

## Strange condition

**B**ulimia nervosa is a strange disorder that involves eating to excess (binge eating, so-called) and periodical purging. It usually appears during adolescence, mostly around the age of 18. Its prevalence is said to be 3 per cent, and it afflicts from 10 to 20 times as many women as men. It is often associated with anxiety disorder, impulsivity or depression, and with substance abuse.

In the 28 August issue of the *New England Journal of Medicine*, Philip S. Mehler of the University of Colorado has described some of the complications associated with the disorder.

Characteristically, it involves recurrent episodes of excessive eating followed by inappropriate purging measures, which aim at preventing weight gain. Most bulimia sufferers are of normal weight, unlike others with anorexia nervosa, whose weight is less than 85 per cent of the normal value.

The root cause is uncertain, but genetic factors probably play a part. There are disturbances of the serotonergic systems that regulate food consumption, and there may be cultural attitudes towards standards of physical attractiveness.

The three usual modes of purging are self-induced vomiting, abuse of laxatives, and misuse of diuretics, and these may relate to the medical complications of the condition. Repeated vomiting produces soreness of the pharynx and loss of tooth enamel, resulting from exposure to gastric contents. Frequent vomiting may also induce gastro-oesophageal reflux. Purging also causes severe disturbances of fluid and electrolyte balance. Some 5 per cent of bulimia patients show hypokalaemia, which may predispose to cardiac arrhythmias. Endocrine abnormalities are rare, and reproductive capacity in women who recover is not affected.

In treatment, cognitive-behavioural therapy has been demonstrated as effective. Antidepressants have proved useful in reducing the severity of symptoms. Fluoxetine has been approved for this purpose in the United States. Complete control of eating and purging occurs in only 30 to 40 per cent of sufferers, and a combination of the two types of treatment is more effective than either alone, cognitive-behavioural therapy producing better results than drug treatment.

Dr Mehler finds that most patients with bulimia nervosa can be treated as outpatients, and that indications for admission to hospital include severe depression, disabling symptoms, rapidly

worsening purging and severe hypokalaemia or major changes in blood pressure. There are suggestions that ondansetron or topiramate may be useful, but this is not proven. The drug of first choice would be fluoxetine, which is effective and well tolerated.

## Peopling the New World

**I**t has been generally accepted that the first humans to arrive in the New World were hunters of big game from Asia who crossed a now long-submerged land bridge spanning the Bering Strait and gave rise to the so-called Clovis culture many millennia ago. This hypothesis has now been subjected to serious criticism, as a commentary published in *Science* for 25 July points out.



Evidence has recently been discovered that during the move from Asia to America a crucial site in Siberia, formerly thought to have been occupied for some time as an intermediate stopping point, was indeed not reached until considerably later, when the North American mammoth had come to be the hunters' main objective. The supposedly earliest culture in the region, the Clovis, is characterised by distinctively fluted stone artefacts, mainly arrowheads dating to some 13,600 years before present. But at a site discovered in Chile, and established as 15,000 years old, doubts were raised.

The critical piece of evidence was actually an Ice Age site at the Ushki Lake in Kamchatka. This was first investigated in 1964 but the excavator kept his findings secret until recently. They include a grave containing a range of stone tools and beads, with residues of carbon that were claimed to provide a radiocarbon date of 16,800 years before present. More recent radiocarbon determinations showed that this was an error, and that the correct figure should be 13,000 years.

According to this new finding, the inhabitants of the Ushki Lake region cannot have been ancestors of the Clovis people. It is agreed, however, that the archaeological evidence is so far insufficient to settle the problem of precisely when the New World was populated from the Old. A time discrepancy of four millennia must be explained. Further research in north-east Asia and Alaska will be required to resolve the issue.

## Murderous methane

**A**n intriguing story that has aroused the interests of palaeontologists is told in *Science* for 29 August. It concerns the possible role of methane in the extermination of animal species during the period of prehistory known as the Permian-Triassic.

In the past, an episode of global warming has been held responsible for the multiple extinctions but it is argued that this may have been an oversimplification of an episode that occurred 186 million years before the demise of the dinosaurs. Geologists at Northwestern University in America and in Leeds University have entertained the notion that what happened then was that a massive eruption of methane arose from the sea floor, exploded and incinerated land-dwellers. Alternatively, the methane assault suffocated animals within its range.

The carbon isotopes present in rocks of the period offer evidence of the role of methane,

and the carbon dioxide produced by ignition of the methane would have induced a global warming trend over the next 10,000 years. The sort of scenario envisaged has been repeated on lesser scale in the sudden release of carbon dioxide from Lake Nyos in Cameroon in 1986.

It is suggested that an earthquake or submarine volcanic eruption might have liberated massive quantities of methane into the atmosphere, and that lightning detonated this. The outcome could have been either nuclear winter or global warming. Critics have argued that bacteria would have degraded methane before it could reach dangerous levels, but that depletion of oxygen might have induced pulmonary and cerebral oedema in the reptiles exposed. Those that survived may have done so by burrowing into the seabed and living in amphibian conditions. Whether the episode was world-wide or more localised remains to be determined. In any event, it was a tremendous catastrophe and left its mark on the continents.