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Materials Science and Engineering A 438–440 (2006) 2–11

MATERIALS SCIENCE & ENGINEERING A

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Morris Cohen: A memorial tribute

G.B. Olson *

Northwestern University and QuesTek Innovations LLC, Evanston, IL 60208, USA

Received 16 July 2005; received in revised form 3 January 2006; accepted 5 February 2006

Abstract

The following is the text of an oral presentation delivered at the opening of ICOMAT '05 in Shanghai on 14 June 2005 in memory of the late Morris Cohen, senior leader of the materials discipline and the science of martensite.

Keywords: Martensite history; Mechanism; Kinetics

1. Introduction

We lost a great Man of Martensite two weeks ago. It was my great privilege to work closely with Morris Cohen for almost 20 years and to benefit from his frequent advice for another 20 thereafter. I hope to convey some sense of the scope of his contributions as a Statesman, a Philosopher, a Scientist, and a Humanist. But first for the context of this special ICOMAT, I would like to say something about his special relationship with China.

On the occasion of his retirement from research, Professor Cohen remarked that his very first and very last graduate students were both Chinese. I believe it was special relationships formed early in his career, which caused a longing to reconnect with Chinese colleagues, that were behind the great excitement he showed when he was able to visit China for the first time in 1980 (Fig. 1). The photo records his meeting with Professor Hsu here in Shanghai during that visit. His visit was in association with a delegation of U.S. metallurgists organized by the late John Tien that led to a TMS publication of "Metallurgical Treatises." [1] Professor Cohen was a consummate teacher and writer. As part of that monograph, he wrote a review on martensite with Professor Marv Wayman [2] where he expressed our ideas on martensite nucleation in his own words, far more clearly than anything I could write myself. To this day I use that text to introduce my own students to what I am trying to tell them about martensite. I recall Professor Cohen's excitement upon his return from China, when he held a dinner party at his home to tell us all about the wonders he had seen.

A person Professor Cohen had a special fondness for was the man we all knew at MIT as "Chester" Shih, shown here (Fig. 2) at an ancient astronomical observatory in Beijing during Professor Cohen's next visit in 1985. The broadest smile came to his face when Professor Cohen spoke of Dr. Shih and all his achievements. I believe it was the next year at ICOMAT '86 in Nara that Professor Cohen first encouraged the Chinese delegation to consider hosting an ICOMAT. In one of our more recent conversations, he expressed his delight that the ICOMAT he had encouraged was now becoming a reality.

2. Scientist/statesman

Professor Cohen received several honorary degrees from academic institutions around the world (Table 1). His academic positions notably included Honorary Professorships at both the Beijing University of Science and Technology and the Beijing Institute of Aeronautics and Astronautics, both awarded during his first visit to China in 1980.

Professor Cohen was born and raised in Chelsea, Massachusetts, near Boston, and received all his university education at MIT. He had planned to return to the family business in typesetting metals, but MIT faculty came to his home and convinced his parents that the world would be better served by his pursuing an academic career.

His memberships in learned societies (Table 2) included both the National Academies of Science and Engineering. Of his national appointments he is best known for his role as the Chair-

* Tel.: +1 847 491 2847; fax: +1 847 491 7820.
E-mail address: g-olson@northwestern.edu.

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doi:10.1016/j.msea.2006.02.140

Fig. 1. Professor Morris Cohen with Professor T.Y. Hsu in Shanghai, 1980.

man of the National Academy Study of Materials Science & Engineering, known as the COSMAT study (Fig. 3). Upon his election to the National Academy of Science, he requested such a study to bring clearer national recognition to the emerging materials field. Eventually his request was granted, subject to the condition that he chair it himself. He took this assignment very seriously and put tremendous energy into the study. First published in 1974, the COSMAT report is widely acknowledged as defining the modern field of materials science and engineer-

Fig. 2. Professor Morris Cohen with Professor C.H. Shih in Beijing, 1985.

Table 1
Academic achievements

Academic degrees
• Bachelor of Science in Metallurgy, MIT, 1933
• Doctor of Science in Metallurgy, MIT, 1936
• Doctor of Technology (hon.), Royal Institute of Technology, Sweden, 1977
• Doctor of Science in Technology (hon.), Israel Institute of Technology, Israel, 1980
• Doctor of Engineering (hon.), Colorado School of Mines, 1985
• Doctor of Science (hon.) Northeastern University, 1989
Academic positions
• Assistant Professor of Metallurgy, MIT, 1937
• Associate Professor of Metallurgy, MIT, 1941
• Professor of Physical Metallurgy, MIT, 1946
• Ford Professor of Materials Science and Engineering, MIT, 1962
• Institute Professor, MIT, 1975
• Institute Professor Emeritus, MIT, 1982 to date
• Honorary Professor, Beijing University of Science and Technology, 1980 to date
• Honorary Professor, Beijing Institute of Aeronautics and Astronautics, 1980 to date

Table 2
Professional leadership

Governmental and national appointments
• Associate Director of Manhattan Project, MIT
• Official Investigator, Office of Scientific Research and Development
• Consultant, U.S. Atomic Energy Commission
• Consultant, U.S. Department of Defense
• Member, Materials Research Council, Defense Advanced Projects Agency
• Member, National Materials Advisory Board
• Chairman, National Academy of Sciences Survey on Materials Science and Engineering
• Member, Advisory Council, National Aeronautics and Space Administration
• Member, Board of Assessment of National Bureau of Standards Programs, National Research Council
• Member, Steering Committee, National Research Council Study of Materials Science and Engineering
• Co-chairman, National Science Foundation Study on Atomic Resolution Microscopy
Memberships in learned societies
• National Academy of Sciences
• National Academy of Engineering
• American Academy of Arts and Sciences
• Indian National Science Academy
• New York Academy of Sciences
• Federation of American Scientists (Sponsor)
• American Association for the Advancement of Science (Fellow)
• ASM International (American Society for Metals) (Fellow, Honorary Member, Past President)
• The Metallurgical Society of AIME (Past Chairman of the Institute of Metals, Fellow, Honorary Member)
• Japan Institute of Metals (Honorary Member)
• Japan Iron and Steel Institute (Honorary Member)
• British Metals Society (Honorary Member)
• Korean Institute of Metals (Honorary Member)
• Indian Institute of Metals (Honorary Member)
• American Physical Society
• American Society for Engineering Education
• International Society for Stereology
• Research Society of North America (Sigma Xi)
• Materials Research Society