Curatorial Report Number 42

Nova Scotia Museum
1747 Summer St.
Halifax, Nova Scotia, Canada

The Mineralogy Collection: Operation Manual and State of the Collection

By Robert Ogilvie
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NOVA SCOTIA MUSEUM

Curatorial Reports

The *Curatorial Reports* of the Nova Scotia Museum contain information on the collections and the preliminary results of research projects carried out under the program of the museum. The reports may be cited in publications but their manuscript status should be clearly indicated.

INTRODUCTION

This report has been prepared for the purpose of establishing a framework within which the Nova Scotia Mineralogy Collection can be curated in future. All aspects of curation are discussed, along with a brief history and plan for future development. A section is also given over to a list of minerals which are represented in the collection. This report will increase the collection's worth to the museum, the professional community, and the public at large.

HISTORY

The Nova Scotia Mineralogy collection had its beginnings in the years before the museum itself was established, when collections were being made for the London International Exhibition of 1862. These collections were placed in the charge of Rev. David Honeyman when he was made the first curator in 1868. Honeyman himself was in the forefront of the Nova Scotian geological community of his day, writing numerous papers, mostly on geological subjects. His chief area of interest was in the Silurian section exposed at Arisaig, Antigonish County, but his writings covered a broad range of subjects. A large number of specimens collected by him remain in our possession, but most of them need curation before they can be incorporated in the collection. Associates and fellow members of the Nova Scotian Institute of Science such as Prof. Henry How (Windsor), Edwin Gilpin, Jr. (Halifax) and Henry Poole (Halifax), all contributed specimens to the geological collections. A collection of minerals made by William Bennett Webster (1798-1861) was donated to the museum by his widow upon Mr. Webster's death. Harry Piers noted Webster as one of the pioneer naturalists of our province. Perhaps the best mineralogist in our history was Prof. Henry How of Kings College, Windsor. He is credited with the discovery of several new minerals, some of which are cerinite, cyanolite, mordenite and stellarite. How donated a large number of his borate minerals to the museum, and these are in the collection. Included is the type specimen of Winkworthite, which Dana, the famous mineralogist, later found to be a mixture of gypsum and some new borate mineral. It was this new mineral that Dana named Howlite, in honour of Prof. How, in 1868.

The Piers years began in 1899 when he was made curator, and the collections continued to expand during his years with the museum. Piers himself collected hundred of specimens. Other heavy contributors were T. Vardy Hill, F. H. Mason, Dr. H. S. Poole, Halifax, (son of Henry S. Poole) and Charles Keddy. The geological material totalled 35% of all museum accessions in 1921, and 61% of these were minerals. Over the past fifty years, thousands of specimens were packed in boxes and taken to Mount Uniacke because of the lack of cabinet space. At present, the collections contains about half of what it did in 1931, but continuing work should restore it to its former size and present curatorial procedures will make it of much greater practical value.

PREVIOUS CATALOGUING SYSTEMS

A lack of written definitive guidelines for past curatorial procedures has caused a rather decentralized and incomplete information storage system. The three systems used in the past were sufficient for their purpose, but not complete enough in scope. As a new system was introduced, the previous system should have been completely changed over, but this was never done. This meant that, until recently, three different types of numbers could be found on specimens, which made it difficult to obtain the associated information.

Harry Piers had his accession numbers on all specimens, and the information could be found by merely looking up the number in the museum accession books. This is no longer practical because of the obvious need for separate accession records for each collection.

Another curator, possibly W. F. Take, instituted the first complete mineralogical system, based on the sample principal as was Piers' accession number. He simply assigned each specimen an M-number (e.g.M692), and kept the information on file cards near the collections (see Appendix A). The problem with this was getting all the information on a card, and the occasional loss of the cards themselves.

The predecessor of our present system was adopted in 1965. The specimen number underwent a radical change, becoming a series of numbers interrupted by the letter "G", e.g. 967.G.156.23. The first three digits refer to the year the specimen was assigned the number, and the letter "G" stands for geology. When first adopted, the symbols Gc, Gd, Ge and Gp were used. The lower case letters symbolized collected, donated, exchanged, or purchased material. This system was later dropped in favor of the simple upper case letter "G". Presently, recording of the mode of acquiring the specimen is done on the specimen record form. The numbers immediately following the letter were apparently assigned in order of accessioning. Once again, the information was retained on file cards (see Appendix B). Separate files were begun to simplify the finding of specific information, but these were never completed. These files (locality files, Dana system files) would have been of value, but the time and effort involved prevented their completion. This will be overcome with a computer based system.

