



NASA
Slate Memory Alloy Team

1
00:00:01,096 --> 00:00:03,156
You simply have to
lower something

2
00:00:03,156 --> 00:00:06,846
as a shape memory alloy that is
as this little thing right here.

3
00:00:07,496 --> 00:00:08,636
That if you drop it into,

4
00:00:08,806 --> 00:00:11,546
this is just a lowering
method or a delivery method.

5
00:00:12,196 --> 00:00:15,596
Once you drop it into the
rock, it goes inside the rock.

6
00:00:15,736 --> 00:00:18,976
You apply heats to this little
element in my hand right here.

7
00:00:19,416 --> 00:00:21,056
And suddenly it wants to expand

8
00:00:21,126 --> 00:00:23,896
because it's a special material
known as shape memory alloys.

9
00:00:24,366 --> 00:00:25,936
And it creates so much forces

10
00:00:26,076 --> 00:00:29,976
that it splits the rock
open just like this.

11
00:00:30,936 --> 00:00:33,346
The idea was developed

for space applications.

12

00:00:33,346 --> 00:00:36,046

Imagine you want to go to an
asteroid rendezvous or Mars.

13

00:00:36,636 --> 00:00:40,446

You can not pack explosives or
take big wedges of hydraulics

14

00:00:40,446 --> 00:00:42,376

to go break a rock
formation and study it.

15

00:00:43,066 --> 00:00:45,036

So what this gives you,
it's very lightweight.

16

00:00:45,556 --> 00:00:46,736

Very compact method.

17

00:00:46,966 --> 00:00:49,026

Very static, which is
also another benefit.

18

00:00:49,026 --> 00:00:51,986

So you don't want that
contamination of the explosion

19

00:00:52,016 --> 00:00:55,276

to go over to rover mirrors or
astronauts or what have you.

20

00:00:55,936 --> 00:00:58,016

So this really gives
you a compact, clean,

21

00:00:58,406 --> 00:01:00,956

debris-less method to break
rock formation and study them.

22

00:01:01,586 --> 00:01:03,546

In situ or you can
bring them back to earth

23

00:01:03,546 --> 00:01:05,436

and study what's in there.

24

00:01:05,436 --> 00:01:06,656

I was born in Morocco.

25

00:01:06,656 --> 00:01:09,806

And growing up, my dad
had the philosophy that,

26

00:01:09,836 --> 00:01:11,896

if something breaks,
we go fix it.

27

00:01:12,466 --> 00:01:14,946

So every time, myself and
my brother growing up,

28

00:01:14,976 --> 00:01:17,456

my dad will go fix a
faucet or fix something

29

00:01:17,456 --> 00:01:18,566

in there, he will call us.

30

00:01:18,566 --> 00:01:21,646

And we'll just gather around
him and look and learn.

31

00:01:21,646 --> 00:01:23,516

And see how he's
been doing things.

32

00:01:24,106 --> 00:01:25,376

So we grew up with tools.

33

00:01:25,976 --> 00:01:28,016

We grew up with my dad,
looking how the to fix things.

34

00:01:28,586 --> 00:01:30,076

If we're not fixing,
we build things.

35

00:01:30,406 --> 00:01:31,336

Carts, for instance.

36

00:01:31,386 --> 00:01:33,716

We used to build carts that we
play in the streets with my dad

37

00:01:34,056 --> 00:01:36,346

from scratch pieces of
wood and pieces of metal.