Many of Vlad's technical accomplishments are documented in the proceedings of the 10 international conferences on megagauss magnetic field generation and related topics. Although Vlad's name was on several abstracts submitted to the Megagauss I conference in Frascati, Italy, in 1965, and Sakharov, who coauthored several of the abstracts, encouraged Vlad to go, the Soviet Union's security regulations prevented him from attending.

Two of us (Reinovsky and Lindemuth) first met Vlad at the Megagauss V conference in Novosibirsk, Russia, in 1989. Fascinated by the accomplishments reported by his team, we queried Vlad at length. As a parting comment, Vlad offered, prophetically, "Maybe one day we can do an experiment in which you design the load and we provide the generator," something we knew made scientific sense but that, at the time, seemed only an impossible dream.

Just two and a half years later, the Soviet Union dissolved, causing worldwide concern about the fate of Russia, particularly the Russian nuclear weapons complex and the possibility of "brain drain." In January 1992, two of us (Reinovsky and Lindemuth) discussed the situation with Vlad as we walked down the streets of Moscow. Vlad replied, "If necessary, we [the nuclear weapons scientists] will all go back to our villages and farm," indicating the patriotism he shared with his colleagues. Proud of his homeland, he pointed to people standing in line at a museum and commented, "See, even in these troubled times, the spirit of our people is strong."

Vlad's legacy includes a now well-known scientific collaboration between VNIIEF and Los Alamos National Laboratory that started in 1992 and has led to more than 300 publications and presentations at major international conferences. Vlad believed strongly that the US and Russia must work together to make the world a safer place. During one of his last visits to the US, Vlad participated in a snowball fight with the teenage son of one of us (Reinovsky). Afterward, Vlad described the "strategic exchange of snowballs" (as opposed to nuclear weapons) as "the best possible outcome of a career of work."

In 2003, the Institute of Electrical and Electronics Engineers presented Vlad with the Erwin Marx Award to commemorate a truly illustrious career. Unfortunately, although Vlad had visited the US many times previously, the US government did not issue a visa in time for him to travel to the US to receive his award, a terrible disappointment to a scientist who had overcome many obstacles to make US–Russia collaboration a reality. The award was presented to Vlad eight months later in Sarov.

Vlad was a devoted husband, father, and grandfather, and he was understandably proud that one of the young scientists following in his footsteps is his grandson, Tony. Russia and the world have lost a brilliant man whose work will be studied for generations to come.

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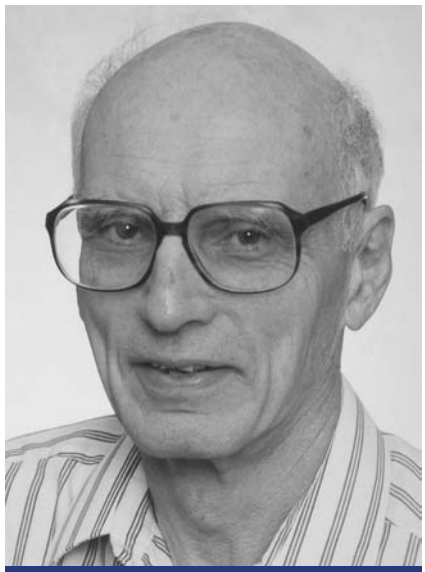

Edward Forbes Greene

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Edward Forbes Greene, a noted experimental chemical physicist at Brown University, died of pneumonia on 13 August 2005.

Born on 29 December 1922 in New York City, Ned, as he was called by his colleagues and friends, was raised in Beijing, where he was educated at the Peking American School. His father, Roger Sherman Greene, was the resident director of the China Medical Board and acting director of the newly formed Peking Union Medical College, both early projects of the Rockefeller Foundation.

A brilliant student, Ned entered Harvard University and in 1943, after only three years, graduated with an AB in chemistry and membership in Phi Beta Kappa. Between 1944 and 1946 he served as an electronics technician in the US Navy. His PhD research at Harvard, under the direction of George B. Kistiakowsky, was devoted to the mechanisms by which shock waves initiate detonations in cylindrical pipes. In 1949, after completing his PhD and making a brief visit to Los Alamos Laboratory, he joined the Brown University chemistry department, where he stayed for the rest of his life. Ned served as department chair in 1980–83 and was named the Henry D. and Louise Sharpe Metcalf Professor in 1985.

At Brown, Ned developed the use of shock waves to investigate chemical reactions. He and Norman Davison were the first to demonstrate the unique opportunities provided by shock waves, which heat a gas in nanoseconds to temperatures of several thousand degrees and thereby initiate high-temperature reactions that can be easily followed by observing the time-dependent light emission after the shock front passes. Research into shock-initiated chemistry has greatly expanded since Ned conducted his work in the 1950s, and it continues to be actively pursued in many laboratories worldwide. Ned's book with one of us (Toennies), *Chemical Reactions in Shock Waves*, first published in German (Steinkopff, 1959) and later in expanded form in English (Arnold, 1964), was the first authoritative monograph in that emerging research area and remains a standard reference in the field.

Ned had an extraordinary ability to identify important scientific questions and to develop strategies to address them. In 1955 he immediately realized the great potential of crossed-molecular-beam scattering experiments, demonstrated earlier that year by Ellison Taylor and Sheldon Datz at Oak Ridge National Laboratory. At Brown, with the use of a newly designed apparatus, Ned and his coworkers discovered the distinct maxima, now known as rainbows, in atom–atom angular distributions. In a 1962 crossed-beam study of the K + HBr reaction, Ned, Dieter Beck, and John Ross were the first to use a velocity-selected beam to measure the reaction threshold of a chemical reaction. Subsequently, they also developed a new method to extract reaction probabilities from reactant angular distributions.

In the late 1970s Ned became interested in surface science and its abundance of unsolved problems. Using elastic and inelastic scattering of atomic beams from single-crystal surfaces, he

began a series of investigations into the structure and dynamics of important model systems. Among his many notable contributions are his studies of order–disorder transitions and melting of silicon and germanium surfaces. He was a founding father of the annual Gordon Research Conference on the Dynamics of Gas–Surface Interactions, which continues today as one of the important international meetings in that field.

Ned was a deep thinker with unwavering convictions. Equity, fairness, and plain human decency were dear to his heart. In 1965 Ned spent a sabbatical teaching chemistry at the historically black Tougaloo College in Mississippi, an engagement that subsequently led to a very long-term commitment to Tougaloo. Ned served on Brown's Committee on Minority Affairs from 1978 to 1980, and in 1985 he chaired its task force to recommend a site for the university's new third-world center. He was a devoted teacher and will be fondly remembered by his many students for his hands-on instruction in the lab, his probing questions, and his way of making science fun. He was thoroughly democratic in the way he treated students and colleagues, yet old-fashioned in his politeness and modesty. He was known for his fondness for words, word games, and languages. His dry sense of humor tended to surprise and delight. After having been at Brown for more than 50 years he commented, "You know, we are all transients here!"

The international molecular-beam and surface-science communities have lost a revered colleague and great leader.

Peder Estrup
Santa Barbara, California
Peter Toennies
Göttingen, Germany
Peter Weber
Providence, Rhode Island ■