

well performed neurological examination is a thing of beauty and is the key to a proper diagnosis. Nowhere in Neurology is that more true than in the realm of Neuromuscular Diseases. This is the theme of his work and the important aspects of examining the peripheral nervous system are highlighted throughout the eight chapters.

Dr. Russell highlights the importance of anatomy throughout each chapter, and he also helps to ease the understanding of anatomical variants in the peripheral nervous system. For example, multiple variants of Martin-Gruber anastomoses are described. He provides a very thorough review of the examination of each muscle supplied by peripheral nerves of the upper and lower limbs. Accompanying each description are colour glossy photos of the muscle being tested. Several pictures of the anatomy itself are included from the studies of Dr. Russell – many of these are actually from his own study notes as the shading of pencil crayons can be discerned. This combination of photos, drawings, and detailed text affords a beautiful appearance to each chapter.

There are a number of important examination tips emphasized, such as the significance of having the forearm fully flexed and pronated during the assessment of pronator quadratus. There are descriptions of hypotheses as to why the peroneal branch of the sciatic nerve is more susceptible to injury than the tibial branch. Thorough descriptions are provided for sites of nerve entrapments and syndromes affecting each of the portions of the peripheral nerves, including the brachial and lumbar plexi. There are no individual muscles or nerves neglected.

My complaints with the book are minimal and related to my own tendencies in examination of the peripheral nervous system. For example, he advises that the testing of opponens pollicis should be performed with both thumb and fifth digit placed in opposition together; this maneuver also tests opponens digiti minimi, and a more pure test of opponens pollicis may be to place the thumb, held in extension at the 1st distal phalangeal joint, in opposition to the metacarpophalangeal joint of the fifth digit instead where opposition of only the thumb is tested. Testing of the quadriceps muscle group should typically be performed without full knee extension, which may provide a mechanical advantage and prevent detection of weakness for this powerful muscle. Further comments about the limited sensitivities and specificities of Tinell's and Phalen's sign for median nerve entrapment at the wrist would be useful for the students reading the book. Overall, my comments about the negative aspects of this fine handbook are minimal.

Dr. Russell's book is a highly recommended resource for Residents in Neurology, Neurosurgery, and Psychiatry, and is also a useful tool for the Neurologist's office. At a recommended sale price of \$60, this is a colourful, insightful book into the art of the peripheral nerve examination. Personally, I am thankful that it is now part of my library.

*Cory Toth  
Calgary, Alberta*

**THE EMBRYONIC HUMAN BRAIN: AN ATLAS OF DEVELOPMENTAL STAGES. THIRD EDITION.** 2006. By Ronan O'Rahilly, Fabiola Müller. Published by John Wiley & Sons. 358 pages. Price C\$450.

This book contains a unique collection of drawings, photographs and photomicrographs of the human brain at all embryonic stages,

based on the authors' extensive personal work using the Carnegie Embryological Collection of serially sectioned human embryos. Its focus is on the embryonic period which comprises the first eight postfertilization weeks, when rapid morphological changes are occurring, and during which the vast majority of congenital anomalies appear.

The first six chapters provide important basic information on techniques, terminology and embryology needed to comprehend the remainder of the book. The Terminologies chapter emphasizes the importance of using clear nomenclature and has a particularly helpful table which lists the undesirable vs. preferable terms and outlines how the preferable terms improve descriptive accuracy. The main planes used in anatomy are defined and shown in drawings.

The authors use the Carnegie system for embryonic staging, which divides the embryonic period into 23 stages, based on internal and external morphologic criteria, rather than age or length. Emphasis is placed on the description of neuromeres (subdivisions of the developing brain transverse to the longitudinal axis) and the concept of segmentation. Stages 1-7, which occur before the first morphologic indication of the Nervous System are summarized in Chapter 7. Chapters 8-23 provide very detailed reviews of embryology of the nervous system at each stage. Chapters begin with a clear summary of the important morphologic features and a drawing of the embryo at each stage. For each 2-dimensional photomicrograph section shown, the authors clearly indicate how that section relates to the embryo, allowing understanding of the embryology in a 3-dimensional aspect. Diagrams are of high quality and are well-labeled with clear legends. Colour coding for each derivative - telencephalon, diencephalon and mesencephalon to enhance this information. Most chapters end with a Neuroteratology discussion, in which clinical malformations that result from failure in normal development of that embryonic stage are explained.

A much briefer review of the fetal period, which the authors note is "characterized more by the elaboration of specific structures" and is resistant to a morphologically based staging system, is provided in Chapters 24-26.

The readability of this book is greatly enhanced by summary boxes, highlighted in green, which list important points and also summarize key areas. Summary tables are well-organized, listing crucial information in point form. However, while several genes implicated in development of the human nervous system are summarized in Table 23-1, there is relatively little emphasis on genetic causes of cerebral malformations or the potential mechanisms of these.

This book accomplishes its objective of providing a detailed review of the morphology of the human brain by succinct, descriptive summaries of each embryonic stage of human brain development and detailed, vibrant photomicrographs and drawings. This clarity in comprehension of the embryonic stages of the human brain will greatly enhance the clinician's understanding of brain malformations, their imaging characteristics and clinical relevance, and will be essential to students of neuroembryology and neuroanatomy.

*Elaine Wirrell  
Calgary, Alberta*