50 & 100 YEARS AGO

NATURE

50 YEARS AGO

Two sharply divergent points of view are held with regard to children's films. The Soviet bloc and most of Europe believe that children at the cinema should be sheltered from the actualities of life. They should be provided with cartoon or puppet films which show them a fairy-tale world of fantasy or else with films with a direct moral purpose such as "stressing the value of human labour". On the other hand, the Americans, who do not make special children's films, believe that children are essentially little adults and are perfectly ready to take adult screen entertainment. Neither of these divergent points of view is accepted in Britain, where it is believed that, to get the greatest pleasure and profit in the cinema, children should see specially produced films within their understanding and experience, and these should be mainly realistic... Children are really interested only in children like themselves or in attractive animals; they have little interest in adults and few cowboys would be popular if deprived of their horses. However, very old people who are approaching their second childhood compel attention.

From *Nature* 18 May 1957.

100 YEARS AGO

The problem of establishing a connection between the mineral ingredients of the tea plant and the quality and strength of the tea is under investigation, with a prospect of obtaining definite results. From a study of the methods of preparing Oolong tea in Formosa, it is concluded that the quality and characteristics are due to an aroma produced by faint oxidation in drying and a slight scorching during roasting of the leaf, as well as to the mild decomposition caused by a fungus, and it is suggested that the fungus acting on the legumin in the leaf produces flavouring bodies similar to the action of moulds in cheese.

From *Nature* 16 May 1907.

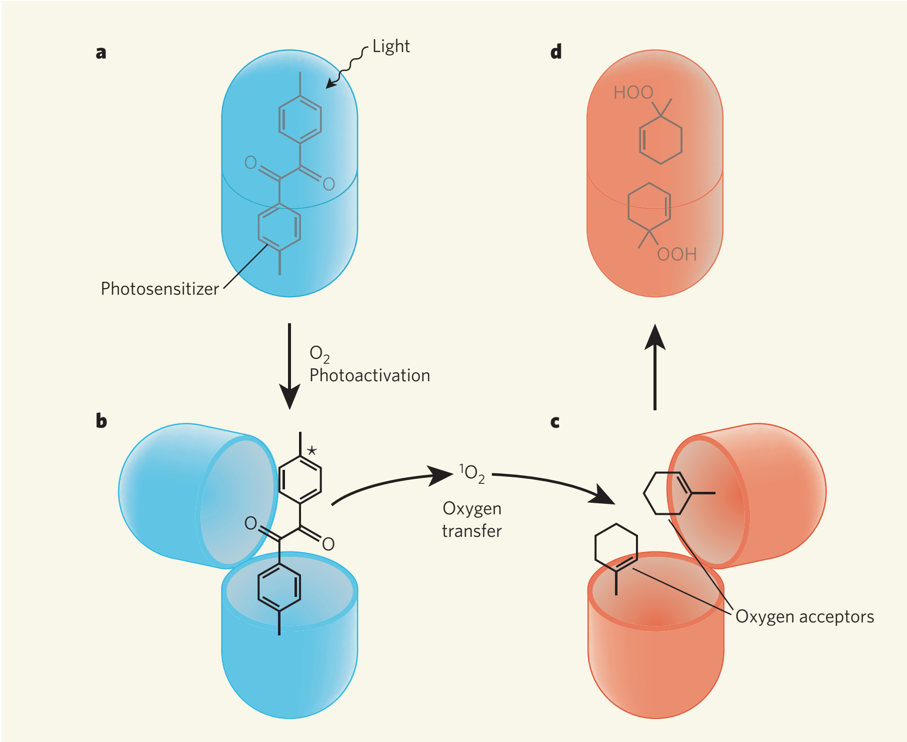

Figure 1 | Chemical correspondence. Natarajan *et al.*[3] have devised an artificial system that mimics chemical signalling between enzymes. **a**, A photosensitizer molecule is trapped in an artificial enzyme pocket and irradiated with light. **b**, The light energy promotes the photosensitizer into an excited electronic state (indicated by the asterisk), which in turn excites oxygen molecules if the enzyme pocket is open. **c**, The excited oxygen, $^1O_2$, diffuses through the surrounding solution until it reaches an open pocket of another enzyme that contains oxygen acceptor molecules. **d**, Because the acceptor molecules bind into the enzyme pocket in a particular orientation, the excited oxygen reacts only at the most accessible site of those molecules.

into enzyme-mimics that use singlet oxygen might help them target specific sites in their substrates.

Natarajan and colleagues' report[3] forms part of a growing body of work examining chemical cross-talk. Their study is carried out entirely in solution, but an interesting related area examines the transportation of molecules between solid materials, which may be more relevant to the mechanisms used by proteins for trapping molecules and responding to chemical signals. Singlet oxygen can diffuse in polymer films[14] or be taken up by acceptor molecules connected to solid supports (such as resins, or porous inorganic materials known as zeolites). Resin-to-resin reactions are quite useful because they can transfer a variety of chemical signals through solution[15], including inherently unstable molecules such as singlet oxygen and cyclobutadiene (a reactive hydrocarbon). This challenges the preconception that only stable molecules can act as chemical signals.

There is no denying that synthetic enzymes will require huge improvements if they are to compete with their biological equivalents. Problems still awaiting exploration include the incorporation of allosteric features — binding sites other than the main cavity — into artificial hosts, and the introduction of cooperative dialogue between hosts that might enhance chemical trapping, as occurs in nature. But as a first step in the advanced development of artificial enzymes, Natarajan and colleagues' work[3] on chemical signalling will certainly create a lot of cross-talk between chemists. ■

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