

1054
00:28:41,352 --> 00:28:43,955
UH, I WAS ACCEPTED VERY READILY

1055
00:28:43,955 --> 00:28:47,158
AS A SCIENTIST IN MY JOB.

1056
00:28:47,158 --> 00:28:49,260
>> DURING HER 21 YEARS AT NASA,

1057
00:28:49,260 --> 00:28:50,428
DR. ROMAN WAS INVOLVED

1058
00:28:50,428 --> 00:28:51,763
IN THE DEVELOPMENT AND LAUNCH

1059
00:28:51,763 --> 00:28:52,997
OF MANY SPACE-BASED

1060
00:28:52,997 --> 00:28:54,532
OBSERVATORIES WHICH STUDIED

1061
00:28:54,532 --> 00:28:56,734
THE SUN, DEEP SPACE,

1062
00:28:56,734 --> 00:28:58,670
AND THE EARTH'S ATMOSPHERE.

1063
00:28:58,670 --> 00:28:59,537

HER MOST ENDURING

1064

00:28:59,537 --> 00:29:00,672

LEGACY AT NASA

1065

00:29:00,672 --> 00:29:02,006

WAS THE PLANNING OF HUBBLE

1066

00:29:02,006 --> 00:29:03,775

AND ITS SCIENCE PROGRAM.

1067

00:29:03,775 --> 00:29:04,409

SHE DID MUCH

1068

00:29:04,409 --> 00:29:05,477

OF THE EARLY ADVOCACY

1069

00:29:05,477 --> 00:29:06,277

AND ESTABLISHED

1070

00:29:06,277 --> 00:29:07,378

THE PROGRAM STRUCTURE

1071

00:29:07,378 --> 00:29:08,613

WHICH LAID THE FOUNDATION

1072

00:29:08,613 --> 00:29:09,514

FOR OTHER LARGE

1073

00:29:09,514 --> 00:29:11,416

NASA MISSIONS THAT FOLLOWED

1074

00:29:11,416 --> 00:29:12,117

AND HELPED CONVINCED

1075

00:29:12,117 --> 00:29:13,518

THE ASTRONOMICAL COMMUNITY

1076
00:29:13,518 --> 00:29:16,054
TO SUPPORT ASTRONOMY FROM SPACE.

1077
00:29:16,054 --> 00:29:17,655
AFTER RETIRING FROM NASA,

1078
00:29:17,655 --> 00:29:19,057
DR. ROMAN STAYED INVOLVED

1079
00:29:19,057 --> 00:29:20,525
IN THE SPACE COMMUNITY

1080
00:29:20,525 --> 00:29:21,860
AND RECEIVED NUMEROUS AWARDS

1081
00:29:21,860 --> 00:29:24,462
FOR HER PIONEERING WORK.

1082
00:29:24,462 --> 00:29:25,463
OVER HER CAREER,

1083
00:29:25,463 --> 00:29:26,898
SHE INSPIRED GENERATIONS

1084
00:29:26,898 --> 00:29:29,267
OF YOUNG ASTRONOMERS.

1085
00:29:29,267 --> 00:29:31,169
NOW WITH THE NANCY GRACE ROMAN

1086
00:29:31,169 --> 00:29:32,637
SPACE TELESCOPE,

1087
00:29:32,637 --> 00:29:34,305
HER LEGACY CAN CONTINUE