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SOLVE?**

**THE MYSTERY OF
CROP
CIRCLES**

CHRIS OXLADE



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THE MYSTERY OF

CROP

CIRCLES

WITHDRAWN

Chris Oxlade

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UNSOLVED MYSTERIES

For hundreds of years, people have been interested in and puzzled by mysterious places, creatures, and events. Is there really a monster living in Loch Ness, in Scotland? Did the lost city of Atlantis ever exist? Are UFOs tricks of the light or actually vehicles from outer space? Who is responsible for the strange patterns called crop circles—clever fakers or alien beings? Some of these mysteries have baffled scientists, who have spent years trying to find the answer. But just how far can science go? Can it really explain the seemingly unexplainable? Are there some mysteries that science simply cannot solve? Read on, and make up your own mind . . .

This book tells you about the history of crop circles. Using eyewitness accounts and the scientific evidence found at crop circle sites, it looks at the different theories about how crop circles form.

What is a crop circle?

You have probably seen pictures of crop circles. They are circular patterns that mysteriously appear in fields of crops, such as wheat and barley. Inside the circle the crop stalks are bent over, but at the circle's edge the crops are untouched. Circles don't last forever—they are destroyed when the crop is harvested. Crop circles are not always single, perfect circles; often, two or more crop circles appear at the same time. Some circles are elliptical (oval shaped); some are complicated designs that crop circle researchers call **pictograms**.



This set of crop circles, found in Alberta, Canada, in 1991, shows the typical **spiral** pattern of the bent crop stalks inside a circle.

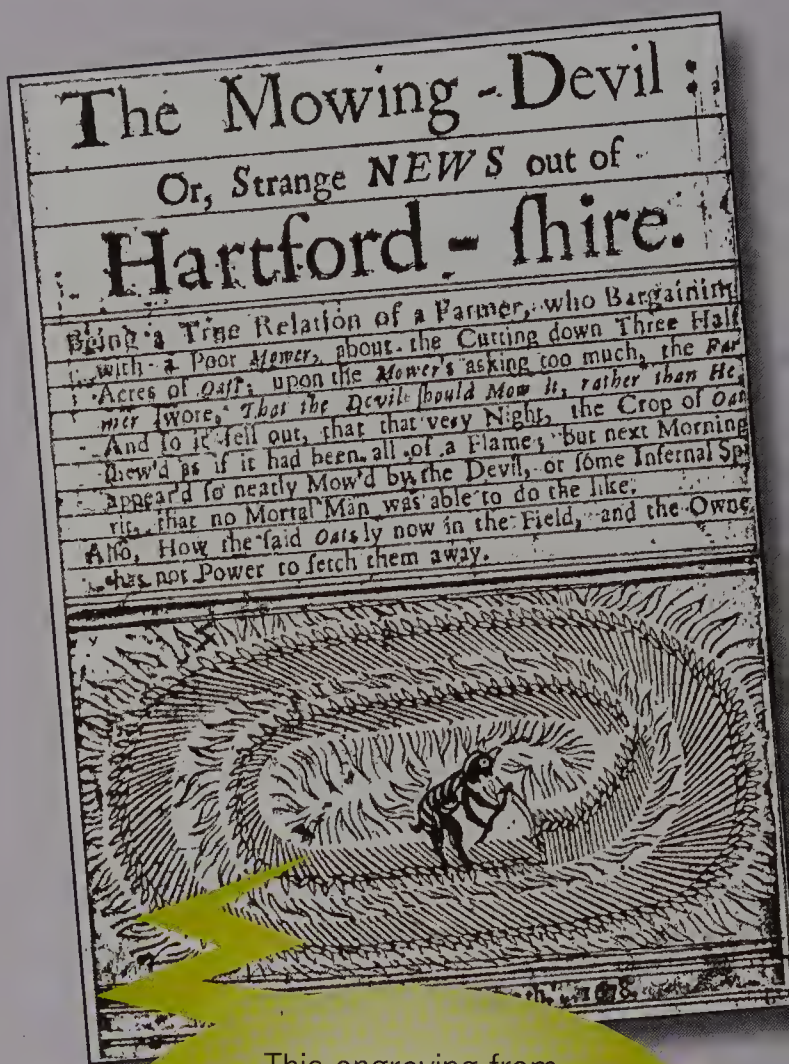
Crop circles first made the news in the early 1980s, when dozens began to appear around the world. Media interest was intense because of claims by UFO enthusiasts that the circles were made by aliens. Crop circles are so neatly done that they look artificial. In fact, most are, because they are **hoaxes**! However, there are still many that cannot be explained. Is there anything science can do to solve the mystery?

THE CIRCLES APPEAR

Headlines about crop circles first appeared in the world's newspapers and on television in the early 1980s, but this was not the first time crop circles had been seen. There were several reports from the United States, Australia, Canada, and England in the 1960s and 1970s, and a few from before then, too. The earliest record of a crop circle comes from Holland in 1590. Many farmers had witnessed them before, but had assumed their appearance was connected to the wind.

