

VLADIMIR MIKHAĬLOVICH CHULANOVSKIĬ (Obituary)

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VLADIMIR Mikhaĭlovich Chulanovskii, professor at the Leningrad University, one of the greatest Soviet specialists in the field of optical spectroscopy, died on 10 May 1969 in his eightieth year. He started working in 1918 in the just-organized State Optical Institute, where he soon became one of the leading staff members. Dating back to that time is his work for the Commission of the Academy of Sciences, sent by the Soviet government abroad to acquire literature and equipment and to establish scientific relations. His scientific and pedagogic activity at the Leningrad University began in 1923.

Chulanovskii's first work was on the splitting of spectral lines in strong electric fields. The result of these investigations was a confirmation of D. S. Rozhdestvenskii's serial scheme of terms. His subsequent work was devoted to research in one of the most difficult spectral fields, namely the vacuum ultraviolet region. A precision diffraction spectrograph designed and constructed by him, substantial improvements in the method of preparing the photographic plates, and other improvements of the experimental technique have enabled Chulanovskii to obtain results of unprecedented accuracy.

By using this spectrograph, he was able to investigate, for the first time, the fine structure of the 1640-Å line of the He^+ ion, a line belonging to a series analogous to the hydrogen Balmer series. Chulanovskii gained wide scientific recognition for a series of investigations of the electron spectra of molecules in the vacuum ultraviolet region. The exceptional measurement accuracy has enabled him to observe a number of anomalies in the structure of molecular bands produced by mutual perturbations of the levels. This series of investigations explained the principal details of the electron shell structure of diatomic molecules, and made it possible to establish the role of the bonding and antibonding electrons. At that time, Chulanovskii's research laid the groundwork for the spectroscopic study of unshared electron pairs.

Chulanovskii then proceeded to investigate the vibrational spectra of molecules by the methods of infrared spectroscopy and Raman spectroscopy.

A study of the contours of the absorption bands and of the Raman scattering lines suggested to him the existence of a close connection between the structure of the vibrational spectra of substances in the condensed phase and thermal motion of the molecules. These ideas of Chulanovskii were subsequently widely developed. A particularly large contribution to the spectroscopy of the liquid phase was Chulanovskii's research on the hydrogen bond. He established the existence of hydrogen bonding in a large number of liquid systems, and developed the spectroscopic criteria of its formation.

A characteristic feature of Chulanovskii's entire scientific activity was his tendency to delve into the physical gist of the phenomenon, not limiting himself



only to its spectral systematics. At the same time, he was always close in his work to the demands of practice. The methods and instruments developed under his leadership for molecular spectral analysis are widely used in the most varied branches of the national economy, and his monograph "Introduction to Molecular Spectral Analysis" remained for a long time the only text for workers in the Soviet industry.

Chulanovskii was active in the Commission on Spectroscopy of the USSR Academy of Sciences, and was a member of this commission from the time of its organization. He was a member of the editorial committees of the journals "Optika i spektroskopiya" (Optics and Spectroscopy) and "Zhurnal Prikladnoi spektroskopii" (Journal of Applied Spectroscopy). For many years, he trained a large group of skilled spectroscopists, many of them with Doctoral and Candidate's degrees, who now are prominent in the scientific and research institutes and in the higher institutions of learning of our country.

To all his comrades, co-workers, and students, Chulanovskii was always an example of high and conscientious principles, and a model of unselfish devo-

tion to science, to which he devoted all his life.

Translated by J. G. Adashko
