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00:00:00,000 --> 00:00:05,000

If aliens exist, how can we communicate with them?

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00:00:05,000 --> 00:00:09,000

If we send a message, what should it say?

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00:00:09,000 --> 00:00:11,000

How should we send it?

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00:00:11,000 --> 00:00:17,000

Two familiar organizations have pledged to scour the vast regions of space

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00:00:17,000 --> 00:00:20,000

for signs of extraterrestrial life.

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00:00:20,000 --> 00:00:25,000

But if it takes hundreds, thousands, even millions of years for light

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00:00:25,000 --> 00:00:27,000

from distant stars to reach Earth,

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00:00:27,000 --> 00:00:32,000

how long could it take for an alien to answer our calls?

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00:00:32,000 --> 00:00:36,000

Are aliens contacting us right now?

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00:00:36,000 --> 00:00:44,000

Join us as we investigate how scientists are sending and receiving alien communications.

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00:00:51,000 --> 00:00:53,000

A global effort has begun.

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00:00:53,000 --> 00:00:56,000

Secret files hidden from the public for decades.

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00:00:56,000 --> 00:01:00,000

Detailing every UFO account are now available to the public.

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00:01:00,000 --> 00:01:05,000

We are about to uncover the truth behind these classified documents.

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00:01:05,000 --> 00:01:09,000

Find out what the government doesn't want you to know.

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00:01:09,000 --> 00:01:12,000

Unseal alien files.

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00:01:12,000 --> 00:01:16,000

Exposing the biggest secret on planet Earth.

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00:01:18,000 --> 00:01:23,000

For thousands of years, we have wondered if we are alone in the universe.

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00:01:23,000 --> 00:01:27,000

Today, we may have the technology to answer the question.

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00:01:27,000 --> 00:01:34,000

But the scientific search for extraterrestrial intelligence began in the late 1950s

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00:01:34,000 --> 00:01:37,000

with the birth of SETI.

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00:01:37,000 --> 00:01:42,000

SETI stands for Search for Extraterrestrial Intelligence.

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00:01:42,000 --> 00:01:48,000

And these are radio astronomers who believe that if there are civilizations out there,

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00:01:48,000 --> 00:01:53,000

the best way to detect them will be listening for radio signals

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00:01:53,000 --> 00:01:58,000

that they've either sent inadvertently just through things like television and radio like we have,

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00:01:58,000 --> 00:02:02,000

or as a deliberate attempt to try to make contact.

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00:02:02,000 --> 00:02:06,000

Communicating with aliens is their prime goal,

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00:02:06,000 --> 00:02:12,000

and they regularly listen for and send messages in the hopes of making contact.

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00:02:12,000 --> 00:02:17,000

Their effort to try and detect radio waves is done through radio astronomy.

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00:02:17,000 --> 00:02:23,000

There are very powerful radio telescopes here on Earth that essentially are tasked to scan the skies,

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00:02:23,000 --> 00:02:30,000

look for some type of signal of some kind that differs from what you naturally see in the universe.

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00:02:30,000 --> 00:02:37,000

But what is a radio wave? Why are they important? And where are they coming from?

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00:02:37,000 --> 00:02:44,000

Everything that you see by looking up gives some type of radio wave or radio signature to it,

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00:02:44,000 --> 00:02:46,000

and it's different across the board.

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00:02:46,000 --> 00:02:52,000

A planet or an exoplanet is going to give off a different radio wave and radio signature

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00:02:52,000 --> 00:02:56,000

than a quasar or a nebula or a galaxy.

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00:02:56,000 --> 00:02:59,000

We are spinning through an infinite universe,

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00:02:59,000 --> 00:03:05,000

so capturing the radio waves of an alien species is not as easy as it sounds.

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00:03:05,000 --> 00:03:08,000

Unfortunately, it's like looking for a needle in a stack of needles.

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00:03:08,000 --> 00:03:13,000

You have so many radio waves out there that are naturally occurring.

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00:03:13,000 --> 00:03:18,000

You have to figure out which one sticks out that shows that it's intelligent.

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00:03:18,000 --> 00:03:23,000

Celestial bodies with magnetic fields produce radio waves,

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00:03:23,000 --> 00:03:29,000

and this electromagnetic radiation has different frequencies.

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00:03:29,000 --> 00:03:36,000

Scientists can tell by looking at these different frequencies what these different objects are.

