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00:00:05,708 --> 00:00:11,003
My name is Carole Wagner and I am
the Stages Operations Element

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00:00:11,007 --> 00:00:12,781
Discipline Lead Engineer.

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00:00:18,533 --> 00:00:23,012
I'm from Chicago, Illinois and
came down to Oakwood University,

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00:00:23,012 --> 00:00:29,012
which was Oakwood College then.
Like I said, I was a chemistry

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00:00:29,012 --> 00:00:35,022
major, biology minor, decided to
try the co-op program for summer

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00:00:35,022 --> 00:00:39,258
employment for something to do, I
came out to work in that Chemicals

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00:00:39,258 --> 00:00:44,468
and Non-metals Processes Branch, I
liked it and decided that medicine

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00:00:44,468 --> 00:00:48,466
maybe wasn't for me.
I came to Marshall as a co-op.

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00:00:48,466 --> 00:00:52,823
I was a chemistry major, biology
minor because I was going to be

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00:00:52,823 --> 00:00:57,688
a doctor, but my roommate in
college convinced me to try to be

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00:00:57,688 --> 00:01:02,742
a co-op to have summer employment.
That's how I started. The had an

12
00:01:02,760 --> 00:01:06,150
opening out here at Marshall and
we both got them. I got here as a

13
00:01:06,178 --> 00:01:08,511
co-op and have been here ever since.

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00:01:08,511 --> 00:01:13,544
Lots of relatives had gone to
Oakwood. It's a parochial school,

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00:01:13,544 --> 00:01:18,204
Seventh Day Adventist, so my
grandparents had gone to Oakwood,

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00:01:18,204 --> 00:01:23,127
my parents went to Oakwood, my
elder siblings and cousins, aunts

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00:01:23,145 --> 00:01:26,506
and uncles all went to Oakwood,
so I was sent to Oakwood.

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00:01:32,009 --> 00:01:37,020
I started in the Chemicals and
Non-metals Processes Branch, at

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00:01:37,020 --> 00:01:42,957
that time, because I was a chemistry
major, and I worked on the spray-on

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00:01:42,957 --> 00:01:47,242
foam insulation for the external
tanks and the Marshall Sprayable

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00:01:47,242 --> 00:01:52,191

Ablator, things of that nature,
working on upgrades at that time

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00:01:52,191 --> 00:01:56,085
because Shuttle was getting ready
to fly when I was starting out

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00:01:56,085 --> 00:02:02,196
back in 1980. We were working on
level II of those.

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00:02:02,196 --> 00:02:09,125
Then I went to the Lead Engineer's
Office and did some changes. This

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00:02:09,125 --> 00:02:13,254
was back after Challenger when we
were getting ready to fly again.

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00:02:13,254 --> 00:02:18,927
I worked solid rocket boosters,
so I was a materials lead engineer

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00:02:18,927 --> 00:02:25,072
for that, solid rocket boosters.
I also worked some payloads, like

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00:02:25,072 --> 00:02:38,609
Protein Crystal Growth and Gravity
Probe B and the Microgravity Science

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00:02:38,609 --> 00:02:43,066
Glovebox, several payloads, some of
them that are on Station now and

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00:02:43,066 --> 00:02:47,046
some that have flown on Station.
I stayed there for a while and

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00:02:47,046 --> 00:02:52,105

then I went to Mission Ops and actually worked stations. I worked

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00:02:52,105 --> 00:02:57,545
on Console as a Pay Comm to get something different, and then

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00:02:57,545 --> 00:03:02,117
after that I left and came back to SLS, so that's where I am now

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00:03:02,117 --> 00:03:04,117
as an EDLE.

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00:03:09,639 --> 00:03:18,014
From my perspective, we have to involve the children early to get

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00:03:18,014 --> 00:03:22,332
them to not be afraid of the sciences or the math or anything

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00:03:22,332 --> 00:03:28,114
like that. I think they see a lot of work that has to go into it to

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00:03:28,114 --> 00:03:33,152
be an engineer, a scientist, and they aren't quite up for all of

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00:03:33,152 --> 00:03:37,912
that work without knowing the benefits of it. If you make it

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00:03:37,912 --> 00:03:41,540
exciting and interesting for them from the beginning, they'll

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00:03:41,540 --> 00:03:45,022
grow in it and then they can

decide later what they want to do

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00:03:45,022 --> 00:03:51,905
with that knowledge. I think
that's the main thing is there

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00:03:51,905 --> 00:03:55,262
is a fear of it. I like to
explain to kids, do you like

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00:03:55,262 --> 00:03:58,324
puzzles, do you like to put
things together, do you like

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00:03:58,324 --> 00:04:01,988
to play with this and that? They
say yeah. Well, that's the kind

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00:04:01,988 --> 00:04:06,007
of thing engineers do. What I do
is put together a puzzle. I bring

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00:04:06,007 --> 00:04:10,033
in different things and make sure
it all fits. We have a rocket and

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00:04:10,033 --> 00:04:16,971
we get to fly it. They go oh,
okay. Then also, when it comes

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00:04:16,971 --> 00:04:21,926
to playing games, you want to play
football? Yes. Do you know all

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00:04:21,926 --> 00:04:26,012
the rules, do you know how to
make a play and what they're

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00:04:26,012 --> 00:04:29,439
calling? Yes. Well, you have to

earn those basics to play a good

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00:04:29,439 --> 00:04:32,534

game of football. That's how you
learn to be a good engineer, a

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00:04:32,534 --> 00:04:34,826

good scientist, you have to
learn the basics. It does take

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00:04:34,826 --> 00:04:37,753

work and it takes study, but
once you get it, that's when

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00:04:37,753 --> 00:04:39,049

you get to the fun.

