

THE FLEXIBLE PHENOTYPE: A BODY-CENTRED INTEGRATION OF ECOLOGY, PHYSIOLOGY, AND BEHAVIOUR.

By *Theunis Piersma and Jan A. van Gils*. Oxford and New York: Oxford University Press. \$117.00 (hardcover); \$52.95 (paper). ix + 238 p.; ill.; name and subject indexes. ISBN: 978-0-19-923372-4 (hc); 978-0-19-959724-6 (pb). 2011.

To many biologists, physiology is simply the study of the functions of living organisms and systems. But physiology is also about studying how living organisms adjust and adapt these systems to the adversities of their environments. In today's reductionist world of modern biology, we often forget how important it is to understand how organisms are designed to function in the world outside of the laboratory or petri dish. In their book, Piersma and van Gils integrate (eco)physiology, behavior, and ecology to emphasize the intimate connections between animal bodies and their environments. The central theme of their work is that animals can "express ecology" by being plastic, or by taking different structures, forms, or compositions in different environments. Although it serves to provide a general overview related to all animals, the central players in this text are really migrant shorebirds, particularly the red knot.

The volume itself is layered like an onion, becoming increasingly broad in scope as each successive section is introduced. The first part focuses on basic physiology, with chapters emphasizing organismal design, energetics and metabolism, and the costs/benefits of different systems. Part II then layers on the role of the environment, with chapters that discuss phenotypic adaptation, design constraint, and phenotypic plasticity. In both of these parts shorebirds play a small, but consistent role, surfacing toward the end of each chapter. After the environmental layer comes behavior, with chapters about optimal foraging and other such behaviors. Here shorebirds play an increasingly important role in the story, as larger portions of each chapter are devoted to their accounts. The final part begins to integrate the previous topics with other aspects of the environment, including disease and predation and general population patterns. This part also begins to discuss how physiology and phenotypic plasticity relate to larger biological themes such as conservation and evolutionary biology.

Overall, the book does an excellent job of covering a large range of interesting topics in an approachable way, especially for nonphysiologists. Although it is a generally a well-balanced view, I was surprised that there was no section on endocrine physiology, as hormones are important for how bodies respond to and cope with environmental adversity. Finally, although the volume briefly

touches upon the role of evolution in phenotypic plasticity toward the end, I would have liked to have seen more linking ecological and evolutionary processes to phenotypic plasticity and adaptation via physiology, as this is an exciting interdisciplinary crossroads that surely deserves additional thought.

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ONLINE GUIDED GROSS ANATOMY DISSECTOR.

By *Carlos A. Suárez-Quian*. Sunderland (Massachusetts): Sinauer Associates. \$59.95 (One-Year Online Subscription). 2011. [*Requirements*—Recent version of an Internet Browser (Internet Explorer 8, Firefox 3.6, Safari 5). Videos require either Adobe Flash Player or a browser that supports HTML 5.]

The author states that important factors motivating the creation of this dissector were that, to a large extent, existing dissecting manuals rely on written instructions that are dense and difficult to follow, and actual dissection techniques are impossible to learn. The current work hopes to avoid these drawbacks and was designed to be viewed in the human anatomy dissection laboratory. It consists of roughly 1600 photographs and 45 narrated videos. The photographs are not of the high quality as seen in good photographic atlases. The video quality struck me as equivalent to that of well-done home movies. Some of the photographs are used to indicate sites where incisions should be made and the direction in which cut structures should be reflected, but the majority illustrate structures that the dissection should reveal. Adjacent to each picture are structure names; when selected, their positions are revealed on the photograph. Self-test flashcards are presented at the end of subsections. Many of the videos show how to perform a specific procedure, but some actually cover the anatomy to be seen. It is very easy to navigate through the dissector.

The labeling of photographs and the narration of videos are not error free: accessory nerve was labeled as supraclavicular nerve, tendon of long head of biceps brachii was labeled as superior glenohumeral ligament, labels for incus and malleus were reversed, intercostal arteries were said to be intercostal nerves, and the superior mesenteric nerve plexus was said to be thick strands of connective tissue that represent autonomic vessels, to name just a few. It should have been easy to correct errors in such an electronic document.

I do not accept the premise that motivated the author. Although some students may prefer this dissector to more traditional instructional methods, there is a growing number of electronic