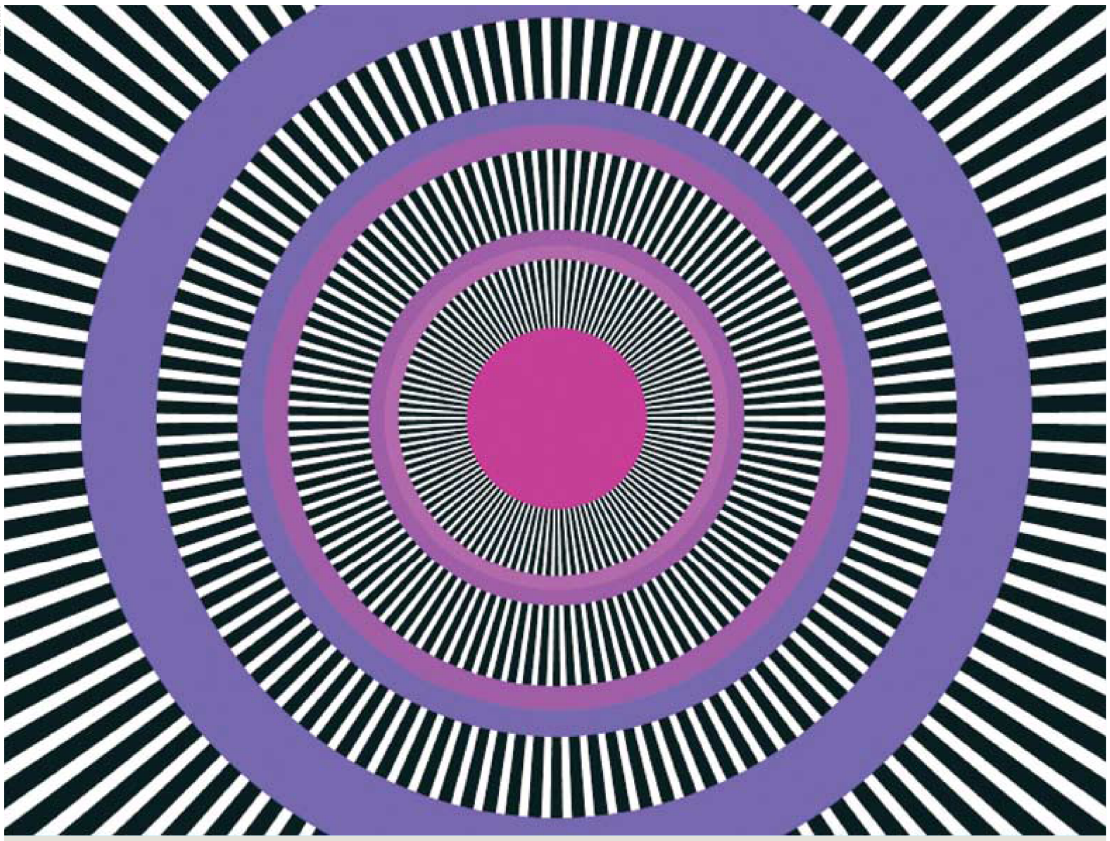
In brief


ISIA LEVIANT

See trickles in the circles? It's 'cause eyes are micro movers

STARE at this picture long enough and you will see trickling streams flowing in the concentric circles. That's because your eyes just can't stop moving.

Previous work hinted that the brain, not eye movements, caused the pattern to dance: people viewing similar images mounted on contact lenses still saw the illusion even though the picture remained stationary relative to the eye.

Susana Martinez-Conde and her colleagues from the Barrow Neurological Institute in Phoenix, Arizona, think that natural tiny eye movements called microsaccades may have persisted due to slight movement of the contact lens on the eyeball.

To see if this was true, they asked three people to view Isia Leviant's *Enigma* (above) while cameras captured their eye position 500 times per second. The volunteers had to press a button when the trickle appeared to slow down, and release it when it sped up.

The illusion became more pronounced when their eyes flickered over the image at a faster rate, and vanished when their eyes slowed down, showing that eye movements did indeed create the illusion (*Proceedings of the National Academy of Sciences*, DOI: 10.1073/pnas.0709389105). "We can now rule out the idea that the illusion occurs solely in the brain," says Martinez-Conde.

Beating a double-whammy of bugs

GETTING one bug is bad, but two is worse. Bacterial infections often open the door to other invaders, but now it seems an enzyme can prevent these secondary infections, in mice at least.

The mammalian immune system goes into a "tolerant" state during an infection, reducing its ability to fight off other invaders. This state persists even after the bacteria have been killed. Although a molecule released by bacteria called lipopolysaccharide (LPS) seems to initiate tolerance, it was not clear how the immune system returns to its normal state.

To see if removing LPS was the answer, Robert Munford at the University of Texas Southwestern Medical Center, Dallas, and colleagues injected the molecule into a group of mice that lacked an enzyme which destroys LPS and a control group that retained the ability to make the enzyme. Two weeks later, both were given a deadly strain of bacteria: 90 per cent of the enzyme-deficient mice died, while most of the control mice survived, indicating that removing LPS restored the immune system to normal (*Cell Host & Microbe*, DOI: 10.1016/j.chom.2008.06.009).

Munford suspects some people lack a similar enzyme and that a drug to stimulate its production could prevent these infections.

Iron on Mars

FUTURE colonisers of Mars needn't worry about lugging materials from Earth to build their bases – the most widely used building material on Earth, steel, could be manufactured on the Red Planet.

The rover Opportunity has found elemental iron – a key ingredient of steel – peppered across the Martian surface as a result of collisions with iron-rich meteorites. The dry conditions and lack of atmospheric oxygen mean that the stuff has not rusted, says Geoffrey Landis of NASA's Glenn Research Center in Cleveland, Ohio.

On Earth, any natural metallic iron rusts in our wet, oxygenated environment, so we rely on iron oxides such as haematite to make steel. Yet these oxides must be stripped of oxygen molecules in the steel-making process, which requires vast amounts of energy (*Acta Astronomica*, DOI: 10.1016/j.actaastro.2008.07.011).

Hardy ice stays when heat is on

THE discovery of the oldest ice in North America suggests that ice in permafrost regions can survive warmer periods than we thought.

Duane Froese of the University of Alberta in Edmonton, Canada, and colleagues dated a layer of ancient volcanic ash deposited above ice wedges within the permafrost of the Canadian Yukon. It proved the ice was 750,000 years old. This means it survived periods when the air temperature was up to 3 °C higher than today (*Science*, vol 321, p 1648).

Many worry that if global warming melts such permafrost in the Arctic, it may release large volumes of greenhouse gases locked inside. But the newly found ice was a huge, deeply buried chunk, unlike the ice at shallow depths that may melt this century.