Book Reviews

**Developmental Biology. 10th Edition.**
*By Scott F. Gilbert.* Sunderland, MA: Sinauer Associates; 2014. 719 p. US $114 (Hardcover). ISBN 978-0878939787.

At the core of biology is the study of development. How do organisms from all modes of life grow from one single cell to a complete and functional body? How do we know to establish “right” from “left,” or know to form a certain number of fingers and toes? Why can some organisms regenerate organs, while others must do without if they are lost? What processes occur as a tadpole becomes a frog? As the author states in the preface, “Metamorphic change is in the nature of science.”

Since the first edition of this textbook was written in 1985, the field of Developmental Biology has undergone a revolutionary metamorphosis from experimental embryology to developmental genetics and now integrates anatomy and genomics and systems theory to try and provide a comprehensive understanding of the developmental transitions that occur as organisms grow. This textbook seeks to describe developmental processes from all of these perspectives and is extremely successful at doing so.

Written primarily for the undergraduate student, Gilbert’s 10th edition starts at the beginning: the cycle of life. It quickly moves on to differential gene expression, a topic that most certainly has been expanded upon since the editions of previous years. The majority of the text focuses on the ever-popular stem cell: specification and cell commitment, organogenesis, embryonic development. One thing that this text does superbly well is incorporate the developmental paradigms of numerous species, including, but not limited to, *drosophila*, tunicates, zebrafish, frogs, birds, and, of course, humans. The text takes classic experiments dating back to the 1700s and successfully brings them up to date with fantastic fluorescent images and high resolution microscopy techniques. The diagrams that are found on nearly every page are clear and helpful, especially as a supplement for the photos. The final section of the book is on Systems Biology, or the expansion of developmental biology to medicine, ecology, and evolution. This final section, while the shortest set of chapters, will surely be expanded upon in the upcoming years.

Overall, the text is all encompassing, but if the reader wants to learn more, the 10th edition also comes with a registration code for the DevBio online laboratory. This extensive website companion to the text contains additional information on many of the subjects of the text, as well as historical and ethical perspectives on issues in developmental biology today. For the student, the videos, technique instruction, and study questions found on the site may be incredibly helpful.

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**Human Identity and Identification.**
*By Rebecca Gowland and Tim Thompson.* Cambridge, UK: Cambridge University Press; 2013. 233 p. US $45.00 (Paperback). ISBN: 978-0521713665.

Human bodies are both biological and social in nature. Biological in their corporeality, constantly carrying out multitudes of physiological processes. Social in that we rely upon our bodies to carry forth our in-
teractions with the world. It is through our bodies that we undertake our daily activities, pursue our goals, and interact with each other. However, the body is not a mere vessel that houses the true self, but is constitutive of that self. Our physical bodies are crucial to how we see ourselves and how others see us. They are fundamental to our identities, where our bodies serve as a locus for classification and separation, but also for inclusion and kinship. How do people identify each other? What features are unique to each person? And how does the biological body shape a person’s social body and vice versa? Rebecca Gowland and Tim Thompson explore these and other questions as they discuss the many features that constitute people’s biological and social identities and how these features are used in identification.

In the opening chapter, Gowland and Thompson set out to merge the literature concerning the physical identifiers of the body with scholarship that examines how the social environment shapes the biological body. They give an overview of the history of human identification and disciplines that rely on identifying the physical body, such as forensics and archaeology, and touch upon some early examples of the intersections between social thought and the body. The second chapter discusses various social categories, including gender, age, race, and socioeconomic status, and their relationship to the body. These categories reflect ideas of sameness and difference but have fluid, overlapping boundaries that intersect with each other at political, biological, and personal levels. The subsequent chapters divide the body into various systems, working their way from the visible outer layer to the inner molecular mechanisms. Each of these chapters discusses the physiological features of the systems, giving general overviews of some of their functions and mechanisms. They then delve into how various components of these systems have been used for identification purposes, explaining the features that are unique to each person. They examine the ways in which the social categories introduced in Chapter 2 shape the physical body and vice versa, affecting how we see and interpret ourselves as well as each other.

This book aims to move the field of human identification sciences toward a more holistic and nuanced perspective by incorporating social dimensions of identity and their effects on the body and the person into anatomical and physiological discussions of human identification. In this attempt, the authors are largely successful, merging disciplines that have distinct perspectives. However, because their scope is so large, they do not delve into either the physiological or social dimensions of identity and identification in great detail, giving instead general overviews. Thus, those already familiar with either area may wish for more specificity and detail but will find novel perspectives and additional points to consider in the less familiar areas. The book is quite readable even for those unfamiliar with any of the areas and can serve as a helpful introductory text.

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Basics of Quantum Electrodynamics. By Ioan Merches, Dorian Tatomir, and Roxana E. Lupu. Boca Raton, FL: CRC Press; 2013. 338 p. US $129.95 (Hardcover). ISBN: 978-1466580374.

Quantum electrodynamics (QED) is the relativistic quantum field theory of electrodynamics and describes the interactions of charged particles. It can similarly be viewed as a perturbation theory of the electromagnetic quantum vacuum. The emergence of QED allowed physicists to explain phenomena such as the magnetic moment of the electron and the Lamb shift, as well as general interactions of light and matter. Currently, QED theory is an effective tool for many physics problems involving elementary particles, atomic nucleus, and solid state. The opening chapters deal with the general theory of free fields and establish a method to derive the fundamental quantization laws valid for any field. The theory developed is then ap-