caré-Bendiron theory of singular points and limit cycles; some graphical methods and the van der Pol and Poincaré methods of approximation are also included. The first chapter introduces some of the main ideas by means of linear oscillations, but the rest of the book is devoted to the nonlinear theory. There are many examples taken from electrical and mechanical systems.

The authors here, and even more in the original, seem to be interested primarily in obtaining geometrical configurations, secondarily in the stability of electric circuits and mechanical systems, and comparatively little in accurate quantitative estimates for periods and amplitudes. We must be grateful to the editor for condensing the mathematical machinery, which goes much beyond possible applications. So far as I can see, from a very brief glance at the original, considerable sections have been rewritten, and the notation has been clarified in many places. The supplement with the oscillographs shown in Minorsky has been omitted, the introduction has been drastically cut and also the list of references, although it contains some new ones. Appendices B and C contain material from other sources, but the proof in B does not cover such a long time interval as the one it replaces.

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Venins de serpents et antivenins. (Collection de l'Institut Pasteur.) P. Bocquet. Paris: Flammarion, 1948. 157 pp.

This book offers the reviewer a fine opportunity to make philosophical observations about biological phenomena, and biological observations about philosophical phenomena. Reading the first chapter, which briefly reviews facts that are common knowledge, one wonders how the snake came to be both dreaded and worshiped. It had fundamental significance in mythology and religion, it has been linked with death and immortality, and it was made the symbol of the eternal striving of mankind to explain itself. On the other hand, one wonders about what sort of vagaries and intricacies in the evolutionary process joined in the salivary secretions of snakes substances endowed with such powerful physiological and pathological effects—effects studied by specialists in fields ranging from neurophysiology to acute, invasive infection.

The obvious truth that a thorough analysis of any biological phenomenon must of necessity take a student from his own specialized field into broader and more fundamental spheres seems to find its clearest example in snake venoms, which are a challenge to limitation, and an invitation to universality in biological thought. This is, no doubt, the reason why such illustrious names as Claude Bernard, Delezenne, Weir Mitchell, Calmette, and Arthus are associated with the history of research on snake venoms, and this is why in our days venoms are assiduously studied by penetrating minds. It looks, indeed, as if the amazing properties of snake venoms had the same fascinating effect on the mind of the modern biologist as they had on the mind of the primitive man.

There was an urgent need for a book such as the one written by P. Bocquet, because those published in the past by Calmette and Physalix in France, Noguchi in the United States, Belfanti and Fracassini in Italy, Picado in Costa Rica, and still others, valuable as they are, are now dated. The book, which can be read in a few hours, is divided into 14 chapters. The first chapter offers pertinent historical data; the next four chapters deal with the toxic secretions in the animal scale, anatomy and function of the poison glands, and the natural and experimental poisoning. The sixth chapter, which is the longest, reviews first the effects of venoms on the nervous, muscular, and circulatory system, on the blood, and on cells and tissues. Then it analyzes the varied enzymatic content in the poisonous secretions, and finally it studies the action of different venoms on microorganisms, vegetal cells, and enzymes. The three following chapters consider the effects of physical and chemical agents on venoms, the chemical constitution of venoms, and variations in their toxicity, as depending on geographical and seasonal factors. The tenth chapter deals with the classification of the venoms. The last four chapters are concerned with problems of natural and acquired immunity, and the preparation of antipoisonous sera; with treatment of snake bite; and finally, with the therapeutic applications of snake venoms. The many subjects approached are treated in an authoritative manner and with characteristic French clarity. The author discusses the effects of snake venoms on the nervous, circulatory, digestive or respiratory system with perfect mastery of the sciences of physiology and pharmacology, and his classification of venoms in relation to other toxins, enzymes, and poisons shows an excellent knowledge of toxicology and bacteriology. Also, his analysis of the phenomena of natural and acquired immunity reveals a solid background in immunology, as do the precise directions for the preparation of efficient antivenimous sera.

To understand how the author, still a young man, could have accomplished his task as successfully as he did, one must remember that he has lived all his life in the atmosphere of the Pasteur Institute of Paris. Paul Bocquet is the son of an illustrious Pasteurian, Alfred Bocquet, to whom the book is dedicated and who, in turn, was the closest collaboratory of A. Calmette, the head of the brilliant School of Tuberculosis of the Pasteur Institute, and the discoverer, more than forty years ago, of the antiophidean serum-therapy. The author is himself the present head of this department at the Pasteur Institute. Bordet, still another brilliant member of Pasteur's school, reminds the reader of all these circumstances in the foreword he has written for the book.

This book, therefore, besides being the expression of an individual effort, is an exponent of continuity of one of the most brilliant schools in biological thought of the last seventy years. Bocquet's name is to be ranged with the names of so many other workers of the present Pasteur Institute who indefatigably persevere along a great tradition despite almost overwhelming financial odds and political events too recent to need recounting.

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