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00:04:44,478 --> 00:04:50,051

How it's worked for me here, I
got here a long time ago, so they

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00:04:50,051 --> 00:04:53,528

didn't really think much of
mentorship. I've never really had

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00:04:53,528 --> 00:04:58,984

a mentor, but I've been lucky
enough to have good supervisors

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00:04:58,984 --> 00:05:04,018

who take an interest in what you're
doing and what you want to do and

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00:05:04,018 --> 00:05:11,826

give you opportunities to grow.
That's what has helped me here at

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00:05:11,826 --> 00:05:17,087

Marshall. I think a mentor is a
person who steps in and helps you

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00:05:17,087 --> 00:05:23,125

find your path to what you want.
It's all based on individuals, of

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00:05:23,125 --> 00:05:28,068

what you want to see for your career
and what things you like to do. The

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00:05:28,068 --> 00:05:33,114

one thing that got me to where I am
now is I was in a class and Michael

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00:05:33,114 --> 00:05:36,189

Griffin came in and said, "You all
are not happy with what you are doing

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00:05:36,189 --> 00:05:39,989

now," and that was right after
Constellation had gone away and we

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00:05:39,989 --> 00:05:42,413

were all kind of depressed because
we going to build this rocket and

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00:05:42,413 --> 00:05:46,032

then it was gone and it was not our
opportunity anymore. We were like,

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00:05:46,032 --> 00:05:50,032

"Yes, we are a little depressed about
this." He said, "Go try something

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00:05:50,032 --> 00:05:54,001

else, this is NASA, there are so
many other things you can try to

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00:05:54,001 --> 00:05:58,026

do." That's when the opportunity
came to go to Mission Operations and

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00:05:58,026 --> 00:06:02,057

become a Pay Comm, which is totally different from what I had been doing.

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00:06:02,057 --> 00:06:07,049

That was a wonderful experience to get to get out and try something

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00:06:07,049 --> 00:06:09,983

new, but it also led me to where I am now. I'm is still in Mission

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00:06:09,983 --> 00:06:15,940

Ops, but back with SLS. I think it works by providing those

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00:06:15,940 --> 00:06:20,003

opportunities and listening to those around you if you don't have

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00:06:20,003 --> 00:06:22,003

a specific mentor.

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00:06:22,003 --> 00:06:28,986

and how every different person brings something different

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00:06:28,986 --> 00:06:32,255

to the table and how that helps to solve problems. I didn't hear

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00:06:32,255 --> 00:06:36,130

that at the beginning. I remember going to meetings and being the

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00:06:36,130 --> 00:06:40,792

only person who looked like me and being the only person who had my

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00:06:40,792 --> 00:06:50,700

experience there. It wasn't always
looked on with she's bringing

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00:06:50,700 --> 00:06:54,824

something to the table, she's
got a voice here that means

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00:06:54,824 --> 00:06:59,779

something. It took time for people
to sit in the meetings and for

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00:06:59,779 --> 00:07:03,994

people to say, "Oh, she does she does
have something worth saying, she has an

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00:07:03,994 --> 00:07:11,959

opinion here that matters, that means
something." Whereas I had to prove

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00:07:11,959 --> 00:07:18,087

myself early-on through time and
meetings and bringing that to the

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00:07:18,087 --> 00:07:25,059

table, where different now, they
expect people who come in have

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00:07:25,059 --> 00:07:31,021

something to bring to the table.
I don't feel the need to prove I

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00:07:31,021 --> 00:07:35,065

have something to say to; they expect
and they want to hear what I have

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00:07:35,065 --> 00:07:39,975

to say too. That's a difference
from back in 1980.

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00:07:39,975 --> 00:07:46,964

I think we all need to keep our eyes open. I'm not in a position

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00:07:46,964 --> 00:07:55,023

really to help somebody, bring someone along, but I did need an

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00:07:55,023 --> 00:07:59,461

assistant to help with what I'm doing and I was asked can you

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00:07:59,461 --> 00:08:05,988

give us some names? I came up with another younger woman who I

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00:08:05,988 --> 00:08:11,897

though had great potential but hadn't been tapped. She came in

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00:08:11,897 --> 00:08:17,005

and is doing fantastic, so fantastic that I glad they got me before

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00:08:17,005 --> 00:08:20,988

they got her because I may not be where I am because she is just great.

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00:08:20,988 --> 00:08:25,526

She came in and is doing a fantastic job taking that ownership,

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00:08:25,526 --> 00:08:32,819

which she's been here eight, nine years and hasn't had that opportunity

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00:08:32,819 --> 00:08:41,682

before to have an ownership of something. This is yours, go do it other than go

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00:08:41,682 --> 00:08:45,712

help this person, you'll help that person and we'll tell you what to

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00:08:45,712 --> 00:08:50,858

do day by day, that kind of thing. To get something of your own, that's

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00:08:50,858 --> 00:08:56,932

when I think people flourish. You kind of look and they say, "It's really

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00:08:56,932 --> 00:09:02,932

yours and I'm expecting you to do it," and they do it. It works. I don't

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00:09:02,932 --> 00:09:07,979

really know how we can really change that other than requesting that people

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00:09:07,979 --> 00:09:11,861

keep their eyes open and look for your untapped talent.

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00:09:11,861 --> 00:09:18,855

Back in the early days, I went back to Oakwood to talk about the co-op

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00:09:18,855 --> 00:09:22,363

program and all of that and how I go there and what I'm doing.

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00:09:22,363 --> 00:09:28,651

I have friends who are school teachers and have talked to classes, younger

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00:09:28,651 --> 00:09:34,952

kids, about science and what's going on and what I'm doing and how fun it can

