THE INSTITUTE FOR ADVANCED STUDY

FOUNDED BY LOUIS BAMBERGER AND MRS. FELIX FULD

BULLETIN NO. 2

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Director: ABRAHAM FLEXNER

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> OSWALD VEBLEN
> JOHN VON NEUMANN

Associate
> WALTHER MAYER

Assistants
> CHARLES CHAPMAN TORRANCE
> JOHN LIVEZEY VANDERSLICE

CALENDAR
1933–1934

October 2:   First term opens
December 20 — January 20: Christmas recess
January 21:   Second term opens
May 1:   Second term closes

I

HISTORY

WHATEVER may be said of the limitations of American universities it cannot be questioned that abundant opportunities exist in most fields for work of college and university grade leading finally to the Ph.D. degree. In some fields universities provide admirable opportunities for work beyond the Ph.D. degree, but with the exception of medicine and certain other branches the country has not hitherto possessed an institution in which young men and women could continue their independent training beyond this stage and in which research could be carried on with adequate support without pressure of numbers or routine and unhurried by the need of obtaining practical results. To provide such opportunities Mr. Louis Bamberger and his sister, Mrs. Felix Fuld, established in 1930 the Institute for Advanced Study with an initial gift of $5,000,000, the capital of which was to be preserved intact.

It has been decided to locate the Institute at Princeton, New Jersey, and to begin work October 1, 1933, in the field of mathematics. The

authorities of Princeton University have been most helpful and have offered the Institute for the time being space in the new mathematics building, Fine Hall, which was opened in 1931. While the Institute and Princeton University will be organically and administratively entirely distinct, the faculties and students of the two institutions will coöperate in any direction that promises more favorable results than either institution can obtain alone.

II

ORGANIZATION AND ADMINISTRATION

THE founders of the Institute for Advanced Study desired to create an institution of learning or, as it has been put, a "paradise for scholars." In order that their ideals may be fulfilled, organization and administration will be kept simple and unostentatious, and as much responsibility and initiative as is possible will be left to the several Schools as they are created. The Board of Trustees is composed of laymen, scholars, and scientists. It is hoped that in this way perfect accord may be established between the administrative officers and the scholars who really constitute an institution of learning.

Salaries and retiring allowances will be provided so that the teaching staff may be freed from all financial concern and may feel under the strongest obligation *to refrain from activities that bring a financial return without really being of high scientific or scholarly character* — in other words, that the members of the staff may live up to the standard that has been created in the full-time departments of certain medical schools organized within recent years.

III

SCHOOL OF MATHEMATICS

THE following appointments have been made in the School of Mathematics: Professors — Albert Einstein, Oswald Veblen, James Waddell Alexander, John von Neumann; Associate — Walther Mayer; Assistants — John Livezey Vanderslice, Charles Chapman Torrance. It will be noted that the staff consists only of professors and their assistants, in this respect differing from the faculty of a university which has varied teaching responsibilities.

Inasmuch as only those students will be admitted who have already obtained the Ph.D. degree or whose training is equivalent to that represented by the Ph.D. degree and who are in addition sufficiently advanced to carry on and to coöperate in independent research, the number of students will be small. A few workers, who have been admitted for the year 1933–1934, already hold assured positions in university departments of mathematics and have given evidence of capacity for original and independent research. Mature persons of this kind will naturally receive preference in the matter of

admission. The staff will aid students in deciding the general methods and purposes of their work and, as occasion offers, in the details. Only such students will be admitted as are acceptable to the staff of the School and the Director of the Institute.

Instruction will be given either by individual contact with students, by seminars, by courses of lectures, or by other methods. Each professor will be free to follow such methods as he prefers and to vary them from year to year. A mathematical club already in existence will be conducted by members of the Institute and of Princeton University.

In 1932–1933 the principal subject taken up in Professor Veblen's seminar was Modern Differential Geometry. Among the topics discussed were the relation of generalized projective geometry to classical projective geometry, projective relativity, the theory of spinors, conformal geometry and its relation to unitary field theory. In 1933–1934 it is intended with the coöperation of Professor von Neumann to cover a wider range of subjects. The principal subject will probably again be Differential Geometry in its relation on one side to Topology and on another to Theoretical Physics. The program cannot be fixed definitely in advance because it must conform to the direction taken by the studies of those who are actively participating in it.

In the session 1933–1934 Professor Einstein intends to discuss the theory of spinors and their application to field theory.

Professor Alexander will probably begin with an introductory series of lectures on Combinatorial Analysis Situs. These lectures will be followed by a seminar on Applications of Algebra and Group Theory to Topology.

Professor von Neumann intends to give during 1933–1934 and 1934–1935 a series of lectures on the classical and modern theory of functional operators and some of its applications. The lectures in 1933–1934 will begin with an exposition of various branches of the theory of measure and integration. They will presuppose some knowledge of elementary real function theory, and this part of the course will be a unit in itself. It will be followed by lectures covering the classical Hilbert-Schmidt theory of operators.

Dr. Mayer will conduct an advanced mathematical seminar.

The combined opportunities of the Institute and of the Mathematical Faculty of Princeton University will be open to students enrolled in either institution without payment of additional fees. As long as the School of Mathematics occupies quarters in Fine Hall, the mathematical library in Fine Hall will be open to its use.

The School of Mathematics will join the Mathematical Faculty of Princeton University

in publishing the *Annals of Mathematics*, the editorial board of which will consist of representatives of both institutions.

Fee. The fee charged will be $100.00 per annum.

Applications for admission should be addressed to the Director of the Institute for Advanced Study, Princeton, New Jersey.