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00:03:36,000 --> 00:03:40,000

Unsealed case file. The Erocebo message.

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00:03:40,000 --> 00:03:45,000

November 16th, 1974. Where'd he go?

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00:03:45,000 --> 00:03:50,000

In 1974, scientists developed a message or a radio signal that we were going to broadcast

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00:03:50,000 --> 00:03:56,000

from the Arecibo radio telescope out into the cosmos in hopes that somebody was listening.

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00:03:56,000 --> 00:04:00,000

This was the idea of the astronomer Frank Drake,

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00:04:00,000 --> 00:04:05,000

and what he did is he used prime numbers to send a binary message.

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00:04:05,000 --> 00:04:09,000

And actually, if you ever picked up this signal,

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00:04:09,000 --> 00:04:14,000

you could decide to decode it one of two ways, white, black, or black, white.

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00:04:14,000 --> 00:04:17,000

The message depicts vital information about Earth.

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00:04:17,000 --> 00:04:23,000

This was a diagrammatic representation of the EROEBO telescope itself,

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00:04:23,000 --> 00:04:32,000

human beings, and again some basic information about planet Earth and life on Earth.

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00:04:32,000 --> 00:04:37,000

The message is sent to a distant star cluster known as M13,

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00:04:37,000 --> 00:04:42,000

but critics claim there is a problem with this methodology.

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00:04:42,000 --> 00:04:50,000

We were going to beam this message to a star system that was 21,000 light years away.

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00:04:50,000 --> 00:04:54,000

Just assume for a moment that somebody was listening,

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00:04:54,000 --> 00:04:59,000

but we weren't going to know until 21,000 years later.

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00:04:59,000 --> 00:05:02,000

Now that is a pretty long time to wait,

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00:05:02,000 --> 00:05:05,000

but now add in the fact that they want to respond.

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00:05:05,000 --> 00:05:11,000

It would take them 21,000 years to then beam that message,

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00:05:11,000 --> 00:05:15,000

assuming that that will travel at the speed of light back to us.

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00:05:15,000 --> 00:05:21,000

It will take a full 42,000 years to then just say hello.

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00:05:21,000 --> 00:05:27,000

But there is another more disturbing reason that has some experts concerned.

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00:05:27,000 --> 00:05:33,000

Many people at the time said that the Erocebo message was highly irresponsible.

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00:05:33,000 --> 00:05:40,000

Indeed, the Astronomer Royal in the UK described it as a scientific suicide note,

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00:05:40,000 --> 00:05:46,000

and he said that we ought not to be drawing attention to ourselves in this way

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00:05:46,000 --> 00:05:51,000

and making ourselves known to civilizations that might be orders of magnitude

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00:05:51,000 --> 00:05:55,000

more powerful than us and perhaps hostile.

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00:05:58,000 --> 00:06:04,000

Scientists searching for extraterrestrial intelligence in the universe

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00:06:04,000 --> 00:06:09,000

are sending and listening to radio messages from deep space.

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00:06:09,000 --> 00:06:17,000

But in the 1970s, leading astrobiologists of the day decide to try a different approach.

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00:06:17,000 --> 00:06:21,000

Unsealed case file, Pioneer 10.

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00:06:22,000 --> 00:06:27,000

March 2, 1972, Cape Kennedy, Florida.

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00:06:27,000 --> 00:06:31,000

NASA launches the Pioneer 10 space probe.

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00:06:31,000 --> 00:06:33,000

It's an historic event.

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00:06:33,000 --> 00:06:38,000

Pioneer will become the first probe to travel the outer planets,

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00:06:38,000 --> 00:06:41,000

the first to travel through the asteroid belt,

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00:06:41,000 --> 00:06:47,000

and the first man-made object to enter interstellar space.

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00:06:47,000 --> 00:06:52,000

But there is something else on board that is also a first.

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00:06:52,000 --> 00:06:58,000

Scientists thought that it would be an interesting idea to place messages

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00:06:58,000 --> 00:07:03,000

to civilizations that might one day encounter the spacecraft.

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00:07:03,000 --> 00:07:08,000

Leading extraterrestrial scientists Frank Drake and Carl Sagan

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00:07:08,000 --> 00:07:14,000

are given three weeks to come up with a plaque that is eventually attached to Pioneer 10.

