

## Cell Poisons

It is a never ending source of surprise in the study of plants to find that from the same soil and moisture and air at once the most nutritious and healthful and the most poisonous substances may be elaborated. The active agents in this manufacture of such different materials are the cells of the plants that in themselves present scarcely noticeable differences of structure. The present volume \* consists of a series of studies of the toxic substances that are elaborated by the various cells in the human organism, as well those which are naturally components of the tissues as those which accidentally become tenants of the human body. This includes first, then, the study of bacterial products that are poisonous, then of various food materials that prove toxic, and finally of certain products of the living cells of the human body itself that may under special circumstances prove toxic even for human tissues, producing a true self-poisoning.

The book gives an excellent idea of how complex is the chemistry of the human body and serves at the same time to show, notwithstanding recent progress, the limitations of our knowledge in this

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\* **CELLULAR TOXINS, OR THE CHEMICAL FACTORS IN THE CAUSATION OF DISEASE.** By *Victor C. Vaughan, M.D., LL.D.*, Professor of Hygiene in the University of Michigan, and *Frederick H. Novy, M.D., Sc.D.*, Junior Professor of Hygiene and Physiological Chemistry in the University of Michigan. Fourth Edition, Revised and Enlarged. New York: Lea Brothers & Co. \$3.00, net.

matter. The old herb doctors insisted, as do the modern advertising remedy makers, that their remedies being purely vegetable could do no possible harm. As a matter of fact, the vegetable world supplies poisons much more powerful than the mineral kingdom. Strychnine, atropine, aconitine, conine from hemlock and nicotine are examples. It is not so surprising then to find that the microscopic plants, the bacteria, produce intensely poisonous substances. Some of these, however, are only poisons because reactions which they produce in the tissues cause subsequent toxic modifications of normal secretions, just as others are neutralized by combinations with substances in the body cells.

The chapter on ptomaines, the poisons found in dead tissues, brings out very clearly the limitations of chemical knowledge with regard to the alkaloids, and practically all the strong vegetable poisons occur in this form. Many observations show that the recognition of such substances as morphine and aconitine when used for criminal poisoning purposes and once absorbed into the tissues is practically impossible in the present state of our information.

The book concerns itself, however, not only with poisons, but also with the neutralizing antidotes nature supplies to overcome the poisonous products of bacteria, and especially for the destruction of the bacteria themselves. These substances, the so-called precipitins, the lysins and the agglutinins, are the most interesting products at present engaging the attention of physiological chemistry. The whole work is an index of progressive American scholarship, a good example of the fruits of faithful investigation, prolonged experimentation and observation, and wide critical reading.

While this is the fourth edition, the book now appears under a new name and is practically a new work.