1966

1
00:00:00,572 --> 00:00:03,155
(gentle music)

2
00:00:05,866 --> 00:00:09,414
- Hey, I'm Thomas Zurbuchen,
also known as Dr. Z.

3
00:00:09,414 --> 00:00:13,360
- And I'm Ellen Stofan,
also known as Dr. E,

4
00:00:13,360 --> 00:00:17,190
and welcome to another
episode of E.Z. Science.

5
00:00:17,190 --> 00:00:19,630
- And I'm so glad to be here with you

6
00:00:19,630 --> 00:00:22,454
right next to the
headquarters building at NASA,

7
00:00:22,454 --> 00:00:25,690
which just in time, for
Women's History Month,

8
00:00:25,690 --> 00:00:30,200
has a new name, Mary W.
Jackson Headquarters.

9
00:00:30,200 --> 00:00:32,840
And I'm just so excited
to have that name on it.

10
00:00:32,840 --> 00:00:34,330
What do you know about Mary Jackson?

11
00:00:34,330 --> 00:00:35,860
- Well, I learned about Mary Jackson

12
00:00:35,860 --> 00:00:37,430
from reading the book, Hidden Figures,

13
00:00:37,430 --> 00:00:38,850
and then of course seeing the movie.

14
00:00:38,850 --> 00:00:40,975
And she's just this amazing woman

15
00:00:40,975 --> 00:00:44,200
who wanted to become an engineer at NASA.

16
00:00:44,200 --> 00:00:45,540
She wanted to take the classes,

17
00:00:45,540 --> 00:00:46,860
they wouldn't let her in the school,

18
00:00:46,860 --> 00:00:47,830
it was for whites only.

19
00:00:47,830 --> 00:00:50,050
She fought to get a place in the class,

20
00:00:50,050 --> 00:00:51,260
got her certification,

21
00:00:51,260 --> 00:00:54,570
and became the first black
woman engineer at NASA.

22
00:00:54,570 --> 00:00:57,720
And just the perseverance she had to show,

23
00:00:57,720 --> 00:00:59,070
she knew she belonged.

24
00:00:59,070 --> 00:01:01,010
She knew that they needed her help

25
00:01:01,010 --> 00:01:03,000
to help get the first humans into space.

26
00:01:03,000 --> 00:01:04,578
And she persevered, amazing.

27
00:01:04,578 --> 00:01:09,070
- Today we want to talk
about women in astronomy,

28
00:01:09,070 --> 00:01:11,240
and who are the names that come to mind,

29
00:01:11,240 --> 00:01:13,660
when you think about women in astronomy,

30
00:01:13,660 --> 00:01:15,150
kind of in a context of
Women's History Month?

31
00:01:15,150 --> 00:01:16,730
- You know, what I love

32
00:01:16,730 --> 00:01:18,813
is that the history of women in astronomy

33
00:01:18,813 --> 00:01:20,860
goes back very very far.

34
00:01:20,860 --> 00:01:22,100
Women have always been there.

35
00:01:22,100 --> 00:01:24,335
They've always been making contributions.

36
00:01:24,335 --> 00:01:25,490
Many people have heard

37
00:01:25,490 --> 00:01:27,480
of the famous astronomer William Herschel,

38
00:01:27,480 --> 00:01:28,800
but his sister, Caroline,

39
00:01:28,800 --> 00:01:29,803
actually used his telescopes

40
00:01:29,803 --> 00:01:32,820
and discovered a number of comets.

41
00:01:32,820 --> 00:01:34,260
There's a woman I particularly admire

42
00:01:34,260 --> 00:01:35,920
named Phoebe Waterman Haas.

43
00:01:35,920 --> 00:01:37,310
She was one of the first women

44
00:01:37,310 --> 00:01:39,250
to operate the Lick Telescope.

45
00:01:39,250 --> 00:01:41,160
Women like Henrietta Leavitt,

46
00:01:41,160 --> 00:01:43,710
who worked up at the Harvard Observatory,

47
00:01:43,710 --> 00:01:45,610
and invented a way that
we actually learned

48

00:01:45,610 --> 00:01:48,740
how to measure the
distance to other galaxies.

49
00:01:48,740 --> 00:01:51,574
So women were there, making
fundamental discoveries,

50
00:01:51,574 --> 00:01:53,910
helping the science move along,

51
00:01:53,910 --> 00:01:56,745
but we don't know their
stories as well as we should.

52
00:01:56,745 --> 00:01:58,840
- One of my favorite women

53
00:01:58,840 --> 00:02:01,930
who have really made history in astronomy

54
00:02:01,930 --> 00:02:04,760
is Dr. Nancy Grace Roman.

