Neural Transplantation

by William J. Freed
MIT Press, $60.00, 542 pp
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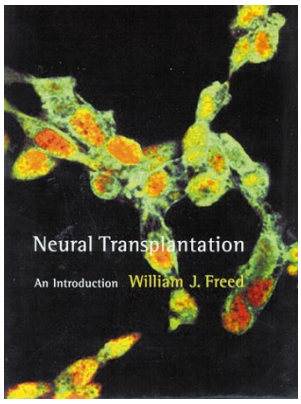
In *Neural Transplantation*, William Freed delivers a spunky and interesting view of an emerging field with a very active scientific pioneering spirit among its practitioners, which also has many detractors in more conservative neuropharmacological circles. This 542-page book manages to document the last 20 years of neuroscience research on cell transplantation into the brain. Neural transplantation to the brain was in fact already a scientific tool in the 19th century when, in 1890, W.G. Thompson in New York described brain cell transplantation between adult cats and dogs. Even the great Cajal used neural transplantation as a tool, and his student Tello described early in the 20th century how central nerve fibers grow into implanted tissue. But it was pioneers like Freed who set the stage for a revolution in neurology and neurosurgery that we may not yet have seen the likes of. In the 1960s, the understanding of brain chemistry provided a clinical tool for Parkinson disease by replacing lost dopamine cell function by a precursor drug (L-dopa). Cell transplantation evolved from earlier experiments in the 1980s to become clinical pilot studies, which during the last decade have proven that neuronal cell implantation is a feasible way to treat Parkinson disease and possibly many other neurological disorders. The idea is that the brain is a remarkably adaptive system from a structural or hard-wired point of view. Freed introduces the novice to the wonders of the brain by explaining the structural biology thereof in the first few chapters. The next and main part of this substantial book covers detailed commentary on most of the significant experiments that relate to disease and our understanding of brain repair.

The chapters that describe the structural biology of brain cell repair and reconstruction are a significant contribution by this book. The chapters range from early cell transplant discoveries in Huntington disease and Parkinson disease to recent experiments of brain stem cell differentiation after transplantation by yet-to-be discovered mechanisms. The text is detailed and scientific, but has a fairly conversational tone, although at times similar to a casual peer review of an article. Freed in no way holds back his own interpretation of very complex experiments, and surveys a very rapidly moving experimental and clinical field. In many instances his book will require a fairly sophisticated understanding of neuroscience and provides even a knowledgeable scientist in the field with some challenging ideas.



Basic science is abandoned in the last chapter called: "Conclusions", which perhaps should be called "Speculation." For those readers who enjoy 'intellectualized' science fiction and biology, this chapter will be interesting. For readers not interested in reading about brain cloning or artificial downloading of intelligence into human brains, this chapter will be of less value.

Darwin's Ghost: The Origin of Species Updated

by Steve Jones
Random House, 377 pp, $25.95
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Steve Jones is the not-so-ghostly presence in this charming, informative and very accurate book. He uses his expertise in modern genetics (he is a professor of genetics at University College, London) combined with an evident passion for what in other hands might be considered the musty domain of old-fashioned naturalists: to serve up a defense of Darwin's original theory. Jones claims that he is no more than Darwin's ghostwriter and, true to his word, the book closely follows Darwin's original *The Origin of Species*. In fact, it begins with a facsimile of the title page and annotated contents of the first John Murray edition published in 1859. True to this format throughout, the book's chapters follow the outline of Darwin's original work, each updated with information on recent work in evolutionary genetics. These chapters also conclude with Darwin's original summaries. The final chapter is Darwin's own "Recapitulation and Conclusion," from *The Origin of Species*.

Darwin's Ghost is, however, much more than an updating of Darwin's original theory. It is also a ringing and systematic rebuttal of creationist nonsense that has been set against the theory from the outset and that seems to be gaining legal force, at least in the 'Bible Belt' of the United States.

Space limitations make it impossible to provide an adequate sample of the vast amount of information in this book. However, I can provide an unnatural selection of nonrandom nuggets that please this anthropologist trained in both cultural and biological anthropology.

To show how chance mistakes function as the main force in evolution, an antidote to the teleology in creationism, Jones chooses the story of the AIDS virus in evolutionary terms: "AIDS is an illness of social change; of travel and of promiscuity. In the United States most infections are passed on by homosexuals, by drug injectors and by those unfortunate enough to receive a transfusion of contaminated blood. In Africa, India and Asia almost all cases come from sex between men and women or by transfer from mothers to babies. Like all diseases—or flowers or songbirds—the virus is delicately adjusted to the challenges it must face. HIV is bad at making exact copies of itself, which is one reason why it does so well." "AIDS' ability to cope with human vice is helped by its own sex life. Sex, in all its