It has to be said, straight away, that this is an excellent book, well written and well edited into a fairly consistent house style and packed with information. I found it thought-provoking and intensely educational. Although it is an American book written with a transatlantic perspective, it certainly should be read by all English-speaking psychiatrists, both those in training and those who consider themselves to be trained. It is as up to date as a book can possibly be, although the Editors acknowledge freely that a book like this, reflecting progress being made on many fronts, will have to be up-dated regularly.

It is a book of nearly 1000 pages (including the Index), and is divided into 10 parts, each with a varying number of chapters (70 in all), some quite short. The parts are: basic neurobiology; methods of clinical neurobiological research; psychoses; mood disorders; anxiety disorders; substance abuse disorders; dementia; psychiatric disorders of childhood onset; special topic areas (including personality disorders, aggression, sexuality, social attachment, eating disorders, menstrual cycle mood disorder and sleep in relationship to mental disorders).

It is published at a time when psychiatry is perceived by many of its practitioners to be at a kind of cross-roads. The psychological and social dimensions of psychiatric practice, once seen as bastions of psychiatric care and theory, are under attack. This has been the ‘decade of the brain’ and increasing knowledge of brain mechanisms (gained through electrophysiology, functional mapping of brain activity and molecular genetics) is changing our perspective on psychiatry. With the exception of some well validated and researched psychological therapies, such as cognitive therapy, most of the advances in treatment that have occurred in psychiatry in the last 30 years have been partly biological ones. Effective drug treatment for mood disorders and schizophrenia has been partly responsible for the closure of many mental hospitals since much treatment can now take place in the community. This is usually attributed to change in social attitudes although it can be cogently argued that effective treatment, by diminishing the fear of mental illness and reducing stigma, helped to change these attitudes. But we also know that biological treatments such as antidepressant, antipsychotic and anxiolytic drugs are mixed blessings and have brought problems with them, particularly in terms of dependence, potential addiction, medical misuse and the serious neurological side effects of neuroleptic drugs. There is good evidence that for some conditions a combination of psychological and biological therapies is better than either therapy on its own.

I had wondered when I first opened the book whether I was going to read a polemical advocacy of biological factors.
in mental illness, at the expense of everything else. This, however, was not the case. Although, obviously, the book concentrates on the biological aspects of mental illness in a very detailed but very readable way, as one digests the message of the book it is possible to perceive where other sociological and psychological models of mental illness might fit in.

My traditional psychiatric training was over 30 years ago. Since then I have moved into a very specialist area of psychiatric practice which straddles, sometimes uncomfortably, the borderline between neurology and psychiatry, and I no longer see myself as a mainstream psychiatrist. Despite this specialization I have seen a lot of changes in psychiatry in the last 30 years and hopefully still have a broad understanding and knowledge of those changes. At a personal level, I found this book very educational as it taught me a lot about advances in knowledge that I probably should have been aware of, but was not. I read it initially, therefore, with a general interest. At that level this book succeeds very well because the sections are well written and easy to understand. I particularly liked Part 1 of the book, on basic neurobiology, which, for me, was an extremely useful refresher course: even if it does nothing else it will enable me to read current papers in this area with a great deal more understanding.

If, like mine, your basic pre-clinical education was a long time ago, concepts and ideas that have arisen since that education are often difficult to comprehend fully: the human brain is good at learning but not very good at unlearning facts long since embedded in the memory but now out of date and misleading. This part was a real education and helped me to unlearn. I was amused by the section in Chapter 2 (‘Neurochemical systems in the central nervous system’) that posed the question about multiple neurotransmitters: ‘why are so many needed, particularly when simple inhibitory or excitatory transmission could be easily accomplished by just two?’ In my day, I thought, there were only two!

Part 2 addresses the paradox that to understand the workings of the intact brain one has to get inside it, and yet if one gets inside it, it is no longer an intact brain. There are now various ways of studying both function and dysfunction in the brain from the outside. These methods, particularly neuroimaging, will revolutionize the way we understand the workings of the brain in both health and disease. One thing that comes across very clearly from Part 2 is that as we develop better measures of biological function in the brain, the more we will need to develop better models of mental illness itself. I suspect, rather as is happening in neurology, we will need to radically readjust our classification.

Our entire nosological system will probably be completely different in 20–30 years time, and will be defined much more by the results of biological tests, which, at the moment, are experimental, than by our present concepts of disease. Pharmacotherapy will become targeted at specific brain mechanisms in individual patients whose particular molecular genetic make up will guide therapy. We will also be able to understand the relationship between social and psychological factors and a person’s biological make up: recognizing, for instance, that a particular set of genes in his or her brain is only switched on by a specific set of social circumstances, or only by a particular psychological stress. As this knowledge increases, we will come to understand individual patients better than we do now, since we can currently only guess at the interplay between brain mechanisms, and social experience and learning. Changing the biology of brain function will change behaviour, but changing behaviour may also alter the biology of brain function, since the brain is far more plastic than we realized.

Some of my colleagues fear the advent of the new neurobiology of mental illness, being apprehensive that as more and more specific syndromes are delineated by neurobiological tests, psychiatric treatment will shift into the neurological domain, and that there will be a pill for every ill. Anyone with those worries should certainly read this book and be reassured.

The part about schizophrenia is excellent and gives a very good overview of current neurobiological research into this baffling condition. (Here, particularly, part of the bafflement may be due to our current diagnostic criteria, which will certainly be changed by advances in neurobiological knowledge.) Schizophrenia may well be a disorder of brain morphology and is probably a neurodevelopmental disorder: it is certainly a heterogeneous disorder, crying out for new nosological insights that do not confuse a person’s understandable psychological and social reaction to his disorder with the biological condition itself. Schizophrenia is a disorder which does not have a valid animal model. This is partly because we still need to understand the patient’s intra-psychic experiences to make the diagnosis. Trying to measure thought disorder in a mouse is a difficult concept! How do you know if a rat is hallucinating and what are its voices saying?

