DISTINGUISHED MEMBER AWARD

The Distinguished Member Award of The Clay Minerals Society was made posthumously to Professor C. Edmund Marshall at the 21st annual meeting of The Clay Minerals Society in Baton Rouge, Louisiana, October 2, 1984. The following citation was read on behalf of the recipient and presented to his widow, Mrs. Catherine Marshall, by W. D. Johns.

CITATION TO C. EDMUND MARSHALL
W. D. Johns

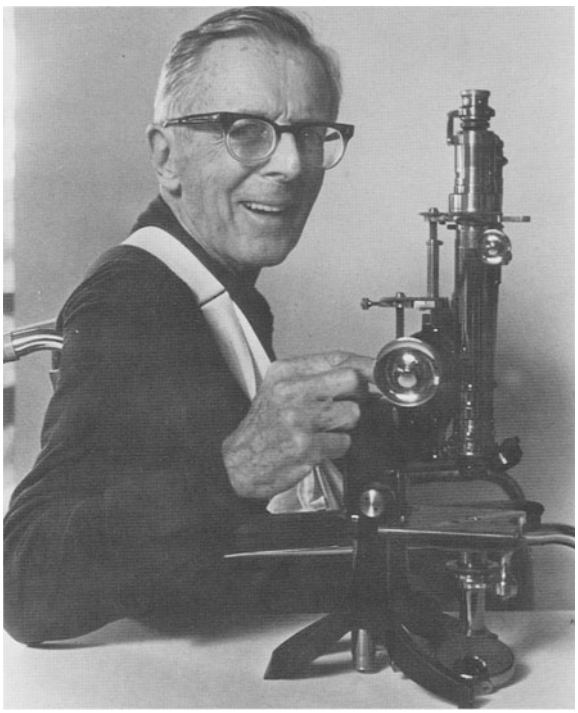
It is my pleasure to have been selected to present the Distinguished Member Award this time. This award is the highest honor that The Clay Minerals Society can bestow on a clay scientist. This is only the second time in the history of the Society that this award has been given posthumously, this time to Prof. C. Edmund Marshall.

I first met Prof. Marshall in October 1953, at the 2nd National Conference on Clays and Clay Minerals held in Columbia, Missouri, on the campus of the University of Missouri. This was before the clay community had been organized into a formal Society. As a graduate student in Urbana I had driven to Columbia to attend this meeting. Prof. Marshall had set up some demonstration lectures in Mumford Hall to illustrate some of those marvelous colloid properties of soil clays, including electrophoresis, ultramicroscopy, electrically induced and flow birefringence, and dityndallism. These are among the classical experiments that demonstrated the crystalline character of soil colloids long before confirmation by X-ray diffraction. I had arrived in Columbia late and had missed these scheduled demonstrations, but as I entered the empty demonstration hall a man stepped forward, extended his hand, and said, "I am Edmund Marshall." What followed was a forty-five minute private lecture-demonstration for the graduate student from Urbana. I have learned since that this was typical of Prof. Marshall's interest in graduate students and young scientists. At any rate I became a fan of his from that day on.

Our next meeting was in the fall of 1971 after I had joined the Geology faculty at the University of Missouri. I heard that Professor Marshall would be teaching his famous course on colloid chemistry that fall, perhaps for the last time. With several of my new students, I enrolled in the course and have always been grateful for the new insights gained on the colloid properties of clays. I have been especially grateful to have become subsequently a friend and colleague of him.

Professor Marshall received his Ph.D. in 1927 from the University of London. He taught as Lecturer for a number of years at the University of Leeds, and in 1936 came to the Department of Agronomy at the University of Missouri. During the forty years of productive research and teaching, up to the time of his death in 1982, he published more than 90 scientific papers and 4 books or monographs.

I suspect that many of us have forgotten that Marshall first showed us that by careful particle-size separation it is often possible to isolate a colloid fraction from soils and clays which is essentially monomineralic. It was he who first showed us



how to take chemical analyses for montmorillonites and recast them into structural formulae. In so doing, he demonstrated the interrelations between cation-exchange capacity, interlayer charge, and ionic substitutions in montmorillonites.

His monograph *The Colloid Chemistry of the Silicate Minerals* remains a classic in the field. His more recent two-volume work, *The Physical Chemistry and Mineralogy of Soils,* utilizing the colloid chemical and electrochemical properties of soil colloids, concepts pioneered by him, shows us how clays act as intermediaries in the transfer of mineral nutrients from soil solutions to plant roots.

These are but a few of the contributions for which we honor Professor Marshall today. I am happy to say that Mrs. Catherine Marshall and his daughter Christine are with us, and I would like to read to them and to you this citation:

> "In recognition of outstanding contributions to the field of clay minerals science, The Clay Minerals Society with admiration and gratification, confers upon,
>
> C. Edmund Marshall
>
> the extraordinary rank of Distinguished Member
>
> October 2, 1984."

Mrs. Marshall and Christine, if you will look carefully between the lines, you will see that this citation is awarded also to both of you, for the important roles you have played in the life of this very special man.

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