A crop of circles

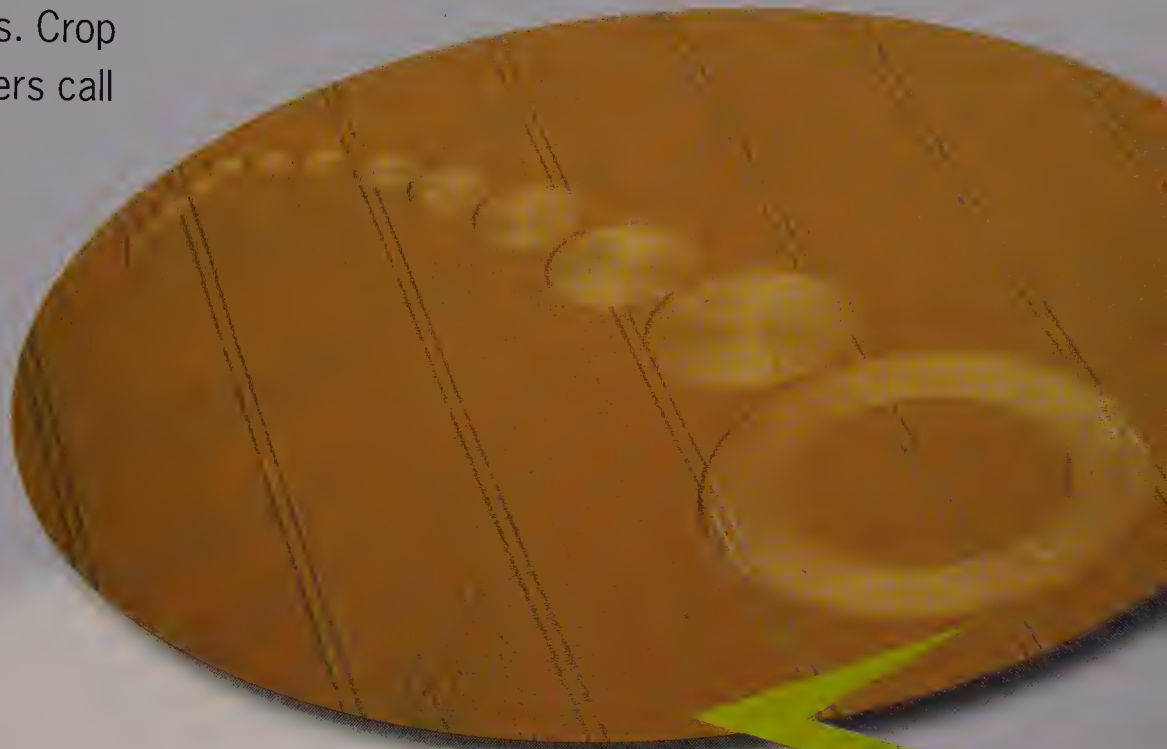
During the early 1980s, reports of crop circles rose dramatically. Dozens of circles appeared each summer. Most were in the fields of the English counties of Hampshire and Wiltshire, and many were concentrated around the town of Warminster, which is also famous for UFO sightings. For a few years, there was huge media attention and plenty of speculation about alien spacecraft landing and little green men making the circles. The excitement was made more intense because the movie *E.T.: The Extraterrestrial*, about an alien left behind by a departing spacecraft, was in theaters at the time. By the late 1980s, reports of crop circles were coming in from all over the world. In 1990, more than 1,000 circles were reported.



This engraving from 1678 appears to show a crop circle. The report with the engraving says that the circle was formed overnight by the "mowing devil."

Modern patterns

Since the 1990s, crop circles have continued to appear, but matters have taken a strange twist. Although most reports have been of simple circles and groups of circles, complex designs have also been sighted, including squares, triangles, mathematical patterns, and even letters. Crop circle researchers call these patterns **pictograms** or **agriglyphs**.



Circles around the world

Most crop circle reports come from southern England, but crop circles have appeared all over the world. They are found in more than 70 countries from every continent, including the United States, Canada, Australia, Japan, France, and India. Circles have also been found in many different types of crop around the world, from tobacco to rice. Circle shapes have also been seen in sand and snow.

This shows a pictogram in southern England from 1994. A curve with circles of increasing size is a common modern pictogram. You can also see the tracks formed by tractor wheels.

DID YOU SEE THAT?

Considering the thousands of crop circles that have been discovered in the last 30 years, and that they seem to appear only in certain places, very few people have actually seen them being made. This may be because they seem to appear mostly at night. Of course, many people have seen and photographed the finished circles.

Queensland, Australia, January 1966

George Pedley was driving his tractor through a field of sugarcane when he saw what he described as a blue-gray spaceship, about 82 feet (25 meters) across, flying out of a swamp about 98 feet (30 meters) away. It dived down, rose again, and flew off, spinning all the time. At the spot where he had seen the spaceship rise, Pedley found a 98-foot- (30-meter-) wide circle where the swamp reeds had been swirled around. He described the reeds as having been “subjected to some terrific **rotary** force.” He found two more circles close by.

Wiltshire, England, August 1983


Melvyn Bell was riding his horse on the hills on the northern edge of Salisbury Plain, in England. His notice was drawn to dust **spiraling** upward about 164 feet (50 meters) away in a field of wheat. As he watched, in just a few seconds, a crop circle was formed in the wheat. The dust and a few broken stalks fell from the air around the edge of the circle.

Hambledon, England, August 1990

Gary and Vivienne Tomlinson were walking through fields of corn in the late evening. A light breeze was making the corn sway in waves. As they stood watching, there was a disturbance in the middle of the field and a whistling sound began. What they described as “a large whirlwind” began to push the corn down. Mini-whirlwinds also began forming and disappearing. Gary said, “We stood watching in amazement, the corn swirled and then laid down.”

Coles County, Illinois, August 2005

Crop circles continue to appear around the world. Two circles were discovered on Illinois farmland in 2005. During the night before the circles were discovered, several witnesses reported seeing strange lights in the sky and shining beams on the ground.



Lights in the sky like this one are sometimes seen at the same time as crop circles are formed. This light appeared in New Jersey.

PHYSICAL EVIDENCE

You know what a crop circle is, but what do they really look like, and what sort of scientific evidence can a crop circle investigator find at a crop circle site?

British crop circle researcher Dr. Terence Meaden measures a circle formed in Wiltshire, England, in 1991.



The size of the circles varies widely: they range from less than 3.3 feet (1 meter) up to 164 feet (50 meters) across.