ACQUISITION OF SPECIMENS

The mineralogy collection is continually growing due to a constant inflow of material. By far the largest source of specimens are those in storage at Mount Uniacke. About 16,000 specimens have to be cleaned, accessioned and incorporated in the collection. This backlog is expected to take up to eight years to process. Another source of new material is in the form of donations which we receive on occasions throughout the year. Purchasing has been held to a minimum over the past years because of budget restraints, but some excellent specimens have been acquired this way. An exchange program with the National Museum has been underway for a couple of years, and this has added several valuable specimens to our collections. A limited amount of collecting has been done over the past several years, and there are no immediate plans for intensifying our activity in this field. Storage cabinets are being purchased to make room for the anticipated growth.

PROCESSING A NEW SPECIMEN

When a new specimen is to be placed in the Mineralogical Collection, it must be accessioned and catalogued. These are both accomplished by filling out one form, the Specimen Record (see Appendix D). When this is completed, a small label with the accession number is attached to the specimen with white, water-soluble glue. A specimen label card (see Appendix B) is then filled out and placed in the tray with the specimen.

The completed Specimen Record form then goes to a stenographer, who prepares an accession form which is put in the geology accession book. She also prepares a file card which is kept in the systematic file. This file is broken up into Nova Scotian and Foreign sections, which are arranged by the Hey system. *(see page 7) The manual preparation of cards will be unnecessary once the entire collection is entered in the computer, as the computer can produce the cards used for filing.

ACCESSION AND CATALOGUE NUMBERS

Each specimen must have an accession number and a catalogue number. These are combined. The numbers are assigned to specimens in the order in which they are processed. Each part of the number has a particular meaning.

For example, in
967GM100.3
- 967 - means the year the specimen was collected, donated or purchased
- GM - means Geology-Mineralogy Collection
  (GP = Geology-Petrology Collection; GF = Geology - Paleontology (Fossil) Collection; GE = Geology - Economic Collection)
- 100 - means the 100th accession that year
- .3 - means the third specimen in that accession

Cataloguing

Every specimen must have a catalogue number. There can be more than one specimen with the same catalogue number if the specimens are the same as the first one bearing that number.

For example, consider the accession 976GM83.

It consists of 8 individual pieces of minerals. These are
a) 3 Herkimer diamonds
b) 1 Herkimer diamond in matrix
c) 1 banded agate pipe
d) 2 cut slabs of the same banded agate
e) 1 amygdaloidal basalt (polished and containing chrysoprase)

They all have the same accession number (because they were all donated in one lot on one day) 976GM83.

The catalogue numbers are:

a) 976GM83.1
b) 976GM83.2
c) 976GM83.3
d) 976GM83.4
e) 976GM83.5

As you can see, there are three separate specimens numbered 976GM83.1. Since these are alike, they receive the same number.

PREPARING A SPECIMEN RECORD

The specimen record forms (see Appendix D) presently in use came into being as the result of a cooperative effort between the National Museums Mineral Sciences Division and a number of other institutions across the country which possess geological collections. The form is designed so as to standardize the information available on any particular specimen, and to simplify the change to computerization of collections in the National Inventory. In future, data will be fed into the National Museum's computer, which will enable participants to obtain information on any specimen in any collection involved. This information retrieval system will greatly enhance the usefulness of our own collections.

The forms consist of seven categories of information, which are made up of several specific entries. The following is a detailed explanation of the forms. The first number refers to those on our sheets, and those in brackets indicate the corresponding numbers, or fields, of the National Museum's forms.

Reference:

1.(1) The National Inventory Number - A number assigned to the record by the National Inventory Program.
2.(2) Institution - The name of the institution which owns the specimen.
3.(3) Collection - The type of collection of which the specimen is part (e.g. Mineral, Gemstone, Petrology, Meteorite, or Economic)
4.(4) Catalogue Number - The unique number assigned by the institution to the specimen(s). There may be several National Inventory Numbers for any one catalogue number, as in the case of a single specimen containing several significant minerals.
5.(5) Previous Catalogue Numbers - Numbers previously assigned by the institution to the specimen.

Identification

6.(9) Name - Common name according to M. Fleischer's Glossary of Mineral Species (1975)
7.(10) Species example - GROSSULAR
8.(11) Variety example - HESSONITE
9.(12) Groups example - GARNET
10.(13) Previous names - Other names that have been given to the specimen. These may include both the synonyms and obsolete identifications.
11.(14) Associated minerals - If a separate record has been completed for any associated mineral, the Record number (see number 1) for that entry may be included with the listed associated mineral
12.(36) Identified by - Identifier(s)
13.(15) Type - In the absence of generally accepted nomenclature for mineralogical type specimens, nomenclature suggested by Embrey and Hey (1970) was recommended as a suitable guide.

