

1990 Mineralogical Society–Schlumberger Award

**Presentation, by Dr. Paul Henderson, President of the Society,
to Dr. Michael J. Wilson**

It is a pleasure and honour to present today the first Mineralogical Society–Schlumberger Medal to Dr. Michael Jeffrey Wilson. This award was initiated by the Schlumberger research centre in Cambridge and is funded by an endowment given by that Company to the Society. Its prime purpose is to give recognition to scientific excellence in mineralogy and its applications. Jeff Wilson's work falls clearly into this category because of its intrinsic high quality and because of the many applications he and his co-workers have made in contractual work for industry and government bodies.

Jeff received his education in Wales, taking his B.Sc. in Geology and his Ph.D., on the mineralogy and stratigraphy of the fireclays of the South Wales Coalfield, at the University College at Swansea. After a short spell as a research demonstrator in University College, Cardiff, he migrated to Scotland without being tainted further by Sassenachs on the way. There he joined what was then the Macaulay Institute for Soil Research and for the last 26 years he has devoted his research efforts to the mineralogy and chemistry of soils and clays and the processes that give rise to them.

Soil and clay mineralogy is not an arena for the fainthearted—it requires much in terms of dedication, patience and rigour if worthwhile results are to be achieved. Jeff has shown all these attributes in his research and in his leadership at the Institute. He seems to be as much at home with mineral systematics as with interpretations on the complex processes of mineral weathering and soil formation. He is an authority on the biological weathering of silicates—showing an

unusual breadth of interest on the effects of such materials as nucleic acid complexes, lichens and even penguin guano. He is no less skilled in the understanding of interstratified clays and their properties, and recently has been making significant contributions to the study of surface water acidification and its effects—including the important aspects of aluminium mobility during silicate weathering. His papers on these and related subjects, of which there are over 100, are a pleasure to read—for their conciseness and for his ability to make appear simple that which is complex.

As Head of the Division of Soils and Soil Microbiology, a position he has effectively held since 1982, he has appeared tireless in his efforts to steer his team along the straight and narrow road of high quality science despite the many obstacles so often put in the way nowadays and perhaps with which many of us are familiar. He has for many years quietly and efficiently contributed to the editing of research journals, to the running of international conferences and summer schools, and to the supervision of young scientists and students. He is also sole editor of the well-received book 'A Handbook of Determinative Methods in Clay Mineralogy'.

I am told that Jeff is not a man to blow his own trumpet about his achievements. It gives me, therefore, even greater pleasure on behalf of the Society to blow the trumpet in recognition of his work by presenting him now with the Mineralogical Society–Schlumberger Award for 1990 in the form of this silver medal. Jeff, I give you also my personal congratulations.

Acceptance of the 1990 Mineralogical Society–Schlumberger Medal at the University of Liverpool, January 4th 1991

THIS is of course a very pleasing moment for me and it is indeed a signal honour to be the first recipient of the Schlumberger Medal. When Paul Henderson telephoned me to tell me of this award I must admit that my initial feelings were a mixture of pleasure and confusion, which perhaps goes some way towards explaining the incoherence of my immediate response. The pleasure naturally arose from a sense of the recognition that was being accorded by my fellow mineralogists, particularly as I have spent most of my career in a relatively remote area of the country working with materials that I have sometimes felt hardly qualified as minerals at all. Perhaps I may be forgiven for the confusion because I have to admit that at that time I was not at all clear about the nature and purpose of the Schlumberger award. Now that I have had time to find this out and to reflect on the matter I am more keenly aware than ever of the honour that the Society is conferring on me to-day.



I am particularly proud to accept this medal as a representative of the Clay Minerals Group. You will all know I am sure that since its formation the Group has attempted to foster the interest of the scientific community into all aspects of clay minerals science. It has certainly been an immense benefit to me to have had the privilege

to play an active role in the Group's affairs, not only in the United Kingdom but also in a wider context through membership of the Association Internationale pour l'Etudes des Argiles and through the European Clay Groups Association. This has helped me to understand the truly interdisciplinary and international nature of clay mineralogy and to appreciate the astonishing diversity of applications that clays find in human activities as a whole. The Schlumberger company have of course been in the forefront in their recognition of the importance of clay research as applied to the exploration and production of hydrocarbons. I am delighted therefore that such a prestigious company should sponsor an award that specifically recognizes the applications of mineralogy and I feel tremendously honoured to be its first recipient.