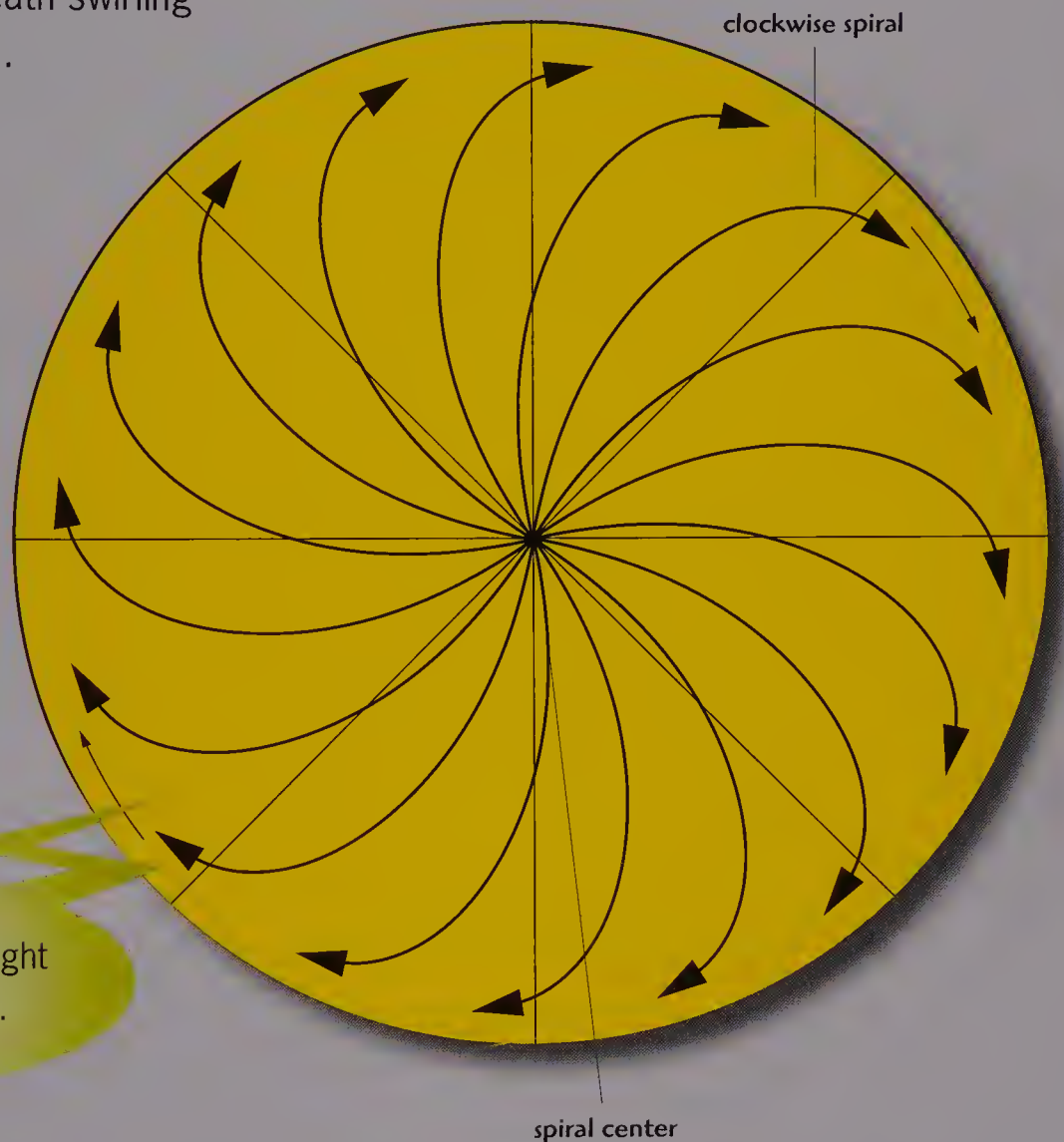
The complex formations and **pictograms** are much bigger (see page 13). The crop “circles” are hardly ever perfect circles, but rather slightly stretched circles called ellipses instead, and the swirling pattern does not always start exactly in the center.

Edges and swirls

The two most amazing things about a crop circle are its very definite boundary (outline) and the accurate **spiral** pattern of the flattened crop stalks. At the circle’s edge, the stalks just inside the circle are flattened, and those just outside are untouched.

The crop stalks in a crop circle are bent into a “swirl pattern.” This is normally a spiral pattern, with the stalks in the center pointing away from the center and the stalks at the edge pointing along the **circumference**. Sometimes there are two spiral centers instead of one. Spirals appear circling both clockwise and counterclockwise—and sometimes both ways, in patterns that have more than one circle.

Close examination of swirl patterns shows that swirls are not as simple as they first appear. There can be layers of stalks, with the top layer swirling clockwise and the layer underneath swirling counterclockwise.



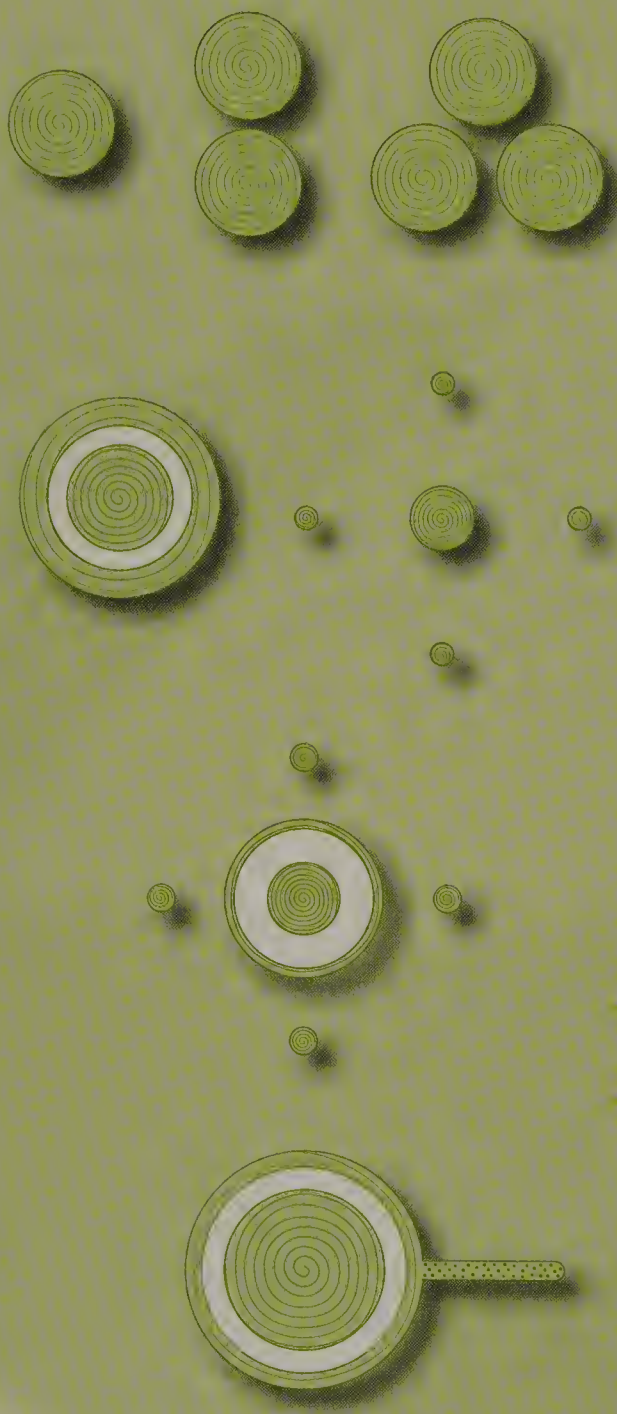
Most circles have tight patterns like this.