Description

14.(37) Number of specimens
15.(38) Size - The dimensions of the specimen and units
16.(30) Weight - Recommended entry for meteorites.
17.(16) Formula/chemical composition
18.(17) Specific description - Keyword descriptors (e.g. pseudomorph, twin, fluorescent,etc.) used for significant or unusual features.
19.(40) General description - a text field for descriptive information not covered previously and on which it would be unlikely to base a search. This might include information on the specimen quality or condition or description of associated minerals.
20.(41) Preparation/preservation - A description of how the specimen has been prepared and of the preparation techniques (e.g. etched in hydrochloric acid, repaired with epoxy resin, polished slab)
21.(20) Cut- A description of the type of cut of a gemstone

Locality

22.(42) Country/equivalent
23.(43) Province/equivalent
24.(44) Sub-province - County or equivalent
25.(45) Specific locality - Detailed
26.(46) Mine

The equivalent of country might include some islands or states within a political union or marine areas (e.g. Scotland, Azores, Canary Island, Atlantic Ocean, or, because it is mandatory that something be entered, Unknown). Field 23 would include Canadian, German, Italian and (most) South American nation provinces, American states, Swiss cantons, French and Bolivian departments, Japanese islands, British counties and Russian republics. The next largest geographic unit for the country would be included in field 24. Field 26 would include mine, quarry, prospect, claim or occurrence names. All other other details, including underground data (e.g. 8th level) would be included in field 25.

Synonyms and rescinded locality names, particularly those entrenched in the literature, could be included. If placed in parentheses they could be readily distinguished from valid names, e.g. Madawaska Mines (Faraday Mine), Felsobanya (Baie Sprie), Cumbria (Cumberland), without reducing retrieval efficiency.

27.(47) Latitude
28.(49) Longitude
29.(49) Locality references - The name and number of any topographic or geological map reference, aerial photograph, or data bank file number. Also for other specified grid references or coordinates (e.g. Universal Transverse Mercator, Land Survey Grid, Military Grid).
30. Age/time unit - The age of the specimen in absolute or relative time units.
31. Geological occurrence - a description of the geological occurrence which may include details of the stratigraphic level and rock-stratigraphic units.

Accession

32.(55) Collector
33.(56) Date collected
34.(57) Date of registration (accessioned)
35.(58) Date of acquisition
36.(59) Manner acquired - Collected, purchased or donated
37.(60) Source
38.(61) Numbers and owners - Previous owners and catalogue numbers
39.(62) Value
40.(63) Date of evaluation
41.(64) Evaluater
42.(65) Purchase price
43.(66) Location in collection
44.(67) Loaned to
45.(68) Date loaned
46.(69) History - History of the specimen which might include information on loans and exhibits.

Analyses/data references

47.(70) Physical properties
48.(71) Optical properties
49.(72) Composition
50.(73) Crystallographic data
51.(74) X-ray data
52.(76) Other data
53.(77) Photographic record number

Other

54.(78) References
55.(79) Names of those entering data
56.(80) Date data was entered - (in computer)
57.(81) Remarks - include Hey number of the species
58.(82) Exchange

Information has to be recorded for:

1. Reference number
2. Institution
3. Collection
4. Catalogue number
22. Country

At least one of the following must be recorded:

6. Name
7. Species
8. Variety
9. Group

CLASSIFICATION OF MINERALS IN THE COLLECTION

The mineralogy collection, as of January 1979, has been rearranged from the Dana System to the newer, more streamlined Hey System. Hey's chemical classification is based on subdivision by anions into oxides, sulphides, silicates, etc. This is convenient because few minerals contain more than one anion, and very few more than two. The second stage of sub-division is by metals, in periodic order. Some larger anion sub-sections are broken down into smaller sections to prevent unnecessary confusion. Silicates, for example, are broken down into four sections.

In this system, numbers are assigned to each mineral species according to their chemical composition. The obvious benefit of this is our ability to arrange the collection numerically, with the result that specimens can be retrieved instantly when needed, and replaced later without difficulty.

Another advantage which became apparent after the change-over is the ability to insert related systems, such as loan files, into the scheme. A problem in the past had been replacing specimens in the proper drawer after being returned from a loan. Now, by simply recording the Hey number on the loan form, we can go directly to the proper drawer.

SPECIMEN MOVEMENT

The loaning of specimens for educational and display purposes plays an important part in the overall usefulness of the collection. Careful documentation of loans must be done to ensure the return of borrowed articles. Several factors have to be assessed before any specimen is removed. Of course, type specimens must remain in the drawer unless removal is under the direct supervision of the curator. Fragile specimens must be kept in place and are not available to be loaned. Most other minerals are available for loan, but only on the consent of the curator. Because the responsibility for the integrity of the collection lies solely with the curator, he must have final word on all loans.

Loaning procedure involves several steps designed to ensure the return of borrowed material. First, a loan form (see Appendix E) must be filled out, on which is recorded the borrower's name, address, and the date the loan took place. The identity of the specimens (name and numbers) is also recorded on the form. One copy goes to the borrower, and the other is placed in our loan binder in the section entitled "specimens loaned, not returned". The next step involves the filling out of "specimen loan cards" (see Appendix F) for each specimen. Again, the same information is recorded on these cards and then filed in the file tray marked "SPECIMEN LOAN CARDS", under the section headed "LOANS-OUTSTANDING". They are put in numerical order as indicated by the catalogue number of the specimen, which hastens the recovery of the cards when needed.

