

ANARCHY IN THE BRAIN

SIMON BIGNELL on an intriguing phenomenon and its implications.

The phenomenon of the 'anarchic hand' is probably one of the strangest things researchers in the field of cognitive neuroscience will ever come across. People with this bizarre condition have one hand that is under full mental control whilst the other hand seems to behave as if it had a will of its own and competes with the other hand to perform actions. Professor Sergio Della Sala (University of Edinburgh) has been studying this condition. So peculiar is it that some have come to call it 'Dr Strangelove's syndrome', after the film in which Peter Sellers plays a mad scientist who has to grab his arm to stop it making Nazi salutes. The symptoms can be humorous to watch but can be devastating for the afflicted person.

The complex movements of the anarchic hand are felt by the person to originate in the hand itself rather than in their own minds, and are replications of the actions normally performed. As one patient put it, 'It interferes with my life. It does what it wants and not what I tell it to.' The condition, according to Della Sala, may be caused by the brain's failure to inhibit actions that are triggered by the environment, such as pouring a jug of water or banging in a nail. For example, when driving near your workplace at the weekend you might turn off towards it, because it's difficult to override such an automatic action.

The condition is not, as might be thought, the result of a dual personality, but rather appears as a result of damage to the medial regions at the front of the brain. Professor Della Sala described the case of one patient who had undergone brain surgery. Following the operation the surgeon had accidentally pressed

against a region of the brain involved with inhibiting movement, and the patient demonstrated anarchic hand symptoms for the next few hours until the brain region had time to recover.

The anarchic hand demonstrates that such things as agency and free will might be

rooted in the brain. The condition may show that the way we restrain or inhibit our automatic actions in response to the environment are deeply rooted in brain processes. In other words, as Della Sala puts it, we don't have 'free will', we have 'free won't'.

London Lectures

This annual student event saw 650 people attend the day of lectures at Kensington Town Hall in December. November had seen the previous year's London speakers in Edinburgh, a pattern due to be repeated in 2005. Here, **JON SUTTON** and **SIMON BIGNELL** (University of Essex) present reports from the London event.

MY COUNTRY'S BETTER THAN YOUR COUNTRY

JON SUTTON reports on the development of national identity.

According to 10-year-old Hilary in a study discussed here by Professor Martyn Barrett (University of Surrey), the best thing about being British is that we won the war. Barrett described how children start to prefer their own national ingroup from about the age of five, and by mid-adolescence they can have very detailed national stereotypes, usually in relation to historical enemies.

However, studies in this area have rarely looked at how national identifications develop across different countries, and it was not researched at all by developmental psychologists in the 1970s and 1980s. Collecting data from more than 5000 children in several different countries, Barrett found

ingroup favouritism at all ages, in all countries, in all subgroups. Importantly, there was some outgroup prejudice but it was by no means a universal pattern. For example, children in Azerbaijan positively disliked Russians, but the English did not positively dislike Germans.

Children growing up in a capital city attributed greater importance to national identity than children outside that capital, perhaps simply because of enhanced awareness of nationality through the presence of tourists or 'emblems' (e.g. Big Ben). Ethnic minorities found it harder to identify with the tag 'British'; Barrett speculated this was because such identification relegates a person's own ethnic group to a subordinate position. People's representations of Britishness do contain a racial dimension, he said – perhaps more 'warm beer' than 'cold lass'.

Overall, Barrett said there was considerable variability in children's development in this area, and therefore any universalist theory of national identity (such as Piaget's explanation based on underlying cognitive abilities) must be wrong.



HAVE A SAFE JOURNEY

SIMON BIGNELL reports on human behaviour in emergency situations.

As Professor Helen Muir (Cranfield University) pointed out, many of the aspiring psychologists in this audience will eventually be asked to parachute in when things go wrong. In the so-called safety-critical industries, including aviation, rail, shipping and road, things seem to go wrong rather a lot, and in two out of three incidents it is a human failure.

