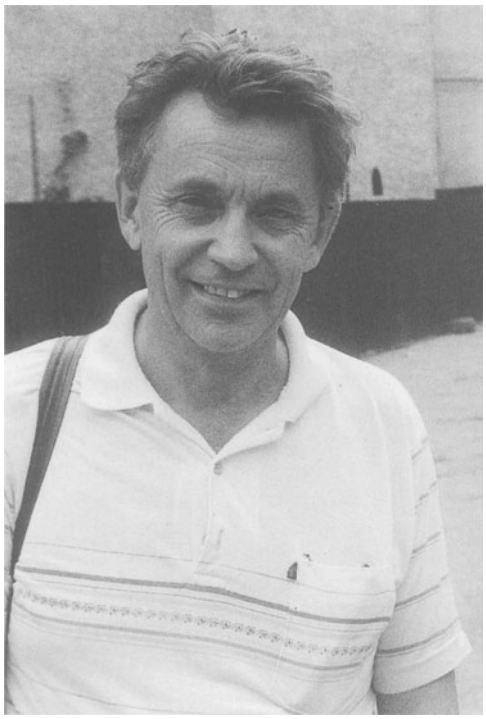
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DISTINGUISHED MEMBER AWARD

The Distinguished Member Award of the Clay Minerals Society was presented to Dr. Victor A. Drits, at the 33rd annual meeting of the Clay Minerals Society in Gaitlinburg, Tennessee on June 15–20, 1996. The following introduction was made on behalf of the recipient.

INTRODUCTION OF VICTOR A. DRITS

SIMON J. TSIPURSKY



First of all it gives me great pleasure and it is an honor to present my mentor and my friend, Professor Victor Drits, for the most prestigious award that the Clay Mineral Society gives its members: The Distinguished Member Award.

Victor A. Drits graduated from Irkutsk State University, USSR with an M.S. degree in Physics and Math. Then, he spent several years working for this university and preparing for his Ph.D. In 1961, he successfully obtained his Ph.D. degree in Solid State Physics and Crystallography by defending his thesis in the Institute of Crystallography, Academy of Science, Moscow, USSR.

Dr. Drits was invited to the Geological Institute, Academy of Science in Moscow where he headed the Group, and later, in 1970, he became Head of the Laboratory of Physical Methods for the Study of Rock-forming Minerals. In 1975, Victor Drits became a Doctor of Science in Mineralogy and Crystallography.

Dr. Drits has many scientific interests, and he is a pioneer in all areas of his scientific activities. From the beginning of his scientific career, he focused on the determination of mineral structures with an emphasis on those where defects violate periodicity. To solve these problems, Prof. Drits has used complex modern methods of solid-state physics and chemistry. The most important part of his research is the elaboration of new methodological approaches, which provides reliable interpretations of experimental data obtained by diffraction and spectroscopic methods of the same sample.

I suppose that many members of CMS are familiar with Victor's work on methods and techniques of X-ray diffraction from defective lamella structures. Victor and his coworkers developed both theoretical and practical approaches to show X-ray diffraction effects from interstratified structures. Such structures have different layer types, ratios, and distribution of these layers. These approaches allowed the calculation of XRD patterns from various ordered and semi-ordered mixed-layer structures to identify the structures of natural interstratified minerals, including clay minerals, phyllomanganates, superconductors, and so on. A similar approach was developed for revealing the nature of stacking faults in various layer minerals, such as kaolinites, dioctahedral micas, hydrous Fe and Mn oxides, sulfides, *etc.*

Victor and his co-workers also developed a new interpretation of Mössbauer and IR spectra obtained from dioctahedral 2:1 layer silicates. This allowed reconstructing two-dimensional distributions of isomorphous octahedral cations in dioctahedral micas of complex compositions. In addition, an important aspect of Victor's work is related to single crystal XRD determinations and refinements of crystal structures of

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layer and pseudo-layer minerals (sudoite, donbassite, palygorskite, fedorite, kimrite, pyrosmalites, dickite, Mn-muscovite, *etc.*). His work was important in revealing general crystal chemical characteristics of layer silicates that explained the observed structural features of these minerals.

Besides using X-ray diffraction methods, Victor is a pioneer in an application of selected area electron diffraction (SAED) as an independent and often a unique tool for structural study of poorly crystallized minerals. He determined distinct diffraction criteria that allowed the use of reflection intensities from single crystal SAED patterns for the Patterson and Fourier structural analysis in the kinematical approach. This approach has been successfully used for the determination of the crystal structures of three-chain silicates, commensurable and incommensurable mixed-layer tochilinites and tochilinite-related phases, asbolanes, modulated phyllomanganites, *etc.*

I was lucky having Victor as a mentor when I studied dioctahedral smectites. We found unexplainable variations in the distribution of intensities on the oblique texture electron diffraction patterns of these minerals. Very careful and structural modeling brought us to the conclusion that we had found structures with different distributions of the octahedral cations over available *cis-* and *trans*-positions in dioctahedral 2:1 layer silicates. Later we found the effects of the migration of octahedral cations in dioctahedral 2:1 layers during diagenesis. Today, these structural features are routinely recognized, but 10–15 years ago they were unknown and not obvious.

A special part of Victor's research consists of applying his theoretical approaches for the determination of crystal structures to minerals formed in different geological environments. He has established relationships between crystal structures, chemical conditions of formation, and transformations of the studied minerals. Victor, his co-workers, and his students are determining the nature of defects, their proportions, and distributions to understand the dynamics and structural mechanisms of mineral phase formations and transformations.

The list of Victor's discoveries and developments is very long and impressive. I just would like to mention that Victor is the author and co-author of many books and articles, many of them have become "classics".

Victor has an excellent ability to teach and to explain complex material. His motto is: "Who is clear thinking is clear stating". Victor's lectures are scientific events. Victor successfully combines his scientific and teaching careers. In 1986, he became a full Professor of Mineralogy at Moscow University, Russia.

Despite Victor having lived and worked in a closed society, like it was in the USSR, he is known all over the world. Many European universities invite him to deliver lectures and to make scientific collaborations. I think that these days he spends more time working in Orleans, Grenoble, or Copenhagen than in Moscow.

For the recognition of his outstanding scientific service he was awarded: Doctor Honoris Causa of the Orléans University, France (1992), and an Honorary Member of the Mineralogical Society of Great Britain and Ireland (1994). I am pleased to present Victor for the 1996 Distinguished Member Award of the Clay Minerals Society.

Editor's note. This presentation was made in 1996. In 1997, Prof. Victor Drits received the Gold Medal of the AIPEA (Association Internationale Pour L'etude des Argiles) for his scientific activities.

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