In depression research there are several animal models (either induced by treating the animal with a particular chemical or induced by psychological means). Does the lack of an animal model for schizophrenia matter? It does at very least mean that certain key experiments cannot be done. There is no doubt from reading this book that animal models of mental mechanisms, if extrapolated cautiously, can be helpful in developing an understanding of human psychopathology (more, indeed, than I had previously thought). I was particularly struck that nowadays pre-clinical researchers, using animal models, are careful to place any alterations in behaviour they produce in animals by manipulating their brain chemistry into the culture of a particular animal species, recognizing, for instance, that a solitary rat in a cage is not the same animal as a rat living within the community that it normally inhabits. Interpreting changes in the behaviour of the solitary rat is much less helpful than interpreting behavioural changes in a rat living with its peer group. An ethological understanding of behaviour in animal species is necessary to fully understand
the neuropharmacological effects of drugs given to that species, and may help to explain why the same agent, given to different animal species, can produce wildly different, but species-specific, effects. Herein lies one of the keys to developing a synthesis between biological, psychological and sociological models of behaviour in mankind.

The sections on mood disorders and schizophrenia were amongst the best in a very good book, but I learnt a lot from the section on ‘Substance abuse disorders’, and found much in it to explain some of the baffling behaviours of people with addiction problems. This section could have perhaps highlighted more the neurological effects of substance abuse, particularly alcohol and the opiates.

In that minor complaint is contained what is, I suppose, my main criticism of this book. It seems to be trying to be strictly psychiatric in its brief but unfortunately has a somewhat under-inclusive view of what psychiatrists do (at least in the UK). The part on dementia for instance is excellent, but largely confined to Alzheimer’s disease: I would have expected a full section on prion diseases, which can present to psychiatrists or end up in their care. There is, however, very little and what there is, unfortunately, is somewhat out of date. Perhaps the US, not having had a BSE crisis, has not had to learn quite so quickly about prion disorders as we have on this side of the Atlantic. In the part relating to the neurobiology of child psychiatry, which in many ways is illuminating, there is no mention of the many syndromes associated with severe learning difficulty; yet they, in themselves, might well throw a great deal of light on other conditions and would complement the earlier excellent chapter in Part 1 on brain development, and they are in the domain of psychiatrists. In the otherwise excellent chapter on sleep and major mental illness, no mention is made of the sleep disorders themselves or the rapidly developing knowledge of their neurobiology, yet sleep disorders are among the most common conditions that psychiatrists have to deal with.

Because I have an interest in a condition which straddles both psychiatry and neurology (epilepsy), the other thing that struck me about this book was that there was very little cross referencing between neurological and psychiatric disorders, even when they seem to share the same transmitter system. The GABA 1 system is clearly important in neurology but would seem to have equal importance in psychiatry, and yet no link was provided between the two disciplines. There is no mention in this book of epilepsy—apart from one or two passing references—and yet the neurochemistry of epilepsy and the neurochemistries of affective and anxiety disorders are inextricably linked. There is no section on movement disorders, equally as important to the psychiatrist as to the neurologist, and which might have introduced the fascinating topic of the channelopathies to the psychiatrist. Understanding of the neurobiology of mental illness would be improved by learning about the neurobiology of neurological illness. I would hope in the next edition either for a linking section between the two disciplines, or for the two to be combined—even if it does then end up as a two or three volume work, it would be worth it. The neurobiology of the brain itself does not split easily into a psychiatric and neurological domain. Indeed both disciplines may be trying to selectively poison the same receptor sites but for different reasons. I have said elsewhere that ‘neurologists are doctors who treat movement disorders with drugs that often drive their patients insane; psychiatrists are doctors who treat insanity with drugs that often give their patients movement disorders.’

There will be an increasing trend towards ‘neuropsychiatry’ for both psychiatry and neurology as both disciplines come to understand the strengths and experiences of each other. As the two disciplines fuse, at least in part, psychiatry will be strengthened by an infusion of new neurobiological knowledge and neurology will be strengthened by an input of social and psychological understanding of the human being, enriching, not eclipsing, neurobiological knowledge. It is a pity that the two great disciplines of the brain have been so long separated in the UK.

These criticisms should not detract from my overall appreciation of what is an extremely illuminating and helpful book. It should be on the bookshelf of every psychiatrist and in every neurological library. Reading this book should stimulate all of us to understand the pre-clinical aspects of our disciplines better, and hopefully will prompt a whole host of questions and ideas that we can carry into our clinical domain. In this regard the small chapter on the neurobiology of social attachment I found the most stimulating. It had hardly any clinical information at all (except we know that, as the authors say, ‘disturbances in attachment behaviour characterize virtually every form of psychopathology’), yet the careful review of animal studies illuminated a part of psychiatry which has always been difficult to understand.

This is a really good, thought-provoking, illuminating, well written book, which I will return to again and again. I look forward to the second edition but hope that, when it appears, the editors have widened the scope of the book to encompass the other conditions that psychiatrists need to know about and in whose treatment they are involved, and that it does become a bridge between the two great disciplines of the brain so that we no longer have ‘brainless psychiatry and mindless neurology’, but one great discipline, forged out of the strengths of both and based on our rapidly developing knowledge of neurobiology.

Tim Betts  
Birmingham University Seizure Clinic,  
Queen Elizabeth Psychiatric Hospital,  
Birmingham, UK