

Saving the Euphrates and Tigris marshes

For five millennia the marshes that surround the confluence of the Euphrates and Tigris rivers supported the Marsh Arabs of Iraq. But when Saddam Hussein attempted to reorganise the entire region, he nearly destroyed the lives of the inhabitants by creating 32 dam projects upstream and deliberately draining the marshes until they constituted only 5 per cent of their former extent.

In an article published in *New Scientist* for 4 October 2003, James Randerson has described the efforts now being made by the Marsh Arabs to return their country to its former glory. Engineers and geologists from the United States have now joined forces with the Iraq Foundation, a charity set up by Iraqi expatriates, to work on methods of restoring the natural habitat of the marsh region. Their report suggested that efforts be concentrated first on the Hawizah marsh bordering Iran, which is one of the most intact areas to manage. A three-month period



during which the soil will be tested for pesticides and heavy metals is planned before water is reintroduced. Salt within the area has already risen in concentration to some six parts per thousand, and this hampers the

recovery of vegetation like the common reed *Phragmites australis*, which tolerates brackish water but not water with this degree of salinity. This dominant weed provides shelter for fish and birds, and material which the Arabs use for building, for weaving and for fodder for their water buffalo. In another marsh, known as Al-Sanuf, salt levels are 17 parts per thousand and nothing can grow there at present but highly salt-tolerant species.

Unless the efforts at restoration are planned and not piecemeal, recovery could be slow and reviving the area as a water resource could be delayed. Contamination with lead and mercury may cause complications for water consumers, both human and otherwise. When the rivers are at their highest in March after the rains, salty and otherwise contaminated marshes could be washed clear and reflooded. But in the present state of Iraq, help from the international community is urgently required if the marshes are to recover.

Complex choices in tackling common cold

An intriguing discussion by Victoria Ashton in the November 2003 issue of *Chemistry in Britain* reveals some of the complexity involved in the choice of a remedy for treating the common cold. So prevalent is this winter complaint that we have all developed our own strategies for dealing with it. Some put their faith in the sophisticated mixture of antitussives, analgesics and syrupy components purchased over the pharmacy counter. Others, possibly influenced by the wisdom of a grandmother, will resort to honey and lemon, perhaps with a dash of spirit, or a tisane made with chosen herbs. There is no agreement regarding the efficacy of a particular preparation. And over the whole problem is the difficulty of how powerful is the placebo effect.

Unfortunately, the common cold has many symptoms, each of which may present a different priority in different individuals. Headache, sore throat, congested nasal passages and fever affect people in different ways, and no universal panacea exists to suppress or relieve all symptoms in turn. It is estimated that sick leave attributable to colds costs United Kingdom businesses some £1,300m annually, with symptoms lasting a few days to several weeks. Over-the-counter cold remedies involve the expenditure of about £100m every year.

Remedies are of many sorts, according to the salient symptoms being treated. Cough demands a suppressant, which may be an opiate such as codeine, pholcodine or dextromethorphan, formulated in a soothing syrup. However, there is some evidence that cough medicines containing codeine or dextromethorphan may be only 10–15 per cent better at suppressing cough than the placebo effect of the syrupy vehicle alone. Indeed, the

placebo effect of an antitussive is to be reckoned with, and a hot lemon and honey drink that promotes salivation may prove as effective against a sickly cough as an elaborate opiate syrup. Even a well-spiced curry may induce salivation and suppress an irritating cough.

Topical decongestants containing oxymetazoline or xylometazoline activate sympathetic receptors and constrict nasal blood vessels. They may remain effective for eight to 10 hours and are useful for night-time treatment. But if used to excess they may induce rebound congestion. Oral decongestants such as ephedrine, pseudoephedrine and phenylephrine are less effective against cold symptoms and may induce side effects such as hypertension.

Analgesics such as paracetamol and ibuprofen have a well established role in relieving symptoms of the common cold. A once popular remedy, menthol, acts as a local anaesthetic, and at the same time induces the sensation of decongesting the respiratory system although in fact it does not have this effect. Menthol does alter breathing patterns, and so may benefit infants with a night-time snuffle. It apparently suppresses cough, and may be effective in this regard when applied topically.

Certain substances may be useful in promoting immune reactions to infections such as that of the cold virus. One is zinc, taken as a food supplement. Another is echinacea, over which there is controversy, however.

In general, treating a common cold must be a matter of common sense. Whether the condition cures itself with patience, and whether its course can be shortened by the many traditional treatments in use is largely a matter of opinion. The great unknown factor is how far the placebo effect operates towards the cure.

Science and Islam

A highly disturbing account of the state of scientific endeavour in Islamic countries is given in *Science* for 24 October 2003. A delegation of scientists from the United States, Europe and elsewhere recently met in Yemen to discuss how scientific studies might be improved throughout that section of the world. Awareness of the plight of Muslim scientists was raised, since terrorist attacks on the Western powers threw the issue into relief.

It appears that Islamic governments in general are unmoved by any plea from the scientific community that they should undertake the financing of projects that elsewhere are regarded as essential to the progress of society and the improvement of living standards. According to a United Nations report, Arab countries spend only some 0.2 per cent of the national expenditure on research, and salaries account for most of this.

As the result of various terrorist and other activities pitting Western ideologies against Islamic ones, much of their previous collaboration with the West over scientific advances has in recent years been denied to Arab states, and Islamic scientists can no longer count on assistance from the West in the near future. In countries such as Yemen, where petroleum reserves are minor and poverty is widespread throughout the population, investment in science ranks low in priority, largely because scientists have little say in affairs.

The heart of the problem seems to be the essential conflict between the religious extremists and attempts to train students in scientific methods of thinking and working. Those who would change this situation argue that such antagonism is calculated to make the world a much more hazardous place.