55
00:02:04,760 --> 00:02:08,460
- What amazed me about her
is she had this opportunity

56
00:02:08,460 --> 00:02:11,130
to create an entire NASA science program,

57
00:02:11,130 --> 00:02:12,640
saying if you were going to lay out

58
00:02:12,640 --> 00:02:14,020
this astrophysics program,

59
00:02:14,020 --> 00:02:16,063
it's got to have a strong

research component,

60
00:02:16,063 --> 00:02:17,950
people doing the basic understanding

61
00:02:17,950 --> 00:02:20,244
of how do stars form,
how to galaxies evolve,

62
00:02:20,244 --> 00:02:23,030
how do we develop instrumentation

63
00:02:23,030 --> 00:02:25,240
and keep making better
and better instruments

64
00:02:25,240 --> 00:02:27,970
to measure stars and galaxies.

65
00:02:27,970 --> 00:02:30,830
And then she also, of course,
that critical piece for NASA

66
00:02:30,830 --> 00:02:32,800
helped really push the development

67
00:02:32,800 --> 00:02:36,230
of satellite after
satellite after satellite.

68
00:02:36,230 --> 00:02:38,470
- And in fact, there's a number
of people who have told me

69
00:02:38,470 --> 00:02:41,560
that it's hard to imagine
Hubble being in space

70
00:02:41,560 --> 00:02:44,100

if it wasn't for Nancy Grace Roman.

71
00:02:44,100 --> 00:02:45,761
And many people therefore refer to her

72
00:02:45,761 --> 00:02:47,751
as the mother of Hubble.

73
00:02:47,751 --> 00:02:51,610
And so I'm so excited,
because right after that,

74
00:02:51,610 --> 00:02:53,760
we're going to launch later this year

75
00:02:53,760 --> 00:02:57,920
the next big telescope
has now her name on it,

76
00:02:57,920 --> 00:03:00,190
Nancy Grace Roman Space Telescope.

77
00:03:00,190 --> 00:03:01,756
- So it's really going
to be able to give us

78
00:03:01,756 --> 00:03:06,280
a comprehensive high resolution
picture, if you will,

79
00:03:06,280 --> 00:03:08,530
of the universe, in the infrared,

80
00:03:08,530 --> 00:03:10,580
really helping us understand the structure

81
00:03:10,580 --> 00:03:13,950
and origin of galaxies,
really getting at a lot

82
00:03:13,950 --> 00:03:16,020
of the forces in the
history of the universe,

83
00:03:16,020 --> 00:03:17,099
as we try to understand

84
00:03:17,099 --> 00:03:19,140
what is the structure of the universe?

85
00:03:19,140 --> 00:03:20,340
What does it tell us?

86
00:03:20,340 --> 00:03:22,360
How can we learn the
origins of the universe?

87
00:03:22,360 --> 00:03:23,800
How it evolves over time?

88
00:03:23,800 --> 00:03:25,970
What I really love is this idea

89
00:03:25,970 --> 00:03:27,970
that when we had the
Hubble Space Telescope,

90
00:03:27,970 --> 00:03:30,620
which Nancy Grace Roman pioneered,

91
00:03:30,620 --> 00:03:33,500
it caused us to rewrite
astronomy textbooks.

92
00:03:33,500 --> 00:03:35,200
The James Webb Space Telescope

93

00:03:35,200 --> 00:03:37,510
is going to take us to the next level,

94
00:03:37,510 --> 00:03:40,619
but then the Nancy Grace
Roman Telescope will again,

95
00:03:40,619 --> 00:03:44,320
really fundamentally change
and expand our understanding

96
00:03:44,320 --> 00:03:45,670
of the universe.

97
00:03:45,670 --> 00:03:48,790
- And I know from just the
last years of her life,

98
00:03:48,790 --> 00:03:51,490
she was excited about dark
energy, which of course,

99
00:03:51,490 --> 00:03:53,940
relates to the largest scale
structure of the universe

100
00:03:53,940 --> 00:03:57,060
that requires the type of measurements

101
00:03:57,060 --> 00:03:58,490
and large field of view,

102
00:03:58,490 --> 00:04:01,420
a hundred times the
field of view of Hubble,

103
00:04:01,420 --> 00:04:02,980
that this telescope was enabled.

104

00:04:02,980 --> 00:04:05,885
So it couldn't be more
excited to have her name

105
00:04:05,885 --> 00:04:08,640
on this next generation telescope,

106
00:04:08,640 --> 00:04:12,850
and have her legacy
celebrated in the heavens

107
00:04:12,850 --> 00:04:14,730
with all the thousands of scientists

108
00:04:14,730 --> 00:04:16,328
who are waiting for those data.

109
00:04:16,328 --> 00:04:17,860
- Thanks to NASA

110
00:04:17,860 --> 00:04:20,360
for naming this building
after Mary W. Jackson.

111
00:04:20,360 --> 00:04:21,950
And of course, thanks to all these women

112
00:04:21,950 --> 00:04:23,811
that we're celebrating, these
scientists and engineers

113
00:04:23,811 --> 00:04:26,650
who helped us move the sciences forward.

114
00:04:26,650 --> 00:04:30,590
And thank you for joining
us for another episode