

Perfect antidotes

Although the term “antidote” was originally applied to something that would counteract the effects of a poison, it later became extended to mean something to counteract evil. We can therefore look upon any activity calculated to prevent or abolish the prevalent evil that we call stress as a true antidote by definition.

I believe that at least three such activities are available to us when we feel the onset of mental or emotional stress. They are music, poetry and creative painting, and I am sure that if we were to have more recourse to them when we need them we should be more relaxed and take a little time to stand and stare, as W. H. Davies put it in 1911.

The power of music over the emotions is something recognised since humans became civilised. Our 17th century poets expressed the idea many times. Shakespeare commented in 1613: “In sweet music is such art / Killing care and grief of heart.” And Congreve clearly asserted in 1697: “Music has charms to soothe a troubled breast.” It was left to Dryden to state that there is another side to music. He wrote in 1687: “What passion cannot Music raise and quell?”

That music could be used to arouse martial sentiments was well known in antiquity, and we still have military bands and certain rhythmic intoxications that urge crowds to violence. Yet, real music in the sense of disciplined melodic and contrapuntal sounds, remains a potent force for stress relief. And making music for oneself, either with the voice or with a musical instrument, offers an even better route to peace of mind than mere listening.

Closely allied to music is poetry. Shelley asserted that “Poets are the unacknowledged legislators of the world”, thus allotting them influence on the functioning of society. Wordsworth believed that a vast amount of serious thinking precedes the inspiration of a poem. Moreover, poetry creates a link between the minds of those who read and write it.

I must admit that, having imbibed a mass of poetry in English, French and German during my studies, I find verses flashing into my mind during my idler moments, walking or cycling. To declaim it is an effective way of dispersing any depression that arises from contemplating the violence and uncharitableness that infect our world.

The third activity I have indicated, painting or sketching, is perhaps not open to some individuals. For artistic pursuits a certain type of mentality and taste may be necessary. Yet I find that to sit down to a canvas and a box of colours, or even to take

sketchbook and pencil in hand, in response to a scene that impresses, brings a marvellous sense of repose in which there is no corner for stress.

For the reasons I have outlined, I argue that our educational curriculum has gone sadly astray in placing too great an emphasis on the study of subjects that aim at increasing material productivity and commercial finance, not to mention competition, to the neglect of the very subjects that offer us help and sustenance when we have to face the emotional crises of life. Children who grow up with a knowledge of music and poetry, and preferably with an artistic ability, are a sounder investment for a future civilisation than are the money-grabbers.

Dawn of writing

The Olmec culture in Central America is believed to have been contemporary with the better known Maya civilisation and possibly to have contributed several customs to it. It now appears from recent discoveries at an Olmec centre at La Venta in Tabasco, Mexico, that Mesoamerican writing may have originated with the Olmec tribes.



The Olmec cylinder seal found at La Venta produces an image of a bird with a “speech bubble” when inked and rolled across the printing surface

In *Science* for 6 December 2002 the investigations of archaeologists from Florida State University in Tallahassee are reported. There have been arguments whether a writing system and a sacred calendar associated with the Maya civilisation were the joint effort of several cultures, Maya, Aztec and Inca, or were devised by an earlier culture.

Discoveries at the major Olmec city of La Venta include two monuments that contain a linear system of glyphs of uncertain age. Their dating has varied from 600 to 400BC. Excavations at a smaller site some 5km away from La Venta in 1997 revealed a stratified deposit of floors, hearths and rubbish heaps. In the refuse were shards of pottery, a cylinder seal and engraved chips of greenstone, which yielded a radiocarbon dating of 650BC for the engraved objects. The symbols are believed

to represent words and bear all the hallmarks of primitive writing.

However, the margin of error for radiocarbon dates of this period is known to be wide, and the possible age varies from 792BC to 409BC. The associated pottery fragments suggest a range of 700 to 600BC. Nevertheless, the evidence points to an important contribution of the Olmecs to the Mesoamerican civilisation and to their invention of a writing system early in the development of the New World.

Tricky stuff

In *Nature* for 21 November 2002 is a report concerning some of the strange environmental effects of atrazine (2-chloro-4-ethylamino-6-isopropylamino-s-triazine). This compound, first synthesised in 1960, is used in agriculture as a selective herbicide and plant growth regulator, and has been reported to be the most commonly used herbicide in the United States and elsewhere. At a recent meeting of the Society of Environmental Toxicology and Chemistry, held in Salt Lake City, concern was expressed over plans to renew approval for its further use. Studies have revealed that atrazine

contamination of water courses disrupts the sexual development of male wild leopard frogs, *Rana pipiens*, at concentrations as low as 0.1 part per billion.

Some scientists have disputed this finding and suggested that about 25ppb of atrazine is necessary to produce this effect. Unfortunately, some US waters have been found to contain concentrations of atrazine as high as 50ppb. In affected frogs, gonadal abnormalities such as retarded development and hermaphroditism are reported, and the herbicide

may pose a threat not only to frogs but other amphibians exposed to it. Its effect may be due to induction of aromatase, an enzyme that converts androgens into oestrogens in fish, reptiles and some mammals. Intermittently exposed populations may be more susceptible to this effect of atrazine, whereas those continuously exposed develop adaptive resistance to it. When applied to crop fields as a pre-emergent herbicide, atrazine contaminates water sources most severely at the time of spring rains, which is also that of breeding activity in many amphibians.

Another effect of atrazine has been inhibition of photosynthesis by algae in streams. Heavy exposure of cattle and sheep has produced muscle spasms, stiffness of gait and rapid breathing, sometimes followed by damage to adrenals, lungs, liver or kidneys.