MEMORIAL RESOLUTION
MENAHEM MAX SCHIFFER

(1911 - 1997)

Menahem Max Schiffer, Professor Emeritus of Mathematics, died on November 11, 1997 at the age of 86. He became a Professor of Mathematics on September 1, 1952 after first visiting the department, joining Stanford's Applied Mathematics and Statistics Lab, and having held earlier positions at the Hebrew University in Jerusalem, Harvard, and Princeton. He served as the Executive Head of the Mathematics Department from 1954 – 1959. In 1967 he was appointed to the Robert Grimmett Professorship of Mathematics, becoming the first member of the department to be awarded an endowed chair; he held that position until his retirement in 1977. In 1968 he was elected to the American Academy of Arts and Sciences and in 1970 to the National Academy of Sciences.

Schiffer married Fanya Rabinivics in 1937 in Jerusalem. She died in 1998. They are survived by their daughter Dinah Singer, Chief of the Molecular Regulation Section of the Experimental Immunology Branch at the National Cancer Institute, National Institutes of Health.

Schiffer was born in Berlin in 1911, attended a secondary school that stressed science and mathematics, and entered the Friedrich-Wilhelm Universität in 1930 with the intention of becoming a physicist. In physics he studied under Max von Laue, Walter Nernst and Erwin Schrödinger, in mathematics under Ludwig Bieberbach, Erhard Schmidt and Issai Schur – all major figures in their fields. Schrödinger finally pushed Schiffer for a decision on which way he would go, and the decision was mathematics.

Schur, who had developed a thriving and prestigious school of algebraists, became Schiffer's initial advisor. Under the influence of this school, Schiffer wrote his initial paper, "Finiteness Theorems of Invariant Theory", which was published in 1934 in the Mathematische Zeitschrift, and was to become his Master's dissertation. But not all of that happened in Berlin. With the Nazis in power and with Schur having been forcibly "retired" because he was not of Aryan descent, Schiffer emigrated to Palestine while Schur remained in Berlin. Schiffer received his MA degree at the Hebrew University of Jerusalem, based on the material of his 1934 publication. His PhD dissertation at the Hebrew University in 1938, "Conformal Representation and Univalent Functions" was in a much different part of mathematics. It is for the work in the area of his PhD, in the field of complex analysis, that Schiffer achieved his greatest acclaim.

His thesis introduced what was later to be known universally as the 'Schiffer variation', actually one of two important variational methods that he initiated and developed. The 'Calculus of Variations' – formulating and solving problems in terms of a quantity to be maximized or minimized and analyzing the properties of such extremal solutions -- had already been and remains an established, highly developed, and highly effective area of mathematical analysis and its applications. It was Schiffer's work that opened up the possibility of applying variational methods in a systematic way to geometric problems in complex analysis. His results provided new, powerful, and flexible tools for studying classical problems, and they moved the subject in exciting new directions. He had great success in applying his methods to many fundamental questions, and anyone working in the field has to be familiar with the techniques he crafted.

Never losing his interest in mathematical physics, Schiffer also made important contributions to the study of eigenvalue problems, to partial differential equations, and to the variational theory of 'domain functionals' that arise in many classical boundary value problems. And he co-authored a book on General Relativity.

Schiffer was a prolific author over his entire career, with 135 publications from the '30's to the '90's, including four books, and around 40 different co-authors. He was also an outstanding mathematical stylist, always writing, by his own testimony, with the reader in mind. He sought always to convey the joy of discovery and the deep satisfaction in the unity of the subject. Among his publications are several long expository papers, which still remain the best and most accessible treatments of the subjects.

The spirit and polish in his papers was also evident in his teaching. Schiffer's lectures at Stanford and around the world ranged widely in subject matter and were widely appreciated. He was invited to address the International Congress of Mathematicians in 1950 and again in 1958. At Stanford he often taught graduate courses in applied mathematics and mathematical physics. Students from all departments flocked to them, and so did many faculty. Each lecture was a perfect set piece – no pauses, no slips, and no notes. In 1976 he was chosen as one of the first recipients of the Dean's Award for Teaching in the School of Humanities and Sciences.

In the 1950s, and extending well beyond then, Stanford had an extraordinary constellation of stars in classical mathematical analysis. Even before Schiffer arrived, the department had two of the wold's leading analysts, George Polyá and Gabor Szegö on its faculty. In Schiffer's appointment papers, Szegö wrote "At the end of the academic year 1951- 52, Professor George Polyá of the Mathematics Department will retire. The department has the conviction, shared by Professor Polyá himself, that there would not be a better replacement for him than Schiffer." Schiffer vindicated this assertion in his remarkable lectures, in his continuing celebrated research work, and in the many outstanding appointments he made during his period as department chairman.

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