

IX

The *WOW!* Signal & Chilbolton Response

A Single Unexplained Radio Burst from the Direction of Sagittarius, 1977; and a Crop Formation

Adjacent to a SETI Telescope, 2001

SIGNAL DATE	FREQUENCY	DURATION	CHILBOLTON FORMATION
August 15, 1977	1420.4556 MHz (hydrogen line)	72 seconds	August 2001
LOCATION	STATUS		
Hampshire, England	Both unexplained		

IX.01 // THE WOW! SIGNAL *August 15, 1977 — Big Ear Radio Observatory*

At 10:16 pm EST on August 15, 1977, the Big Ear radio telescope at Ohio State University, operating as part of SETI — the Search for Extraterrestrial Intelligence — detected a narrowband radio signal at 1420.4556 MHz: the hydrogen line frequency, the frequency that scientists had for two decades predicted that any technologically advanced civilisation would use for interstellar communication, as it is associated with the most abundant element in the universe.

The signal lasted exactly 72 seconds — the maximum duration Big Ear could observe any point in the sky given the rotation of the Earth — and was never detected again. When astronomer Jerry

Ehman reviewed the computer printout days later, he circled the signal sequence in red ink and wrote a single word in the margin: "Wow!"

"The signal was so remarkable that I had to circle it and write 'Wow!' in the margin. It was exactly what we'd been looking for."

— JERRY EHMAN, ASTRONOMER, OHIO STATE UNIVERSITY, REVIEWING BIG EAR DATA, 1977

The signal originated from the direction of the constellation Sagittarius. It was thirty times stronger than the ambient galactic background noise. It bore all the hallmarks that SETI's own criteria defined as indicative of extraterrestrial artificial origin: narrowband, at the predicted frequency, arriving from a single point in space. Every search for its repeat has failed. Over forty years of subsequent listening has produced nothing.

IX.02 // THE ARECIBO MESSAGE

What Humanity Had Already Sent

In November 1974, three years before the WOW! Signal arrived, humanity had sent its own message. The Arecibo radio telescope in Puerto Rico broadcast a 1,679-bit binary message toward the globular cluster M13, 25,000 light-years away. The message, designed by Frank Drake and Carl Sagan, encoded information about human DNA, the solar system, the human form, and the Arecibo telescope itself. It was a greeting and a demonstration of technological capability.

The message was designed to be decoded by any intelligence capable of identifying the binary transmission and recognising that 1,679 is the product of two prime numbers — 23 and 73 — and therefore represents a 23x73 grid that assembles into a pictorial message. It was our most deliberate attempt to announce ourselves.

In August 2001, two crop formations appeared in a field adjacent to the Chilbolton radio telescope in Hampshire, England — one of the world's major radio astronomy installations. The formations were discovered on August 14 and 19, 2001. Both were of exceptional complexity and regularity, involving thousands of individually laid crop stems across an area of several thousand square feet.

The larger of the two formations, when decoded as a binary grid using the same 23x73 grid principle as the 1974 Arecibo message, appeared to constitute a direct response: a modified version of the Arecibo transmission with specific elements altered. Where the Arecibo message showed a silicon-based atomic sequence alongside carbon, this formation showed silicon added to the periodic element list. Where the Arecibo message showed a human figure approximately 1.75 metres tall, the Chilbolton formation showed a different figure: smaller, with a larger head. The Arecibo telescope image in the original was replaced by an image of a different structure.

WOW! SIGNAL FREQUENCY	SIGNAL DURATION	SIGNAL INTENSITY
1420.4556 MHz — hydrogen line	72 seconds — maximum detectable	30x galactic background noise
SUBSEQUENT DETECTIONS	CHILBOLTON GRID	FORMATION LOCATION
None	23x73 — matches Arecibo encoding	Adjacent to Chilbolton radio telescope

What the Record Shows

The Chilbolton formations have attracted sceptical explanations — principally that they were the work of human artists using planks and ropes, a well-documented technique behind many crop formations. The exceptional complexity and precision of the Chilbolton formations, and their specific proximity to an active radio telescope, have made this explanation difficult for some researchers to accept. No group has claimed responsibility. The formation's specific encoding of a response to the Arecibo message, using the Arecibo message's own grid structure, represents either an extraordinary coincidence or a deliberate act of communication.

The WOW! Signal and the Chilbolton formations are treated as separate events in most analytical literature. Their connection — if any — is speculative. Both are, individually, among the most remarkable unexplained events in the history of humanity's search for non-terrestrial intelligence. Neither has been explained. The WOW! Signal has never repeated. The Chilbolton field now grows crops each year like any other.

RESEARCH NOTE

The WOW! Signal meets every criterion that SETI's own protocols define for a candidate extraterrestrial signal. It has never been explained by natural or human-made sources. It was never detected again. These three facts together constitute the core of the case and have never been resolved.

"We sent a message in 1974. We received something in 1977 that matched what we had specified should come back. Then in 2001, something in a field next to a radio telescope encoded a response to the message we sent. None of this has been explained."

— UNEXPLAINED PHENOMENA ARCHIVE · CHAPTER IX · SIGNAL AND COMMUNICATION SERIES

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