Crop damage

Surprisingly, most crop stalks inside the circle are not actually broken, but rather just bent over. Above the bend, the crop is undamaged and even keeps growing after the circle has appeared.

CIRCLE FORMATIONS

As we have already seen, crop circles are hardly ever perfect circles. They are often not single or simple circles, either. Some circles are formed in groups, some are surrounded by thin crop rings, and some have lines leading away from them. Other “circles” have appeared in the form of complex patterns called pictograms or agriglyphs.



Basic formations

Several different crop circle formations have been found so far. The most simple formation is the single circle. Some circles are found in pairs (called doublets), groups of three (called triplets), or groups of four (called quadruplets). Other circles have one or two thin rings around them, sometimes just a few inches thick.

A quintuplet formation consists of a single circle (with or without a ring) with four smaller “satellite” circles forming a cross shape. The size of the circles, the thickness of the rings, and the distances between the circles can all vary.

These are the basic forms of crop circles. The single, plain circle is the most common.

Spurs and tracks

A few circles have a line of flattened crops called a spur leading away from them. The spurs often follow lines, or tracks, in the crop formed by tractor tires. Tracks are handy for crop circle fakers to walk along without damaging the crop.



Crop pictograms

Since 1990 crop circle formations have become more and more complex and larger and larger (the largest are more than half a mile, or one kilometer, long). They are called pictograms or agriglyphs. However, three-quarters of crop circles are still the basic shapes described above.

Formations have also appeared that are based on complex mathematical patterns. One such formation appeared on July 7, 1990, just across the road from Stonehenge in Wiltshire, England. (Stonehenge is a group of large stones that were arranged by prehistoric peoples. Many believe the arrangement has a religious purpose.) The crop formation was 984 feet (300 meters) across and included 149 separate circles in a mathematical pattern known as a Julia Set, similar to the **fractal patterns** you may have seen drawn by computers.

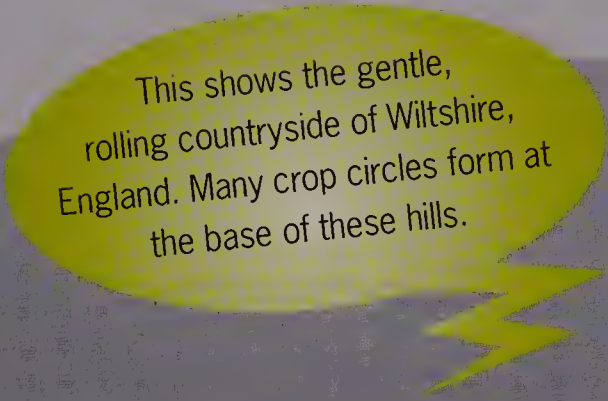
This is the famous and extraordinary crop pictogram known as the Stonehenge Julia Set.

EVIDENCE ON THE GROUND

From the last few pages, you now know that crop circles come in numerous different sizes, shapes, and formations, with various patterns made by the crop stalks inside the circles. But what other evidence can be found at crop circle sites, either in the ground or in the crop itself?

The lay of the land

Most, but not all, crop circles appear in fields that are close to the bottom of small but steep hillsides. The direction that the hillside faces, and the direction of the prevailing wind (the direction that the wind blows most often) may be important, too. Circles seem to appear when the wind blows over the hill toward the field of crops.



This shows the gentle, rolling countryside of Wiltshire, England. Many crop circles form at the base of these hills.





Hamish Miller is using a **divining** rod to try to find underground features that might be linked to the formation of the crop circle.

Energy fields

Researchers have tested the area inside crop circles for **electromagnetic radiation** and **magnetic fields**. Some circles do emit (give off) weak radiation for several days after the circle has appeared. Magnetic fields much stronger than Earth's usual magnetic field have also been found. There are also reports of compasses spinning out of control and electrical equipment failing inside circles.

Biological evidence

The respected U.S. **biophysicist** Dr. William Levengood has carried out biological tests on wheat stalks from in and around crop circles. He found that the bumps (called nodes) on the bent stalks from inside the circles were enlarged compared to the control stalks (normal stalks from just outside the circle). He suggests that this could be caused by some sort of microwave heating, similar to the way that a microwave oven cooks food. Strangely, there is also some evidence that crops inside circles actually grow better than crops outside, even though they are bent over!

THE THEORIES

Many different people have put forward many different theories about what causes crop circles. Some theories are carefully thought out, taking evidence from eyewitnesses and physical evidence from the crop circles themselves. Other theories take little evidence into account and assume things that could never be tested in a scientific way. Yet more theories are plain silly, such as the theory that animals create the circles during courtship (mating) displays!

The main problem with solving the riddle of crop circles in a scientific way is the problem of gathering evidence when the crop circle is actually being formed. It is impossible to set up measuring equipment, since people don't know exactly where crop circles are going to appear. One of the major theories is that all crop circles are faked. It is certain that many are, and you can read about them on page 24. Another popular theory is that they are linked to UFOs (see page 18).

Here are some other theories . . .

Underground patterns

Some theories say that crop circles are caused by things under the ground or in the soil. These range from the remains of ancient fields and buildings to bombs left over from World War II exploding! There is more information about some of these theories on page 20.



