This compound is easily obtained in a pure condition crystallizing as colorless needles, and melting without decomposition at 221°. No reducing substance is formed by mild hydrolysis with hydrochloric acid. The compound is converted by intense hydrolysis into soluble products which easily reduce Fehling's solution. We are now engaged in the study of this interesting compound and are planning to utilize our new reaction for the synthesis of other sugar-pyrimidine and sugar-purine constructions (nucleosides), several of which are known to be formed by degradation of the nucleic acid molecule. A study of the pentose sugar-ribose will be incorporated into this research. We hope to be able to obtain data by synthetic methods, which will enable us to determine conclusively the nature of the sugar linkage in nucleosides, and also the position of attachment of the sugar in the pyrimidine and purine rings. The final results of our research will be published in the *Journal* of the American Chemical Society.[1]

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CRYSTALLINE PEPSIN

A CRYSTALLINE material has been obtained which has the properties of the enzyme pepsin, in that it hydrolyzes gelatin, casein, egg albumin and edestin in acid solution and is rapidly inactivated by alkali or heat. The composition and activity remain constant through at least seven successive crystallizations and the crystals have constant solubility on repeated washings in dilute hydrochloric acid. There is evidence, therefore, that the material is a pure substance. It crystallizes in small hexagonal prisms from 0.01 to 0.10 mm long, sometimes separate and sometimes in clusters. It is insoluble in 0.001 M HCl (pH 3.0) and soluble in acid or alkali. It is precipitated by half saturation with ammonium sulfate, by copper salts, uranium acetate, lead acetate, trichloracetic acid and safranin and coagulates on boiling. It contains 14.5 per cent. nitrogen and has a diffusion coefficient in water at 8° C. of 0.085 cm² per day corresponding to a molecular weight of about ten thousand.

The activity is about 1: 20,000 U. S. P. and is therefore less than some amorphous preparations.

[1] The authors have been able to make this preliminary report at this early date as a result of the kindly cooperation of Dr. P. A. Levene, of the Rockefeller Institute for Medical Research in New York City, who arranged for the microchemical analysis of our compound, and also that of Dr. C. H. Hudson, of the Hygienic Laboratory in Washington, D. C., who kindly furnished pure bromotetraacetyl-glucose for our preliminary work. (T. B. Johnson.)

The crystals were prepared from commercial[1] 1: 10,000 pepsin by dialysis of a concentrated solution under pressure at pH 3.0 and 5° C. until a heavy precipitate forms. The suspension is then stirred at 37° C. for an hour, filtered, and the filtrate allowed to cool slowly. The crystals separate after about 24 hours and continue to form for several days. The yield amounts to one or two per cent. of the original material. Recrystallization is carried out by dissolving in dilute sodium bicarbonate at 37° C. and precipitating with dilute sulfuric acid.

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CONCERNING RETINAL PRESSURE IMAGES AND THEIR BROWNIAN-LIKE MOVEMENT

IF the writer's own experience is any criterion, many persons in their youth discovered by chance that slight pressure continued for a short time on the eyeballs would elicit luminous manifestations in the subjective optical foreground which resolved themselves into flickering or vibrating mosaic-like designs of great intricacy and beauty. Kaleidoscopic in their variety, and in their symmetry, delicacy and intangibility more fascinating than snow crystals, they have perhaps served many of us as a pastime.

Upon closing the eyelids and pressing gently on the front of the eyes with the tips of the fingers, there begins, after a pause of a few seconds, a fantastic play of light and dark geometrical figures, the vividness of which is dependent among other factors upon the state of rest or fatigue of the visual elements. That is, in one experiment the bright divisions of the optical field may appear brighter and the dark divisions darker than in a second trial performed soon after when their dimness or the lack of contrast between them is such that the observer is unable to analyze or even to distinguish the pattern they compose. The sequence, however, in which the different kaleidoscopic designs follow one another relatively quickly is remarkably constant. But their individual units are never stationary; they oscillate or quiver with the rapidity and degree of excursion of Brownian motion.

I may be permitted to indicate a few of the conspicuous phases of the phenomenon. After the initial latent period, the dominating impression, as the light tracery crystallizes, so to speak, upon the shadowy foreground, is an involved checkerboard design consisting of thousands and thousands of facets. Indeed the regularity and symmetry with which these are arranged remains the basic plan despite the successive modifications in their form. From zone to zone the

[1] Parke Davis pepsin, U. S. P. 1: 10,000.