

MEMORIAL RESOLUTION

HALSEY L. ROYDEN

(1928-1993)

Halsey L. Royden, Professor of Mathematics, died suddenly at his home in Los Altos Hills on the evening of August 22, 1993, a little more than one month before his 65th birthday. Throughout his life, Halsey was capable of strong attachments – to his family, to mathematics, and to Stanford University. His association with Stanford as a student and as a faculty member spans 47 years, and to recall episodes in his life for this Memorial Resolution is also to recall episodes in the life of this institution for which he felt such affection and served so well.

Halsey was born in Phoenix, Arizona, on September 26, 1928, was raised and went to school there. He transferred to Stanford as an undergraduate in 1946 from Phoenix College, received his B.S. in 1948 and an M.S. in 1949 with a thesis under the direction of Donald Spencer, one of his early mentors in mathematics. On advice from Spencer, Halsey went to Harvard in 1949 to work with Lars Ahlfors. He would later say that Spencer's advice might not have been the best he had ever received, but it was certainly the best he had ever taken. (Though expressing a preference for the sunny skies of Palo Alto, he referred to his time at Harvard as "a brief period of exile at a small college on the banks of the Charles.") He received his Ph.D. in 1951 and returned to Stanford as an Acting Assistant Professor in Mathematics and in the Applied Mathematics and Statistics Laboratory. To show how things have changed, rumor has it that the supporting documents for his initial appointment consisted of the Chair of the Mathematics Department, Gabor Szegö, writing: "We should appoint this man. I know him." He was promoted to Assistant Professor in 1943, and before the year was out he was promoted to Associate Professor. Promoted to Full Professor on September 1, 1958, just short of his 30th birthday, Ahlfors wrote, "Of all my top students, he combines, more than anybody else, mathematical ingenuity with unfailing good taste. He has never written anything trivial, never anything dull, and he has always had his eyes on fundamental problems that are difficult, but definitely within reach."

The promise of Halsey's early work and the confidence of his senior colleagues was more than born out by his sixty some published research papers, and by his book *Real Analysis* which has become the standard text for the graduate course by that name in universities all over the world. The title of that book notwithstanding, the great majority of Halsey's work was in the area of complex analysis. His research was wide ranging within the field, but he laid particular emphasis on the modern theory of Riemann surfaces along with important contributions to the study of function algebras.

In more recent years his work evolved naturally to include several complex variables, a subject quite distinct from his early interests, and complex differential geometry. He left us with much unpublished work in his desk drawer, one nearly completed textbook on linear algebra, and parts of another book on Riemann surfaces that has been anticipated by friends and colleagues for a long time.

Halsey was always concerned with the educational mission of the Department. In the 1950's he took a very active role in designing the core of the undergraduate curriculum, and in the 1980's he was the architect for a significant revision of the major, including an honors program. Many new courses were introduced, many with Halsey at the helm for their maiden voyage. He took a serious intellectual interest in these courses and enjoyed writing detailed notes with new proofs and new points of view on the subjects. Halsey had secondary interests in the foundations of geometry and the philosophy of mathematics, and liked giving 'Moore style' courses in geometry, where students are given only the definitions and theorems and have to struggle themselves to find the proofs. He would take as much delight in a student's successful struggle as if he had proved a new result himself.

He never lost empathy for the individual student and his or her trials. One famous example of this took place in 1961. In a rather pointed letter, he protested the expulsion by the Dean of Students of "perhaps the best of the first year graduate students in mathematics." The crime was the student's participation in a scandalous (it was said) edition of the *Chaparral*. Fortunately, after some considerable effort by Halsey and David Gilbarg, the student, Brad Efron, now the Max H. Stein Professor in the School of Humanities and Sciences and currently the Chair of the Advisory Board, was reinstated.

Given his standing in the mathematical world and his being so closely identified with Stanford, it was natural that Halsey was called upon to write an article on the history of the Stanford Department of Mathematics as part of a volume on the history of American mathematics in the 20th century published by the American Mathematical Society. His was a very personal account and offers, among other things, a particularly interesting picture of the period when Szegő was the Chair, a time that spanned both Halsey's years as a student and as a young faculty member. To give here one small example of his description of that exciting time, and who all was taking part in what the Department had to offer, Halsey recalled that his first course in Functions of a Complex Variable was taught by George Pólya for the first term and by Gabor Szegő for the second: "Virginia Voegli (later Virginia (Jinx) Royden), Lincoln Moses (who was beginning his graduate work in Statistics, and who was later Professor of Statistics and Graduate Dean at Stanford), and I used to sit in the back row of the class. Sitting next to us were Fred Terman, then Dean of Engineering, and Hugh Skilling, then Head of Electrical Engineering."