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00:07:14,000 --> 00:07:18,000

And so they created a plaque that was visual in nature,

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00:07:18,000 --> 00:07:22,000

where it showed a human male and a human female.

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00:07:22,000 --> 00:07:27,000

But also images that would say something about our civilization,

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00:07:27,000 --> 00:07:35,000

technical information that would illustrate the position of our sun in the galaxy

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00:07:35,000 --> 00:07:43,000

and additionally information about DNA and indeed early human development.

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00:07:43,000 --> 00:07:51,000

So this was, to all intents and purposes, a message from humanity to the stars.

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00:07:51,000 --> 00:07:55,000

Just five years later, NASA sends another probe,

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00:07:55,000 --> 00:07:59,000

but this time with a recorded message.

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00:07:59,000 --> 00:08:03,000

Unsealed case file, Voyager 1.

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00:08:03,000 --> 00:08:08,000

September 5, 1977, Cape Canaveral, Florida.

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00:08:09,000 --> 00:08:14,000

The Voyager program kind of took the next step in trying to communicate with aliens.

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00:08:14,000 --> 00:08:19,000

Instead of a visual plaque like on the side of Pioneer, the Voyager had a golden record.

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00:08:19,000 --> 00:08:27,000

These were in the form of records that one day perhaps alien civilizations might find and be able to play.

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00:08:27,000 --> 00:08:35,000

And there were a series of images and sounds that really tried to summarize life on Earth.

101

00:08:35,000 --> 00:08:42,000

Voyager's golden record tries to encapsulate life on Earth and all of its biodiversity.

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00:08:42,000 --> 00:08:47,000

And the intent with the Voyager record was essentially to give them a piece of us

103

00:08:47,000 --> 00:08:50,000

that they could hear who and what we were.

104

00:08:50,000 --> 00:08:53,000

They could essentially see who and what we were.

105

00:08:53,000 --> 00:08:57,000

They could understand the life that could be found here on planet Earth.

106

00:08:57,000 --> 00:08:58,000

They could find planet Earth.

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00:08:58,000 --> 00:09:05,000

These were scenes from everyday life, music, but also just really, I suppose,

108

00:09:05,000 --> 00:09:12,000

a testament to planet Earth and the human race, who we are.

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00:09:12,000 --> 00:09:20,000

But many in the space industry are uneasy that NASA is speaking for all of humanity.

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00:09:20,000 --> 00:09:22,000

Some people say we shouldn't do it at all.

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00:09:22,000 --> 00:09:31,000

That the universe might be a dangerous place and we ought not to advertise our presence to more advanced civilizations.

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00:09:31,000 --> 00:09:36,000

Others consider arguments against broadcasting a message to be pointless

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00:09:36,000 --> 00:09:42,000

because planet Earth is an already easily detectable civilization.

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00:09:42,000 --> 00:09:45,000

If we send the message, what do we say?

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00:09:45,000 --> 00:09:47,000

And indeed, who should say it?

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00:09:47,000 --> 00:09:49,000

Who truly speaks for planet Earth?

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00:09:49,000 --> 00:09:52,000

Should we send a simple greeting?

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00:09:52,000 --> 00:09:56,000

Should we send an invitation to make contact?

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00:09:56,000 --> 00:10:02,000

We're giving them a map to exactly where we are when essentially they could be malicious.

120

00:10:02,000 --> 00:10:03,000

They could be our enemy.

121

00:10:03,000 --> 00:10:08,000

And do we want to give a blueprint to our inner workings to our enemies here on Earth?

122

00:10:08,000 --> 00:10:09,000

Absolutely not.

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00:10:09,000 --> 00:10:16,000

Well, with the plaque, with the Voyager record, with the messages beamed into space,

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00:10:16,000 --> 00:10:18,000

that's essentially what we are doing.

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00:10:20,000 --> 00:10:28,000

NASA is not the only organization attempting to communicate with extraterrestrial civilizations.

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00:10:28,000 --> 00:10:35,000

Other scientists have been sending physical and radio wave messages toward distant stars for decades.

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00:10:35,000 --> 00:10:44,000

Scientists believe that radio waves are the best way to receive and perhaps even send messages between civilizations.

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00:10:44,000 --> 00:10:47,000

Firstly, because they occur naturally.

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00:10:47,000 --> 00:10:53,000

So it's a kind of logical thing to observe in the universe and then think, hey, we could use this.

