Summaries

*Justitiële verkenningen* (Judicial explorations) is published eight times a year by the Research and Documentation Centre of the Dutch Ministry of Justice in cooperation with Boom Juridische uitgevers. Each issue focuses on a central theme related to judicial policy. The section Summaries contains abstracts of the internationally most relevant articles of each issue. The central theme of this issue (nr. 1, 2008) is *Technology, cognition and justice*.

The impact of converging technologies on security applications

*W.B. Teeuw, H.J.G. de Poot and E.C.C. Faber*

The authors investigate the impact of converging technologies on the security field in general and on monitoring and immediate control, forensic research, and profiling and identification in particular. They observe that the advances in nano, bio, ICT and cognitive technology and sciences are large. Also, the convergence of these technology fields enable what we may label ‘ambient intelligent security enforcement’: technology will be invisibly integrated into almost everything around us. These developments enable a shift from reactive security authorities, after the fact collecting of information and evidence, towards proactive security enforcement, using technology to anticipate on and prevent crime. Except for being enabling, converging technologies may also be a driver for new ‘paradigms’ in the security application field. The authors sketch a more participatory role of citizens in forensic research (lab in your pocket) or social crime control (prison without walls) as examples.

Detection of false memories with brain scans; something for the future

*M. Jelicic, M.J.V. Peters and T. Smeets*

This article focuses on the use of brain scans to distinguish between true and false memories in a forensic context. Some authors have argued that these two types of memories have different neural correlates. Because true memories would contain more perceptual details, these memories would lead to more activation in brain
areas responsible for perceptual information processing than false memories. We describe techniques designed to elicit false memories and mention two different theoretical accounts explaining why false memories are sometimes created. After briefly introducing different brain imaging techniques, an overview of research on neural correlates distinguishing between true and false memories is given. In some studies, it was found that, compared to false memories, true memories are associated with unique activity in brain areas underlying perceptual processing. However, other studies were unable to find differences in neural correlates between the two types of memories. In addition, research in this area has used false memory paradigms that may tell little about false memories in real life. All together, it seems that brain scans are not yet applicable to assess the veracity of memories in a forensic context.

Lie detection; old truths and new technology
E.H. Meijer and H. Merckelbach
One of the newest developments in the field of lie detection is the use of brain imaging techniques. In this article, we discuss the traditional forms of lie detection like the polygraph (lie detector), as well as newer technologies like EEG (brain fingerprinting) and fMRI. We argue that, although the brain imaging studies on the detection of deception have resulted in important theoretical advances, practical use is premature. We furthermore argue that the positive expectations lay people have towards these new methods are due to neuroscientific connotations rather that to neuroscientific evidence. Moreover, flaws in the logic underlying the brain imaging based lie detection tests will prevent these methods from ever being highly accurate. At present, only the ‘memory detector’ variant of the polygraph is suitable for practical use.

Converging technologies, shifting responsibilities
A. Vedder
This article differentiates five fundamental trends regarding the future implications of converging technologies on morality and law that from a regulatory perspective seem to be particularly important. These are changing perceptions of vulnerabilities
regarding privacy, a shift of responsibilities for control and regulation from public authorities to private parties, a tendency to incorporate and unify regulation and enforcement in technologies, an orientation towards prediction and proactivity of the law and a change in the conceptions of personal freedom and responsibility. It is important to look upon these trends as possibilities and not as certainties since both technology and normative outlooks develop under the influence of a complex network of contextual factors. If they do become reality, it will not be abruptly but gradually creating ample time for meticulous assessment and evaluation.

The brain and the law: no royal road
G.J.C. Lokhorst
There are three major gaps between neuroscience and the law, namely one between neuroscience and scientific psychology, one between scientific psychology and folk psychology, and one between folk psychology (or, more generally, descriptive language) and the law. This is not to say that these three areas are totally unrelated and cannot influence each other. They may increasingly do so in the future via a process that could be described as ‘gradual co-evolution’.

Control, free will, and other drivel
V.A.F. Lamme
In current Western law practice, there is a distinction between acts of will, and acts that were performed outside of one’s control or free will. This is however based on an outdated notion of the mind, and its relation to the brain. Current psychology and neuroscience shows us that our acts are not controlled by our thoughts, and that there is no such thing as free will. Our thoughts have as much insight into our own motivation as they have in the motivation of other people, and mainly come after the brain has chosen a particular action. The author therefore argues to abandon the distinction between wilful and un-wilful acts. Moreover, neuroscience shows us that automatic, un-wilful behaviour is very difficult to erase. This would call for a stronger, instead of a more lenient approach towards automatic criminal behaviour.
On biology, technology and criminal law
Y. Buruma
This is an overview of the influence of new technologies on several stages in the criminal justice process. Risk analyses with a view to detection in an early stage will be enhanced based on brain science, as is already developing with respect to sexual delinquents. This raises questions of pre-emptive action. Although most lawyers will not accept pre-emptive detention a further question will be whether brain science will shift the focus from criminal law to medicine: ‘a public health approach to violence’. However when health no longer is defined by the patient, there is a danger that public health will become a hidden way of pre-emptive persecution. With regard to proof new technologies are being developed in order to assess testimonies, however judges should be careful in drawing conclusions too quickly. With regard to proving intentionality the new sciences will not change very much. The same goes for the assessment of excuse because of psychiatric symptoms, although brain scans and the like will be used by psychiatrists in order to explain their conclusions. If we know more about the brain, this doesn’t mean we have to stop the criminal accountability of human beings, although in some cases this knowledge might inspire us to exercise clemency.

For the law, neuroscience changes nothing and everything
J. Greene and J. Cohen
The rapidly growing field of cognitive neuroscience holds the promise of explaining the operations of the mind in terms of the physical operations of the brain. Some suggest that our emerging understanding of the physical causes of human (mis)behaviour will have a transformative effect on the law. Others argue that new neuroscience will provide only new details and that existing legal doctrine can accommodate whatever new information neuroscience will provide. The authors of this article argue that neuroscience will probably have a transformative effect on the law, despite the fact that existing legal doctrine can, in principle, accommodate whatever neuroscience will tell us. New neuroscience will change the law, not by undermining its current assumptions, but by transforming people’s moral intuitions about free will and responsibility. This change in moral outlook will result not from
the discovery of crucial new facts or clever new arguments, but from a new appreciation of old arguments, bolstered by vivid new illustrations provided by cognitive neuroscience. The authors foresee, and recommend, a shift away from punishment aimed at retribution in favour of a more progressive, consequentialist approach to the criminal law.