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NEUROPSYCHIATRIC DISEASE

Since the time of ancient Egypt, societies have struggled to understand mental illness and to care for those affected by it. But, over the millennia, the idea that mental illness might have a biological cause arose only intermittently, and treatments ranged from the benign (exercise, humour and music) to the barbaric (exorcism, imprisonment and lobotomy). By the mid-twentieth century, however, several breakthroughs had been made. Not only did health professionals understand mental illnesses to be diseases of the brain, but a set of systematic criteria for diagnosis had been developed, together with pharmaceutical and psychological therapies that are still central to modern psychiatry.

Today, despite decades of subsequent research, the prevalence of neuropsychiatric diseases has not decreased. Our understanding of the biological mechanisms of diseases such as mood disorders, schizophrenia and autism is frustratingly limited. And, although it has long been clear that most such diseases have a strong genetic component, the identities of the genes involved have proved elusive. There is also a lack of reliable biological markers for characterizing these diseases and, perhaps unsurprisingly, treatment options are far from optimal in terms of efficacy and specificity.

There is, however, some cause for optimism. Recent advances in genomic technology and large-scale studies are helping to identify genetic variants associated with diseases. In addition, new animal models of disorders such as depression and autism are providing ways to test hypotheses about the underlying neuropathology — at the molecular, neural-circuit and behavioural levels. This Insight highlights recent successes and new ideas in this crucial area of research. The hope is that developments such as these will lead to integrative approaches for designing better therapeutic strategies.

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I-han Chou and Tanguy Chouard, Senior Editors

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