

Dead as a dino

If you want to know what really killed them, pore over some fossil plants

THE controversy over whether a huge asteroid really wiped out three-quarters of life on Earth, including the dinosaurs, has taken another twist. New data gleaned from fossil plants shows that the impact 65 million years ago sparked a dramatic change in climate.

The asteroid that slammed into Mexico at the end of the Cretaceous period gouged out a crater the size of Maryland. The smash converted huge quantities of carbonate rock into carbon dioxide, and earthquakes and fires ravaged the planet in its aftermath.

This might have created a sudden greenhouse effect that caused the mass extinction, but some scientists doubt that the asteroid was responsible (*New Scientist*, 4 May 2002, p 28). They say that dinosaurs were already in decline, and a series of volcanic eruptions at the Deccan Traps in India could have

prompted the critical climate swing.

Now David Beerling at the University of Sheffield and his team think they have evidence for a climate switch so rapid that it has to be linked to the impact. The researchers found that fossilised plants after the extinction had fewer pores on their leaves, as the more CO₂ there is, the easier it is for plants to extract carbon for photosynthesis.

From these measurements, the team estimates that CO₂ levels rose by a factor of four or five within 10,000 years of the impact. This would have led to an average global warming of 7.5 °C. For the Deccan eruptions to produce this effect, they would have had to occur within these 10,000 years, not the 2 million years thought. **James Randerson**

More at: *Proceedings of the National Academy of Sciences* (vol 12, p 7836)

All in the name

WHEN is a genetically modified organism not a genetically modified organism? When it doesn't contain any foreign genes, claims Joachim Messing at Rutgers University in New Jersey.

Messing and his colleague Jinsheng Lai have created a variety of maize that produces nearly twice as much of the amino acid methionine as normal. Methionine is an essential nutrient for mammals, but ordinary maize contains little of it. The new variety could save farmers worldwide the billion dollars a year they spend on methionine supplements for maize-fed animals. And in poor countries where many people have a low-protein diet, it could reduce the incidence of methionine deficiency, which can cause liver damage, muscle loss and skin lesions.

To create the maize, Messing and Lai took the plant's own gene for a protein that is rich in methionine, altered the DNA on either side to boost production and then put this modified extra copy back into maize.

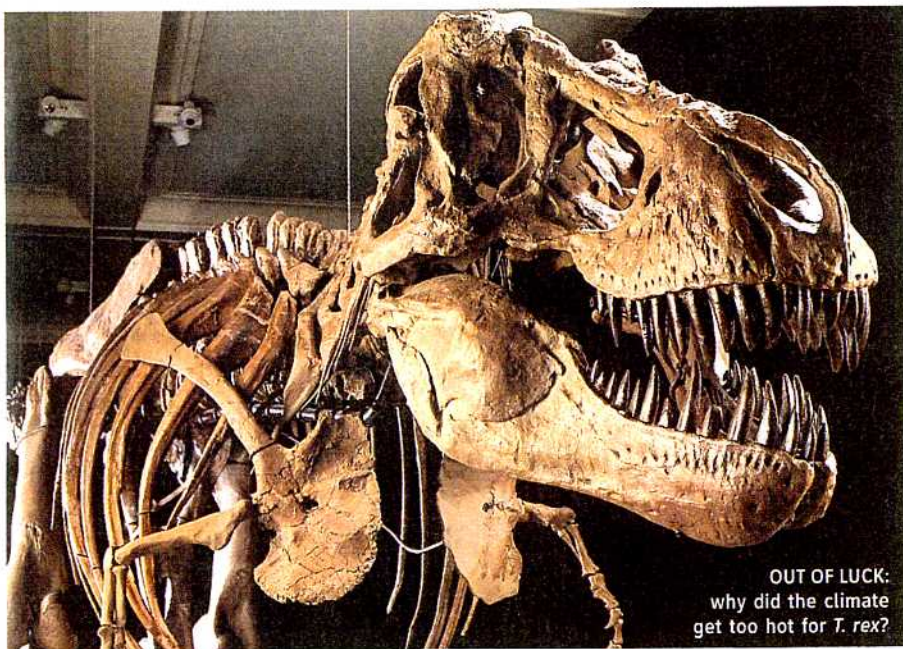
The researchers say that modifications such as this, which simply change the levels of existing proteins, are likely to present fewer safety issues than adding foreign genes. (At the moment, their "prototype" maize variety also includes a bacterial gene for herbicide resistance and a section of viral DNA, but future versions will not.)

Controversially, Messing argues that if the proteins involved are known to be safe, such plants shouldn't have to undergo environmental and health checks. And he goes even further, claiming that the final version of the maize variety won't be a genetically modified organism at all, because it won't contain any foreign genes—even though it has been created by exactly the same process as other GMOs.

"It quite clearly is," says Adrian Bebb of Friends of the Earth. He argues that there are still safety concerns because the addition of an extra piece of DNA, wherever it came from, could have unexpected effects on other genes.

But there are likely to be fewer problems compared with adding foreign genes. In 1996, for example, Pioneer-Hi-Bred abandoned a soybean variety with an added methionine-rich Brazil nut protein when the protein was shown to cause allergies. **James Randerson**

More at: *The Plant Journal* (vol 30, p 395)



OUT OF LUCK:
why did the climate
get too hot for *T. rex*?

Rodents to rat on criminals

DOGS may have had their day in detecting drugs and explosives. A hit squad of "sniffer rats" now in training threatens to oust their canine competitors.

James Otto of the University of Baltimore and his team have taught rats to search out illicit smells scattered across an arena. The animals can track down the scent of explosives and simulated cocaine with a 90 per cent hit rate, even in the presence of distracting odours such as engine oil and almond extract.

When the rats find what they are looking for, they raise the alarm by standing on their hind legs. This triggers sensors in a harness

that records when and where this happens. Otto has devised a way of training the rats en masse, using a computer to monitor their performance and dish out appropriate food rewards. He says this will make it much easier to turn out sniffer rodents than to train a dog.

And that's not the rats' only advantage. They don't form social relationships with people, so are not dependent on a specific handler. They can get into tighter spaces, too, so they might be better able to find casualties in collapsed buildings. He now plans to test the animals in the field. **Jon Copley**

More at: *Applied Animal Behaviour Science* (vol 77, p 217)