which had been treated with 0.1 KCN and then with water. The solution was allowed to stand until it became concentrated by evaporation: it then appeared black. It was found that where the nuclei had been squeezed out of the cut cells by the knife they had taken up some stain but not more than the cytoplasm. In cells which were merely cut open there was little or no staining.

We must therefore conclude that oxidation occurs more rapidly in the nucleus than elsewhere in the cell. The only way to escape this conclusion would be by assuming that at the moment of injury there is a sudden migration into the nucleus of some or all of the substances necessary for the oxidation. This is not only very improbable from a theoretical standpoint, but observation shows that it can not be the case, for in this migration the substances would mingle and produce the pigment either outside the nucleus, or at its surface, before any pigment appeared in the interior of the nucleus. Observation of the nucleus shows that the pigment appears as soon within the nucleus as at its surface.

We may therefore conclude that the substances necessary for oxidation do not suddenly migrate into the nucleus at the moment of injury but that they must exist there before the cell is injured.

We may ask why the nucleus does not become darkened in the normal condition of the cell. The investigation of several workers have made it probable that the pigments produced by oxidation under normal conditions are at once reduced, giving up their oxygen to other substances in the cell. When injury occurs the reduction is checked more than the oxidation, with the result that the pigment accumulates.

It is also probable that in many cases the injury brings the cells into contact with more oxygen than under normal conditions.

In order to compare these results with those produced by the indophenol reagent, leaves were placed in a mixture of equal parts of alpha naphthol (saturated aqueous solution) and para phenylene diamine (1 per cent. aqueous solution). If the reagents are freshly made up there is little action, but if they have stood long enough to take up oxygen or if H_2O_2 is added a purple color develops in the cells, which eventually becomes deeper in the nucleus. The result depends greatly on the condition of the reagent and the rate at which it penetrates the tissue.

The general conclusion is that while the indophenol reaction indicates that the nucleus is the center of oxidation it does not give as definite information on this point as does the formation of natural pigments within the cell resulting from the oxidation of substances normally present.

SUMMARY

Injury produces in the leaf-cells of the Indian Pipe (*Monotropa uniflora*) a darkening which is due to oxidation. The oxidation is much more rapid in the nucleus than in the cytoplasm and the facts indicate that this is also the case with the oxidation of the uninjured cell.

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SOCIETIES AND ACADEMIES

AMERICAN MATHEMATICAL SOCIETY

AT the invitation of Adelbert College and the Case School of Applied Science, Cleveland, Ohio, the twenty-fourth summer meeting of the American Mathematical Society was held at these institutions on Tuesday, Wednesday and Thursday, September 4–6, 1917. This was the society's second visit to Cleveland, the annual meeting having been held there in the winter of 1912–1913. On the present occasion the interest was reinforced by the meeting of the Mathematical Association of America, immediately following on September 6–7. The arrangements, which were in charge of a committee representing both organizations, included a joint session on Thursday morning, at which Professor L. P. Eisenhart presented an address on "Darboux's contribution to geometry," and a joint dinner on Wednesday evening, attended by seventy-six members and friends, to whom President Thwing, of Western Reserve University, spoke a word of welcome, which was followed by a number of informal responses to the calls of the toastmaster, Professor E. V. Huntington. The program on Wednesday afternoon included an inspection of the harmonic analysis apparatus of

Professor Miller, of the Case School, and an organ recital in the chapel. On Thursday afternoon President Thwing gave a garden party in honor of the visiting societies. Luncheon was served on each day at the Case Club, whose building was thrown open to the members afternoons and evenings. At the close of the meeting a vote of thanks was tendered to the authorities of the two colleges for their generous hospitality.

The meeting included the usual morning and afternoon sessions on Tuesday and Wednesday and the joint session on Thursday morning. Sixty-two members were in attendance. At the opening session Professor T. M. Focke, of the Case School, occupied the chair, which was filled in succession by Professors Hedrick, Cajori, G. A. Miller and Eisenhart. Professor Hedrick presided at the joint session. The council announced the election of the following persons to membership in the society: Dr. W. L. Crum, Yale University; Professor T. J. Fitzpatrick, University of Nebraska; Mr. T. R. Hollcroft, Columbia University; E. L. Ince, M.A., Trinity College, Cambridge, England; Mr. L. S. Odell, Manual Training High School, Brooklyn, N. Y.; Dr. T. A. Pierce, Harvard University. Five applications for membership in the society were received.

The following papers were read at this meeting:

Arnold Emch: "On the invariant net of cubics in the Steinerian transformation."

J. E. Rowe: "Theorems related to a point projection of the rational plane cubic curve."

J. E. Rowe: "Closed hexagons related to the rational plane cubic curve."

J. E. Rowe: "The projections of certain points upon the rational plane quartic curve."

Tomlinson Fort: "Some theorems of comparison and oscillation."

O. D. Kellogg: "Oscillation and interpolation properties of solutions of integral equations."

A. B. Coble: "Finite groups determined by $2p + 2$ points in S_p."

M. G. Gaba: "Complete existential theory of the postulates of the linear order η."

L. L. Dines: "The bordered Fredholm determinant and the related group of functional transformations."

R. G. D. Richardson: "Contributions to the study of oscillation properties of ordinary linear differential equations of the second order."

C. N. Moore: "On the summability of the developments in Bessel's functions."

G. A. Miller: "Groups formed by special matrices."

Virgil Snyder and F. R. Sharpe: "On the space involution of order 8 defined by a web of quadric surfaces."

R. W. Burgess: "A second approximation for cantilevers."

Florian Cajori: "L. Wantzel."

G. M. Green: "Conjugate nets with equal point invariants."

G. M. Green: "Plane nets with equal invariants."

Florian Cajori: "Newton's solution of numerical equations by the use of slide rules."

L. P. Eisenhart: "Transformations of planar nets with equal invariants."

L. C. Mathewson: "On the group of isomorphisms of a certain extension of an abelian group.

E. D. Roe, Jr.: "Some restricted developments."

E. D. Roe, Jr.: "A geometric representation. Second paper."

E. D. Roe, Jr.: "Integral functions as products."

Mrs. E. D. Roe, Jr.: "Interfunctional expressibility problems of symmetric functions."

E. L. Dodd: "The approximation or graduation of a mortality table by means of a sum of exponential functions."

D. C. Gillespie: "Repeated integrals."

W. A. Hurwitz: "An expansion theorem for systems of linear differential equations."

W. C. Graustein: "Note on isogeneous complex functions of curves."

Mary F. Curtis: "A proof of the existence of the functions of the elliptic cylinder."

John Eiesland: "A Plücker geometry of flats in odd n-space."

H. J. Ettlinger: "Theorems of oscillation for a generalized Sturmian boundary problem."

H. J. Ettlinger: "Theorems of oscillation for the general real, self-adjoint system of the second order."

E. V. Huntington: "Bibliographical note on the use of the word mass in current text-books."

L. P. Eisenhart: "Darboux's contribution to geometry."

Abstracts of the papers are published in the *Bulletin* of the society.

The next regular meeting of the society will be held at Columbia University on October 27. The San Francisco Section will meet on the same day at the University of California. The annual meeting of the Southwestern Section will be held at the University of Oklahoma, Norman, Okla., on December 1.

F. N. Cole,
Secretary