

into a red product from which we have been able to separate a series of pigments, by a combination of chemical and physical methods. These pigments are glycosides which contain, in addition to carbon and hydrogen, both nitrogen and sulphur. The occurrence of the latter element in a pigment of vegetable origin has, so far as we are aware, not been recorded before, and we think this observation of sufficient interest to warrant its publication in this form, reserving the detailed description of these new substances for a future occasion.

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¹ Haas and Hill, *Biochem. J.*, 19, 236 (1925).

A Specific Reaction for the Qualitative and Quantitative Determination of Ascorbic Acid in Serum

ON the findings in some yet unpublished studies on the reducing power of ascorbic acid in phosphate-chloride mixtures, we have developed a specific method for demonstrating ascorbic acid in very weak concentrations. If a little ascorbic acid is added to a solution of methylene blue and the solution is exposed to strong light, the colour will disappear

completely within 30 seconds. This decolourisation is promoted by low pH and the presence of sodium chloride. Examination for serum ascorbic acid is therefore made with a stock solution consisting of KH_2PO_4 9 gm., NaCl 2 gm., c. 0.004 per cent methylene blue solution in 100 ml. 0.1 ml. of this solution is added to 0.9 ml. serum.

The mixture is exposed to the light of a 100-watt Nitra lamp, at a distance of 1 cm., for 30 seconds, and the intensity of the colour is compared to that of a control. Fading of the intensity of colour is distinct even with 0.1 mgm. per cent. The colour change is reversible in the dark.

This reaction to light is not produced by glutamine, ergotinine, creatine, creatinine, urea, adenine, guanine, hypoxanthine, xanthine, uric acid, cystine, phenol, haemoglobin; nor does any of these substances inhibit the reaction with ascorbic acid. A negative serum reaction became strongly positive 4 hours after the experimenter had taken 500 mgm. ascorbic acid by mouth.

The method may be employed for the quantitative estimation of ascorbic acid, through establishment of the titre by means of dilutions; and apparently also, in modified form, for determination of the ascorbic acid content of milk and urine.

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Points from Foregoing Letters

WHEN water moving with low uniform velocity encounters an obstacle, a 'capillary' wave appears, looking like a very fine thread or hair floating on the surface. W. Schmidt submits photographs showing this phenomenon when a gentle breeze is blowing over a lake or when a slow moving stream discharges into it. He points out that only a very thin surface layer is involved, and that this region of retarded motion shows mechanical properties analogous to those of an oil patch.

A drawing of the shape and position of the *Gegenschein* (faint luminescence of the sky seen opposite the direction of the sun) observed at sea, off the coast of Portugal, is given by Dr. Vaughan Cornish. Allowing for distortion due to uneven brightness of the surrounding sky, the luminosity of the *Gegenschein* appears to be symmetrically disposed.

Photograms comparing the intensity of light in the auroral spectrum at night with that under the influence of the sun are submitted by Prof. L. Vegard and E. Tønsberg. They find in daytime an enhancement of certain bands, the red line 6300 Å. being four to five times stronger relative to the green line. This, the authors consider, is probably due to the influence of the ozone produced by the sun's rays.

Experiments with pea seedlings, carried out by Miss S. v. Hausen to prove the growth-promoting properties of vitamin C, are reported by Prof. A. I. Virtanen. By removing the cotyledons at a suitable stage, the seedlings are deprived of 90 per cent of their vitamin C, and die or remain dwarfed. The addition of vitamin C enables them to develop and even to produce normal blossoms.

Prof. J. S. Huxley and Dr. G. Teissier suggest the term *allometry* to denote growth of a part at a different rate from that of the body as a whole, and *isometry* when the growth-rate is the same. They further discuss the meaning of several other terms, and suggest a uniform notation for the factors involved in the elementary law of relative growth.

The absorption cross-sections of γ -rays (to produce negative and positive electron-pairs) per atom of tin (atomic number $Z = 50$), terbium ($Z = 65$) and zinc ($Z = 82$) have been determined by J. C. Jaeger. He finds that, by comparison, the Born approximation gives results which are too low, but the error decreases rapidly with decreasing atomic number and increasing energy of the γ -rays.

Prof. R. C. Colwell and A. W. Friend state that, with a short radio pulse and a rapid sweep on the receiving oscilloscope, it is possible to resolve the 'ground' wave into two or three parts, one or two of which are waves reflected from a low-lying region in the ionosphere. These layers are about 20 km. and 45 km. above the ground on the average, and are strongly reflecting for waves in the broadcast band. The lower one rises and falls with changes in the barometric pressure.

On irradiating with X-rays the uteri of horse roundworms, M. J. D. White finds that long chromosomes of the first cleavage division have broken up into three fragments, still attached to the spindle (a fibrous structure which plays an important part in nuclear division). He gives diagrams of chromosome arrangements during stages of nuclear division to support this indication of multiple attachment of chromosomes to the spindle.