It is also interesting to view Halsey's own mathematical career and his contributions alongside the changes in the mathematics department over the years. It was under Szegő's leadership that the Department rose to national prominence based on its extraordinary strength in the area of analysis. David Gilbarg, who was Chairman of the Department for ten years during an important period of growth in the 1960's, thinks

that in many ways Halsey represented 'post war' mathematics at Stanford, serving as the link between the classical traditions of Bergman, Löwner, Pólya, Schiffer and Szegő and the more modern developments. For example, having broad interests, and connections, it was Halsey who first recommended the appointment of Paul Cohen, an analyst by training who later received the Fields medal in mathematics (the profession's highest honor) for his work in logic. In the present day, Stanford's Department of Mathematics is regarded as much for topology and differential geometry.

Halsey's attachment to Stanford was evident by both his affection for the institution and his willingness to perform a myriad of administrative functions. Within the Department of Mathematics, he served as Assistant Executive Head from 1956-1958 under Max Schiffer, and Acting Executive Head from 1958-1959. In fact, Schiffer, sensing Halsey's talents and having counted on him in informal ways for many tasks, pretty much created the position for Halsey to step into. Albert Bowker also recognized these abilities, and Halsey credited Bowker with being his early mentor in administrative affairs. Halsey once cheerfully recalled that among the more valuable lessons he learned was "never underestimate the administrative effectiveness of delay."

Halsey's broader contributions to Stanford at the administrative level began when Robert Sears was successful in recruiting him to serve as Associate Dean of Humanities and Sciences for 1962-1965. He must have been one of the first Associate Dean appointments that Sears made. Halsey then served as Acting Dean from 1968-1969 and as Dean from 1973-1981. His tenure as Dean equaled that of Sears as the longest by a Humanities and Sciences Dean.

Halsey was a most effective Dean and served as a spokesman for both the humanities and the sciences. It was Halsey who organized a Planning Committee to refocus the University's attention to the importance of general education. Based largely on his own experiences as a Stanford student, he had already outlined some of these concerns in 1961 in a long letter to then President Sterling on the occasion of Sterling appointing a committee to review undergraduate education.

A major initiative of Halsey's Deanship was the creation of the Western Culture Program. The history was recounted briefly for us by Paul Seaver and Ron Rebholz. The old Western Civ program, which ran from 1934 to 1969, had left a void; in the early 1970's there was no program at all. It was urged on Halsey that an introductory course for all students was needed, and he was more than happy to put together a task force, chaired by Ron Rebholz, to propose a new program. It's fair to say that Halsey's vocation as an amateur classicist made him especially eager to see this through. (Halsey's son has a Ph.D. in Classics.) The task force met weekly for 14 months. Halsey attended every meeting and was always a major contributor. Having understood clearly the problems with the old system, Halsey insisted that a precondition that the new course be taught by senior faculty and not be the responsibility of a single department. He was also a champion of what became the 'Great Works model,' with special emphasis on small group discussions.

During Halsey's time as Dean, he also served as an administrative fellow in the University's Fellows Program, and after he left Building One, he was elected Chairman of the Faculty Senate for the 1972-1973 Academic Year. More recently, he was elected to the Advisory Board and served as Chair for the 1990-1991 Academic Year.

It is also important to observe that during all his years of administrative service, Halsey never lost touch with mathematics and with his research. In fact, he obtained one of his most celebrated results, on the equivalence of the Kobayashi and Teichmüller metrics, during the time he was Acting Dean of Humanities and Sciences, and he liked to joke that it was the "best theorem proved that year, by a Dean."

Beyond this educational leadership, Halsey personified two essential characteristics. He exuded a fundamental honest and decency along with maintaining consistently high standards in regard to appointments and promotions with the Humanities and Sciences faculty.

Halsey is survived by his wife Jinx, his daughters Leigh Royden and Constance Royden, of Boston, his son Halsey, of Columbia, Maryland, and six grandchildren. His brother Thomas lives in Phoenix.

He wore the crown of the virtues, and he wore it lightly. He was a great-souled man, and we miss him very much.

Brad Osgood, Chair
Ralph Cohen
Albert Hastorf