When the specimens are returned, the loan form is moved to the section in the loan folder entitled "specimens loaned, returned". The file cards are removed, and the section indicating the date returned is filled out, and the cards are placed back in the loan file, under the section entitled "LOANS-RETURNED". When computerization of the collection is being done, the information on these cards will be entered in field 46 (History).

This system, if strictly adhered to, should prevent the loss of loan material. In the past, many specimens were lost (or are assumed lost) because inadequate information was recorded at the time of the loan, and it was not indicated whether or not the specimens were returned. A caution should be noted at this point - all loaned specimens should be properly labelled and accessioned before being considered for loan. This is because unrecorded material is impossible to trace if and when returned.

MAINTENANCE

The mineralogy collection is, for the most part, quite easy to maintain. Dust and grit tend to accumulate over the years, but the stability of most specimens makes regular maintenance unnecessary. Unfortunately, some minerals are inherently unstable, and these pose definite problems.

Many of the metallic minerals are subject to tarnish, which is usually the result of oxidation. This can not always be removed, and when it can it involves time-consuming chemical treatments. Pyrite and marcasite are subject to pyrite disease when subjected to moist air and dampness. This causes them to oxidize, which releases free sulphuric acid and hydrogen sulphide. This can alter adjoining specimens of other minerals, turn labels brown and make them brittle. Native sulphur crystals tend to crack when subjected to direct sunlight or even heat of the hand, and therefore must be kept under close scrutiny. Some minerals effloresce (lose water) on exposure to air, and therefore must be kept in moisture-rich, sealed containers. Chalcanthite is one such mineral, and if left unprotected changes from a brilliant blue crystal to a fine,white powder. Dr. Erwin Zodrow, our research associate at the College of Cape Breton, has a large number of sulphate minerals which lose water and alter when removed from refridgeration. These problems must be dealt with, and special methods of preserving these minerals must be used.

Hopefully, a program dealing with the preservation, restoration and cleaning of the collection can be undertaken in the near future. This would ensure a completely sound and presentable collection of minerals.

THE MINERALOGY COLLECTION

Below is a complete list of species in the collection, including a collection of pure elements which do not appear in Hey's system because most do not occur naturally. These are placed in periodic order under Hey 1.0, in the first drawer of the collection. The format is as follows. First, the Hey number and species name is written, followed by a bracketed number which refers to the actual number of samples of that species in the collection. After each major heading is the total number of samples within that group. These numbers refer to samples, and do not take into account the fact that a large number of samples contain more than one specimen. The number of specimens is approximated at the end of this listing.

1. ELEMENTS AND ALLOYS

1.0	PURE ELEMENTS	(45)
1.1	Native Copper	(39)
1.3	Native Silver	(4)
1.4	Native Gold	(57)
1.8	Zinc	(1)
1.20	Tin	(1)
1.35	Antimony	(5)
1.44	Bismuth	(1)
1.47	Sulphur	(8)
1.53	Tellurium	(1)
1.57	Iron	(1)

2. CARBIDES, NITRIDES, SILICIDES AND PHOSPHIDES (1)

2.1 Carborundum (Artificial) (1)

3. SULPHIDES, SELENIDES, TELLURIDES, ARSENIDES, ANTIMONIDES AND BISMUTHIDES (298)

3.1.1 Chalcocite (25)
3.1.4 Covellite (4)
3.1.11 Bornite (13)
3.1.12 Chalcopyrite (54)
3.2.2 Argentite (1)
3.2.6 Hessite (1)
3.2.9 Stromeyerite (1)
3.4.2 Sphalerite (29)
3.5.2 Cinnabar (1)
3.5.4 Tiemannite (1)
3.6.3 Galena (46)
3.7.2 Realgar (1)
3.7.3 Orpiment (1)
3.7.9 Stibnite (9)
3.7.11 Bismuthinite (2)
3.8.3 Molybdenite (28)
3.8.7 Hauerite (1)
3.9.1 Pyrrhotite (8)
3.9.6 Pyrite (28)
3.9.7 Marcasite (4)
3.9.10 Lollingite (1)
3.9.12 Arsenopyrite (22)
3.10.9 Cobaltite (2)
3.11.1 Millerite (2)
3.11.2a Heazlewoodite (1)
3.11.3 Polydymite (2)
3.11.9 Niccolite (3)
3.11.15 Breithauptite (1)
3.11.16 Ullmanite (1)
3.11.24 Pentlandite (2)
3.12.5 Sperrylite (3)

