



Lyman Spitzer

Making Space For Hubble

1
00:00:04,390 --> 00:00:02,149
before the international space station

2
00:00:05,590 --> 00:00:04,400
before the hubble space telescope before

3
00:00:09,030 --> 00:00:05,600
the shuttle

4
00:00:11,350 --> 00:00:09,040
before sky lab before apollo

5
00:00:12,390 --> 00:00:11,360
before nasa even

6
00:00:15,509 --> 00:00:12,400
there was

7
00:00:20,150 --> 00:00:18,470
and spitzer report presented by nasa the

8
00:00:21,010 --> 00:00:20,160
national aeronautics and space

9
00:00:23,750 --> 00:00:21,020
administration

10
00:00:26,710 --> 00:00:23,760
[Applause]

11
00:00:28,950 --> 00:00:26,720
75 years ago astronomer lyman spitzer

12
00:00:30,710 --> 00:00:28,960
envisioned a future for space

13
00:00:33,110 --> 00:00:30,720

exploration that changed our

14

00:00:35,590 --> 00:00:33,120

understanding of the cosmos and our

15

00:00:37,670 --> 00:00:35,600

place in it a visionary behind the

16

00:00:39,990 --> 00:00:37,680

hubble space telescope spitzer was among

17

00:00:41,990 --> 00:00:40,000

the earliest astronomers pioneering a

18

00:00:44,790 --> 00:00:42,000

revolutionary way to explore the

19

00:00:46,950 --> 00:00:44,800

universe through astronomical satellites

20

00:00:49,990 --> 00:00:46,960

with the publication of this famed paper

21

00:00:52,549 --> 00:00:50,000

in 1946 astronomical advantages of an

22

00:00:54,150 --> 00:00:52,559

extraterrestrial observatory

23

00:00:56,310 --> 00:00:54,160

spitzer explored the benefits of

24

00:00:58,709 --> 00:00:56,320

launching a large reflecting telescope

25

00:01:00,709 --> 00:00:58,719

into orbit around our planet

26

00:01:02,549 --> 00:01:00,719

his proposal placed these telescopes

27

00:01:04,950 --> 00:01:02,559

outside of the constraints of earth's

28

00:01:07,270 --> 00:01:04,960

atmosphere enabling both greater access

29

00:01:09,350 --> 00:01:07,280

to wavelengths of light not visible from

30

00:01:12,149 --> 00:01:09,360

the ground and higher quality images

31

00:01:13,750 --> 00:01:12,159

free of atmospheric effects

32

00:01:15,109 --> 00:01:13,760

spitzer made a strong case for large

33

00:01:17,670 --> 00:01:15,119

space telescopes that would allow

34

00:01:18,630 --> 00:01:17,680

humanity to access unseen parts of the

35

00:01:20,630 --> 00:01:18,640

universe

36

00:01:22,710 --> 00:01:20,640

understanding the magnitude of the

37

00:01:25,109 --> 00:01:22,720

universe and exploring the structures of

38

00:01:27,270 --> 00:01:25,119

galaxies globular star clusters and

39

00:01:29,670 --> 00:01:27,280

other planets were the ultimate goals of

40

00:01:32,950 --> 00:01:29,680

orbiting observatories

41

00:01:35,749 --> 00:01:32,960

spitzer's vision in 1946 marked a new

42

00:01:38,230 --> 00:01:35,759

era for the field of astronomy and 75

43

00:01:41,749 --> 00:01:38,240

years later space-based telescopes like

44

00:01:44,310 --> 00:01:41,759

hubble are our best lens into the cosmos

45

00:01:46,469 --> 00:01:44,320

above earth's atmosphere our unimpeded

46

00:01:49,109 --> 00:01:46,479

view allows us to see billions of light

47

00:01:50,950 --> 00:01:49,119

years back in time helping us understand

48

00:01:53,429 --> 00:01:50,960

the evolution of galaxies and the

49

00:01:55,429 --> 00:01:53,439

universe itself we've seen celestial

50

00:01:57,670 --> 00:01:55,439

objects and phenomena through light not

51
00:01:59,749 --> 00:01:57,680
visible by the human eye offering us a

52
00:02:01,429 --> 00:01:59,759
new perspective of our place in the

53
00:02:03,590 --> 00:02:01,439
universe

54
00:02:05,910 --> 00:02:03,600
spitzer recognized that space telescopes

55
00:02:08,790 --> 00:02:05,920
would enable humanity to explore beyond

56
00:02:11,430 --> 00:02:08,800
our frontier of knowledge to uncover new

57
00:02:14,630 --> 00:02:11,440
phenomena not yet imagined and perhaps

58
00:02:18,550 --> 00:02:14,640
to modify profoundly our basic concepts

59
00:02:24,070 --> 00:02:21,030
to this day the hubble space telescope

60
00:02:26,630 --> 00:02:24,080
remains a testament to spitzer's vision