



## IN MEMORIAM

Jesse Charles Rabinowitz  
Professor of Biochemistry, Emeritus  
Berkeley  
1925 — 2003

Jesse Rabinowitz, renowned biochemist and devoted teacher, scholar and humanist, was born in New York City on April 28, 1925, and he died of cancer at home in Kensington, California, on September 9, 2003. He was the only child of Julius and Frances Rabinowitz, both of whom were born in Eastern Europe. Upon immigration to the United States, they first settled in New York and later relocated to the Los Angeles area after Jesse finished college.

As he noted in an interview, published in the Jewish Bulletin in 1998, Jesse's parents were "Yiddish-speaking, socialist needle workers who were members of the International Ladies Garment Workers Union." Jesse attended a public grade school in the Bronx, but in 1936 his family moved to Jersey Homesteads, an experimental Jewish cooperative founded in central New Jersey with federal support during the Depression. Although the co-op was not economically viable, the settlement of about 200 families thrived on intellectual and political discourse, and it was in this environment that Jesse spent his early teen years.

Jesse finished school while at Jersey Homesteads, where he studied Yiddish in a Sholom Aleichem School. He once wrote in a letter, "I was raised in the 'Yiddishist' tradition. Although I did not have a Bar Mitzvah, I had a birthday celebration at age 13 at which my Folk schule teacher explained to my assembled friends why I was not having a Bar Mitzvah." The same year, Jesse received his first camera, a gift that was to have a lasting influence on his life. Another experience from this period that he never forgot was a class he took with the resident artist Ben Shahn, who taught painting at the school while creating murals there as an employee of the Resettlement Administration in the U.S. Department of Agriculture.

After high school, Jesse enrolled at the Polytechnic Institute of Brooklyn in 1942, from which he obtained a B.S. degree in chemistry in 1945. His dissertation, titled "Phosphorus-Containing Compounds of the Milkweed Seed," suggests that he had already developed an interest in biological science. He then entered graduate school in biochemistry to study under Professor Esmond Snell at the University of Wisconsin, where he obtained an M.S. degree in 1947 and a Ph.D. degree in 1949, with a dissertation titled "Microbiological Studies of the Vitamin B6 Group."

After completing his university studies, Jesse spent a postdoctoral year at the Enzyme Institute in Madison, Wisconsin with David Green. This was followed by two years with H. A. Barker at the University of California, Berkeley, when he began studies on purine fermentation by anaerobic bacteria of the genus *Clostridium*, and during this time he identified several intermediates in the pathway. Continuing this research after moving to the National Institutes of Health in 1952, he characterized the role of tetrahydrofolic acid as an essential cofactor in the process. On the side, he was an enthusiastic and expert Scottish country dancer, affectionately nicknamed "McRab," and he was widely appreciated in the Washington, D.C. and San Francisco Bay Area Scottish dance communities. Rabinowitz was recruited to the Berkeley Department of Biochemistry in 1957, during the chairmanship of Esmond Snell, who had joined the faculty a year earlier.

As he summarized in *American Men & Women of Science*, 15th edition, Rabinowitz devoted his scientific career to "enzymology, purine fermentation, folic acid coenzymes, iron-sulfur proteins, and protein biosynthesis." Particularly noteworthy were his seminal investigations on the iron-containing protein

ferredoxin and his studies on the enzyme formyltetrahydrofolate synthetase, which continued to occupy his interest throughout his career. He was author or coauthor of over 175 scientific publications on these subjects, and his many scientific contributions were recognized by election to the National Academy of Sciences in 1981 and the American Academy of Microbiology in 1997. He served as chair of the Department of Biochemistry from 1978 to 1983.

In a University press release, Robert Sanders noted: “Rabinowitz spent his career tracking down, identifying and characterizing the enzymes that require folic acid to function, a role that makes the vitamin an essential micronutrient in the diet. All pregnant women are now advised to take folic acid, or folate, to prevent spina bifida and other neural tube defects in newborns. Folic acid deficiency also has been linked to an increased risk of heart disease, cancer and various types of brain dysfunction.” Sanders also quoted a colleague of Rabinowitz who said, “Jesse worked out a good part of the basic biology of folic acid. In our research on chromosome breaks caused by folic acid deficiency, we keep coming across Jesse’s old work. All his papers are classics.” Another colleague noted, “The biochemistry of folic acid has grown tremendously in importance in recent years because several major anti- cancer drugs work by interfering with folic acid.” One of these drugs is the synthetic folate analog methotrexate, which in high dose is used to treat some forms of cancer while in very low dose it is effective in alleviating symptoms of arthritis.

