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DISTINGUISHED MEMBER AWARD

The Distinguished Member Award of The Clay Minerals Society was made to Professor Marion L. Jackson at a joint meeting of The Clay Minerals Society and the International Committee for the Study of Bauxites, Alumina, and Aluminium in Kingston, Jamaica, August 17, 1977. The following citation was read on behalf of the recipient by John Hower, President of the Society.



INTRODUCTION OF MARION L. JACKSON
John Hower

Marion L. Jackson was born in Reynolds, Nebraska, and received his education through a Master of Science degree in that state. He holds a Bachelor's and Master's degree in Soil Science from the University of Nebraska and received his Doctor of Philosophy from the University of Wisconsin at Madison in 1939. He has been affiliated with that University ever since as a member of the Department of Soil Science. In 1950 he was promoted to full professor and, in 1974, received the distinction of being named Franklin Hiram King Professor of Soil Science. In the same year he was made an honorary Doctor of Science by the University of Nebraska. Dr. Jackson has also been visiting professor at Purdue and Cornell universities and at the University of Washington.

He is a member of the Soil Science Society of America, the American Association for the Advancement of Science, the International Society of Soil Science, the Mineralogical Society of London, the Association Internationale pour l'Étude des Argiles, and has been elected a fellow of the American Society of Agronomy and the Mineralogical Society of America. He is, of course, a member of The Clay Minerals Society and was elected our president in 1966.

From 1951 to 1959 he served on the editorial board of the *Soil Science Society of America Proceedings* and is presently on the editorial boards of *Geoderma* and *Soil Science*.

Besides his outstanding intrinsic scientific ability, I think that Dr. Jackson's most important characteristic is his willingness to share his wide-ranging research interests with his students and his colleagues in our science. Many people have had the privilege of being Dr. Jackson's graduate student or postdoctoral fellow—nearly a hundred in all. A number of the most prominent members of our Society have had him as a thesis supervisor.

Dr. Jackson has published almost 200 scientific papers on the results of his research. He has contributed chapters to seven monographs on soil science and has authored two textbooks—who among us does not have a copy of *Soil Chemical Analysis–Advanced Course* in his laboratory? I believe that over the years I have owned eight copies of that invaluable book—never more than two copies at any one time—it's just that this book has a high vapor pressure had keeps evaporating from my laboratory.

There is no doubt that the most complicated rock type that we have to deal with is soil. Soil is most commonly a heterogeneous mixture of partly reacted parent materials and newly formed amorphous and poorly crystalline phases, all of which have had their chemical characteristics altered by surface coatings of iron and aluminum hydroxides. On top of this, all of these materials chemically interact with the decomposing organic material present in soils. Dr. Jackson, more than anyone else, has provided us with the chemical and mineralogical means of characterizing this complex system. Of equal importance is that by using the techniques that he devised, he has allowed us to understand soil-forming processes and the chemical behavior of soils in a far better way than we could in the past. His early work on the weathering stability sequence of clay-size materials in soils is classic. His research on the mineralogical character of agriculturally important soils and the chemical effects of surface coatings of iron and aluminum hydroxides have been important to the development of fertilizing procedures that have increased crop yield. Another important aspect of this

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body of Dr. Jackson's research is its application to an understanding of how we must proceed with the handling of radioactive waste in a safe manner. His recent studies of the composition of soil water and the solid phases in soils have shown that the relationship among these materials can be understood as a steady-state reaction interpretable by thermodynamic methods.

Although the main body of Dr. Jackson's work has dealt with soil-forming reactions, he has contributed to the solution of scientific problems that range from an explanation of the surface morphology of micrometeorites to the chemical behavior of melt water from Antarctic glaciers. His research in collaboration with Robert Clayton at the University of Chicago has allowed the tracing, on a worldwide basis, of fine-grained minerals that have been transported as aerosols. They showed that quartz separated from deep ocean sediments and from oceanic islands has a regionally distinctive oxygen isotopic composition that is interpretable in terms of the source of the wind transported materials. Among other ramifications of this research, they showed that the quartz and mica present in soils developed on basaltic rocks on Pacific volcanic islands has an isotopic composition that distinctly labels them of high temperature origin and therefore aerosolic. This work solved the long-standing enigma of the origin of these minerals in soils where we did not expect them.

As one might expect, Dr. Jackson's many contributions has made him much in demand for assistance in the solution of both industrial and societal problems. He has acted as a consultant to the Chevron Oil Field Research Company and to the J. M. Huber Kaolin Company for a number of years. He has frequently acted as a consultant to and panelist for several federal agencies. He has also been a member of a number of important National Academy of Science committees including one close to our hearts, the Clay Minerals Committee of the National Research Council. He is currently a member of an Academy committee that is faced with the difficult task of making recommendations for the disposal of radioactive waste from our burgeoning nuclear power facilities.

What I have summarized for you tonight are things with which the members of The Clay Minerals Society are, of course, familiar: Marion Jackson is a teacher of outstanding quality, he is an invaluable contributor to the intellectual welfare of our science, and he is a responsible member of our national community who applies his knowledge of basic science to the solution of societal problems. To us of The Clay Minerals Society, however, he is most importantly our scientific colleague and friend.

It is with great pleasure that I can tell you that Dr. Marion L. Jackson has been chosen as a Distinguished Member of our Society.

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