

**POISONOUS PROTEINS; THE  
HERTER LECTURES FOR 1916  
GIVEN IN THE UNIVERSITY AND  
BELLEVUE MEDICAL SCHOOL,  
NEW YORK**

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**VICTOR C. VAUGHAN**

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# POISONOUS PROTEINS

THE HERTER LECTURES FOR 1916 GIVEN IN THE  
UNIVERSITY AND BELLEVUE MEDICAL  
SCHOOL, NEW YORK

BY

VICTOR C. VAUGHAN, M.D., LL.D.

DEAN OF THE UNIVERSITY OF MICHIGAN MEDICAL SCHOOL

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## PREFACE

As stated on the title page this little book is made up of the Herter Lectures given in 1916 at the University and Bellevue Medical School, New York. These lectures were published in the *Journal of Laboratory and Clinical Medicine*. There has been some demand for reprints, of which none were made. I have, therefore, gladly acceded to the request of the publishers, The C. V. Mosby Company, who have offered to present them in the present form. The researches upon which they are founded have occupied much of my time for many years, and have given me a concept of the nature of infection, quite different from that usually taught.

Hoping that, in this form, my studies may be helpful to my fellow-workers in the profession, I submit this booklet to them.

THE AUTHOR.

Ann Arbor, Mich., 1917.

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## INTRODUCTION

In nature all proteins are the products of life and each kind of living molecule elaborates and contains its own specific protein. Some forms of life are capable of constructing their proteins out of inorganic matter, while others can utilize only that which has been built up by other cells into protein material. Plants take the ammonia, nitrates and nitrites of the air, soil and water, and by synthetical processes convert these into the proteins found in their tissues. In this process there are two stages. In the first the inorganic nitrogen is synthesized into amino acids and in the second these are combined to form proteins. The higher animals cannot synthesize inorganic nitrogen into amino acids. This is done for them by plants and to some extent by bacteria in conjunction with plants. By the symbiotic action of certain bacteria and plants even the free nitrogen of the air is drawn upon in the construction of vegetable proteins. So far as protein metabolism is concerned the vegetable world is the synthetical or constructive labora-