

# BRAINS MATTER

Over the last 50 years neuroscientists have offered extraordinary insights into how the brain works, changing the way we think about our minds and ourselves. Here, **Nikolas Rose** reflects on the social and political implications of these latest advances in brain sciences.

When BIOS, LSE's centre for the study of biosciences, biomedicine, biotechnology and society opened its doors in 2003, the new century had only recently begun. Along with so many other remarkable developments in the life sciences, there was one that was particularly challenging for the social sciences and humanities. For neuroscience was promising to offer radically new ways of understanding that most complex and personal of organs – the human brain.

As director of BIOS – with a background in biology and three decades of research on social and political aspects of psychiatry and personhood – I found myself surveying an extraordinary landscape. Neuroscientists, who had long been very cautious about the implications of their basic research for an understanding of higher mental functions in humans, were now leaving their laboratories and marching into territories that had previously seemed out of bounds – the physical basis of mind, consciousness, the sense of self, the feeling of empathy, the neural substrates of will and desire.

Equipped with a new molecular understanding of brain mechanisms, and with novel ways of visualising processes in the living brain, many claimed to be able to provide an objective counterpart, not just to the theories of psychology, but to much more: to sociological understanding of human action, anthropological accounts of culture, economic accounts of human choices, aesthetic accounts of the appreciation of beauty, and to age-old problems of philosophy.

It appeared that psychological conceptions of personhood that had dominated so much thinking in the 20th century were on the wane. And if so, with what consequences for law, social and economic policy, education, child-rearing, for our understanding of the ties that bind individuals into human groups and societies, and of human prejudice and conflict?

For an academic in a university founded to understand the “causes of things”, I found myself contemplating a world in which researchers were arguing that we could begin to understand the causes of our thoughts themselves – and to find those located not merely in culture and history, but in biology. What makes us think as we do? Why do some people act impulsively and others restrain themselves? Why do some suffer depression and others flourish even in the most challenging of circumstances? What causes memory to decline with age? Even – and this was a quest for others at LSE such as Professor Richard Layard – what makes us happy?

Of course, there have been many previous moments in history when biological explanations of human conduct have come to the fore, and often the outcomes have been depressing and sometimes disastrous. The events of the last century show clearly the consequences of the belief that human worth could be determined by genetics – that biology was destiny.

But our work in BIOS on contemporary biology painted a different picture – of a new biology emerging in molecular biology, in genomics and in neuroscience. This new biology saw living systems as open, dynamic, complex, and understood that every aspect of human

development and capacities was shaped by environment and culture from the moment of conception if not before. This called for a radically new approach to biology from the social and human sciences – and not least to the biology of the human mind.

In 2007 BIOS put this case to the Economic and Social Research Council, and it agreed to fund a three-year research programme that would chart the emergence of the new brain sciences – their development and spread and the ways in which they were altering the way we think about human beings, their minds and their brains and their impact in social practices ranging from the clinic to the economy. This work was also supported by a grant from the European Science Foundation to establish the European Neuroscience and Society Network involving representatives from some 15 European countries.

Through this work we have been able to chart the 50-year journey from the birth of the neurosciences in the 1960s to their current state in which many thousands of research papers are published every year, in hundreds of journals, with contributions from scientists across the world. It is a path that has led to huge expectations about the potential contributions to human health of this new knowledge of the brain, and arguments that many of our social policies need to be reshaped in the light of this new knowledge.

While many have long argued for the importance of early childhood, now it is claimed that this is crucial for the development of the brain. Organisations such as Iain Duncan Smith's Centre for Social Justice and Camila Batmanghelidjh's Kids Company argue that neuroscience now shows objectively that major public investment in intensive input into families in the early years will pay great dividends in averting later problems and the individual, social and economic cost associated with them. In cases such as these, evidence from the brain sciences has served merely to reinforce what has been known for many years from social research.

In other areas, however, things are less straightforward. In the closing decades of the 20th century there were great hopes that brain research would, at last, uncover the underlying bases of mental disorders, allowing accurate diagnosis, and effective therapies. There were claims that “smart drugs” would target these bases, producing recovery without the dire side effects of an older generation of psychiatric medication. Perhaps we would even be able to identify “biomarkers” – biological

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indicators of future psychiatric difficulties, and even of future anti-social conduct – that could be picked up before the condition arose, allowing early preventive intervention.

Here the situation has proved to be much more complicated, in a way that also has consequences for the social sciences. Despite a very intensive research programme, it now seems clear that the mental distress that ails so many of us in contemporary societies – one in four in any one year according to most estimates – has no simple genetic basis, no clear biological substrates, and no easy targets for psychiatric medication. The smart drugs, despite the hype about Prozac and its relatives, proved little smarter than those that had preceded them. Biomarkers not only proved elusive, but social researchers from BIOS and other centres drew attention to the problems of social stigma and self-fulfilling prophecies that might be generated if beliefs about a child's liability to future mental disorder, let alone criminality, were generated on the basis of shaky and unreliable predictions of risk.

As neuroscience itself has developed, the arguments from the social sciences have been largely vindicated – mental distress is a matter of human beings in societies, cultures and social practices, not merely a matter of brains. But now this recognition is shared by many neurobiologists who recognised that the brain is the most open, complex and dynamic organ in the human body; the challenge is now to explore the ways in which society, culture and experience “get under the skin” and how brains and persons are mutually shaped in

the process. This opens a tremendous opportunity for novel collaborations between life scientists and social scientists in addressing major social issues in a way that does not set society in opposition to biology, or argue for the dominance of one over the other, but respects the contributions that these distinct forms of knowledge can offer – work that is being done not only in BIOS but in other LSE collaborations, for instance with the Institute of Psychiatry in London.

There is no doubt that the problems of explanation – let alone of effective intervention – have proved enduring and challenging in all areas. If we remain with psychiatry, these problems begin with diagnosis. Although current estimates suggest that over half of us will suffer from a diagnosable psychiatric condition over a lifetime, diagnosis remains difficult and subjective – as yet neurobiology has proved little help in distinguishing depression from normal sadness, attention deficit hyperactivity disorder from normal childhood activity, or even, despite recent technological advances, the early stages of dementia from normal processes of ageing. As far as therapy is concerned, several of the largest pharmaceutical companies are withdrawing from the psychiatric area, because our growing knowledge of brain processes has not proved easy to translate into effective drug treatments – indeed, it may be the case that the most effective interventions onto brain states are social and environmental, not biological and pharmaceutical.

The social and human sciences have much to contribute here, but that contribution should not be predicated on

the disdain for the biological that has characterised much work in our disciplines. Of course we should be critical of those popularisers who claim that we now know that this or that feature of the human condition – whether it be mental distress or the feeling of empathy for others, intellectual abilities or the appreciation of beauty – is “all in the brain”. The more we know about the human brain, the more we know that it is an organ exquisitely adapted by evolution to the lives of humans in culture and society, changing in multiple ways as it is entwined within the social practices and webs of meaning within which we make and live our lives. Our neurobiology both makes those lives possible, and is shaped by our experiences in the most fundamental ways.

To create an understanding of the human mind, human conduct and human ailments in human societies that recognises that we are indeed animals, though very special ones; that we are shaped by our biology, but that our biology is itself profoundly social: this seems to me – and to us in BIOS – to be one of the most important challenges for the social and human sciences in the 21st century, and one to which LSE, with its dedication to understand the causes of things, is uniquely well placed to address. ■



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