mitochondrium. The mitochondria at no time contained any orange-colored droplets or any droplets at all. Neither did they become rounded, loop- or ring-shaped. As a matter of fact, they behaved in a manner quite like what has been described as normal for the cells of tissue cultures (Lewis and Lewis, 1915).[3] Once a loop-shaped mitochondrium was seen, but this unbent and became a thread again without the formation of any globule. The very small orange-colored droplets unite into larger ones, others appear in the cell, and thus in the course of five or six hours several additional fat droplets of different sizes can be seen. While this process is going on, the fat droplets previously noted and drawn take on a bright orange stain, so that in a very short time it is impossible to distinguish by means of color those droplets which were present in the cell before the addition of the Sudan III. yolk. The color exhibited by the fat droplet in the living cell, while a bright yellowish-red, was never the same shade as that obtained in a culture fixed and stained with Sudan III. Nile blue sulphate could not be used in these experiments because as has been previously shown, it stains bodies that are not fat in the living cell. The fat droplets of the mesenchyme cells remain distinctly smaller than those of the clasmatocyte. Neither the mesenchyme cell nor the clasmatocyte were ever observed in the process of engulfing a yolk globule. It is doubtful whether either type of cell ingests fat in tissue cultures.

Certain of the cultures, which when living contained no loop- or ring-shaped mitochondria, after the application of different fixatives contained in varying numbers swollen, varicose and ring-shaped mitochondria according to the method of fixation employed. The question of fixation is necessarily quite different in these cultures, since most of the cells are spread out in a thin layer unprotected even by plasma from the direct action of any chemical placed upon them. Nevertheless since certain forms of mitochrondria were shown in

these cultures to be the result of the method of preservation, it would certainly seem probable that these same shapes observed by other investigators (Dubreuil, 1911[4] Guilliermond, 1913),[5] were obtained in the same manner.

In the above observations there was no need to resort to fixed preparations, as all the structures of the cell were clearly seen, and the bright orange-colored droplets could be followed without fear of confusing them with the easily distinguishable mitochondria. The fat droplets accumulated in the living cell without being associated at any time with the mitochondria and without any changes taking place in the shape of the mitochondria such as have been claimed by other observers (Dubreuil 1911,[4] Russo 1910,[6] etc.).

MARGARET REED LEWIS

THE AMERICAN MATHEMATICAL SOCIETY

THE twenty-fifth summer meeting of the society was held, by invitation, at Dartmouth College, Hanover, N. H., on Wednesday, Thursday and Friday, September 4–6, 1918, connecting with the meeting of the Mathematical Association of America, which began on Friday morning. The joint dinner of the two organizations, on Thursday evening, was attended by fifty-six members and friends, who were greeted by Dean Laycock in the name of the College. At the joint session on Friday morning Professor A. G. Webster gave an address on "Mathematics of warfare."

The college dormitories were opened for the accommodation of the visitors, and meals were served in the commons. Headquarters and general gathering place between the sessions was provided in College Hall, where an informal reception was held on Wednesday evening. A letter of welcome from Business

[3] Lewis, M. R., and Lewis, W. H., "Mitochondria and other Cytoplasmic Structures in Tissue Cultures," *Amer. Jour. of Anat.*, 17, 1915.

[4] Dubreuil, G., "Les nitrochondries des cellules-adi peuses," *Compt. rend. Soc. Biol.*, 1911.

[5] Guilliermond, A., "Sur les nitrochrondries des champignons," *Compt. rend. Soc. de Biol.*, 1913.

[6] Russo, A., "Sui mutamenti che subiscono i mitochondri ed i materiali dentoplasmici dell oocite di coniglia in diversi periodi di inanizione," *Arch. f. Zellf.*, 4–5, 1910.

Director Keyes tendered the hospitality of the college to the two societies. Excursions into the country about Hanover were arranged for the closing days of the meetings. At the joint session a vote of thanks was extended to the college authorities for their generous cooperation toward a successful occasion.

The meeting of the society included an evening session on Wednesday and the usual morning and afternoon sessions on Thursday, besides the joint session on Friday morning. The attendance included forty-six members. Professor W. W. Johnson presided at the Wednesday session, and Professor H. W. Tyler at the Thursday sessions. The following new members were elected: Professor A. L. Candy, University of Nebraska; Mr. J. R. Carson and Mr. R. S. Hoyt, American Telephone and Telegraph Company; Dr. K. W. Lamson, Columbia University; Professor A. S. Merrill, University of Montana; Mr. F. H. Murray, Harvard University; Mr. H. W. Nichols, Western Electric Company; Professor W. E. Patten, Government Institute of Technology, Shanghai, China. Nine applications for membership were received.

The following papers were read at this meeting:

L. B. Robinson: "A curious system of polynomials."

G. A. Miller: "Groups generated by two operators whose relative transforms are equal to each other."

P. J. Daniell: "Differentiation with respect to a function of limited variation."

B. F. Groat: "Models and hydraulic similarity."

L. C. Mathewson: "On the groups of isomorphisms of a system of abelian groups of order p^m and type $(n, 1, 1, \ldots, 1)$."

C. N. Reynolds: "On the zeros of solutions of linear differential equations of the fourth order."

J. E. Rowe: "Related invariants of two rational sextics."

W. W. Johnson: "The nature and history of Napier's rules of circular parts."

O. E. Glenn: "On a new treatment of theorems of finiteness."

Louise D. Cummings: "The trains for the 36 groupless triads on 15 elements.

Josephine R. Roe: "Interfunctional expressibility problems of symmetric functions (third paper)."

B. F. Groat: "Equations of the elastic catenary."

C. H. Forsyth: "Relative distributions."

W. D. Cairns: "A derivation of the equation of the normal probability curve."

Mary F. Curtis: "Curves invariant under point transformations of special type."

G. D. Birkhoff: "On stability in dynamics."

Daniel Buchanan: "Periodic orbits on a surface of revolution."

A. R. Schweitzer: "On the iterative properties of an abstract group (third paper)."

C. N. Haskins: "On the roots of the function $P(x)$ associated with the gamma function" (preliminary communication).

Christine Ladd-Franklin: "Bertrand Russell and symbol logic."

Abstracts of the papers will appear in the secretary's report in the November *Bulletin*.

The next regular meeting of the society will be held at Columbia University on Saturday, October 26.

The society has recently published Part I. of Volume V. of its series of Colloquium Lectures being the lectures given by Griffith C. Evans on "Functionals and their applications: selected topics, including integral equations" at the Cambridge Colloquium, 1916.

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F. N. COLE,
Secretary
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