4. OXYSULPHIDES (2)

4.2	Kermesite (2)

5. SULPHARSENITES, SULPHANTIMONITES AND SULPHOBISMUTHITES (7)

5.1.2	Tetrahedrite (1)
5.2.4	Proustite (1)
5.2.9	Pyrargyrite (2)
5.2.10	Pyrostilpnite (1)
5.2.11	Stephanite (1)
5.2.12	Polybasite (1)
5.4.4	Livingstonite (1)
5.6.19	Boulangerite (1)
5.7.18	Owyheeite (1)
5.7.20	Diaphorite (1)
5.8.7	Jamesonite (6)

6. SULPHOSTANNATES, SULPHOGERMANATES, SULPHARSENATES, SULPHANTIMONATES AND SULPHOVANADATES (6)

6.1.1	Stannite (2)
6.2.2	Argyrodite (1)
6.3.1	Enargite (2)
6.4.2	Colusite (1)

7. OXIDES AND HYDROXIDES (684)

7.3.1	Cuprite (5)
7.3.3	Tenorite (2)
7.4.2	Chrysoberyl (3)
7.4.11	Psilomelane (3)
7.5.1	Zincite (1)
7.5.2	Gahnite (4)
7.5.10	Frankinite (1)
7.6.1	Corundum (1)
7.8.1	Quartz (327)

7.8.3 Tridymite (1)
7.8.5 Cristobalite (1)
7.8.8 Opal (18)
7.9.2 Anatase (1)
7.9.3 Brookite (1)
7.9.14 Ilmenite (4)
7.10.6 Thorianite (1)
7.11.1 Cassiterite (17)
7.13.4 Valentinite (2)
7.13.5 Stibiconite (1)
7.14.1b Eskolaite (1)
7.14.5 Chromite (3)
7.15.3 Tungstite (7)
7.16.1 Uraninite (4)
7.16.10 Brannerite (1)
7.16.11 Uranothorianite (1)
7.16.17 Gummite (2)
7.18.6 Pyrolusite (31)
7.18.7 Ramsdellite (1)
7.18.8 Manganite (20)
7.18.10 Wad (27)
7.18.13 Galaxite (1)
7.19.3 Bixbyite (2)
7.20.3 Magnetite (30)
7.20.5 Hematite (68)
7.20.6 Turgite (4)
7.20.7 Goethite (10)
7.20.9 Limonite (76)

8. HALIDES (55)

8.1.2 Halite (7)
8.1.7 Sylvite (3)
8.4.15 Fluorite (44)
8.11.7a Iowaite (1)

9. BORATES (44)

9.3.4 Inyoite (2)
9.3.8b Nobleite (1)
9.3.9 Ulexite (39)
9.3.20 Tunnelite (1)
9.7.1 Sussexite (1)

10. BORATES WITH OTHER ANIONS (1)

10.1.5 Boracite (1)

11. CARBONATES (185)

11.1.7	Pirssonite (1)
11.2.1	Malachite (26)
11.2.2	Azurite (8)
11.3.1	Magnesite (2)
11.3.4	Artinite (1)
11.4.1	Calcite (93)
11.4.2	Aragonite (1)
11.4.13	Dolomite (7)
11.5.5	Witherite (1)
11.5.5b	Benstonite (1)
11.5.7	Barytocalcite (1)
11.6.1	Smithsonite (2)
11.6.7	Aurichalcite (1)
11.9.1	Cerussite (5)
11.9.1a	Weloganite (1)
11.9.2	Hydrocerussite (1)
11.10.1	Bismutite (1)
11.12.1	Rhodochrosite (6)
11.13.1	Siderite (21)
11.13.5	Pistomesite (1)
11.13.16	Ankerite (4)

12. CARBONATES WITH OTHER ANIONS (1)

12.1.3	Bastnasite (1)

13. NITRATES (0)

14. SILICATES NOT CONTAINING ALUMINUM (95)

14.2.5	Chrysocolla (5)
14.3.1	Phenakite (1)
14.4.9	Chrysotile (9)
14.4.12	Antigorite (10)
14.4.30	Talc (6)
14.5.11	Gyrolite (1)
14.5.12	Crestmoreite (1)
14.6.1	Pectolite (4)
14.6.5	Miserite (1)
14.6.9	Diopside (4)
14.6.11	Tremolite (3)
14.7.4	Willemite (1)
14.7.5	Hemimorphite (1)
14.7.11	Troostite (2)
14.9.2	Titanite (5)
14.9.15	Astrophyllite (1)
14.10.1	Zircon (8)

14.11.1 Thorite (2)
14.15.4 Uvarovite (2)
14.15.5 Chrome-diopside (2)
14.16.2 Cuprosklodowskite (1)
14.16.6 Uranophane (2)
14.16.11 Kasolite (1)
14.17.1 Rhodonite (7)
14.17.2 Tephroite (1)
14.18.18 Serandite (1)
14.18.25 Richterite (1)
14.18.43 Polyadelphite (1)
14.19.1 Fayalite (1)
14.20.2 Acmite (1)
14.21.5 Chrysolite (1)
14.21.7 Hypersthene (1)
14.21.24 Cummingtonite (1)
14.22.8 Andradite (2)
14.23.7 Actinolite (2)