Aircraft

One of the early theories was that the circles were made by the **downdraft** from helicopters, but this would not flatten the crop in a **spiral** or in such a neat circle. Another theory was that swirls of air from aircraft wing tips made the circles, but crop circles don't appear under flight paths.

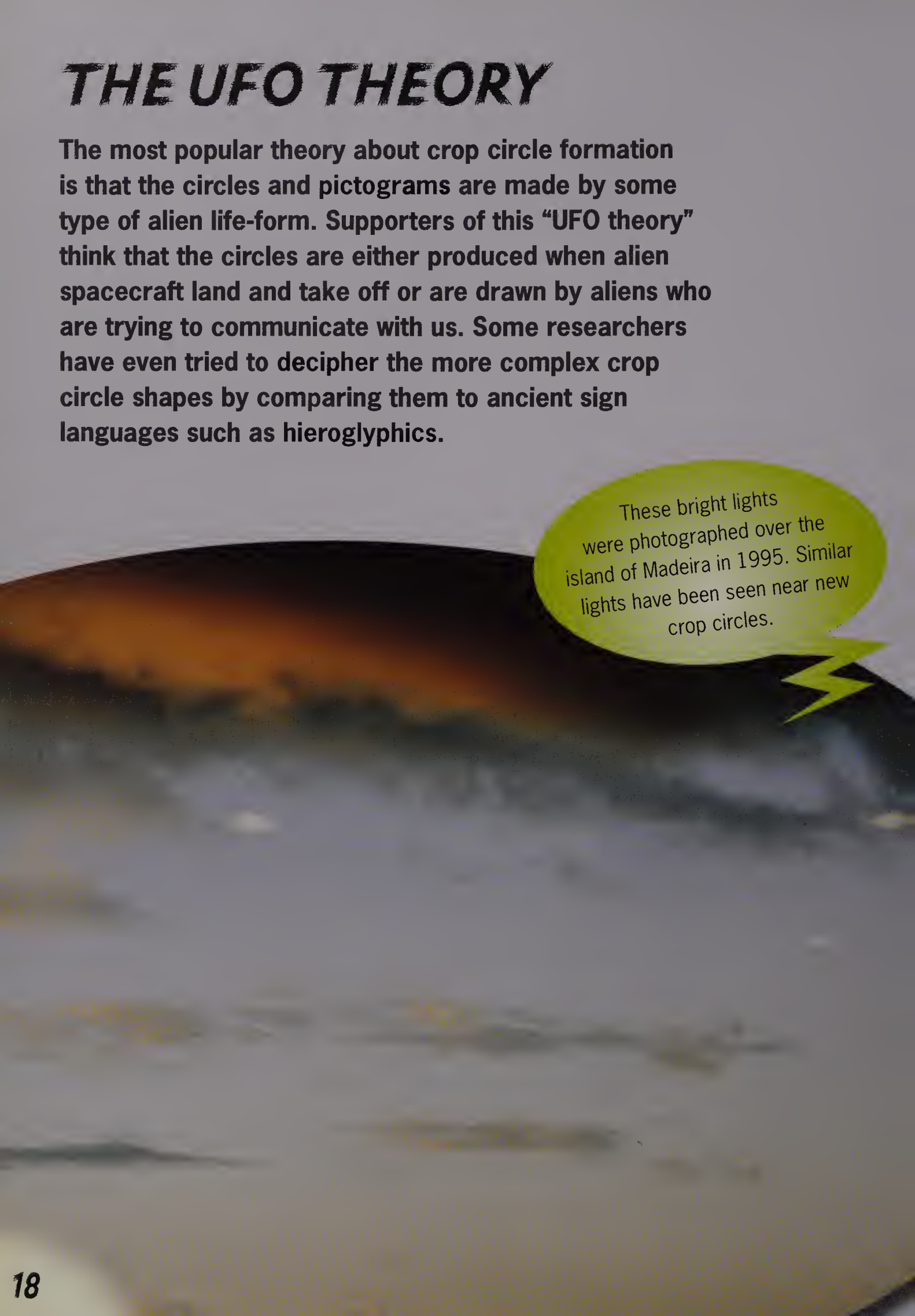
You can see the circular pattern of wind created by this helicopter, but could it cause a crop circle?

Atmospheric effects

The theories that have the most scientific basis are the ones that say that crop circles are created naturally by spinning air in the **atmosphere**. You can imagine that a circle could be formed by a **tornado** or a similar effect. See pages 21 and 22 for more on these theories.

THE UFO THEORY

The most popular theory about crop circle formation is that the circles and pictograms are made by some type of alien life-form. Supporters of this “UFO theory” think that the circles are either produced when alien spacecraft land and take off or are drawn by aliens who are trying to communicate with us. Some researchers have even tried to decipher the more complex crop circle shapes by comparing them to ancient sign languages such as hieroglyphics.



These bright lights were photographed over the island of Madeira in 1995. Similar lights have been seen near new crop circles.

For and against

There are a few pieces of evidence to support the UFO theory. The main one is that several eyewitness reports talk of strange lights moving around in the night sky before the discovery of fresh crop circles in the same area the next morning. Another is that the most complex pictograms of recent years, if they are not **hoaxes**, are impossible to explain by any other theory.

Against the UFO theory is the common-sense argument that if super-intelligent aliens were trying to communicate with us, drawing crop circles that we don't understand is a pretty strange way of doing it! Circles that are supposed to be landing sites don't make much sense, either. Why would the crop be swirled but otherwise undamaged, and why do the sites keep changing size and shape?

The UFO theory is an attractive one because of its link with science fiction and the unknown, but it relies on belief rather than scientific proof. Of course, the theory is impossible to disprove. There is always the possibility, however small, that UFOs really do exist and are making the circles.

Study groups

There are several organizations that research and study crop circles. Some of their members approach the subject from a scientific point of view, and some, who call themselves cereologists, from a more mystical point of view. Among them are the Center for Crop Circle Studies (CCCS), the Circles Effect Research Unit (CERES), and Circles Phenomenon Research (CPR).


