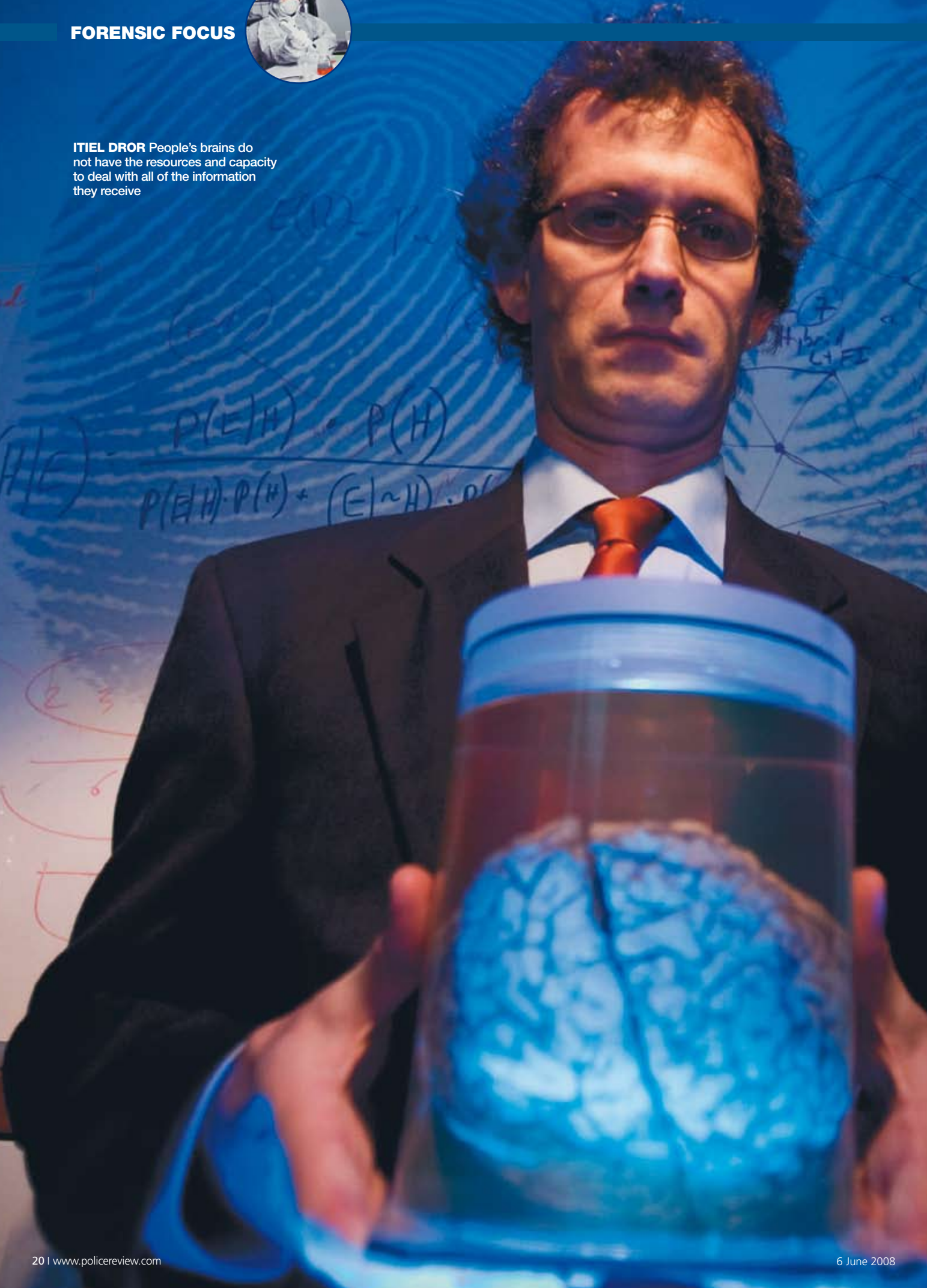




ITIEL DROR People's brains do not have the resources and capacity to deal with all of the information they receive



Biased brains

The way police officers and staff examine evidence is always at risk of being far from impartial. **Itiel Dror** investigates how unconscious human bias can inadvertently influence how scientific evidence is interpreted

How is it possible that highly skilled and professional police forensic experts make mistakes?

Examination of evidence by forensic examiners, investigations by detectives, or considering which action to take as police constables, all have one thing in common: they rely heavily on human thought processes and the brain.

Thought processes and perception are far from perfect because the way people internally understand, interpret, evaluate and judge information highly depends on how thought processes are structured and brain mechanisms. Too often people overemphasise the role of the information itself and neglect to understand the

pret this information, and their judgements and decision making.

Diminished objectivity

These effects can take many different forms and influence people in a variety of ways. For example, confirmation bias is when people notice and give more weight to information that is consistent and supports certain interpretations and not others. Conversely, people do not notice, dismiss, or give less weight to other information that does not fit (or even contradicts) the interpretations they unconsciously support. Confirmation bias is only one example of the way people think that diminish experts' objectivity.

'As one piece of information guides people's search and evaluation of subsequent information, so they can also be led astray'

crucial role that the human mind plays in understanding and interpreting this information.

People's brains process information, but they do not have the resources and capacity to deal with all the information they receive. Therefore they have evolved to take 'short cuts'.