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00:10:53,000 --> 00:10:58,000

The critical point is that you can encode information in that way.

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00:10:58,000 --> 00:11:05,000

But as scientists send messages to space, they also look for a response.

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00:11:05,000 --> 00:11:08,000

Unsealed case file.

133

00:11:08,000 --> 00:11:10,000

The wow signal.

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00:11:10,000 --> 00:11:18,000

August 15, 1977, Ohio State University, Big Ear Telescope.

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00:11:18,000 --> 00:11:37,000

Possibly the best evidence ever of an alien civilization came in 1977 when radio astronomers at the Big Ear Telescope detected a signal which seemed to have all the characteristics that scientists said an artificial signal should have.

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00:11:37,000 --> 00:11:41,000

It wasn't during the time that scientists were actually looking at the screens.

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00:11:41,000 --> 00:11:43,000

This was at a time that was considered downtime.

138

00:11:43,000 --> 00:11:47,000

It was in the middle of the night and scientists noticed it the next morning.

139

00:11:47,000 --> 00:11:55,000

At 11.16 p.m., Big Ear records a signal 30 times louder than naturally occurring signals.

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00:11:55,000 --> 00:11:59,000

After 72 seconds, it abruptly stops.

141

00:11:59,000 --> 00:12:10,000

The astronomer who was on duty when this was first detected was so stunned by this that he wrote in pen on the computer printout.

142

00:12:10,000 --> 00:12:13,000

Wow exclamation mark in the margin.

143

00:12:13,000 --> 00:12:18,000

Because to him, this was exactly what SETI had been looking for.

144

00:12:18,000 --> 00:12:20,000

Now they tried to find it again.

145

00:12:20,000 --> 00:12:24,000

It did not repeat, which is what you want to see on an intelligent message.

146

00:12:24,000 --> 00:12:29,000

Now essentially they could have just beamed that message once and that was it and didn't repeat it.

147

00:12:29,000 --> 00:12:31,000

We don't know for sure.

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00:12:31,000 --> 00:12:37,000

But this was something that piqued that scientist interest and it's kind of lived in SETI legend ever since.

149

00:12:37,000 --> 00:12:45,000

Does that mean that this was a signal not from an alien planet but from an alien spacecraft?

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00:12:45,000 --> 00:12:48,000

And might that explain why it didn't repeat?

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00:12:48,000 --> 00:12:53,000

Over the years, SETI has detected other promising signals.

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00:12:53,000 --> 00:13:00,000

But so far, all attempts at decoding the alleged messages have turned up nothing.

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00:13:00,000 --> 00:13:07,000

There was a similar incident in 2010 and this was dubbed the new wow signal.

154

00:13:07,000 --> 00:13:11,000

Now this signal looked like nothing that they had detected before.

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00:13:11,000 --> 00:13:17,000

It was not easily discernible as a galaxy or nebula or pulsar or something that they could discount it as.

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00:13:17,000 --> 00:13:19,000

So they tried to find it again.

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00:13:19,000 --> 00:13:24,000

They searched the same area of sky in hopes that that signal was repeating.

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00:13:24,000 --> 00:13:26,000

Unfortunately, it was not.

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00:13:26,000 --> 00:13:34,000

The new wow signal is unique because it was discovered in a frequency range known for being quiet.

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00:13:34,000 --> 00:13:40,000

There is a very quiet part of the spectrum, generally known as the water hole.

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00:13:40,000 --> 00:13:45,000

And natural objects don't tend to radiate in those frequencies.

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00:13:45,000 --> 00:13:51,000

So SETI scientists have said that if you wanted to listen out for a message,

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00:13:51,000 --> 00:13:55,000

this would be a very obvious part of the spectrum to study.

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00:13:55,000 --> 00:14:01,000

Finally, it appeared to emanate from very close to a nearby star,

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00:14:01,000 --> 00:14:11,000

which some people say is perhaps home to a planet where there might be something in the so-called habitable zone.

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00:14:11,000 --> 00:14:18,000

But critics say the new wow signal could have been emitted from one of our own satellites.

167

00:14:18,000 --> 00:14:21,000

We don't know if this was something that was detected on accident,

168

00:14:21,000 --> 00:14:27,000

that it may have been one of our signals that maybe had hit a satellite or bounced back to us.