EARTH AND SKY THEORIES

Alongside the UFO theory is the “Earth energy” theory. This says that crop circles are somehow created by Earth itself as a message to the human race to stop polluting and damaging the environment. It links in with the Gaia hypothesis of James Lovelock, which suggests that Earth acts like a living being. The theory is supported by mystics, paranormalists, and some ecologists.

The theory also ties in with the fact that many crop circles appear near UFO “hotspots” and, in England, near ancient religious sites. Supporters of the theory also link the circles to ley lines, which they describe as “energy paths” on Earth’s surface.

Swirling winds

The theory that is based most on science is that crop circles are created not by some sort of paranormal effect, but by some sort of swirling air current (flow of air) that occurs naturally in the **atmosphere**, called a **vortex**. Examples of vortices are **tornadoes** and whirlwinds. The most obvious pieces of evidence for this theory are the fact that the crop stalks in the circle seem to have been swirled around by a flow of air, and that several eyewitness reports talk about swirling winds and dust.



A fast-spinning tornado vortex reaches down from storm clouds to the ground.

Another argument that leads scientists to think that crop circles are linked to the weather is that circles normally appear in the late evening or early morning during the summer, when the air is often still and warm.

This shows tornado damage in Texas—which is far worse and over a larger area than seen at crop circle sites.



Tornadoes


So, could crop circles be formed by tornadoes? Tornadoes do swirl and pick up things from the ground, but there are several reasons why tornadoes cannot be responsible. First, tornadoes only stretch down from enormous thunderclouds, and this sort of weather does not appear in eyewitness reports. Second, tornadoes normally cause much more damage than is seen in crop circles.

WHIRLWINDS AND PLASMA

A whirlwind is a small vortex of air. Whirlwinds can be less than 3.3 feet (1 meter) across or up to 164 feet (50 meters) across, so they are much smaller than tornadoes, which can be hundreds of feet across. They do not descend from thunderclouds as tornadoes do, but rather rise up from warm ground on hot, still days. Whirlwinds often lift dust from the ground, which is why they are called dust devils. Whirlwinds don't normally stay in one place, but sometimes do. Small vortices are often formed when wind blows over the edge of a hill. You can see similar little eddies spinning dust and leaves around when the wind blows past the corner of a building.

The plasma vortex theory

In the 1980s, Dr. Terence Meaden, a leading and respected expert on tornadoes and whirlwinds, and head of the Tornado and Storm Research Organization (TORRO), based in Wiltshire, England, put forward a theory that whirlwinds and eddies are responsible for crop circles—not ordinary whirlwinds and eddies, but ones in which the air is **electrically charged**. The charged air is called a **plasma**, and the theory is called the plasma vortex theory. Plasma vortices form from whirlwinds and eddies and can stay in the air for many minutes before descending to the ground to make crop circles.



This globe is filled with low-pressure gas that becomes a plasma when electricity is supplied to the globe. Touching the globe makes the plasma turn back to gas in some places, giving off a strange glow.



This photograph may show ball lightning, an uncommon and peculiar type of lightning that may act like a plasma vortex.

Light and sound

The **magnetic fields** and electrical currents caused by spinning plasma can create humming sounds and light. These fields could explain equipment failures inside circles, the biological changes in the crops, and the strange sensations a few eyewitnesses have had, such as their hair standing on end. Glowing lights and humming sounds have also often been reported by eyewitnesses. In fact, the glowing effect, which may make a plasma vortex look like a ball-shaped light in the sky, could be responsible for people reporting UFOs. Like a UFO, a plasma vortex naturally moves around as if under remote control, and it can remain in one place for minutes on end.

FAMOUS FAKES

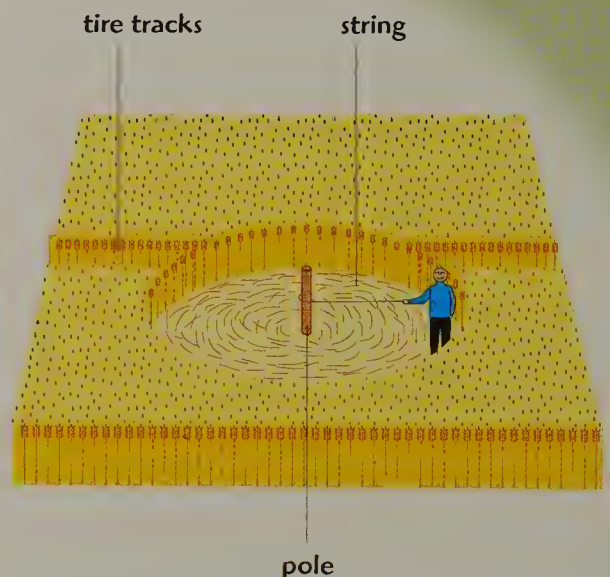
There are more crop circle fakes than there are fakes of all other mysterious happenings put together. It's likely that nine out of ten crop circles are a hoax. On these pages, you can find out about some famous hoaxes. On page 26, you can find out the reasons why people faked the circles in question.

