

## Reviews

### Rudolf Magnus, Physiologist and Pharmacologist: A Biography

By Otto Magnus Amsterdam, Kluwer Academic Publishers, 2002 350 pp, \$63.00

At about the time of the First World War, Rudolf Magnus made a major contribution to our understanding of posture and tone. He and his collaborators, de Kleijn, van Leeuwen, and Rademacher, demonstrated that there were tonic reflexes that originated in the neck, which played a powerful role in establishing the normal distribution of tone and attitude. As later shown by Fukuda, these neck reflexes underlie much natural movement and are commonly observed during dance and sport. In his Croonian lecture of 1925, Magnus gives a clear definition of tonic reflexes: "These reflexes are called tonic, because they last as long as the head keeps a certain position; and that not only for minutes and hours, but for days, months and even years." He was aware of two classes of tonic reflexes, "those that originate in the labyrinthine and depend solely on head position in space. These can be contrasted to the neck tonic reflexes when depend only upon the position of the head on the neck and are independent of body position in space." Magnus also showed that there was a shift in excitation, so that a reflex evoked with the head straight can be much different than when the neck is flexed. The classic picture of the anencephalic infant with its head turned to the side, with the "viewed" limb extended, and the contralateral limb flexed, is the epitome of the neck reflexes that underlie normal posture. Magnus also showed that the neck reflexes caused the forelimbs to extend when the head was flexed back and the forelimbs to be flexed when the neck was flexed forward. Finally, he and his group demonstrated that processing for the neck reflexes is in the upper cervical segments, whereas the vestibulospinal reflexes are processed in the medulla. For this brilliant series of experiments, which are described in *Körperstellung* [Body Posture], published in 1924, Magnus was nominated for a Nobel prize in 1927 when his career was prematurely cut short by a heart attack.

In this book, Magnus' son, Otto, chronicles the family background and Magnus's daily life and activities from a boy until his death. Much of the early part of *Rudolf Magnus, Physiologist and Pharmacologist: A Biography* is concerned with details of the lives and diaries of Magnus's ancestors, which seems somewhat off the mark, although it does emphasize the close family ties that contributed to his development. When Otto Magnus deals with his father and their forebears, it is primarily to detail his comings and goings, and there is relatively little about the scientific controversies and issues that concerned scientists of the time. To some extent, Otto may have been too close to his father to vitalize him, as would an independent biographer, who might have been better able to sift the wheat from the chaff and make the scientific life of his father come alive. On the positive side, Otto Magnus included the text of the Croonian Lecture that Magnus gave in London in 1925, in which he summarizes much of his work on posture, and the Lane lectures, given at Stanford in 1927, in which he described his experiments in pharmacology, on the gut and lung, as well as on posture. Aside from recognizing that Magnus was dynamic,

hard-working, and probably a good executive, however, the master never really comes alive in this rendition.

Despite its shortcoming, *Rudolf Magnus, Physiologist and Pharmacologist: A Biography* gives us fresh insight into Magnus' life and work. Currently, relatively little is known about him, probably primarily because of his early death. But Magnus discovered and laid the basis for study of the powerful effect of neck reflexes on posture and tone. These reflexes are still not well understood, particularly their role in natural movement, nor do we know much about the pathology that follows disruption of these neck reflexes. One possible outcome of *Rudolf Magnus, Physiologist and Pharmacologist: A Biography* could be to divert attention to the processes that originate in the neck and vestibular system that control movement and posture in three-dimensional space.

In summary, *Rudolf Magnus, Physiologist and Pharmacologist: A Biography* is an interesting but unfortunately not a compelling work. It does put the development of a man who made major contributions to physiology into historical perspective and makes the point that but for his untimely death, he undoubtedly would have been more widely recognized as a giant of early 20th century physiology.

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### Rabies

Edited by Alan C. Jackson and William H. Wunner San Diego, Academic Press, 2002 493 pp, illustrated, \$129.95

A whole book on a disease that has killed only zero to six Americans per year over the past 30 years? Yes, and a very good one!

From a global view, about 50,000 people, half of them children, die of rabies every year. In India alone, 30,000 are stricken with this uniformly fatal infection. In addition, many millions receive postexposure therapy every year including about 30,000 in the United States. With new cell-culture vaccines available in affluent countries, the morbidity of postexposure therapy has been minimized, but the public panic and expense have not diminished. A few years ago, a single rabid kitten in a New Hampshire pet store led to the postexposure treatment of 665 persons at a cost of over 1 million dollars for biologics alone.

The history of rabies is rich and colorful. Early experiments with rabies were the first to show that a virus can travel up nerves to the brain and spinal cord. The infection is unique in modifying behavior to drive the "mad" host to transmit the virus by biting. The ecology of the virus among bats and wild animals is a naturalist's fascination. All of these issues and more are addressed by an outstanding group of authors in *Rabies*.

Those interested in infectious diseases and international health will obviously be pleased by *Rabies*, but I think others with broad biological interests will also enjoy it.

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