Rabinowitz enjoyed sabbaticals during the years 1963-64 as a Special Fellow of the U.S. Public Health Service, 1970-71 as a National Science Foundation Senior Fellow, 1977-78 as a Guggenheim Fellow, and 1984-85, all while living in Paris. His favorite home- away- from- home was the laboratory of Marianne Grunberg- Manago at the Institut de Biologie Physico- Chimique. It was during these research sojourns that Jesse developed an intimacy with and a strong affection for Paris and all of France. It was also during these times that he would volunteer as a personal guide to his many acquaintances that just happened to be visiting Paris. His generosity rewarded his friends with good eating, enjoyable experiences, and fond memories of a special companion. Jesse was an enthusiastic and gifted cook, and, following his return from each sabbatical, his friends looked forward expectantly for the new gourmet meals he would prepare.

After settling in Berkeley, Jesse corresponded regularly with his father, who always wrote in Yiddish while Jesse responded in English. Particularly revealing of Jesse’s outside interests were the comments in letters he wrote his father about his holiday excursions while living in France. “I’m going off this weekend on a little trip to the center of France just to eat at what is considered the best restaurant in France — and that means the world. The drive is about 350 miles, and that may seem a bit crazy just for a meal, but I missed it on my last trip and I figure I must get there at least once.” “I got back from my trip to Sicily. The weather was ideal — sunny and cool... I had a very good trip and drove close to 4000 miles.” “I spent last weekend in Milan in Italy to see the opera at La Scala opera house.” “I had a very pleasant holiday with my friends in Denmark. We had very good things from the farm — a goose for Christmas dinner and some partridge that some hunters had shot and gave to my friend.” Jesse maintained an interest in the Yiddish language throughout his life and was an active participant in the Yiddish network Mendele.

All who knew Jesse Rabinowitz were impressed by his extensive interest in and knowledge of the arts and humanities, and it is indicative of his commitment that he made the time to pursue such a range of activities. Beside his devotion to the symphony and opera (he never hid his infatuation with Cecilia Bartoli), he could always be found at whatever musical or dance performance or art exhibit might be in town. He was an amateur cellist, and for many years he hosted chamber groups at his home. His house overflowed with his collections of books, recordings, and ceramics and he surrounded himself with paintings and sculptures, including a striking stained glass window he commissioned for the entrance to his home. He was generous with his wine cellar, which he had filled with some of the finer Bordeaux vintages of the 1960s. His hobby of photography led him often to change cameras, but always in search of better performance. Once a friend wanted to show Jesse his new purchase of the latest and most expensive digital camera on the market, but Jesse terminated the discussion when he replied, “I’m not interested in seeing the camera — show me what you have done with it.”

This response reflected the attitude Jesse brought to his teaching. His aim was to impart practical knowledge that the student understood and could use effectively, and he expected his students to show in the laboratory that they did and could. This approach was particularly evident in the course on biochemical techniques that he designed and taught for many years to graduate students. It was a basic course in enzyme purification and characterization, but the rigor he brought to the laboratory exercises never failed to inspire the best from his students. He trained many graduate students and postdoctoral fellows at Berkeley, several of whom now hold important academic, government or industrial positions.

Jesse's interest in photography grew into a full-time activity following his retirement. He held many exhibits of his work locally, and for years he maintained a Web site, [www.photosbyjess.com](http://www.photosbyjess.com) on which he displayed for enjoyment (and for sale) the products of his efforts. His camera lens was usually centered on people, not scenery, and the focus was always on faces that reflected the character, culture and environment of his subject. Shortly before his death a survey of his photographic excursions was published under the title *Jesse Rabinowitz, A Personal View* (Peleus Books, 2003). About this collection, he observed, "What's important for me in these pictures are my feelings about the lives of these people. The more honest the photograph is the more strongly I feel about its value." Rabinowitz left his extensive collection of colored slides to the McHenry Library of the University of California, Santa Cruz.

Jesse kept a close eye on current events and read several newspapers regularly, most avidly the New York Times. (A friend once counted 30 different magazines on a rack in his home.) He also was not slow to comment on or to criticize the substance of articles he read. Some might have called him cantankerous in such matters, while he admitted to not being "as shy about discussing controversial subjects as most." At the same time, he followed the successes or tribulations of his friends and associates, and he was quick to send them affectionate congratulations or understanding condolences filled with hope. In expressing his feelings about others' successes, he often called on the Yiddish term *naches*, which he translated as "pride, joy, fulfillment of your efforts and wishes."

After Jesse's death, his academic papers were deposited with the University Archives in The Bancroft Library. Included was a notebook containing letters his former coworkers wrote to him on the occasion of his retirement in 1991. The letters overflow with affection and respect for this exceptional man who was their mentor, critic and friend. Here we give one quote only. "Your cello, your photography, your science, your cooking, your wine, your miles of records, your enthusiasm for almost everything, your sheer style all made a big impression on me." While we don't necessarily agree with the order of these notable qualities, together they do say a lot about who was Jesse Rabinowitz.

Bruce Ames  
Clinton Ballou