

Flood problems from Noah to Venice

Gilbert Chesterton in 1914 composed a comic comment: "And Noah he often said to his wife when he sat down to dine / I don't care where the water goes if it doesn't get into the wine."

Before and since then, there have been many different suggestions regarding the traditional great flood associate with Noah, where it arose and where it went, and even whether it really happened.

A feature in *Nature* for 12 August, by Quirin Schiemeier, discusses the question and recounts some fascinating aspects of it. Seven years ago, writes Schiemeier, the marine geologists William Ryan and Walter Pitman of New York hypothesised that the famous flood affected the Black Sea basin, which, until some eight millennia ago, held a large freshwater lake. Sea water then burst through the Bosphorus Strait and raised the lake level some 100m in a few years, inundating the Neolithic settlements lining its shores.

More recently, the oceanographer Mark Siddall has worked on a computer model based on existing geological features to discover how a massive flood would have transformed the Black Sea basin. Siddall became fascinated by the problem while at the Southampton Oceanography Centre, and consulted Ryan in New York. He decided that a sudden flood of the region would have taken 33 years to stabilise, and not the traditional 40 days and 40 nights. Nevertheless, there is no need, he maintained, to discount the Biblical account entirely.



Further investigations are being undertaken to search for discontinuities in the sediments around the Black Sea shores to discover whether in fact there was a cataclysmic flood of seawater there about 8,400 years ago.

The floods of Venice are a far more worrying phenomenon, according to Michelle Knott, writing in *New Scientist* for 24 July. "Ocean's nursling", as Shelley called Venice in 1818, was built on 118 small islands within a

lagoon, with some 400 bridges linking them. Any coincidence between spring tides and storm surges in the Adriatic inevitably brought floods into the streets of Venice and threatened its buildings.

In the early part of the 20th century St Mark's Square was flooded fewer than 10 times a year but by the 1980s it was flooding 40 times every winter. Today the flooding rate has increased to 60 per year. Increased flooding was attributed to subsidence, both natural and induced by the pumping out of reservoirs underlying the buildings between the 1930s and 1970s.

Controversial plans have been devised to remedy the situation. They involve either preventing the sea from invading or raising the entire ground on which Venice stands. Flood barriers restricting the three inlets to the lagoon, which can be raised into position from the lagoon bed by introducing compressed air, have been constructed, but the scheme has not been completed. Moreover, any interference with the free exchange of water between the lagoon and the sea might well raise a sewage problem in the long run.

Alternatively, the ground level in the lowest parts of the city could be artificially raised gradually, a move which has already seen some practical advances. It is calculated that within 30 years nearly all the city could be more than 110cm above the baseline sea level. All the same, the future prospects look gloomy. And the main aim is to gain extra time to enable a better solution to be devised.

Safeguarding the depressed youngster

Sick children are always a great worry to their parents and friends, particularly when the condition is ill defined and therefore difficult to treat with confidence. Depression is exceptionally problematic, since it takes varying shapes. The situation is not helped by the growing awareness that antidepressant drugs such as the selective serotonin reuptake inhibitors pose a hazard to youngsters, leading to suicidal tendencies in some patients.

Serious questions about the inadequacy of clinical trial reports and the transparency of the drug regulation system have been raised. As Paul Ramchandani, an Oxford psychiatrist, comments in *Nature* for 22 July, children are not always protected by the conditions attached to a marketing licence, and at least half of all antidepressants used in hospitals to treat children are prescribed "off-licence".

Depression is one of the conditions that affect both adults and children, and drugs initially licensed for adults on the strength of clinical trials come to be tried in young people under 18. The feedback from such patients and their relatives and doctors is inadequate, although depression is stated to

affect up to 6 per cent of adolescents. The condition lowers mood and energy, brings about loss of interest in some of their usual activities, and sometimes involves suicidal thinking and acting.

The only proven alternative to antidepressants seems to be cognitive behaviour therapy. The UK Committee on Safety of Medicines has called for tighter restrictions on the prescribing of antidepressants for children and adolescents and in the UK only fluoxetine — alone of the SSRIs — has limited approval, and in the US fluoxetine and paroxetine.

As Ramchandani points out, most clinical trials have involved the younger groups of patients, to the neglect of older adolescents with depression classed as very severe. In some trials, those with evidence of high suicide risk have been excluded. This makes the evidence from many clinical trials unrepresentative of the value of SSRIs in wide general practice.

More transparency is desirable, so that regulatory bodies, ethics committees, and journals publishing trial reports can combine to safeguard the interests of depressed youngsters and their families.

The path of pleasure

"In the theory of psychoanalysis we have no hesitation in assuming that the course taken by mental events is automatically regulated by the pleasure principle. We believe, that is to say, that the course of those events is invariably set in motion by an unpleasurable tension, and that it takes a direction such that its final outcome coincides with a lowering of that tension — that is, with an avoidance of unpleasure or a production of pleasure." — Sigmund Freud: 'Beyond the pleasure principle' (1920).

Obsolescence valued

"A dictionary of obsolete and obsolescent words would not only be singularly rich in strong and sweet parts of speech; it would add large possessions to the vocabulary of every competent writer who might not happen to be a competent reader." — Ambrose Bierce: 'The Devil's dictionary' (1911).

And I quote . . .