

1
00:00:00,000 --> 00:00:04,139
this is a Hubble Space Telescope image

2
00:00:02,339 --> 00:00:07,290
of the crowded core of the globular

3
00:00:04,139 --> 00:00:09,570
cluster Omega Centauri the brilliant

4
00:00:07,290 --> 00:00:12,089
colors of the stars are real they

5
00:00:09,570 --> 00:00:14,039
correspond to stellar temperatures they

6
00:00:12,089 --> 00:00:17,250
can also be used to trace stellar

7
00:00:14,039 --> 00:00:20,038
evolution astronomers like to know how

8
00:00:17,250 --> 00:00:22,500
blue the blue stars are and how red the

9
00:00:20,039 --> 00:00:25,320
red stars are so we'll first sort these

10
00:00:22,500 --> 00:00:29,189
stars out by color blue on the left and

11
00:00:25,320 --> 00:00:31,379
red on the right next we'll sort the

12
00:00:29,189 --> 00:00:33,808
stars according to brightness the

13
00:00:31,379 --> 00:00:37,409
brightest stars at the top and the faint

14
00:00:33,808 --> 00:00:39,628
stars at the bottom the final plot you

15
00:00:37,409 --> 00:00:43,078
see represents different stages of

16
00:00:39,628 --> 00:00:44,968
evolution of stars stars spend most of

17
00:00:43,079 --> 00:00:47,609
their lifetime burning on the main

18
00:00:44,969 --> 00:00:50,329
sequence when their fuel starts to run

19
00:00:47,609 --> 00:00:53,640
out they expand to become red giants

20
00:00:50,329 --> 00:00:56,960
they find a new source of fuel helium

21
00:00:53,640 --> 00:01:00,469
and burn blue hot but even that runs out

22
00:00:56,960 --> 00:01:03,000
they end up burning out as white dwarfs

23
00:01:00,469 --> 00:01:05,609
based on images for the hubble space

24
00:01:03,000 --> 00:01:08,129
telescope we've assembled a true plot

25
00:01:05,609 --> 00:01:12,349
that is a snapshot of the life history

26
00:01:08,129 --> 00:01:12,349
of stars in this ancient cluster