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THE HAWLEY MEDAL FOR 1988 TO DAVID S. O'HANLEY

Ladies and Gentlemen,

The Hawley Award is presented annually to the author of the paper judged to be the best of those published in the preceding year's volume of *The Canadian Mineralogist*. The jury's task is never an easy one, given the breadth of scientific research reported in our journal, and the outstanding quality of many contributions. This year was no exception.

Before describing this year's award-winning contribution, I would like to list three other papers which were accorded honorable mention by the jury, and any one of which, in its view, would have been a worthy recipient of the Hawley Award. These were the paper entitled "Calcic myrmekite: possible evidence for the involvement of water during crystallization of andesine" by R.F. Dymek and C. Schiffries; the paper on "Thermodynamic properties of Fe–Mg titaniferous magnetite spinels" by R.L. Hill and R.O. Sack; and, thirdly, the paper entitled "The relationship of olivine cumulates and mineralization to cyclic units in part of the Upper Critical Zone of the Western Bushveld Complex" by R.N. Scoon and W.J. De Klerk. In the end, however, the paper that emerged from this very strong field was one by David S. O'Hanley entitled "The construction of phase diagrams by means of dual networks".

The jury was impressed with the contribution that Dr. O'Hanley's work makes to the petrological analysis of mineral assemblages. Previous investigators, beginning with Schreinemakers in 1925, have used theoretical methods to relate mineral assemblages in pressure–temperature and other thermodynamic dimensions. The complexity of phase relations is illustrated by the fact that 5 phases in a unary system, a comparatively simple case, can be arranged in 1320 different ways in pressure–temperature space. O'Hanley has used petrographic observation and thermodynamic data to extend the analysis of phase relations to a three-component system, MgO–SiO_2–H_2O, with up to 7 phases. The value of this work lies in the demonstration that petrographic analysis and basic thermodynamics can supplement theoretical analysis to obtain solutions to complex problems in phase relations.

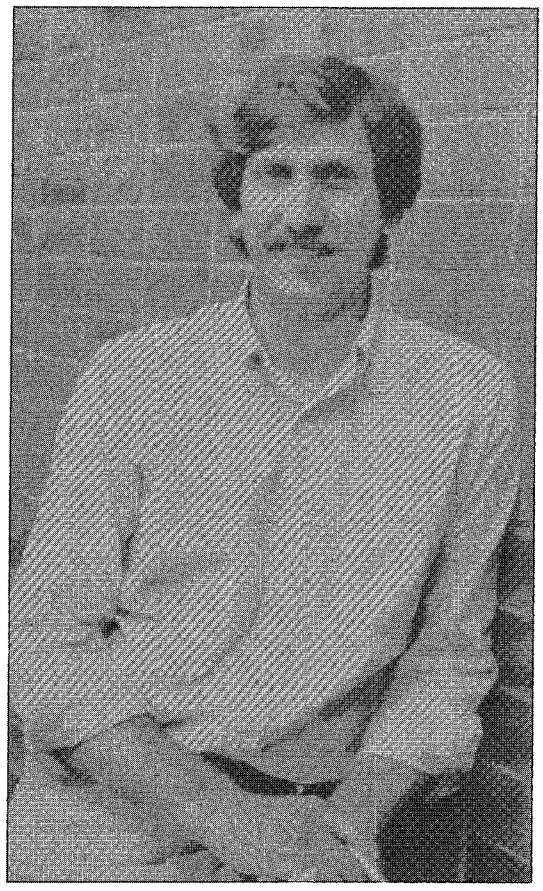
David O'Hanley is a native of Quincy, Massachusetts. He received his undergraduate at Bridgewater State College in Massachusetts, and then earned a Ph.D. in mineralogy from the University of Minnesota in 1986. His doctoral dissertation dealt with the origin and mechanical properties of asbestos.

Since 1986, he has been conducting research on the nature of the serpentinization process as a post-doctoral fellow at the Royal Ontario Museum.

J.M. Duke
Geological Survey of Canada

Mr. President, fellow member of the MAC,
Ladies and Glentlemen,

I glanced through past volumes of *The Canadian Mineralogist* to see who else had been honored with the Hawley medal. If amount of scientific achievement is related to the length of the Hawley address, this one will have to be short. The paper for which I was given the Hawley medal was part of my Ph.D.



DAVID S. O'HANLEY

thesis at the University of Minnesota, written under the supervision of Drs. Tibor Zoltai and James H. Stout.

Tibor and Jim both contributed to my professional development, but in different ways. Tibor is the ultimate optimist to whom anything is possible if you work at it hard enough. In his view, graduate education prepares you for the future; you can learn about the past and present on your own. Jim led several informal seminars involving Gibb's work on thermodynamics as well as the latest ideas regarding the analytical geometry and topology, which are the basis for the phase diagrams. The paper for which I was given the Hawley medal rose out of one of Jim's seminars. Both Tibor and Jim gave me a great deal of freedom to pursue my interests, and I thank them for their foresight. I also thank my fellow graduate students at the University of Minnesota, who enjoyed a good argument regardless of which side they were on. In particular I want to thank Drs. Stuart Simmons and Howard Mooers for their interest in my work, even though it was not related to either Economic or Glacial geology.

My undergraduate work at Bridgewater State College was guided by Drs. Robert Boutillier and Richard Enright. Again the purpose of the course work was preparation for the future, which meant much physics, chemistry and mathematics. Bob and Dick both gave unselfishly of their time, and I hope they are pleased with the result.

My perusal of *The Canadian Mineralogist* indicates that 5 of the 13 winners of the Hawly medal are involved in the study of serpentinites. I think that this is an indication of the difficulty of the subject and the ability of our colleagues to recognize the insight and effort necessary to solve its problems. In this context, I thank Drs. Frederick J. Wicks, Roger Laurent and Joseph V. Chernosky, Jr. for their interest in my work and for their explanations of the intricacies of serpentine mineralogy and textures. After all, I was presented with a problem and I needed a technique to address it. The result was the award-winning paper.

I also thank my parents, who brought me into the world. They can claim credit for my good points and I accept responsibility for the not-so-good. My wife Hilda has been a great teammate and a true-blue friend. It is nice to be married to someone who understands what is needed to bring ideas to fruition.

At present I am in Australia, working in the great serpentine belt of New South Wales and enjoying "winter" in the southern hemisphere. I am sure that you will understand why I am not here today. Joe, thank you for accepting the Hawley medal on my behalf. You are, of course, not held responsible for any conclusions presented in the paper. Finally, I thank the Mineralogical Association of Canada for instituting the Hawley award and for sponsoring *The Canadian Mineralogist*. I am very proud and pleased to accept the Hawley award. Thank you sincerely.

David G. O'Hanley