

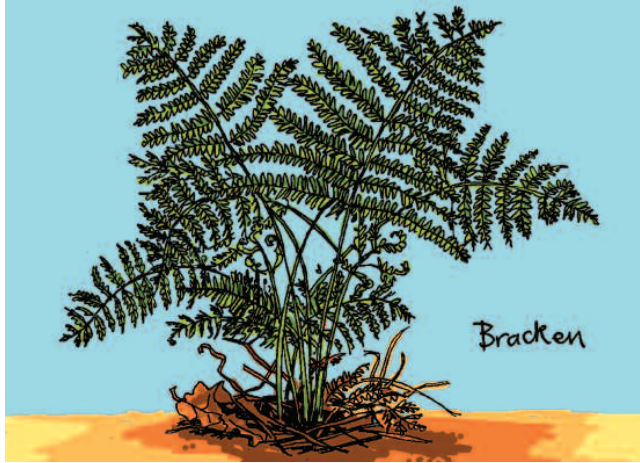
Bracken threat needs firm measures on the moors

Note that the Dartmoor Preservation Association is organising a campaign to restrain the spread of bracken in the Dartmoor National Park. In other parts of the West Country similar precautionary measures are under way, notably in the Isles of Scilly, where coastal paths tend to be rendered difficult to access when the plant is in full growth.

Not only does bracken threaten access, but it also damages valuable archaeological sites, since its rhizomes break the actual stone of some of these. Accordingly, programmes of bracken bruising are planned throughout the summer. Burning is not an ideal solution, since large amounts of potash are thereby produced, and act as fertiliser for the growth of the following year.

Bracken (*Pteridium aquilinum*) is the commonest fern in Britain, flourishing on light acid soils in woodland, heath, hills and moors at elevations up to some 600 metres. It produces a creeping rhizome which throws up shoots and leaves in spring, turns brown and dies down in autumn, all but the rhizome.

The whole plant contains toxins, some of them resistant to cutting and drying, thus offering a threat to livestock. They include acyanogenetic glycoside, prunasin, the enzyme thiaminase, responsible for thiamine deficiency in browsing horses and pigs, and the carcinogens quercetin and kaempferol, with another agent causing haemorrhagic disease.



However, the picture we have of bracken is not all negative. It has been a food for humans, particularly in Japan, the north-eastern US and Canada, largely in the form of the uncurled fronds, known as fiddleheads, produced in spring. It has been used for thatching and for making soles for shoes, for dressing chamois and kid garments. As fuel and tinder it has proved useful, and the ashes are a good source of potassium for manuring potato beds as well as for making soap and glass. As winter bedding for cattle, air-dried bracken has proved useful.

It is noteworthy that in the 17th century the firing of the plant was believed to bring rain to a locality. In the 18th century orders were made for conserving bracken on commons between June and September for winter use. In classical times, fronds and stems were included in decoctions for worm infestation and skin disease, and the bruised rhizomes mixed with fat made an ointment for minor wounds and skin ulcers.

Delicious, nourishing and wholesome food

A commentary in *The Lancet* for 4 June by a neuroscientist from Baltimore, points out that our ancestors used to consume their food irregularly, sometimes having to subsist on one substantial meal in the day or go without for several days. Intermittent feeding was therefore something to which humans adapted. In modern society most people have grown accustomed to three meals in the course of the day plus the occasional snack in-between. This habit, though it may promote rapid growth in children, may prove unhealthy for adults.

Overeating and the resultant obesity is recognised as a major cause of premature death from cardiovascular disease, diabetes and cancers. The notion of smaller and more frequent meals has been hailed as a recipe for better health, but there is a lack of scientific evidence to support this suggestion.

Intermittent fasting is required by several religious codes, and it is important to study what effects result from certain patterns of consumption. Groups taking a single daily meal tend to eat more than others taking several small snacks over the same period. A habit of meal-skipping seems to increase body response to cellular stress, raising the resistance of cells to neurodegeneration and protecting against cancers by increasing agents which damage cellular DNA.

It is strange that more scientific investigation of the effect of our dietary habits has been lacking. Certainly, overeating in general produces serious health problems, but frequency and size of individual meals is another matter. Adding to the problem is the accepted role of physical exercise, or lack of it, in preserving healthy living. Animal experiments show that changes in meal frequency are likely to have widespread effects on the functions of some organs, but unfortunately controlled studies in humans are few and far between.

Colour choice in sportswear can confer an advantage over rivals

The colour red is associated with dominance, particularly male dominance, in the animal world. In human societies, red has long been associated with good luck, health and joy, presumably because of its association with blood. Red thread has been worn to guard against witchcraft, while plants bearing red fruit have been considered powerful, either for good or ill. There is, however, a superstition that mixing red flowers with white to present a cheering gift for someone sick is a recipe for disaster. Human anger is associated with reddening of the skin of the face and neck, while fear is demonstrated with skin pallor.

In *Nature* for 19 May, an anthropology research group from the University of

Durham has turned its attention to the possible complications of using red garments in sports activities. In the 2004 Olympic Games, when contestants in the combat sports of boxing and wrestling wore randomly red or blue items of dress, it was found that there was a strong tendency for contestants wearing red to score over those wearing blue. Where other factors, such as skill and strength were involved, the red factor was thought to have little effect on the outcome.

The findings indicate that, over a wide range of different team sports in which the participants wear shirts of contrasting colours, the choice of red may confer some advantage.

Colour probably influences mood, emotions and expression of aggression in humans. It certainly constitutes a signalling element in competitive activity between many non-human species.

There is a case to be made for investigation into the psychology of colour in competitive situations. Competitive sportsmen should not be able to gain an advantage over their rivals in sports through their choice of colour for their sportswear. It may become necessary to counteract any established bias conferred by alteration of mood. It will be a strange situation if football and rugby teams start to appear on the field universally clad in bright attire.