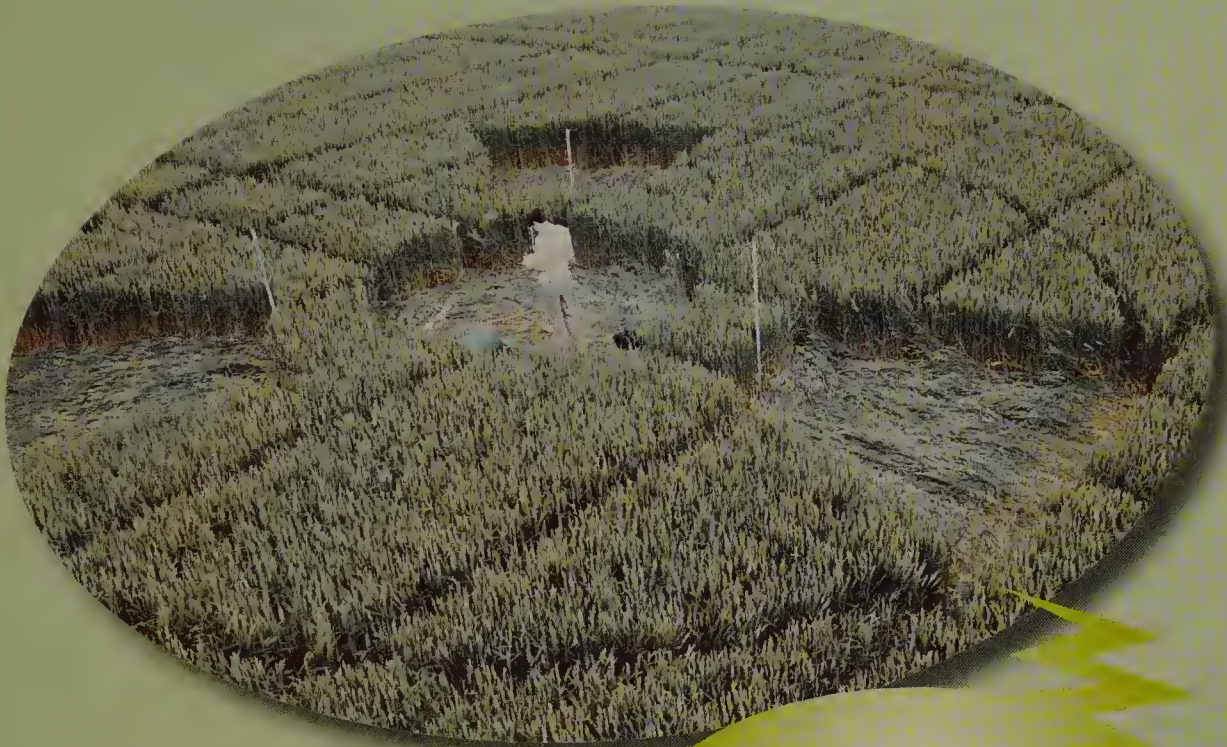
Doug and Dave

Easily the most famous crop circle fakers of all time are two retired British artists named Doug Bower and Dave Chorley, who are known in crop circle circles as "Doug and Dave." In September 1991 Doug and Dave claimed that they had faked more than 200 crop circles in total since 1978, including many that were accepted as the real thing. Doug and Dave also said that they knew several other people who had been faking circles, too. This news created a crisis in the crop circle world. Some "experts" claimed that they already knew that many circles were faked, but that they also knew of some that were not.

Faking a crop circle

A convincing crop circle can be made by walking in ever-increasing circles and trampling down the crop. By walking along the tractor tracks, the fakers can get to the crop circle site without leaving a trail in the field.





Crop circle faker Jim Schnabel is at work in a field in southern England in 1993.

More fakers

Rob Irving of Great Britain and an American, Jim Schnabel, also faked crop circles in the summers of 1992 and 1993, to show how easy it is to fake circles. Two more fakers, John Lundburg and Rod Dickenson, also fake circles, but admit to it, calling themselves “crop artists.” Dickenson also claims to know who faked the incredible Stonehenge Julia Set, and how they did it.

Media hoaxes

Both television and newspapers have faked circles in an attempt to trick crop circle researchers. In 1991 a British television company faked a crop circle and then asked an “Earth energy” believer and Dr. Terence Meaden to look at it. Both were taken in, saying that it was the real thing. The British newspaper *Today* also tricked one of the leading UFOlogists (people who study UFOs), Pat Delgado, into saying “no human” could have made a circle that was actually faked by Doug and Dave.

WHY FAKE CROP CIRCLES?

We know that the majority of crop circles are probably faked. But why do people like the famous Doug and Dave fake circles? What is the point? Most fakes are done anonymously, but if nobody knows you did it, why bother? Fame can't be the answer. All a faked circle does is annoy the farmer whose crops are affected.

Some fakers make circles for fun, or perhaps for a dare. There are many stories of agricultural (farming) students making circles for a prank. Since the 1990s, several fakers who make complex **pictograms** have called themselves "crop artists," saying that they use fields as the canvas and the crops as their paints. Although they also admit to making some pictograms, they say that they are guided to do so by some **paranormal** force.

As seen from the most famous **hoaxes**, some circles are faked merely to try to fool crop circle researchers into saying the circles are the real thing. The fakers then come clean to expose the researchers as people who don't know a real circle from a fake one. Certain newspapers have even faked circles to trick other newspapers.



This cartoon from *Punch* magazine makes fun of the crop circle phenomenon. This crop circle seems to have been made by a shopping cart.

Is it all a hoax?

Some people claim that the whole crop circle **phenomenon** is a huge hoax, and that all crop circles are fakes. Crop circle researchers, whether they believe that the circles are a natural effect of the weather or that they are made by aliens, admit that most circles are fakes, but they are sure that some are real. There are several arguments in their favor. It is very unlikely that all the crop circles around the world could have been faked. Some circles are found away from tractor tracks, with no paths leading to them, so how could they be faked? There are also reports of circles from long before the intense media interest, and of eyewitnesses who claim to have actually seen circles being made. Many circles appear very close to major roads, where it is unlikely that fakers could have faked them without being spotted, even at night.



WHAT DO YOU THINK?

So, can science solve the mystery of crop circles? Unfortunately, the lack of solid and reliable scientific evidence means that the answer is probably, "No, not at the moment." Remember that dozens of researchers have studied the circles closely, and yet there still is no definite proof.

Is plasma the answer?

Sounds convincing . . .

- Spinning air would explain the swirling patterns in crop circles.
- The magnetic fields and electric currents in plasma vortices could explain equipment failures inside crop circles.
- The glowing effect would explain why people see strange lights near crop circle sites.

But what about . . . ?

- The complex pictogram-style circles?
- Would a plasma vortex be able to make such neat circles without causing any other damage?
- Circles don't always appear near hills, which is where vortices are usually formed.