15. SILICATES OF ALUMINUM (36)

15.1 Andalusite (26)
15.2 Kyanite (2)
15.11 Pyrophyllite (2)
15.13 Allophane (1)
15.25 Nacrite (2)
15.27 Kaolinite (3)

16. SILICATES CONTAINING ALUMINUM AND OTHER METALS (336)

16.1.1 Petalite (1)
16.1.2 Spodumene (4)
16.2.1 Nepheline (2)
16.2.5 Albite (8)
16.2.7 Cleavelandite (1)
16.2.15 Natrolite (17)
16.2.21 Analcite (33)
16.3.4 Microcline (5)
16.3.5 Orthoclase (20)
16.3.16 Muscovite (24)
16.4.13 Dysyntribite (2)
16.5.3 Pollucite (1)
16.6.1 Beryl (17)
16.7.0 Pyrope (1)
16.7.29 Saponite (1)
16.8.10 Phlogopite (1)
16.9.2 Anorthite (1)

16.9.6 Grossular (8)
16.9.9 Margarite (2)
16.9.11 Zoisite (1)
16.9.12 Clinozoisite (1)
16.9.17 Scolecite (1)
16.9.19 Prehnite (2)
16.9.23 Laumontite (5)
16.9.29 Epistilbite (1)
16.10.5 Labradorite (2)
16.10.10 Oligoclase (2)
16.10.16 Thomsonite (2)
16.10.20 Mesolite (21)
16.10.26 Gmelinite (2)
16.10.29 Stilbite (38)
16.10.39a Paulingite (1)
16.10.47 Chabazite (25)
16.10.50 Erionite (1)
16.10.51 Heulandite (22)
16.10.56 Mordenite (5)
16.12.10 Harmotome (2)
16.13.10 Allanite (5)
16.14.2 Keilhauite (1)
16.14.11a Kimzeyite (1)
16.5.9 Fuchsite (1)
16.15.12 Emerald (1)
16.16.2 Spessartine (3)
16.16.26 Ottrelite (1)
16.16.35 Piemontite (1)
16.17.1 Almandine (3)
16.19.2 Cordierite (9)
16.19.5 Staurolite (9)
16.20.24 Biotite (4)
16.20.32 Phyllite (1)
16.21.7 Epidote (5)
16.23.3 Augite (3)
16.23.12 Idocrase (2)
16.24.14 Hornblende (3)

17. SILICATES CONTAINING OTHER ANIONS (107)

17.1.3 Norbergite (1)
17.1.4 Chondrodite (1)
17.1.12 Apophyllite (24)
17.1.22 Mosandrite (1)
17.1.31 Fluor-richterite (2)
17.2.1 Topaz (7)
17.2.4 Lepidolite (7)
17.3.2 Sodalite (1)
17.5.2 Elbaite (5)
17.5.5 Danburite (1)
17.5.6 Datolite (1)

17.5.7 Howlite (16)
17.5.18 Axinite (1)
17.5.20 Kornerupine (1)
17.5.21 Tourmaline (Schorl) (32)
17.5.30 Winkworthite (2)
17.8.0 Niocalite (1)
17.8.9 Wohlerite (1)
17.10.15 Thaumasite (1)
17.10.17 Wernerite (1)

18. COLUMBATES AND TANTALATES (23)

18.1.1 Microlite (6)
18.1.16 Tantalite (1)
18.1.18 Columbite (7)
18.2.9 Pyrochlore (1)
18.2.20 Lyndochite (1)
18.3.4 Betafite (1)
18.3.12 Ellsworthite (3)
18.4.1 Yttrotantalite (1)
18.4.4 Euxenite (1)
18.4.14 Samarskite (1)

19. PHOSPHATES (31)

19.1.5 Lithiophyllite (1)
19.1.6 Triphyllite (1)
19.1.11 Tavorite (2)
19.2.6 Turqoise (1)
19.2.8 Chalcosiderite (1)
19.7.2 Variscite (1)
19.8.2 Brazilianite (1)
19.8.17 Wardite (1)
19.9.2 Monazite (2)
19.9.6 Churchite (1)
19.11.5 Torbernite (4)
19.11.6 Metatorbernite (3)
19.12.13 Triploidite (1)
19.12.17 Heterosite (1)
19.12.33 Arrojadite (1)
19.12.35 Eosphorite (3)
19.13.2 Vivianite (1)
19.13.8 Strengite (1)
19.14.8 Collinsite (1)
19.14.18 Lazulite (2)
19.14.18a Scorzalite (1)

