

Looking back ...

Fifty-six Years Ago: 1957 *The October Meeting of the* *Indiana MAA Section*

Steve Carlson, INMAA Historian

(carlson@rose-hulman.edu)

Professor Emeritus

Rose-Hulman Institute of Technology

The October 1957 meeting of the Indiana MAA Section was held on October 18 at a Joint Meeting of the INMAA Section and the Mathematics Division of the Indiana Academy of Science. The meeting was hosted by DePauw University in Greencastle, Indiana.

Sixty-nine individuals were in attendance, including thirty-seven members of the MAA. Professor I. W. Burr, who chaired the Mathematics Division of the Indiana Academy, presided over the meeting. Summaries of each of the eight talks presented are given below.

(1) The *mathematics of the future*, presented by Professors P. D. Edwards and C. F. Brumfiel of Ball State Teachers College.

Prof. Edwards stressed the increasing importance of training for teachers in advanced mathematics and relations to engineering and science. Prof. Brumfiel discussed their recent progress due to an NSF grant, supervised by Ball State.

(2) A *characterization of n -adic equivalence relations*, presented by Professor J. L. Lawrence of Wabash College and International Business Machines.

Dr. Lawrence emphasized the concepts of *symmetry*, *composition*, and *transitivity* associated with necessary and sufficient conditions for an n -adic relation to be an equivalence relation.

(3) *The concept of surface area*, presented by Mr. L. H. Turner of Purdue University.

Mr. Turner discussed the concept of a continuous parametric surface as a continuous mapping from 2-dimensional space into 3-dimensional space. He also related the surface area concept to the notion of a surface being Borel measurable.

(4) *Periodic solutions of nonlinear differential equations*, presented by Professor W. R. Fuller of Purdue University.

Fuller's paper was expository, and introduced nonlinear differential equations and various approaches to study of such equations.

(5) *A localization experiment for teaching geometry*, presented by Professor A. D. Hummel of Ball State Teachers College.

This experimentation method, which utilizes X-rays, provides a method for determining the coordinates in 3-space within a given object that is described using elementary geometry.

(6) *Undergraduate curricula – some brave experiments and cogent lessons*, presented by Professor A. E. Ross of the University of Notre Dame.

The task of implementing an effective undergraduate program in mathematics comes with many critical problems. The speaker points out that the novelty of the new undergraduate curriculum lies not only in the new content, but also in the growing recognition that mathematical skills alone do not develop the capacity for intelligent application.

The purpose of this talk was to discuss and to expose some of these ideas.

(7) *A graphical solution for a particular finite series*, presented by Dr. R. H. L. Howe of Eli Lilly and Company, Lafayette, Indiana.

There are problems in engineering that require evaluation of a series of the form $y = 1/x_1 + 1/x_2 + \dots + 1/x_n$, where the x_i 's are non-zero real numbers. Letting $y = 1/R$, R can be found

graphically using a simple geometric principle. When a large number of terms is involved, this graphical method is particularly time saving. It is especially useful in checking problems such as those concerning resistance of resistors in parallel, capacity of condensers in series, focal length in optical systems, and total resistance or conduction of materials in heat transfer and transmission.

(8) *On the inter-relationship of applications and mathematical research*, by Dr. K. L. Nielsen, U.S. Naval Avionics Facility, Indianapolis, Indiana.

Emphasizing the constant increase and breadth of scope in the utilization of mathematics in contemporary nonmathematical fields, the author concentrated primarily on the inter-relationship between mathematical research and some technological developments, electronic calculating machines, and the philosophy of education. He discussed the role of the mathematician in industry, industry's utilization of mathematics, the development of new mathematics, and the need for closer cooperation between the educators and those engaged in research and the application of mathematics.

J. C. Polley, Secretary

Reference

[1] *The October Meeting of the Indiana Section*, American Mathematical Monthly, **65** (1958), pp. 388-389.