

ACCEPTANCE OF THE 1957 MSA AWARD

RUSTUM ROY, *College of Mineral Industries,
The Pennsylvania State University.*

Mr. President, Dean Osborn, Fellows, Members and Guests of the Society:

Let me first express my sincere thanks—inadequate as they must appear—to the Society for honouring me in this way. I view especially with admiration the wisdom and the vision of the Selection Committee members who have seen fit not to limit the award to U. S. Nationals, nor even to “Mineralogists” in a technical sense. Two of the award winners hold no formal degrees in the earth sciences, and three are not nationals.

If I repeat what nearly all my predecessors have said—that, in reality, the Award is given to the community of scientists and administrators which the individual represents—it is simply because it is felt so keenly by any person in the position in which I am today. Perhaps it is even more obviously true in my case as an alien who has been so wholly accepted by the community at large and by my colleagues in particular. In my case this community has been the Mineral Industries College at Penn State which has provided the nurturing circumstances, financial support and above all personal encouragement. It was Dr. P. D. Krynine and the late Dr. W. M. Myers who by this personal interest got me started in the Earth Sciences. My debt to Dean Osborn on all counts as teacher, research supervisor and administrator is obvious to all—likewise to his successor, Frank Tuttle. A glance at my bibliography—almost all joint papers—will tell you only a part of what I owe my students and colleagues. This working together, arguing and learning from co-workers, such as my wife and Bob DeVries, is what I treasure most out of my research experience.

I do not want to dwell on technical matters today: let me just tell you of the distant goal of our work. We are at Penn State an experimental group, and we are trying to teach our students how to tackle problems in geochemistry and crystal chemistry using the very many laboratory experimental methods available. At the same time we try to inculcate in them a healthily critical attitude towards all the “experimental results” and “data” they find in the literature. Perhaps they can become as thoroughly critical as Professor Tunell of UCLA—who has just been a visiting lecturer at Penn State—can be of thermodynamics theory. Thus, armed with a critical attitude towards all data including our own, we are slowly adding to the crystal chemical data towards the day when empirically geochemists will be able to predict what phase or phases any given composition will form under chosen “*p*” and “*t*” conditions.



RUSTUM ROY

It was in *The Atlantic Monthly* that I read recently an article on whether one can actually develop, at will, "geniuses" in our College. The author's conclusion was that though we cannot grow "geniuses" at

will, we could help bright minds address themselves to the proper problems—the most important ones of the time. This afternoon I am going to present to the bright minds around me a list of problems. I hope you will forgive me that none of them is technical—each of them is, I believe, nonetheless important to the solution of our technical problems.

The first of these is that of *motivation*. One of the reasons for giving the MSA award is to provide motivation for further work. Dr. Bowen in his characteristically expressive way when presenting Dr. Tuttle for the first award mentioned the “spurring” effect of the arrival of each issue of the *Mineralogist* on the scientific productivity of the recipient. But awards are only a part of the incentives which already exist for the research man. Beyond the intrinsic interest of his work the research man is rewarded by the publication of papers and the accompanying publicity both among his colleagues and the general scientific public; he is often rewarded financially by outside consulting arrangements. As he gets money for research projects from outside sources he becomes more and more independent of his immediate administrative environment. If incentives are good for the research man they are just as desirable for teachers. And I think that the first major problem confronting earth scientists is to find a way to provide, immediately and specifically, adequate incentives for outstanding teachers at both undergraduate and graduate levels. I sometimes wonder what effect it would have on our Journals if all the products of research (viz. papers) were published anonymously—just as all the teachers’ products (trained students) go out without a label.

The second area for some thought and action is the question of *authorship* of scientific papers. It seems to me that we cannot go on much longer with such a non-quantitative approach with so many local different ground rules. This is the cause of much misunderstanding and avoidable recrimination in the scientific community and no one seems to be tackling it. There is room here for thought by scientists, and action by various groups of scientists in experimenting with ways of establishing some uniformity of practice and perhaps some measure of quantitative-ness.

The last area is the much more complex and subtle one of *adequate acknowledgment* of the source of some of our ideas. This is a problem which is becoming both increasingly difficult and increasingly extensive as the number of meetings multiplies and inter-laboratory visits become everyday happenings. If we were able to work out a satisfactory approach we may have much more inter-laboratory cooperation and less competition. Perhaps, also, our theoretical and “teaching” colleagues may thus be recognized for their participation in experimental research, through the medium of their ideas.