Professor Muir and her colleagues were called in by an aircraft manufacturer after the Manchester airport fire. They had ensured that all passengers could evacuate through half the exits in 90 seconds: why hadn't they in the real

thing? Not surprisingly, the answer was that the test conditions had not replicated the fear and natural instinct to escape. What was surprising was that Muir managed a pretty good approximation of this by merely offering volunteers a £5 bonus if they were among the first to escape

the simulation. The films showed people clambering over seats and each other to reach the exits, and becoming trapped in small spaces.

The Cranfield team have looked at the behaviour of more than 20,000 people in various experiments, and their insights have led to changes, including training in assertive behaviour for cabin crew and redesigned exits. Muir also pointed to the importance of passenger knowledge: apparently it's the people who actually listen to the safety briefing before take-off who tend to survive. So remember that next time you fly!

PA PHOTOS/DPA

Listening to the safety briefing helps survival

PERFORMING TO POTENTIAL

SIMON BIGNELL reports on how champions are created.

Whether it's running a marathon or putting the ball in the back of the net, sports men and women need to perform consistently and when it matters the most. But as Professor Dave Collins (University of Edinburgh) explained, performance does not just equal the potential of a sports person to achieve outstanding results: it's potential minus everything that goes wrong on the night. Sports psychologists not only work with the coaches on training athletes in more productive ways, they can also work to prevent these losses.

Expectations have a big influence on actual performance, and self-confidence can bring about a beneficial change for most competitors. Professor Collins conducted an experiment in which he recruited 11 national standard power lifters who wanted to use steroids to improve their performance. They took the 'steroid' and waited 30 minutes before lifting under competition conditions. Remarkably they made a 5 per cent improvement on their best lifts, a very impressive margin considering the extreme weights involved – and the fact that they had actually been given an inert sugar tablet. In the second study Collins repeated the procedure with the same power lifters, but this time he told half of them that they hadn't been given steroids but a placebo instead. This time those who were told performed worse than ever.

Mental toughness is at the heart of the performance mechanism in all kinds of sports. Those who are high in mental toughness don't have less stress to contend with, they simply view this as surmountable short-term challenges. Collins explained that mental imagery also has a crucial role in improving sporting performance. Positive visual imagery can be up to 40 per cent as effective as doing sport itself. Mentally simulating the successful bodily movements performed in sport triggers brain activity similar to when actually taking part in the sport, leading to performance improvements away from the playing field. This can have benefits for sportspeople who are unable to take part, for example while they recover from injuries.

Collins has helped many Olympic medallists in a variety of different sports by motivating, focusing and putting things into perspective if they go wrong. This was an inspiring talk in a popular area, from an academic seemingly at the top of his game.

PARANORMAL SERVICE RESUMED

JON SUTTON reports.

'Anomalous' experiences are almost by definition interesting, and Professor Chris French (Goldsmiths College) didn't disappoint in a talk packed with crowd-pleasing demonstrations and facts.

The serious underlying message was that many 'paranormal' experiences can be explained via various cognitive mechanisms and biases. For example, we tend to perceive nonexistent structure in random events, and our understanding of probability is pretty shoddy. Believers in the paranormal seem to be more likely to exhibit such biases, and as a result are (for example) more susceptible to suggestion in a seance context, and less accurate in their recall of demonstrations of metal bending.

Having experienced sleep paralysis myself, I'm always interested in French's views on how many 'paranormal' experiences across the ages and cultures probably have this as a perfectly rational explanation, which gets labelled as anything from the incubus to an alien abduction.

French ended with a superb demonstration of top-down processing – how our interactions with the world are based on our internal model of it – than his backwards recording of Led Zeppelin's 'Stairway to Heaven'. Garbled nonsense at first, but once French has showed you what others believe it says, 'Satan's little toolshed' and various other juicy snippets leap out clear as day.