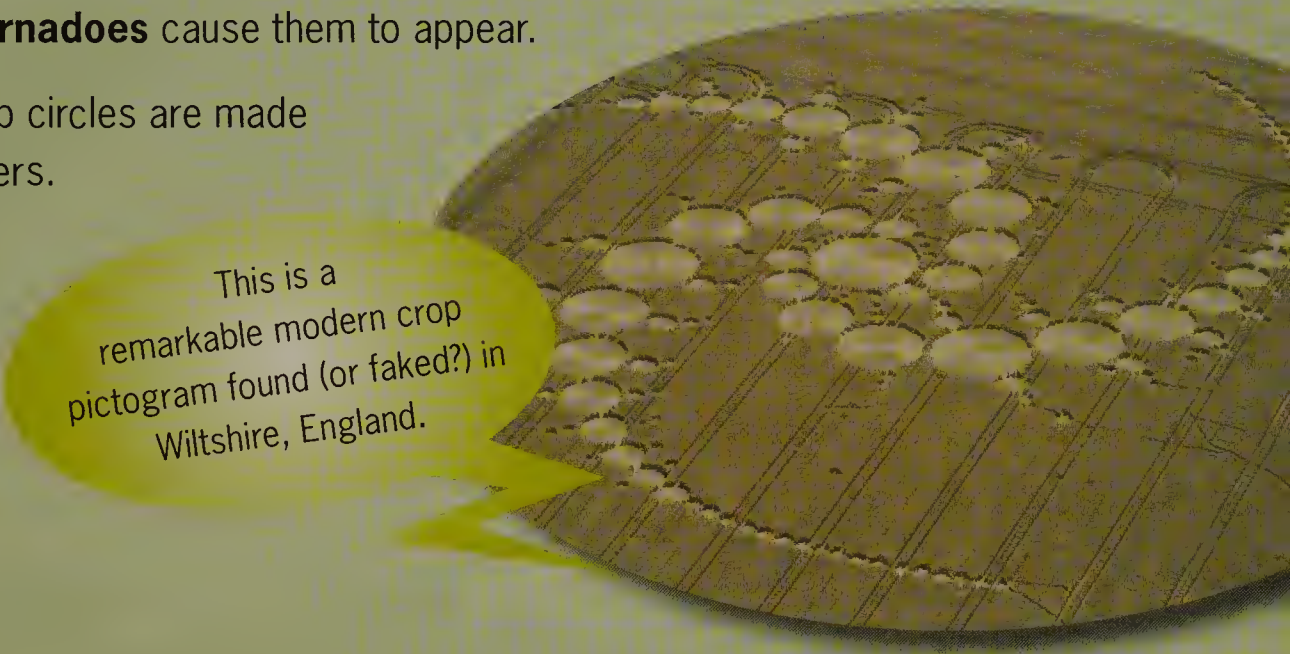
This is a crop pictogram formed in southern England in 1995. The plasma theory cannot explain this, but it does have the look of an elaborate hoax.



Supporters of the plasma vortex theory simply say that the complicated pictograms are all **hoaxes**.

What about the other theories? Do you think some of them might be true? Look at the list of theories below and think about the pros and cons for each. Decide which you think are the most convincing.

- Crop circles are caused by things under the ground or in the soil, such as ancient remains or exploding bombs.
- Swirls of air from aircraft make them appear.
- They are created by UFOs or alien life forces trying to communicate with us.
- Crop circles are Earth's way of getting messages to us.
- Weather conditions such as swirling winds and **tornadoes** cause them to appear.
- All crop circles are made by fakers.



This is a remarkable modern crop pictogram found (or faked?) in Wiltshire, England.

Do you think any of the theories can be dismissed without further investigation? Do you have any theories of your own? Perhaps one of the theories here is the answer, but it depends on scientific facts that we don't understand yet. Try to keep an open mind. Remember that science is constantly evolving and new discoveries are being made all the time. Just because something can't be proved scientifically now, it doesn't mean this will always be the case.

GLOSSARY

agriglyph hieroglyphic shape in the form of flattened crops

atmosphere layer of air that surrounds Earth

biophysicist person who uses physics to help study biology—for example, by using a knowledge of electricity to understand how nerves work

circumference edge of a circle, or the distance around the edge of a circle

decipher to figure out the hidden message in a code of words or pictures

divining finding water or underground objects using intuition or guesswork. Diviners often carry two divining rods, which swing across each other when the water or object is near.

downdraft air current that blows downward

ecologist person who studies the relationship between living things and their environment

eddy circular movement of air causing a small whirlwind

electrical charge build up or deficit (lack) of electrons (tiny particles that are part of an atom, the smallest building block of life). A build up of electrons gives a negative charge and a deficit of electrons gives a positive charge.

electromagnetic radiation any rays or waves that are part of the electromagnetic spectrum, which includes light rays, radio waves, microwaves, X-rays, and nuclear radiation

fractal pattern mathematical pattern made by repeating the same simple pattern again and again, but moving, rotating, and scaling it each time

Gaia hypothesis theory that all plants and animals, together with the seas and atmosphere, act as a huge organism that can change Earth's environment

hieroglyphics type of writing that uses simple pictures instead of letters, they were widely used in ancient Egypt

hoax something that tricks people

ley lines straight lines across the landscape made by ancient tracks or linking ancient monuments, thought by some people to be ancient roads and by others to be lines of mysterious energy

magnetic field area around a magnet where its magnetic effect can be felt

mystical reality beyond human understanding. Those who follow this belief are called mystics.

paranormal describes anything that cannot be explained by scientific investigation. Those who study the paranormal are called paranormalists.

phenomenon remarkable or unexplained happening

pictogram simple picture or symbol that represents a word or a phrase

plasma electrically charged air

rotary moving around

spiral mathematical shape that gets smaller as it moves around, such as the shape on the side of a snail shell

tornado funnel-shaped spinning cloud that reaches down to the ground

vortex (plural vortices) rotating mass of air or water

Find Out More

You can find out more about crop circles in books and on the Internet. Use a search engine such as www.yahooligans.com to search for information. A search for the words “crop circle” will bring back lots of results, but it may be difficult to find the information you want. Try narrowing your search to look for some of the people and ideas mentioned in this book, such as “Terence Meaden” or “Gaia hypothesis.”

More Books to Read

Mason, Paul. *Can Science Solve the Mystery of Stone Circles?* Chicago: Heinemann Library, 2002.

Townsend, John. *Out There? Mysterious Signs.* Chicago: Raintree, 2004.

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