

## Passing the salt

Soil salinity presents a problem for farmers all over the world. It is calculated that more than 700 million hectares of the earth's surface is adversely affected by sodium chloride. Arable land is spoiled by farmers who are forced to spray their crops with salty water for want of better quality, and 20 per cent of irrigated farmland and a further 2 per cent of non-irrigated has suffered serious salination. As a response to this situation efforts are being made to develop new crop strains that are able to survive the salt menace.

A commentary in *New Scientist* for 28 September draws attention to the possible use as a foodstuff of saltwort (*Salsola kali*), which is partial to salt. Also known as marsh samphire, Russian thistle, glasswort and tumbleweed, saltwort is a native of eastern Europe and Asia. There is a belief that it entered our islands from North America and colonised ash-tips near Dagenham, Essex, in 1934, from where it spread. However, it may well be a British native, also, and can still be found on sandy seashores in the West Country, though it is rare. Indeed it was recorded in 1666 by Christopher Merrett in his 'Rerum Naturalium Britannicarum'.



The genus *Salsola*, which belongs to the Chenopodiaceae, is also represented by another species, *S. ruthenica*, which occurs on dry plains in the United States. Our own *S. kali* has a round, brittle stem, rigid bluish-green leaves and small yellow flowers from June to September. It was once collected from the seaside, burnt, and used to make soap and glass. At one time the juice of the fresh plant was used in folk medicine as a diuretic.

Present interest centres on the seeds of the plant, which are abundant since it is a perennial. They are edible, with a nutty flavour, and the size of peppercorns. Harvesting is simple, since shaking will separate the seeds.

The seeds are nutritious, containing proteins, oils and starches. Protein is reported to constitute 17 per cent of the weight and oils, which are 93 per cent unsaturated, account for 25 per cent. The seed is rich in lysine and methionine, and in antioxidant tocopherols. More than half the seed weight is carbohydrate, which could be used for purposes other than food.

Apart from its value as human and animal fodder, saltwort is thought to offer a possible method for desalinating affected soils, thus permitting the raising of regular crops in their turn. Altogether, it presents a highly interesting challenge for farmers.

## Cups that cheer

William Cowper ('The task', 1785) wrote of "The cups that cheer but not inebriate", referring to the almost universal habit of tea-drinking in his time. And in 1757 Samuel Johnson described: "A hardened and shameless tea-drinker who has for twenty years diluted his meals with only the infusion of this fascinating plant; whose kettle has scarcely time to cool; who with tea amuses the evening, with tea solaces the midnight, and with tea welcomes the morning." Yet there may be occasions, in this global economy of ours, when we encounter disadvantages of what has always been looked upon as a safe and desirable habit.

In a letter to *The Lancet* for 14 September, two Rotterdam paediatricians have drawn attention to two recent reports of the toxic effects of teas containing herbal additives. In one instance the excessive consumption of Earl Grey tea flavoured with bergamot was followed by muscle cramps, paraesthesiae and blurred vision, attributed to blocking of potassium channels by the bergapten in the tea. In the other, a herbal tea probably contained Japanese star anise (*Illicium anisatum*) instead of Chinese star anise (*Illicium verum*). This resulted in the blocking of gamma-aminobutyric acid receptors by anisatin, causing the imbibers to suffer nausea, vomiting, auditory hallucinations and epileptic attacks.

The authors of the letter remark that tea made from leaves of *Camellia sinensis* has been drunk since at least 2737BC, with a present worldwide yearly consumption of more than 3bn kg. Some 78 per cent of this is black tea, used by Europe and the United States, which is fermented, 20 per cent is green tea, used in Asia, which is steamed to prevent fermentation, and 2 per cent is Oolong tea, used in southern China and partially fermented. The more than 2,000 tea varieties available include spiced and flavoured products.

Although *Camellia* leaf tea has antioxidant properties and is healthy, some of the ingredients used in other herbal products may be toxic. This means that, to preserve the harmless social virtues of our tea, we should keep a watchful eye on the compounded teas that come on to the market.

## Over the hill

Robert Browning in 1864 took a healthy view of ageing. "Grow old along with me / The best is yet to be," he wrote. Nevertheless, we regard the ageing process with some distrust.

Some considerations regarding ageing have been put forward by Linda Partridge and David Gems of University College London in *Nature* for 29 August. They argue that people are getting healthier and living longer but, in achieving this increase, the number of individuals who encounter age-related health problems is multiplying. For example, Alzheimer's disease, which was almost unknown a century ago, has grown more frequent, as has blindness resulting from macular degeneration. It is strange that all natural populations age, but that some, such as micro-organisms, seem never to wear out.

It has been suggested that ageing serves to rid the species of worn-out individuals and reduce competition with younger ones for limited natural resources. There is an inevitable accumulation of cellular damage during a person's lifetime that has evolved in order to increase the death rate from old age. Indeed, ageing is the result of accumulated damage of a lifetime, which is influenced by genes but not subject to any particular gene. Cells and endocrine systems have their normal constituents encoded by identifiable genes, nevertheless. "Genetic effects on ageing can be understood only as a side-effect of something else," write the authors.

Food seems to be one source of damage, as is the reproductive faculty. If food consumption is reduced, many organisms, from yeasts to mammals, age less rapidly.

Lifespans are greatly modified by environmental factors as well as by genes. It is evident that the human span has shown a marked increase as the result of improvements in public health, medical care and the social effects of changed domestic habits. Thus, contributions towards the rate and characteristics of ageing are made by a veritable host of processes that we are gradually coming to understand more fully.

As Tennyson's Ulysses puts it: "Old age hath yet his honour and his toil."

## Desperate remedy

Owing to a change of weather, and my fishing late and early, I found myself so unwell this evening that it became necessary to take care of myself, so I retired to bed at ten o'clock (ordering that I should not be call'd) and, having taken many analeptic pills, sudorificised most plentifully till nine o'clock. — John Byng, Viscount Torrington: 'Tour in the Midlands' (1790).