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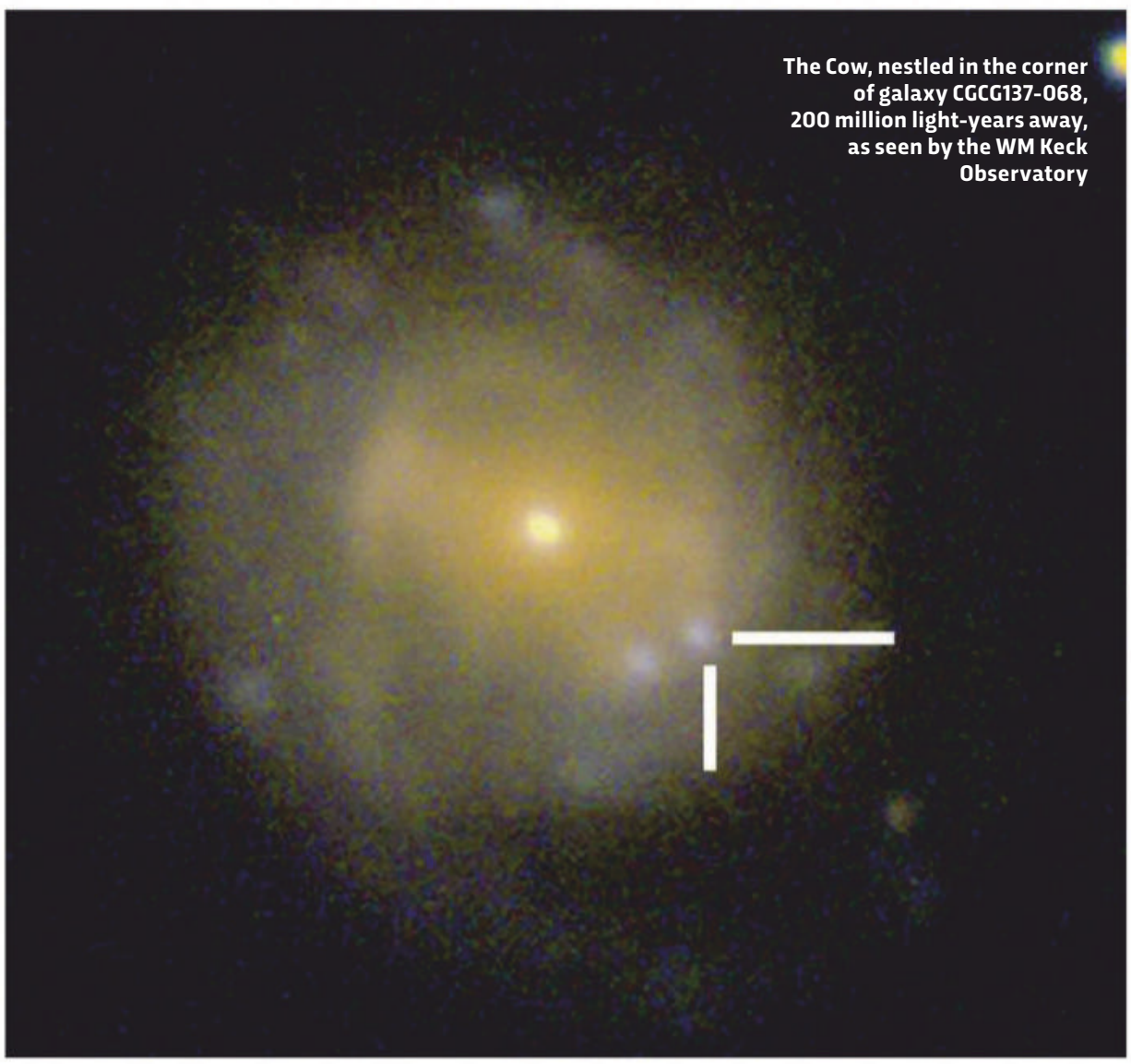
ASTRONOMY

BIRTH OF A BLACK HOLE WITNESSED FOR FIRST TIME

Last June, astronomers noticed the appearance of a mysterious bright object in the constellation of Hercules. It remained visible for a little over two weeks, during which time they dubbed it 'the Cow'. Now, scientists investigating the phenomenon believe that what astronomers witnessed was the formation of a black hole or a neutron star.

When stars burn off all their energy, they either explode in a nova or supernova, or collapse to form a white dwarf, a neutron star or a black hole, depending on their mass. When the Cow was spotted, astronomers thought the bright light must be coming from a supernova. But the Cow burned faster and brighter than any previously observed supernova, so a team led by Dr Raffaella Margutti of the Center for Interdisciplinary Exploration and Research in Astrophysics at Northwestern University in Illinois decided to investigate further. "We know from theory that black holes and neutron stars form when a star dies, but we've never seen them right after they're born," said Margutti.

The researchers gathered data from several telescopes – the WM Keck Observatory in Hawaii, the MMT Observatory in Arizona, the SoAR Telescope in Chile, the Very Large Array in New Mexico, and the NuSTAR and XMM-Newton space observatories – to study various wavelengths of light coming from the Cow. By combining the views from each of these telescopes – and helped by the fact that there's little ejected material orbiting the Cow – the team were able to peer into the object to its central radiation source and conclude that it must be a newborn black hole or neutron star.



The Cow, nestled in the corner of galaxy CGCG137-068, 200 million light-years away, as seen by the WM Keck Observatory

ILLUSTRATION: DANIEL BRIGHT

MIGRAINE SUFFERERS

A team at the University Hospital of Amiens-Picardie in France has found that regular Botox injections lessen the regularity of migraines by an average of 1.6 attacks per month in chronic sufferers.

TEENAGE TECHNOPHILES

Using smartphones, tablets and game consoles is no more harmful to youngsters' mental wellbeing than eating potatoes, researchers at the University of Oxford have found. A study of 300,000 teens showed that only 0.4 per cent of adult wellbeing is related to screen use.

GOOD MONTH

BAD MONTH

PEOPLE WHO LIVE IN FLATS

Living in a house with no shared walls may help protect you from heart disease, says a team at the University of Essex. A study of 10,000 people found those living in detached houses had half the levels of C-reactive protein – a chemical linked to angina, heart attacks and strokes – of those living in flats.

PIANISTS

Look out, Liberace! Engineers at the University of Cambridge have created a 3D-printed robot hand that's capable of playing the piano in different styles.