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overdue. Relying on highly selective published extracts from Haeckel's archive is unsatisfactory because of the biases of various editors. Use of Haeckel's extensive correspondence and other materials, such as newspaper clippings, would have given Sandmann the opportunity of locating Haeckel in the changing socio-political context of Imperial Germany, as bourgeois opinion shifted from liberalism to support for a strong imperial state.

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JAVIER DeFELIPE and EDWARD G. JONES, *Cajal on the cerebral cortex: an annotated translation of the complete writings*, Oxford University Press, 1988, 8vo, pp. xvii, 654, illus., £50.00.

Cajal's monumental *Textura del sistema nervioso del hombre y de los vertebrados* (1904; French ed. 1911, repr. 1952) might be my first choice for desert island reading. Santiago Ramón y Cajal's (1852–1934) position in the history of the study of the nervous system is unique. When he began his work, the neuron doctrine, the idea that the brain is made up of individual cellular elements that do not fuse, was controversial. Cajal's studies provided the anatomical support for the fundamental idea of the independence of individual nerve cells. Camillo Golgi had previously discovered a technique that stains completely a small percentage of the cells in the nervous system. For the first time, the nerve cell could be revealed clearly with all of its axonal and dendritic processes. Cajal adopted the Golgi method to analyse the structure of all of the major subdivisions of the vertebrate brain.

This volume, which gives a fascinating insight into the structure of Cajal's thinking and ideas, presents in English translation all of Cajal's work on the structure of cerebral cortex. It includes material from the Spanish and French editions of his textbook as well as his original reports, many of which are now virtually unobtainable. Several of these were in Cajal's own journals, the *Revista trimestral Micrografica* and the *Trabajos del Laboratorio de Investigaciones Biologicas de la Universidad de Madrid*. These original reports help us to appreciate the building blocks of Cajal's great synthesis in the *Textura* and *Histologie*.

Although Cajal contributed a great deal to the anatomical study of the cerebral cortex, his work in this area was not as definitive as it was for some other structures of the brain. Very little has been added, for example, to his description at the light-microscopic level of the cerebellum or the retina. Nevertheless, the cerebral cortex is a good place to continue the work, and I hope we shall have more. The combination of Drs De Felipe and Jones is especially apt. The former is an anatomist whose native language is Spanish, and who is obviously competent to render Cajal's Spanish papers into readable English. Jones is one of the foremost current authorities on the anatomy of the brain. Translation of a 100-year-old anatomical report can prove difficult since the style often differs from the terse prose that is typical of today's journals. The authors have tried to preserve some of the flavour of Cajal's Spanish in the translation. One is reminded sometimes of Hemingway's *Old Man and the Sea*, where two men discuss the American baseball season: "I fear the tigers of Detroit".

This volume dispels some time-worn Cajal myths in the oral tradition of neuroscience. One held that Cajal looked down the microscope during the day and drew his figures in the evening, or even from memory. De Felipe and Jones show a photograph of a *camera lucida* from Cajal's lab and argue convincingly that he used it. They also photographed some of Cajal's original preparations, which are still in the museum in Madrid. Their photomicrographs make it clear that Cajal's figures rendered accurately the Golgi material that he prepared.

Some of the limitations in Cajal's anatomical descriptions, and indeed, some of his errors of interpretation, stem from the lack of precise methods for tracing connections in the brain. Cajal made little use of the then-available Marchi technique, which stains degenerating myelin products. At its best, Marchi is capricious and heavily biased in favour of large fibre systems. For establishing connections, Cajal preferred to trace axons from their cell of origin to their termination, using the Golgi method. Because of the difficulty in following an axon over a long distance, he used material from young animals with small brains. In a favourable preparation cut

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in the plane of the axon, it was sometimes possible to follow an axon from its cell of origin to its termination. Modern methods for orthograde and retrograde tracing methods have allowed a much more complete picture of the connections of the nervous system than Cajal could achieve. Also, because Cajal's studies were often based on embryonic or neo-natal material, they may in some instances give a slightly distorted picture if applied to the adult nervous system. We now know that many of the cells in the new-born brain die, and that the connections between areas may be transient.

This is a most valuable contribution to the study of the history of the nervous system. The authors have made available a major segment of Cajal's work in a competent translation along with scholarly comment on its significance. The book is essential reading for anyone interested in the origins of modern neuroscience.

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Sir WILLIAM OSLER, *The cerebral palsies of children* (1889), with a Foreword by Henry W. Baird, Classics in Developmental Medicine 1, London, MacKeith Press; Oxford, Blackwell Scientific; Philadelphia, J. B. Lippincott, 1987, 8vo, pp. viii, 92, illus., £10.00.

BRONSON CROTHERS and RICHMOND S. PAINE, *The natural history of cerebral palsy* (1959), with a Foreword by Sir Peter Tizard, Classics in Developmental Medicine 2, London, MacKeith Press; Oxford, Blackwell Scientific; Philadelphia, J. B. Lippincott, 1988, 8vo, pp. xv, 270, illus., £18.00.

ARNOLD GESELL, in collaboration with CATHERINE S. AMATRUDA, *The embryology of behaviour: the beginnings of the human mind* (1945), with a Foreword by T. Berry Brazelton, Classics in Developmental Medicine 3, London, MacKeith Press; Oxford, Blackwell Scientific; Philadelphia, J. B. Lippincott, 1988, 8vo, pp. xxi, 274, illus., £20.00.

MYRTLE B. MCGRAW, *The neuromuscular maturation of the human infant* (1962 ed.), with a Foreword by T. Berry Brazelton, incorporating a reprint of 'Professional and personal blunders in child development research' by Myrtle B. McGraw, Classics in Developmental Medicine 4, London, MacKeith Press; Oxford, Blackwell Scientific; Philadelphia, J. B. Lippincott, 1988, 8vo, pp. xxxvi, 117, illus., £18.00.

The series "Classics in Developmental Medicine" is an example of good craftsmanship. With the support of the Spastics Society, London, the four books printed to date are of a uniform format. The editorial board, by demanding a high quality of pictorial reproduction, the correction of the original printing errors, and the thorough review of bibliographies have added to the worth of this collection.

William Osler's five lectures on *The cerebral palsies of children* were first published in the *Medical News of Philadelphia* in 1888. Though the scientific merit of this work is limited, its historical importance lies in the fact that it was instrumental in popularizing the use of the term "cerebral palsy". On reading this work one is again struck by the clarity and vividness of Osler's medical prose.

The reprint of Bronson Crothers and Richmond S. Paine's *The natural history of cerebral palsy* comes as no surprise. However, the poor literary quality of this work makes it painful reading. The main argument of the book is the importance of growth in assessing the progress of children affected with cerebral palsy, in an effort to discredit reports of dramatic results obtained by intensive training programmes.

Arnold Gesell's *The embryology of behaviour: the beginnings of the human mind* is by far the most scholarly of the series. Beautifully written, it does not merely present facts but puts forward a well articulated and highly philosophical discourse on the physical substrate of human behaviour and the development of the human mind. This book stands as the contribution of an encyclopaedic man, and high-priest of the "maturation school" which opposed the behaviourist in the "nature-nurture" debate, to the understanding of the physical and psychological make-up of the human mind.

Myrtle B. McGraw's *The neuromuscular maturation of the human infant* is a clearly written short work that expounds the value of studying child development as a dynamic growth