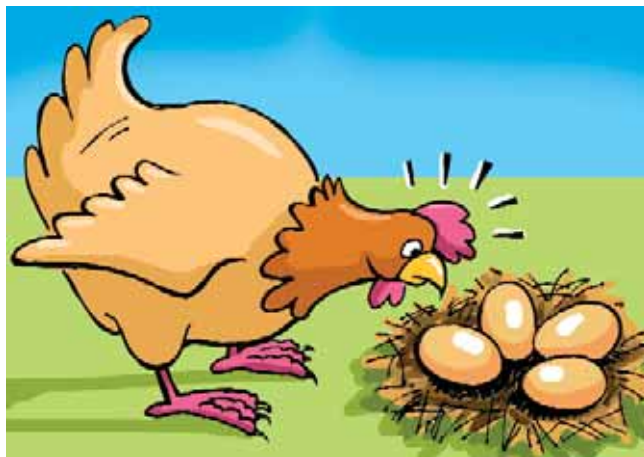


The strange attraction of odd numbers, but not 13!

Numbers have all sorts of strange connections in the human mind. There is something about even ones that lend a sense of repose, whereas the odd ones suggest that we have not reached the end of the line of thought, and therefore call for further investigation. There is an ancient tradition among poultry rearers that a clutch of eggs placed under a hen should be odd in number. Directions for the dosage of a prescribed medicine have often specified that it should be taken three, seven or nine times during the day and traditional military or naval salutes have involved three, seven or 21 guns.

The writings of Virgil show a predilection for the odd numbers, with the significant omission of 13. For centuries it has been thought that a gathering of 13 individuals in the same room for any purpose — business or pleasure — constituted a menace for someone in the assembly. This is supposed to have originated in the Christian era in the idea of the Paschal Supper and what that foretold. It was said of Edward VI when he was appointed a master with 12 fellows to govern Christ's College, Cambridge, that he was setting a dangerous precedent and he should remove one of the fellows. Instead of doing that he added one more



to their number. A curious notion current some decades ago was that the seventh son of the seventh son in a family should be educated to be a physician, since he would have more intuitive knowledge of curative medicine, including the faculty of being able to cure the sick by mere touch. In Yorkshire, in particular, mothers who produced seven boys in succession were urged to devote the last to a medical career, in which he was expected to excel.

The numbers seven and nine denoted years of critical significance in a person's lifetime. Their combination to make 63 introduced a time of crisis. There used to be a custom among the lords of country manors that every seven years a fresh agreement with their tenants should be arranged.

Mountain ash charms and challenges

The mountain ash, or, as it is often called, the rowan, is a graceful and highly attractive tree, now starting to display its scarlet fruit. It has been adopted into many gardens and has a vast amount of folklore attached to it. There is archaeological evidence that it was present in these islands in the wild from pre-Neolithic to Roman times. It has a host of local names, including quickbeam and witchin, though there is some confusion between the rowan and the aspen willow. The title rowan derives from the Old Norse *runa*, meaning a charm, from its supposed ability to avert the evil eye. Bird snarers in France and Germany used bait traps for thrushes and fieldfares with its berries. The branches were used in Tudor times to make bow staves for archery.

How the belief in the anti-witchcraft efficacy of rowan arose is uncertain. It was widely planted, particularly in Celtic countries, and has been associated with ancient stone circles and standing stones. It seeds itself among granite litter and is, therefore, in evidence on granite moorlands. The scarlet berries are popular with blackbirds towards winter.

A jelly made from them is popular for dressing game. According to Robert James in 1747, the fruit is excellent for treating the scurvy, and the exudates from the bark is good for the diseases of the spleen. When dried and powdered the berries have been turned into a type of bread, and in an infusion make an acidulous drink. A gargle made from the berries is good for a sore throat and inflamed tonsils. However, the bitterness tends to put off the faint hearted.

Chemical reactions without a solvent

For centuries alchemists have carried out reactions that do not call for a special solvent as adjuvant. Grinding solids together in a mortar in order to persuade them to interact, even hammering them together, has been regarded as one method of producing a new substance from crude natural ores. However, many different solvents have been employed to facilitate reactions between different compounds.

A paper by chemists from Queen's University, Belfast, published in the July issue of *Chemistry World*, discusses the current situation and its prospects. Over the past few decades, they comment, there have been increasing concerns over health and safety issues when large quantities of organic solvents are involved in syntheses and there are obvious dangers from inhalation or skin contact.

Greener processes based on solvents such as water, ionic liquids or carbon dioxide in the supercritical state have been sought out

and solvent-free processes for the preparation of co-ordination complexes have been studied. Mechanochemistry, which means either the physical grinding together of reactants manually in a pestle and mortar or bombardment by ball bearings in a machine, is undergoing further investigation. It has sometimes been found that reactions performed using such techniques take less time than the previous solvent based method. The process involves making an initial product within the interface between crystals of the reactants, which then falls away to expose fresh surfaces that encourage the process to continue. Such a method competes favourably with solvent-based synthesis in terms of saving time, energy and materials.

The resurgence of interest in solvent-free synthesis is still in its infancy, and its applicability needs to be considered on a case-by-case basis. It does, however, provide a stimulus for more basic and applied research.

And I quote . . .

Myths and mankind

"A human society without myth has never been known, and indeed it is doubtful whether such a society is possible. One measure of man's advance from his most primitive beginnings to something we call civilisation is the way he controls his myths, his ability to distinguish between the areas of behaviour, to an extent to which he can bring more and more of his activity under the rule of reason. In that advance the Greeks have been pre-eminent." — M. I. Finley: 'The world of Odysseus' (1954).

Dogma and lucre

"Races petrified in dogma or demoralised by lucre are unfitted to lead civilisation. Genuflexion before the idol or the dollar atrophies the muscle which walks and the will which goes." — Victor Hugo: 'Les Misérables' (1862).