This means prioritising and selectively examining information, actively and dynamically processing, and other mechanisms that form the basis of intelligence. As people become more experienced and highly skilled, they increasingly develop and rely on these short cuts.

Examining one piece of evidence is used to guide the search and processing of further information, piece after piece, in a way that they all fit together to solve a puzzle. Knowing where to look, what questions to ask, paying attention to the important things and knowing where to find them, is what distinguishes experts from novices.


However, as one piece of information guides people's search and evaluation of subsequent information, so they can also be led astray. Once people have a belief or a hunch of what the data may suggest, a theory or hypothesis, this has powerful and profound effects on how they perceive it, the way they process the information and the mental representations they form of this data, how they evaluate and inter-

Escalation of commitment and momentum, conformity and group think, prophecies that fulfil themselves and wishful thinking are just a few other psychological and cognitive phenomena where experts unavoidably and unconsciously can lose objectivity and be selective and biased.

Myself and my research team of David Charlton, Ailsa Peron, Ina Schmitz-Williams and Peter Fraser-Mackenzie set up to experimentally examine effects of context on forensic experts. In a series of studies undertaken over several years we provided forensic evidence and examined whether its evaluation by forensic experts was solely based on the evidence itself.

For example, we would present fingerprints from a crime scene, and observed if the conclusion by forensic experts on whether they match depended on if the suspect confessed to the crime. We consistently found that such contextual information affected the judgement and decisions made by qualified and experienced forensic examiners.

In a couple of these studies we presented identical fingerprints to the same fingerprint experts, but provided a different external context for them each time. We found that the context in which evidence is presented, such as that described above, can cause the same forensic



CONFIRMATION BIAS Best practice procedures and training needs to be introduced to counter this

examiner to reach conflicting decisions on identical evidence. Our data and research findings from these studies suggest that such influences are most powerful when the quantity and quality of the evidence is low, and that these effects occur at a subconscious level without the forensic examiner being aware of them.

Practical evidence

Are confirmation bias and thought process influences an academic issue existing purely within the theories of the human mind and brain?

Well, try to say this to Brandon Mayfield, an Oregon attorney who was arrested for killing 191 people and injuring more than 1,800 in the March 2004 Madrid train bombings.

Based on a latent fingerprint left at the crime scene by the real Madrid bomber, Ouhane Daoud, FBI fingerprint experts positively identified Mr Mayfield as the bomber. Even an independent forensic expert appointed to his defence team concluded that it is a definite match.

In May that year, after Daoud was identified as the owner of the fingerprints, the FBI acknowledged the error and partly attributed it to confirmation bias. Mr Mayfield was released from custody and has since received an apology from the federal government and was awarded USD2 million in compensation.

The issue of questionable objectivity and bias when examining evidence within a leading context is not limited to fingerprints or to investigations in the US.

For instance, CCTV evidence was recently used in the Old Bailey in the case of Levi Bellfield who was convicted of the murders of Amelie Delagrangé in 2004 and Marsha McDonnell in 2003 in southwest London. He was also found guilty of the attempted murder of Kate Sheedy in 2004.

One piece of evidence in the attempted murder charge relied on a CCTV image of a car. However, there was only a single frame from the

CCTV footage that contained the registration number, and this was of extremely low quality.

Initial examination of the image by detectives (with minimal context) was able to conclude very little information about the number plate.

However, when the image was presented to forensic experts along with a suspect's registration plate (for example, that of the accused), then the forensic imagery examination of the CCTV image was conducted within a potentially influencing and biasing context.

The Met was eventually forced to admit in court that detectives had failed to properly examine the CCTV footage and four officers were later formally reprimanded by the force after a review by the Independent Police Complaints Commission.

Possible solutions

I believe these examples show that there is no question that forensic experts and police officers (like everyone else and like experts in other domains) are susceptible to bias and other influences. So what can be done about this? The solutions to this problem, both in the forensic domain as well as in the larger context of policing, is two-fold.

The first solution is the development and implementation of best practice in the field. An example of this is for forensic experts to try to examine evidence without potentially biasing information being given to them.

Best practice needs to be scientifically based and validated by experts in thought processes and not by forensic experts.

When this is not possible (which does happen due to operational requirements), the aim should be to first examine the evidence without the context, clearly documenting the more objective and independent analysis, and only then to allow the introduction of the additional contextual and potentially biasing information.

Contextually biasing influences come in many different forms. Another example of such context and how it can be managed is the proactive steps taken by Kevin Kershaw, the head of forensic services at Greater Manchester Police who is currently on secondment to the National Policing Improvement Agency to work on these issues. He is actively working to combat this bias and protects his forensic examiners from being unduly influenced by buffering them from the investigating detectives.

The second solution is training. There is generally an alarming lack of training in this area. For example, in the Levi Bellfield case, both CCTV imagery forensic experts stated under cross-examination in court that they acknowledge the existence of confirmation bias, but had no training in this area.

The Fingerprint Society, Hampshire Constabulary, and Greater Manchester Police are examples of a professional body and forces who have provided some training in this area.

Forensic evidence is an integral and important part of policing and the criminal justice system. It is relied on more and more, and it is vital to make sure that this, as with other police processes and decision making, is as professional and objective as possible.

Understanding the human brain and mind, and the structure of thought processes, is vital to ensure the highest quality in judgement and performance. ■

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