My first introduction to clays was as a Ph.D. student under Frank Rhodes and Dick Owen in the Geology Department (now sadly defunct) at the University College of Swansea, where I was the holder of a studentship sponsored by Guest, Keen and Nettlefolds. My research was into the mineralogy and stratigraphy of the fireclays of the South Wales Coalfield and right from the start it was clear that I was in something of an experimental situation. I knew nothing about clay mineralogy and could not recall the subject even being mentioned during my degree course. A further difficulty was that the only physical investigative technique at my disposal was differential thermal analysis, which I now know is less than an ideal determinative method for clay minerals analysis, and certainly for the materials that I was studying. However, this proved to be something of a blessing in disguise because the book I found myself most often referring to was *The Differential Thermal Investigation of Clays* by R. C. MacKenzie. So when it happened, during a pleasant interlude as a Research Demonstrator at the University College of Cardiff, that there was a vacancy for a mineralogist in Mack's department in the Macaulay Institute for Soil Research in Aberdeen, I jumped at the chance. At that time—summer in 1964—even travelling to Aberdeen was regarded as a foolhardy enterprise because the city was in the grip of a typhoid epidemic. What I found at the Macaulay, however, quickly convinced me that I had been fortunate in taking the decision to go north. There was a stimulating blend of experienced and young researchers from a whole spectrum of scientific backgrounds,

supported by a first class technical staff and all dedicated to pushing back the frontiers of knowledge of soil science. In the Department of Pedology, Mack exercised a wise and benevolent leadership, particularly by ensuring that the necessary instrumental resources were available to his research staff, by providing constant encouragement and advice on clay mineralogy and by allowing his staff the freedom to follow their interests within the general context of the research programme. It was a happy environment to work in and visitors often remarked on the 'family atmosphere' of the Department.

My own role was as a researcher into the processes and mechanisms of mineral weathering in soils and this gave me ample opportunity to follow up all kinds of interesting topics, ranging from the mineralogy of parent rocks (an important point in a geologically diverse country like Scotland where the soils are relatively young) to biological weathering effects on primary minerals. The central point of the research though was to gain an understanding of the relationship between mineralogy and soil properties and behaviour. I remain quite convinced that mineralogy has a crucial role to play in this area, having seen at first hand many examples of how incomprehensible soil behaviour could be rationalized only by an understanding of the mineralogy of the soil and of the associated soil processes. I emphasize this point because within the last few years in the face of financial constraints, it was proposed and to a degree accepted that research into soil mineralogy should be abandoned in the agricultural research institutes of this country, the proposition being that results or expertise needed could be bought from abroad. The inevitable consequence of this has been a most serious erosion of national expertise in this area. Fortunately, wiser counsels now appear to be prevailing and we are beginning to see a return swing of the pendulum.

By way of contrast, the oil industry has never been in any doubt about the usefulness of research into clay mineralogy. The tremendous boom in oil-related activities that took place in Aberdeen in the last two decades led to many requests for access to the Macaulay Institute's expertise in clay mineralogy. I believe that this demand has proved to be beneficial, not only by providing extra income for the Institute, but also by revealing the potential for new lines of research into clays. Thus, consultancy type work

undertaken at the Institute on diagenetic clays in a certain North Sea reservoir sandstone led directly to an improved strategy for secondary oil recovery in the field concerned, and also to the formulation of a new conceptual model for interstratified clays that has had a profoundly stimulating effect on research into these minerals. Having been personally involved in this work, I have always thought of it as a good example of the mutually beneficial effect that may accrue when industry and research institutes interact with one another. Certainly, it seems appropriate to mention this in the context of the present award.

I note that candidates for the Schlumberger award are expected to be 'currently active scientists' and I must say that I feel very pleased to be regarded as still being in this category. Over the last few years I have had to accept an increasing burden of administrative duties to the point where there seems to be less and less time for science. I am hopeful that this situation will change, however, and certainly I remain optimistic about the application of mineralogy to research themes of topical interest in the soils area. In addition to problems related to soil fertility, I foresee that there will be an increasing application of mineralogy to environmental concerns such as pollution by heavy metals, radionuclides, organics, etc., all of which involve surface processes and interactions with minerals. Further investigations of soil and surface water acidification will also require significant mineralogical inputs. There should, therefore, be no shortage of important research problems to which mineralogy can be applied and to which I would hope to be able to contribute in the future.

In conclusion, I wish to express my thanks to all my friends and colleagues at the Macaulay Institute who have done so much to help me in my mineralogical work over the years. I am greatly indebted to them all and in a very real sense I feel that I am accepting this award on their behalf. I wish to thank too those colleagues who so kindly nominated me for the award and of course the Schlumberger company itself for its generous act of sponsorship. Finally, if I may be allowed to add that this presentation represents a particularly happy conjunction of circumstances for me in that I am once more in the city of my birth (I left at the age of three) receiving a silver medal in the year of my silver wedding anniversary. You can understand therefore, the pleasure I take in accepting this award.