

MICROMOUNTERS OF NEW ENGLAND

NORTHEAST MEETING
Saturday, May 13, 1995

4- H Conference Center
Ashland, Massachusetts

PROGRAM:

9:00 Registration and Informal Session
12:00 Lunch
1:00 Presentation

**MINERAL HABITS: WHY DO CRYSTALS GROW
THE WAY THEY DO?**

by
Jeffrey E. Post

2:00 Doorprize drawings
4:00 Departure

President - Angie Teixeira

Vice President- Jim Clark

Secretary - Patricia Barker

Treasurer - Janet Cares

Newsletter Editor -

Mike Swanson

Additional Information -----

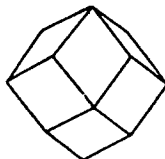
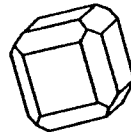
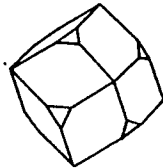
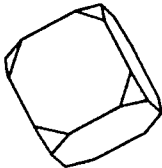
Mrs. Janet Cares, 18 Singletary Lane, Sudbury, Massachusetts, 01776, (508) 443-9180

Guest Speaker: DR. JEFFREY EDWARD POST
CURATOR OF GEMS AND MINERALS
SMITHSONIAN INSTITUTION, NHB 119
WASHINGTON, DC 20560

Dr. Jeffrey Post, a native of Wisconsin, received Bachelor of Science degrees in geology and chemistry from the University of Wisconsin-Platteville, and his Ph.D. in chemistry from Arizona State University. Prior to joining the Department of Mineral Sciences at the Smithsonian Institution in 1984, he was a Postdoctoral Research Fellow in the Department of Geological Sciences at Harvard University. From 1989 to 1994, he was Chairman of the Department of Mineral Sciences, and since 1991 has served as Curator of the U.S. National Gem and Mineral collection.

Dr. Post's areas of research interest include mineralogy, geochemistry, x-ray crystallography, and electron microscopy. He has published numerous scientific articles in several of these fields. At present his time is almost totally involved with the complete renovation of the Smithsonian's famed collection of gems and minerals.

"Jeff" resides in Maryland with his wife and three-year-old daughter.



POLYTYPES

Until a few years ago most amateurs had never heard of polytypes. Collectors at Mont St.-Hilaire became aware of them in the middle to late 1960s when the first publications on that quarry became available. Perhaps the best discussion of polytypes is to be found in the preface to the 1995 edition of the *Glossary of Mineral Species* (Fleischer and Mandarino). Here they quote Nickel and Mandarino as follows:

"Polytypes have been defined as substances that occur in several different structural modifications, each of which may be regarded as built up by the stacking of layers of (nearly) identical structure and composition, and with the modifications differing only in their stacking sequence."

Unfortunately, polytypes cannot be readily identified by sight or simple tests; however, although at one time they were listed as separate species, today they are considered modifications of a single species.

Each polytype is differentiated by a suffix added to the species name which consists of a number to indicate the number of layers in a structural unit, and a letter to represent the crystal system. Thus in the case of synchysite there are two polytypes: synchysite - (Ce)-12*T*; and synchysite - (Ce) - 24*T*. The numerals 12 and 24 indicate the number of times the structural unit is repeated and the letter *T* signifies that the crystal system is Trigonal. This coding was first proposed by Ramsdell in 1947 as applied to synthetic silicon carbide. It has evolved through several modifications to the present which conforms to that recommended by the International Union of Crystallographers (Guinier et al). It uses the following italicized letters to indicate the crystal class:

C = Cubic

H = Hexagonal

R = Rhombohedral

T = Trigonal

Q = Tetragonal (Quadratic)

O = Orthorhombic

M = Monoclinic

A = Triclinic (Anorthic)

References:

Fleischer, M. and J. A. Mandarino (1995) Glossary of Mineral Species, Mineralogical Record, Tucson, AZ

Guinier, A. et al (1984) Nomenclature of polytype structures. Acta Crystallographica, A-40, 399-404

Nickel, E. H. and J. A. Mandarino (1987) Procedures involving the IMA Commission on New Minerals and Mineral Names. American Mineralogist 72:1031-1042

Ramsdell, L. S. Studies on silicon carbide. American Mineralogist 32:64-82

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