

Presentation of the Roebling Medal of the Mineralogical Society of America for 1982 to Joseph V. Smith

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Mr. President, Members of the Society, Guests:

If I had been given the chance to choose someone to introduce for the Roebling Medal, my selection would have been Joseph V. Smith. His creative research productivity identifies him clearly as a mineralogical medalist.

I will introduce him to you through his career. He claims that he is still the farm boy who grew up in Derbyshire. This always reminds me of the Illinois politician who claimed that he was a "simple country boy". When he died, the shoe-boxes discovered in his room contained millions of dollars. Joe Smith, the country boy from Derbyshire, will also leave a legacy, but it will be an intellectual and written legacy for all of us.

Between 1945 and 1951 in Cambridge, England, he earned degrees of B.A., and Ph.D. Between 1951 and 1956, as a Fellow at the Geophysical Laboratory, and then as a Demonstrator at Cambridge University, he soon gained attention with his publications on crystallography and mineralogy. I still remember the feldspar papers by Smith and MacKenzie that I had to read as I completed my honors degree. I first met Joe Smith in 1956, when I went to Penn State as a graduate student and he arrived as Assistant Professor. Joe went to Chicago in 1960, and enticed me there in 1965. I have seen his work at close quarters ever since.

I mentioned his productivity. He started normally in 1952, publishing 2–3 papers per year. By mid-1982, his publications exceeded 320, which is surely abnormal for so young a mineralogist. Quantity is accompanied by quality and diversity. We all see a lot of J. V. Smith publications, but probably we all see different ones, because he has so many research interests. I will pick out three of the continuing threads which run through his research.

He started off as a crystallographer, and followed his structural interests into mineralogy. He has a series of important papers dealing with major rock-forming minerals, and his encyclopedic knowledge and critical insight are well represented by his two volumes on FELDSPARS. One reviewer of those books wrote that libraries should purchase two copies, because the first set would soon be worn out.

Zeolites and feldspars are not too dissimilar, but zeolites are useful. Joe Smith began to work on the structures

of zeolites in 1956 as part of his association with Union Carbide. Zeolites led him into quite a different world, the world of molecular sieves, a world in which major oil companies sue each other over patents on the use of zeolites as catalysts for cracking petroleum. Joe Smith has been called upon as an expert witness in at least one of those suits.

The third thread became an expanding sheet of cloth. As principal investigator in the Apollo program, Joe Smith extended his research to the origin of lunar rocks, the origin of the moon, and hence to the origin of the universe. This work is represented by his Hallimond Lecture for the centenary of the Mineralogical Society of Great Britain, published in 1977 as a special reprint: "Mineralogy of the Planets: a Voyage in Space and Time".

Joe Smith has an agile mind, and he is not afraid of novel interpretations. At the First Lunar Science Conference, the hot moon of Joe Smith and his Chicago team received a somewhat frigid reception. When Joe presented a model involving differentiation of a very large body of magma, an eminent former Chicago faculty member stated at a Press Conference that he could not imagine how someone from his Alma Mater dared to propose such a ridiculous scheme; the moon was cold, and the presence of lavas demonstrated only that some local event had temporarily heated a small part of it. In recent years, magma oceans on both moon and earth appear to be accepted even by those who wrote in 1971: "this is not possible", "entirely lacking in supporting evidence", "encounters a fatal difficulty". What Joe did, in fact, was to look at the evidence, reach a conclusion, and state it, despite the fact that it ran counter to 1970 rules. A farm boy ploughs his own furrow. The lunar work completed the transition of Joe Smith from crystallographer through mineralogist to petrologist, and I wish I had the time to review his work on peridotite nodules, kimberlites, and their implications for mantle mineralogy and composition.

I have outlined a small sample of the research of Joe Smith. He is a fine example of how rewarding it can be to cross disciplines in order to get a new look at an old or familiar subject. He is also an example of a research scientist who can design and maintain instruments. The younger folk among you, who sit before the electron

microprobe and reprinted and recalculated analyses, probably do not realize that in the early 1960s there were many analysts who said the electron probe would never yield quality results; there were just too many problems. Joe Smith devoted about four years of his life to developing the techniques which made the machine work so successfully. I anticipate similar success for his current efforts with the ion probe.

I do not know how Joe's upbringing on a farm contributed to his agile mind, but I do know how it contributed to his fine pair of experimental hands. Many of us have seen Joe sitting on a chair, manipulating the buttons on the electron microprobe. If you catch him in a relaxed moment, he may explain to you that he is one of the few crystallographers who can obtain satisfaction from sitting on a stool and milking a cow, the old-fashioned way. If

you catch him in a really relaxed moment, he may even offer to demonstrate.

There are many other topics I should mention. When Joe received the Murchison Medal a couple of years ago, some interesting stories surfaced which bear repetition—but unfortunately there is not enough time.

I should have referred to Joe's recent textbook on "Crystallography", which makes excellent reading. Instead, I will refer to Brenda, his friendly wife and companion. After bringing up a family, she now writes novels while Joe writes science. She has two manuscripts which may make their way into books. I shall look forward to reading them, and I know Brenda well enough to know that I can recommend them to you.

Mr. President, I am delighted to be the one privileged to present Joe Smith for the Roebling Medal, 1982.