20. ARSENATES (7)

20.1.2 Olivenite (1)

20.1.9 Conichalcite (1)
20.5.3 Bayldonite (1)
20.7.4 Zeunerite (1)
20.9.4 Pharmacosiderite (1)
20.10.1 Erythrite (2)

21. VANADATES (2)

21.2.4 Pascoite (1)
21.4.4 Tyuyamunite (1)

22. PHOSPHATES, ARSENATES OR VANADATES WITH ANIONS (50)

22.1.1 Amblygonite (9)
22.1.5 Herderite (1)
22.1.7 Apatite (18)
22.1.15 Morinite (3)
22.1.28 Durangite (1)
22.2.5 Pyromorphite (14)
22.2.9 Mimetite (1)
22.2.13 Vanadinite (2)
22.2.14 Endlichite (1)

23. ARSENITES (0)

24. ANTIMONATES AND ANTIMONITES (0)

25. SULPHATES (172)

25.1.5 Mirabilite (2)
25.2.2 Chalcanthite (3)
25.2.10 Brochantite (1)
25.3.3 Epsomite (2)
25.3.13 Pickeringite (1)
25.4.1 Anhydrite (10)
25.4.3 Gypsum (72)
25.4.9 Polyhalite (1)
25.4.12 Celestite (12)
25.4.14 Barite (59)
25.6.2 Alunogen (4)
25.7.1 Anglesite (1)
25.7.4 Linarite (1)
25.11.28 Halotrichite (3)

26. SULPHATES WITH HALIDES (0)

27. CHROMATES, MOLYBDATES AND TUNGSTATES (31)

27.2.1 Lindgrenite (1)
27.2.3 Wulfenite (3)
27.2.7 Ferrimolydite (1)
27.3.4 Scheelite (17)
27.3.12 Hubnerite (4)
27.3.15 Ferberite (1)

28. SELENITES, SELENATES, TELLURITES AND TELLURATES (0)

29. IODATES (0)

30. THIOCYANATES (0)

31. OXALATES, CITRATES, MELLITATES AND ACETATES (0)

32. NATURAL GASES (0)

33. HYDROCARBONS, RESINS, BITUMENS AND OTHER ORGANIC COMPOUNDS (8)

33.9.5 Albertite (8)

34. MINERALS OF UNKNOWN OR PARTIALLY UNKNOWN COMPOSITION, CHARACTERIZED OPTICALLY OR GONIOMETRICALLY (0)

35. MINERALS OF UNKNOWN OR PARTIALLY UNKNOWN COMPOSITION, INADEQUATELY CHARACTERIZED (0)

The total number of samples is 2366. This sum represents only the number of samples, and does not allow for multi-specimen samples. This means that several specimens of the same sample, having a common catalogue number, count only as one sample towards the total.

The number of distinct mineral species represented is 316. The approximate number of specimens is 3786. This number has been reached by multiplying the total samples by a factor of 1.6, which is a mean number representing the average number of specimens per sample, based on a random selection of samples.

CONCLUSION

The collection has suffered in the past from a lack of continuity of curatorial procedures. This report should prevent any recurrence in future. The work done in the past year has achieved an organized collection the value of which has increased immensely. Our collection is the provincial reference collection, and although some areas need further representation, the overall representation is good. It is certain that many valuable specimens are hidden at Mt. Uniacke, awaiting the day when they will be brought to light. With our upcoming expansion of cabinet space, we will be able to continue the upgrading of the collection.

Our main goal is to absorb the Mt. Uniacke material as it is accessioned, but this should be accompanied by a periodic check to remove superfluous duplicate specimens. Positive identification of a number of minerals should be done, and the National Museum is helping us with this endeavor. We are awaiting the day when computerization of the collection is a reality, as this will mark the beginning of a new era. We have other long term plans which we hope can be started in the future. One of these is the development of photographic records for the collection, but this probably lies in the distant future. Also, the reassembly of the Webster collection (mentioned on page 1) will be begun.

Many man-years of work remain to be done to maximize the usefulness of this collection.

APPENDIX

A

M
4 MORDENITE Hey 16.10.56

Notes: Flesh coloured, radiating masses. 2 specimens. Amygdule in basalt- 3x3x2. Worn nodule- 1x1x$\frac{3}{4}$.

Occur.: Amygdule in basalt found in situ in tubular amygdaloid of the area. Nodule in beach gravel.

Ident.: See "The Zeolites of Nova Scotia" by T.L.Walker and A.L.Parsons, Cont.to Can.Min.,U.of T.Press, 1922.

Local.: Near Halls Harbour, Kings Co., N.S.

Access.: Collected and presented by Dr.T.L.Walker, 1922. Ac.No. 5182, 5183. R.O.M.No. M12703

B

Hey 25.11.28
NOVA SCOTIA MUSEUM Cat. No.
Mineralogy Collection 978GM44.1

Name: HALOTRICHITE WITH SLAVOKITE
Locality: QUINPOOL ROAD, HALIFAX, HALIFAX COUNTY

C

NAME HALOTRICHITE
VARIETY

CHEM. COMP. $FeAl_2(SO_4)_4 \cdot 22H_2O$ | COLLECTOR R.GRANTHAM & D.A.GRANTHAM
PRESERVATION | NO. OF SPEC. 1
ASSOC. MINERALS SLAVIKITE (GREEN) | DET. BY J.K. SUTHERLAND, R.P.C

NOVA SCOTIA MUSEUM
MINERALOGICAL COLLECTIONS

CAT. NO. 978GM44.1
OLD CAT. NO.

