



The artists who get the perspective and the proportions exactly right or the deception simply won't work

The ingenious works of art that confuse our eyes and brains

# Optical delusions

**F**or centuries architects and artists have been playing tricks on our minds. Look at the spectacular murals and paintings photographed here. Although the brain knows for certain that the images are of a flat

surface covered in paint, they still appear as if they can be entered. This is because the eye is taken in by the illusion of perspective. This technique is known as *trompe l'oeil*, which literally translated, means 'deceives the eye'.

The phrase dates from the 14th century when Italian Renaissance artists discovered the principles of perspective. This let them show the world as it is, rather than symbolically. In his *History of Art* Ernst Gombrich notes: "No classical

artist could have drawn trees leading back into a picture until it vanishes. It was Brunelleschi who gave artists the mathematical means of solving this problem."

Filippo Brunelleschi (1377-1446) was a Florentine architect who

## Overhead lighting

**Artist:** John Pugh  
**Place:** Santa Clara, California  
**Date:** 1999

■ Another niche by Pugh, this time using light from above to give the surfaces below different sheens. The stepped walls and shadows thrown by the painted skylight complete the effect.

## The wall has collapsed...

**Artist:** John Pugh  
**Place:** Los Gatos, California  
**Date:** 1996

■ ...or has it? Only the window on the right is real; the rest, including the curious observer to the left, is painted onto the back of a private house. Pugh is a hyper-realist, famous for the way he plays visual games with light and shade.

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## Wall-to-wall confusion

**Artist:** John Pugh  
**Place:** Los Gatos, California  
**Date:** 1987

■ This illusion has been created as the interior of a private house. The wooden floor is real, as is the wall on the left and the wooden arch. The use of two walls allowed Pugh to create a remarkable depth, accentuated by giving the black-and-white chequered tiles, paintings, statues and pillars different sheens, which suggest light is coming from more than one source.

## Quick - get some glue!

**Architect:** Studio Site (four architects)  
**Place:** Richmond, Virginia, USA  
**Date:** 1971-2

■ It's not a painting, but the brick facade still isn't falling off. This is a trompe l'oeil in three dimensions by the United States architects who designed this quirky supermarket. The bricks are real and are held in position by a steel core. The building is aptly called the 'peeling project'.



The National Gallery

## A niche that doesn't exist

**Artist:** John Pugh  
**Place:** Atherton, California  
**Date:** 1998

■ At first glance you'd swear that at least the vase was real but, of course, neither it nor its surroundings are. The illusion comes from the perfect shadows on the recess and the different sheen that Pugh has given to the antique vase, which accentuates the depth of field.



John Pugh | The Art



## The lady with the fly

**Artist:** Unknown  
**Place:** National Gallery, London  
**Date:** 1480

■ Trompe-l'oeil isn't just a wild 20th-century idea. The fly on the hat seems to have just landed on this painting, Portrait Of

A Woman Of The Hofer Family. But it hasn't - the effect was created back in the 15th century by drawing the shadow of the insect as if it was standing on a level surface, rather than on the hat which is curved.

through his attempts to depict his buildings as they would actually seem to the human eye, discovered and explained mathematically the vanishing point, which is where parallel lines seem to meet. This illusion creates depth of field.

Bruneleschi was not the first architect to use perspective – he was simply the first to define it. The ancient Greeks understood the concept of perspective and used it architecturally.

The Parthenon in Athens is a prime example. From a distance the temple seems to be perfectly

rectangular, but it isn't. To achieve its apparent symmetry the corner columns lean inwards and are set 1.8m apart, whereas the central pillars are 2.4m apart. The base, which looks flat, actually curves gently upward towards the centre.

There are apocryphal tales from this period of artists taking part in competitions to deceive one another. An artist once known as Zeuxis is said to have painted berries and fruits so realistically that birds would try to eat them.

Zeuxis in turn was fooled by his rival Parrasio, who invited him to

view some of his works. Zeuxis thought one was half-covered with a cloth: it was only when he went to move it that he realised it was actually painted. Such tales may sound laughable to us now but they do prove the antiquity of *trompe l'oeil*.

#### ● Short cut for the brain

Early Renaissance painter Giotto (1267-1337) is believed to be one of the first artists to use *trompe l'oeil*, once again as a joke. The story goes that the fly Giotto painted on the nose of a figure was so lifelike

his art master tried to brush it off before realising it was painted.

It wasn't until *trompe l'oeil* was popularised by Flemish and German artists in the 16th century that it became a genre. But the Italian Renaissance artists experimented with it, and a ceiling in the palace of Mantua by Andrea Mantegna (1431-1506) is considered the first masterpiece of *trompe l'oeil*. In it a dome is open to blue skies dotted with clouds, and cherubs look down over a painted balustrade.

If western culture is now highly attuned to the ideas of depth and

perspective, it seems that other cultures aren't. For instance, when Polynesians were shown western paintings, rather than seeing them figuratively, they studied and admired the individual brush strokes.

In his book *The Forest People*, anthropologist Colin Turnbull records that Africans who have spent their whole lives in the forest are baffled by their first sight of the wider world beyond. Seeing a buffalo grazing a mile away from the forest's edge, a pygmy with Turnbull thought it was a fly, unable to associate the

**Here the illusion is maintained in the way the light is designed and the direction of the shadows**



tiny, distant image to a large creature. His mind's eye had never had to contend with such differences.

Furthermore, the fact that small children paint quite happily without using perspective suggests our view of the world owes more to our experience and cultural background than any innate aptitude.

In fact we continually 'deceive' ourselves about what we actually see. This is because the brain simply cannot cope with the sheer volume of visual information that bombards the eye. It is the mind's unique capacity to filter and edit this information that ultimately dictates what we see.

In essence, perspective is a short cut learned by the brain, stemming from the instinct for self-preservation. It allows the brain to sum up at speed how distant a predator is, rather than having to physically measure the distance each time.

If we lacked this facility we would find life impossibly confusing. But armed with it, the mind allows us to believe we are seeing something that intellectually we know simply can't be real.

Artists have been manipulating this power of the mind for centuries. After Bruneleschi's discovery of linear perspective came that of multiple perspective, which

recognises that most scenes have more than one vanishing point. But to create a true representation of what is being depicted, the vanishing points must all be at eye level. It is when artists tinker with this rule that illusions are created.

#### ● Dreamlike riddles

The Surrealist painters, for example, were great tinkers who loved visual puns. On a more metaphysical level, Magritte used dreamlike riddles in an attempt to capture the elusive 'essence' of an object, by throwing it into sharper relief through a sense of dislocation. That was his theory anyway.

Today *trompe l'oeil* is mostly used to describe images that are used in a decorative way. As a style it lends itself more easily to murals and decoration than paintings, because the illusions are most effective when not framed, as the examples here show.

We don't see many public examples of it in Britain – the best are usually found in stately homes, the worst in your local Italian trattoria. But *trompe l'oeil* is currently in vogue with interior designers.

"A mural *trompe l'oeil* is something that you can live or exist in," says London artist Rob Bizley. "Whereas a traditional painting

is something that you look into. By creating the illusion of space, a *trompe l'oeil* mural makes you feel part of it – it's a much more intimate way of enhancing a space."

"It seems almost universal that people delight in being visually tricked," says John Pugh, a California-based *trompe l'oeil* artist whose illusions often mix art and architecture. "The bridge between the two can erase the transition point between reality and illusion. The art becomes integrated into the real world. The sum is greater than its parts." ■ *Ann Hughes*

John Pugh's website can be viewed at [www.illusion-art.com](http://www.illusion-art.com)