



# MINERAL COLLECTING

Mineral collecting is an exciting and increasingly popular hobby. This brochure presents an overview of mineral collecting and provides additional information and references useful to both beginner and experienced collectors. Mineral collecting is a relatively inexpensive hobby that can be enjoyed by the whole family. It offers the opportunity to enjoy the outdoors, get some exercise, and learn about nature. Collecting trips can also be exciting, especially when there is the chance of finding minerals and gemstones of value.

## GETTING STARTED

The beginning mineral collector will need two pieces of somewhat specialized equipment - a geologist's hammer and a hand lens. The hammer is used to dislodge rock or mineral specimens. Another helpful tool is a hand lens. Also called a pocket magnifier, this is useful for identifying small mineral grains and crystals. Both tools can be purchased through scientific supply companies, rock shops, or hardware stores. Other useful pieces of equipment include: a backpack to carry specimens, equipment, and food; paper or plastic bags to hold individual specimens; a notebook for keeping field notes; and a pocket knife. It is a good idea to mark your locality on a topographic map as accurately as possible so that you can return on future field trips or direct others to the site.

**Remember: permission must always be obtained from the landowner before collecting on private property!**



*Blades of kyanite from Grayson County, Virginia.*

To minimize risk of injury, the following safety tips are strongly recommended:

1. Wear protective equipment including hard hats, steel-toed boots, and safety glasses.
2. Do not work alone; let someone else know where you are planning to go and your schedule.
3. Do not enter abandoned mines or shafts.

## WHERE TO LEARN ABOUT MINERALS

Mineral collecting can be much more enjoyable if you have a basic knowledge of geology and mineralogy.

Below are several methods for obtaining information on minerals and geology:

Visit your state geological survey, which typically is a state agency or may be associated with a college or university. In Virginia, the geological survey is a branch of state government called the Division of Geology and Mineral Resources (DGMR). The DGMR is located in

Charlottesville. Many geological surveys will sell topographic and geologic maps, and other publications that may be useful for mineral collecting. Staff geologists may be available to answer questions and identify mineral specimens. The Virginia DGMR also has a research library, which is open to the public and a webstore, through which interested citizens can download free copies of "Virginia Minerals." This publication contains articles on current geologic topics as well as reports on the occurrence of rare or unusual minerals and gemstones. A current list of DGMR's publications and maps can be obtained online or call (434) 951-6341.

The United States Geological Survey (USGS) located in Reston, Virginia, is also a good source of geologic information. Visit the USGS web site for access to free educational material (<http://www.usgs.gov/>) or call toll-free 1-888- ASK-USGS (1-888-275-8747).

Books on rocks and minerals are available in most book stores. Public and university libraries are also good sources of reading material. A good reference to the geology of the Commonwealth is "Geology and Virginia" (Dietrich, 1990a) and the most comprehensive references to minerals of Virginia are Dietrich (1990b, 1993). These books by Dietrich are available only in DGMR's sales office.

Take a basic course in geology or mineralogy at a university or community college. A general knowledge of geology and mineralogy will make one's hobby more enjoyable and meaningful. Also, universities may have displays of local rocks, fossils, and minerals, which are open to the public.

Join a local mineral club if there is one in your area. These clubs offer educational programs and organized collecting trips. Many clubs have their own liability insurance, which makes it possible for club members to obtain permission to visit quarries, whereas an individual collector could not. Clubs may put on shows and swap meets that are educational and offer the opportunity to upgrade a mineral collection.

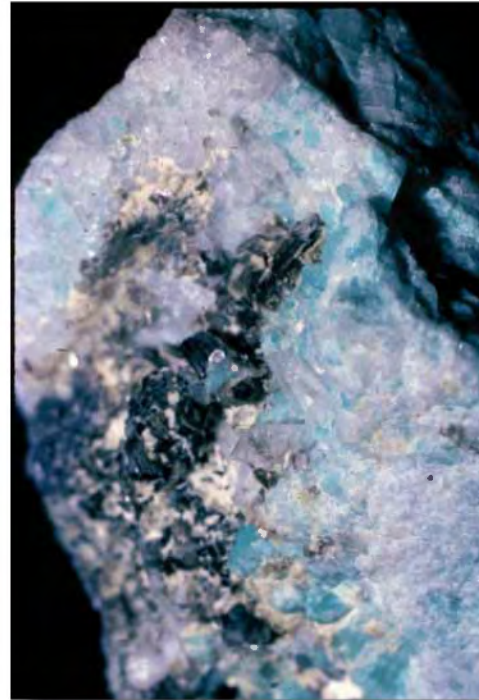


*Sphalerite within a quartz crystal from Bath County, Virginia*

## WHERE TO LOOK FOR MINERALS

Minerals can be collected at commercial collecting areas. In addition to the commercial collecting areas, good places to look for mineral specimens are active

and abandoned mines and quarries, mine dumps, highway cuts, excavations for construction sites, and stream beds and banks. Also, specimens have been found in plowed fields, especially after a rain. It is suggested that the beginning collector might accompany an experienced collector on a first collecting trip, as it may be difficult to know what one is looking for without guidance. Always obtain permission of the landowner before entering a property to collect minerals. Entering private property without permission is considered trespassing.



