

## Olfaction

**Scents and sensitivity**

Dec 6th 2007

From The Economist print edition

**Subliminal smells can have powerful effects**

IN A world where sight and sound seem to reign supreme, all it takes is a cursory glance at the size of the perfume industry to realise that smell matters quite a lot, too. Odours are known to regulate moods, thoughts and even dating decisions, which is why any serious romantic will throw on the eau de toilette before going out for a night on the town. Yet in all these cases, those affected are aware of what they are smelling. Unlike the media of sight and sound, in which subliminal messages have been studied carefully, the potential power of subliminal smells has been neglected.

Wen Li and her colleagues at Northwestern University in Chicago are now changing that. In particular, they are investigating smells so faint that people say they cannot detect them. The idea is to see whether such smells can nevertheless change the way that people behave towards others.

Dr Li's experiment, the results of which have just been published in *Psychological Science*, employed 31 volunteers. These people were exposed to three different odours at low concentration. One was the fresh lemon scent of citral. The second was the neutral ethereal perfume of anisole. The third was the foul sweaty smell of valeric acid. And the concentrations really were low. In the case of valeric acid, for example, that concentration was seven parts per trillion—a level only just detectable by bloodhounds. As a control, Dr Li used a mineral oil that has no detectable smell at any concentration.

The participants were asked to sniff a jar containing either one of the three odours or the scentless oil, and then press a button to indicate whether they thought the jar smelled of anything. Immediately after that, a picture of a face would appear on a screen in front of them for just over a second. Each participant was asked to rate the face's "likeability".

Dr Li found that the odours helped shape people's judgments about the faces when their responses indicated that they had not smelled anything. When someone had been exposed to valeric acid, for example, he tended to react negatively to a face. Exposure to citral, by contrast, made that face seem, on average, more friendly. (Obviously, the same face was not shown to any given participant more than once.) Even more intriguing, however, was that when participants did consciously perceive a smell, its effect on face-perception disappeared.

What is going on is unclear. If smells can carry useful information about personality (which is possible), then the effect would be expected to be the same whether or not the chemical in question is detected subliminally. If they do not carry such information, then it is hard to see what use the subliminal reaction is. Nevertheless, it is there.

The findings do, however, demonstrate what might be a powerful method of manipulation. Indeed, Dr Li considers the potential uses to be vast. Business meetings might be made more pleasant by releasing appropriate fragrances into the air in unsmellable amounts. Conversely, fights might be started by putting people in the presence of a faint foul odour. Advertising hoardings might benefit from a little olfactory tweaking and cinema audiences could be reduced to floods of tears at the appropriate moment. The sweet smell of success might, in other words, actually be undetectable.