LOCALITY QUINPOOL ROAD, HALIFAX, HALIFAX COUNTY
MAP REFERENCE - 11 D/12 E; 523434
LATITUDE | LONGITUDE
DEPTH/ELEV.
DATE CATALOGUED - SEPT. 22, 1978
COLLECTED - NOV., 1977
COLL. METHODS
OCCURRENCE FOUND GROWING IN CRAWL SPACE IN SLATE BACKFILL BENEATH McQUINN'S DRUGSTORE.

CONDITION GOOD

ASSOC. ROCK TYPE SLATE (ILLITE, CHLORITE, QUARTZ, AND MINOR FELDSPAR)
PERIOD | FORMATION
IMP. METAL CONSTITUENT | ORE GRADE

NOTES X-RAY IDENTIFICATION DONE BY DR. J.K. SUTHERLAND OF THE RESEARCH AND PRODUCTIVITY COUNCIL, FREDERICTON, N.B.
X-RAY EXAMINATION OF HAND-PICKED CRYSTALS FROM VARIOUS LOCATIONS ON THE SAMPLE SUBMITTED IDENTIFIED ONLY THE FOLLOWING MINERALS ON THE FIVE TRACES MADE.
a. 90% OF THE SAMPLE - RADIATING WHITE-BROWNISH FIBERS - HALOTRICHITE - $FeAl_2(SO_4)_4 \cdot 22H_2O$; A.S.T.M-26.1425.
b. MINOR GREEN MINERAL - SLAVIKITE - $MgFe_3(SO_4)_4(OH)_3 \cdot 18H_2O$; A.S.T.M - 20.679
DONOR

PHOTO NO.
LOC. OF SPEC.
REFERENCES

3. MINERAL/GEMSTONE SPECIMEN RECORD 2. **Nova Scotia Museum**

Reference

1. National Inventory Number _____ 4. Catalogue Number _____
5. Previous numbers _____

Identification

6. Name _____
7. Species _____
8. Variety _____
9. Group _____
10. Previous _____
11. Associated minerals _____
_____
12. Identified by _____
13. Type _____

Description

14. Number of specimens _____ 15. Size _____ 16. Weight _____
17. Formula/chemical composition _____
18. Specific description _____
19. General description _____
_____
20. Preparation/preservation _____
21. Cut _____

Locality

22. Country _____
23. Province _____
24. Sub-province _____
25. Specific locality _____
26. Mine/property/locality name _____
27. Latitude _____ 28. Longitude _____
29. Locality references _____
30. Age/time unit _____
31. Geological occurrence _____
_____
_____

Accession

32. Collector _____ 33. Date collected _____
34. Date of registration _____ 35. Date of acquisition _____
36. Manner acquired _____

Accession (continued)

37. Source _____

38. Numbers and owners _____

39. Value _____ 40. Date of evaluation _____

41. Evaluater _____ 42. Purchase price _____

43. Location in collection _____

44. Loaned to _____

_____

_____

45. Date loaned _____

46. History _____

_____

_____

_____

Analyses/data reference

47. Physical properties determined _____

_____

48. Optical properties _____

_____

49. Composition _____

_____

50. Crystallographic _____

_____

51. X-ray data _____

52. Other data _____

_____

53. Photographic record number _____

Other

54. References _____

_____

_____

55. Names of those entering data _____

_____

56. Date data was entered _____

57. Remarks _____

_____

_____

_____

_____ 58. Exchange _____

E

NOVA SCOTIA MUSEUM
Loan Agreement

The following specimens or objects have been borrowed from the collections of the Nova Scotia Museum subject to the conditions printed below:

Conditions:

The borrower agrees to use all reasonable precautions for the safety and preservation of the specimens or objects listed above.

The borrower agrees to use exhibition specimens or objects for display purposes only, and to acknowledge the ownership of the Nova Scotia Museum in writing while these objects are on display.

The borrower may examine research objects or specimens physically, optically or chemically if such examinations do not result in defacing or deterioration of the specimens or objects for museum purposes.

The use of the collections of the Nova Scotia Museum must be properly acknowledged in any publications resulting in whole or in part from their use.

Borrowed materials must be returned as soon as the purposes for which they were borrowed have been fulfilled, or upon request of the Museum.

Date:..... .....
Signature of Borrower

Address:.....

Loan approved by.....
for Nova Scotia Museum

F

Nova Scotia Museum Science Collections

This Specimen on Loan

spec. no..... date loaned.....

name.....

borrowed by.....

.....

to be returned.....

date actually returned.....

recorded by .....