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Citation for Chemical Breakthrough



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THE ISOLATION AND CRYSTALLIZATION OF THE ENZYME UREASE.

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After work both by myself and in collaboration with Dr. V. A. Graham and Dr. C. V. Noback that extends over a period of a little less than 9 years, I discovered on the 29th of April a means of obtaining from the jack bean a new protein which crystallizes beautifully and whose solutions possess to an extraordinary degree the ability to decompose urea into ammonium carbonate.



FIG. 1. Photomicrograph of urease crystals magnified 728 diameters.

I present below a list of reasons why I believe the octahedral crystals to be identical with the enzyme urease.

1. The fact that the crystals can be seen by the microscope to be practically uncontaminated by any other material.
2. The great activity of solutions of the crystals.
3. The fact that solvents which do not dissolve the crystals extract little or no urease and that to obtain solutions of urease one must dissolve the crystals.
4. The fact that the other crystallizable jack bean globulins, concanavalin A and B, carry with them very little urease when they are formed from solutions that are comparatively rich in urease.
5. The unique crystalline habit of the octahedra and their ready denaturation by acid.

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