*Amazonite, cleavelandite, mica, and quartz from Amelia County, Virginia.*

## COLLECTING IN VIRGINIA

Virginia has many famous and unique mineral occurrences. The Commonwealth contains a great variety of minerals with over 425 individual species being reported. Over the years, Virginia localities have produced fine specimens of allanite, andalusite, apophyllite, beryl, calcite, cassiterite, kyanite, microcline (variety amazonite), prehnite, pyrite, spessartine, staurolite, topaz, turquoise, and vivianite. With diligence and a little luck, rare and unusual minerals can still be found in Virginia.

### Federal Lands

National Parks - No collecting is permitted of any kind (except with a special research permit).

# IDENTIFYING MINERALS

Many minerals can be easily identified by their physical properties such as color, luster, hardness, and density. Hardness is a physical property that is determined by observing whether one mineral can scratch another. To test a mineral's relative hardness, geologists and mineral enthusiasts use Moh's relative hardness scale. Moh's relative hardness scale ranges from 1 to 10, with ten being the hardest. Each number has a mineral assigned to it:



- 1-talc
- 2-gypsum
- 3-calcite
- 4-fluorite
- 5-apatite
- 6-feldspar
- 7-quartz
- 8-topaz
- 9-corundum
- 10-diamond

It can be helpful to know that your fingernail has a hardness of 2.5; a penny, 3; a knife blade, 5.5; and a steel file, 6.5. Use these examples to scratch a sample to get an approximate hardness. Other tests for identifying minerals include: specific gravity (weight of mineral compared to the weight of an equal volume of water), optical properties, crystal form, color, and luster. Minerals differ in other properties such as cleavage, fracture, parting planes, and the distinctive color of its streak on a piece of unglazed porcelain. Some minerals are magnetic, some have electrical properties, some glow under ultraviolet or black light, some are radioactive, and some fuse under a low flame while others are unaffected. Chemical or X-ray analyses generally can identify a mineral. Many tests that are too complicated for the beginner or require special equipment are also available.

A novice collector should read about minerals, look at photographs and samples, and talk with experienced mineral collectors in order to gain experience in identifying minerals. Also, geologists trained in mineralogy and petrology are available to assist mineral collectors in identifying minerals and rocks.

National Forests- Permission or permit required.  
George Washington & Jefferson National Forests  
5162 Valleypointe Parkway  
Roanoke, Virginia 24019  
<http://www.fs.fed.us/r8/gwj/>  
(540) 265-5100

## State Lands

State Forests and Parks- Written permission required.  
Virginia Department of Forestry  
900 Natural Resources Drive  
Charlottesville, Virginia 22903  
<http://www.dof.virginia.gov>  
(434) 977-6555

Virginia Department of Conservation and Recreation  
600 E. Main Street, 24th floor

Richmond, Virginia 23219  
<http://www.dcr.virginia.gov>  
1-800-933-PARK

Collecting along public roads (except Interstate highways where collecting is forbidden)- Allowed as long as a hazard is not created and the flow of traffic is not impeded.

Virginia Department of Transportation  
1401 East Broad Street  
Richmond, Virginia 23219  
<http://www.virginiadot.org>

## Private Lands

Private property- Allowed only with permission of the land owner.

## SUGGESTED READING

Dietrich, R. V., 1990a, Geology and Virginia: Virginia Division of Mineral Resources, 213 p.

\_\_\_\_\_, 1990b, Minerals of Virginia, 1990: Virginia Division of Mineral Resources, 474 p.

\_\_\_\_\_, 1993, Minerals of Virginia 1990 - An Update: Division of Mineral Resources, 28 p.

Giannini, W. F., and Penick, D. A., 1983, Large gem topaz crystal discovery: Virginia Minerals, v. 29, n. 1, p. 1-3.

Mitchell, R. S., Giannini, W. F., and Penick, D. A., 1992, Large andalusite crystals from Campbell County. Virginia: Virginia Minerals, V. 38, n. 1, p. 1-8.

Mitchell, R. S., and Giannini, W. F., 1988, Minerals of Albermarle County, Virginia: Virginia Division of Mineral Resource Publication 89, 19 p.

Penick, D. A., 1987, Virginia mineral locality index: Virginia Minerals, v. 33, n. 1, p. 1-10.

\_\_\_\_\_, 1987, Pyrite and other minerals from Barger's Quarry near Lexington, Virginia: Virginia Minerals, v. 33, n 2, p. 13-17.

\_\_\_\_\_, 1994, Minerals of Rockbridge County, Virginia: Virginia Minerals, v. 40, nos. 1 and 2, p. 1-13.

Penick, D. A., Sweet, P. C., 1992, Mineral collecting localities in Virginia: Virginia Minerals, v. 38, n. 2, p. 9-12

Sweet, P. C., 1980, Gold in Virginia, Virginia Mineral Resources Publication 19, 77 p.

Sweet, P. C., and Penick, D. A., 1986, Moorfield pegmatite mine reopens - Virginia's only active underground gem mine: Virginia Minerals, v. 32, n. 2, p. 13-18.

Prepared by D. Allen Penick; revised 04/2007.

***Virginia Department of Mines, Minerals and Energy  
Division of Geology and Mineral Resources  
900 Natural Resources Drive, Suite 500  
Charlottesville, VA 22903  
Information: (434) 951-6341 FAX : (434) 951-6366  
Sales Hours: 10:00 AM - 3:00 PM Mon. - Thurs.***

<http://www.dmme.virginia.gov/divisionmineralresources.shtml>