169

00:14:27,000 --> 00:14:33,000

It's one thing to detect a signal and quite another to decipher it.

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00:14:33,000 --> 00:14:37,000

To really figure out how we're going to talk to an extraterrestrial civilization,

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00:14:37,000 --> 00:14:40,000

scientists are looking here on Earth and how life communicates.

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00:14:40,000 --> 00:14:46,000

Some scientists are looking at the possibility of understanding language,

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00:14:46,000 --> 00:14:56,000

if you can call it that, from whales and dolphins as a first step on the road to maybe deciphering an extraterrestrial language.

174

00:14:56,000 --> 00:15:01,000

But many experts believe that if we are going to understand an alien message,

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00:15:01,000 --> 00:15:05,000

we will ultimately need some extraterrestrial help.

176

00:15:05,000 --> 00:15:12,000

If they wanted us to detect their signal and decode it, which surely they would,

177

00:15:12,000 --> 00:15:16,000

an alien civilization would I think want to make it easy for us.

178

00:15:16,000 --> 00:15:21,000

This isn't going to be a puzzle, so they're going to want to send us that Rosetta Stone.

179

00:15:21,000 --> 00:15:24,000

They're going to want to send us that primer.

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00:15:25,000 --> 00:15:35,000

Scientists all over the world are actively searching the skies for alien civilizations.

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00:15:35,000 --> 00:15:42,000

But why has there been no breakthrough communication with an extraterrestrial intelligence?

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00:15:42,000 --> 00:15:48,000

In 2003, the Hubble Space Telescope performed an astounding study.

183

00:15:48,000 --> 00:15:55,000

The Hubble trained its camera on a small pinpoint size spot in the sky that was essentially dark.

184

00:15:55,000 --> 00:15:59,000

Scientists believe that there was possibly nothing there.

185

00:15:59,000 --> 00:16:06,000

The Hubble Space Telescope's ultra-deep field study found an estimated 10,000 galaxies.

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00:16:06,000 --> 00:16:11,000

When you look at the photographs and you understand just what you are looking at

187

00:16:11,000 --> 00:16:15,000

and how massive just that pinpoint is,

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00:16:15,000 --> 00:16:20,000

you realize how astronomical, pardon the pun, our universe truly is.

189

00:16:20,000 --> 00:16:26,000

That proves beyond any shadow of a doubt, finding intelligent life in this universe is going to be nothing but luck.

190

00:16:26,000 --> 00:16:33,000

SETI scientists consider the apparent silence from the cosmos, not a sign of failure.

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00:16:33,000 --> 00:16:40,000

It's exactly what they would expect, but the technology they say is now approaching the point

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00:16:40,000 --> 00:16:46,000

where if there are civilizations out there, they would expect to pick them up within the next few years.

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00:16:46,000 --> 00:16:51,000

But many scientists also contend that finding intelligent life in the universe

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00:16:51,000 --> 00:16:55,000

probably means they will be more advanced than us.

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00:16:55,000 --> 00:17:00,000

And that may be one of our biggest problems.

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00:17:00,000 --> 00:17:09,000

There's an irony about a civilization that as it progresses, it might become not louder but more quiet.

197

00:17:09,000 --> 00:17:14,000

We see this with the transition from analog to digital technology.

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00:17:14,000 --> 00:17:23,000

Actually digital produces far less of a radio signature that would be detectable across interstellar distances.

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00:17:23,000 --> 00:17:34,000

Advanced alien civilizations may be hard to detect with conventional radio waves, unless, like us, they are trying to communicate on purpose.

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00:17:34,000 --> 00:17:38,000

The logical beacon is a sequence of prime numbers.

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00:17:38,000 --> 00:17:43,000

The chances of this occurring naturally are of course infinitesimally small.

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00:17:43,000 --> 00:17:54,000

So if you pick up a radio signal that's a sequence of prime numbers, that screams to you, there's a civilization out there and they're trying to get our attention.

203

00:17:54,000 --> 00:18:02,000

Maybe one day in the not too distant future, one of our signals will be heard by an alien civilization.

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00:18:02,000 --> 00:18:11,000

Critics of SETI say, come on, this is an organization packed with really super intelligent scientists.

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00:18:11,000 --> 00:18:15,000

They've been looking for decades and they've found nothing.

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00:18:15,000 --> 00:18:19,000

The search really has only just begun.