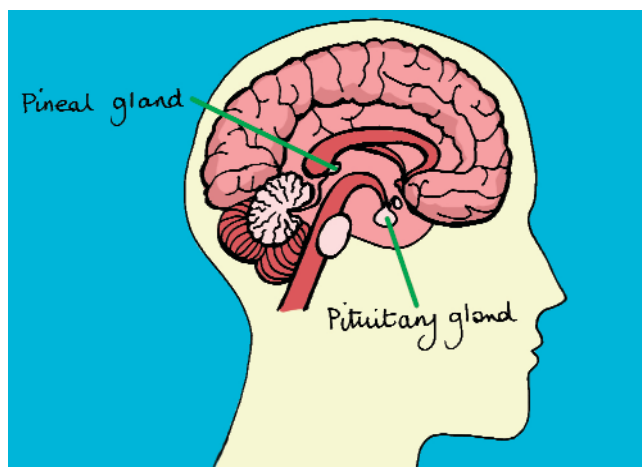


Why winter makes people miserable

Why do we over-eat at Christmas? Why do death rates peak in winter? Why are winter breaks in the sun a proven money-spinner? In short, why is winter so miserable for many of us? The answer may not be under our noses but in the back of our necks.

The pineal gland has always been something of a mystery; the first anatomists speculated that early man really did have eyes in the back of his head and the gland was a vestige. Even now, its purpose is not fully understood; in contrast to its near neighbour the pituitary with its many important roles, the pineal appears to have only one; the synthesis of melatonin from serotonin (5-hydroxytryptophan) by acetylation and O-methylation by the two enzymes exclusive to it. The synthesis is regulated via the retina by ambient light intensity using a negative feedback system; that is, production is highest with no light (ie, night) and lowest at noon. Hence, it is thought, the brain is kept aware of the time of day — the “biological clock”. Interestingly, there is no variation in this system between diurnal and nocturnal mammals, as might be expected.

This indirect proportionality between light intensity and melatonin production, together with melatonin’s source, has been suggested as a possible explanation for the condition known as seasonal affective disorder syndrome, or SADS. The theory works like this: since melatonin production is in-



versely proportional to light intensity, it follows that during prolonged periods of low light intensity (eg, winter), bodily melatonin levels will become raised. Since melatonin is derived from serotonin, it follows that serotonin levels are likely to become depleted — a known cause of depression.

The natural way to top up your serotonin level, without recourse to reuptake inhibitors such as fluoxetine, is to boost tryptophan levels, which can be hydroxylated to serotonin, by consuming carbohydrates. The precise mechanism, together with much of what follows, is dealt with in the 1999 book ‘Genome’, written by Matt Ridley (before he was crushed by a Northern Rock!).

This theory answers all the questions posed in the opening paragraph; however, its

implications are decidedly controversial. It would suggest that cholesterol-lowering diets and drugs have psychological side effects. It is an accepted fact that diets make people miserable; but could they really make them clinically depressed? In his book, Ridley mentions reviewing the (then) existing studies of cholesterol-lowering drugs, with particular reference to the multiple risk factor intervention trial (MRFIT trial), in which a sample of 351,000 people in seven countries were studied over a period of seven years. He noticed an increase in violent death in the subjects of 78 per cent over the untreated group, off-

setting the 14 per cent decrease in fatal cardiovascular (CV) events. Needless to say, the baseline figure for violent death was far lower than that for CV events; but Ridley goes on to observe an indication that people with severely raised and severely lowered serum cholesterol were both twice as likely to die at a given age than people with normal levels, the raised ones due to heart attack, the lowered ones due to “accident, suicide or murder”. None of this amounts to proof that dieting makes you suicidal or detracts from the serious consequences of continuous raised cholesterol. But it does perhaps suggest that it is possible to be too thin: a message that the size zeros should consider. As for the rest of us — well, maybe a little Christmas cake is not such a bad thing after all.

What wheat genes did for human civilisation

Wheat belongs to the family Graminaea, of the genus *Triticum*; it has several varieties but let us concentrate on the most important, *Triticum aestivu* — breadwheat. Wheat can germinate almost at the instant the seed comes in contact with the ground; the problem lies in getting there, down from the husk. The original, “wild” varieties got round this by having explosive husks, timed to detonate as soon as all the grain in the husk was ripe; however, around 11,000 years ago in the area that was to become known as the Fertile Crescent (mostly encompassing today’s Iraq) a mutant strain appeared, in which the gene giving rise to this explosion was suppressed. This meant that the grains in this strain remained in situ on the intact husk. The hunter-gatherers of the area were probably already aware of the value of wheat grains as food; now, however, instead of having to gather the scattered grains one by one they could harvest them hundreds at a time, simply by picking the husks. This meant in turn that the energy (and time) expended in gathering a hundred of the “wild” wheat grains

could bring in several thousand of the new. Of course, the individual grains had to be removed from the husk after it was gathered — but that was women’s work.

The new wheat set in motion a series of far-reaching changes; it no longer required the whole day to gather sufficient sustenance, giving rise to leisure; it became more beneficial for families to come together to tend wheat fields, leading to co-operation; and it no longer became necessary to be constantly on the move, giving rise to settled communities. Furthermore, it was now possible for each family to have children more often; previously the need to be on the move meant that a mother had to wait for the first child to walk before having another; so the population exploded. The exploding population caused young men to move away from the original communities in search of new territories; one of them was called Abraham. All of which means that whatever evils we may lay at the door of genetically modified food, let us at least acknowledge that we owe human civilisation to it.

Medical shorthand

The latest batch of medical shorthand and euphemisms has come to light, to join such favourites as HSPs (heart sink patients) and GROLIES (*Guardian* reading old lady in ethnic skirt). The source is one Paul Keeley, a consultant in palliative medicine at Glasgow Royal Infirmary, and this time celebrities are drawn on. So a Jack Bauer is the chosen epithet to describe a doctor still working after 24 hours on the job, after the preposterous series, “24”; while a Hasselhoff refers to a bizarrely acquired injury, after the actor David Hasselhoff reportedly cut his arm while shaving by hitting his head on a glass shelf (you work it out).

A Minime is a medical student who copies his seniors but does not say very much. But my favourite has got to be the MacTilt. This does not refer, as you may have thought, to a postural defect caused by working at a certain burger chain; it actually refers to the tilting of the head by a Macmillan nurse, to convey sympathy and understanding (or just to avoid the question), in response to the question “how long have I got?”. I always did it; now I have a name for it.