

Friends of Mineralogy
Pennsylvania Chapter

Fall Symposium

Pennsylvania's Mineral Heritage

November 1 & 2, 2014

Presented at
Franklin and Marshall College, Lancaster, Pennsylvania



Fluorite on calcite, Burkholder Quarry, Lancaster County, Pa. Large crystal 4 mm. *D. Glick photo*

Friends of Mineralogy

Dedicated to the advancement of serious interest in minerals and related activities

We are collectors, professionals, and curators who share a love of mineral specimens and the desire to promote understanding and appreciation of mineralogy.

FM's objectives are to promote, support, protect and expand the collection of mineral specimens and to further the recognition of the scientific, economic and aesthetic value of minerals and collecting mineral specimens.

National FM newsletters, links to other chapters, and much more can be found on their web site: **www.friendsofmineralogy.org**

Friends of Mineralogy - Pennsylvania Chapter

provides:

- the benefits of membership in the national organization
- an annual Symposium in November
- field trips
- quarterly illustrated Newsletter
- an extensive WWW site with news, downloadable books, and more

Membership application forms are available on our web site

Please explore the FM-PA web site at
www.rasloto.com/FM/

Pennsylvania's Mineral Heritage

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SCHEDULE of EVENTS

Saturday, November 1: SYMPOSIUM

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8:30 to 9:00 a.m.	Registration	
9:00 to 9:15 a.m.	Opening Remarks	
9:15 to 10:00 a.m.	Ronald A. Sloto, U.S. Geological Survey The Fritz Island Mine, Cumru Township, Berks County, Pennsylvania	4
10:00 to 10:10 a.m.	FM-Pa Members: Chapter Membership Meeting	
	also	
10:00 to 10:45 a.m.	BREAK- Check out the silent auction and visit the dealers.	
10:45 to 11:30 a.m.	Bill Stephens, PG, Stephens Environmental The French Creek Iron Mine - A Collector's Memories of a Lost Mineralogical Treasure	4
11:30 a.m. to 1:00 p.m.	LUNCH BREAK - lunch on your own (local map on back cover) <u>Silent auction continues until 1:15</u> Room 119 open during lunch	
1:15 p.m.	Silent Auction ends	
1:30 to 2:10 p.m.	Robert Kulp, West Chester University Xenoliths of the Triassic Passaic Formation in the Monocacy Hill diabase intrusion, Amity Township, Berks County, Pennsylvania	5
2:10 to 2:50 p.m.	Stephen Shank, Pennsylvania Geological Survey Mining History of the Serpentinities, Pennsylvania and Maryland	6

Sunday, November 2: **FIELD TRIP to Cornwall, Lebanon County, courtesy of Cornwall Materials - See map & directions inside back cover** 7

8:00 to 12:00 noon - Eastern STANDARD Time - Set clocks back Saturday night

Meet at Cornwall Materials Quarry on Boyd St., southeast
of Miners Village, north of US Route 322, Cornwall, Pa .
See map on page 7.

The Fritz Island Mine, Cumru Township, Berks County, Pennsylvania

**Ronald A. Sloto
U.S. Geological Survey**

The Fritz Island mine was perhaps the most unusual location for an iron mine in Berks County -- the mine was on an island in the middle of the Schuylkill River. The Fritz Island mine, also known as the island mine, was on the north end of Fritz Island (owned by Martin Fritz) 2 miles south of Reading. The mine was worked between 1846 and 1884 for iron ore by an open pit and two inclined slopes. The iron ore deposit is a Cornwall-type deposit. It was formed when a calcareous and brecciated Mesozoic conglomerate was intruded by diabase. The ore occurred in lenticular bodies from 18 inches to 22 feet thick in a magnesian limestone or dolomite. The Fritz Island mine produced 40 different mineral species. It is best known for specimens of azurite, brucite, chabazite, datolite, gismondine, malachite, mesolite, thompsonite, and vesuvianite. The Fritz island mine was abandoned after it collapsed on January 10, 1884, and the Schuylkill River poured into the mine. The City of Reading acquired Fritz Island for the location of its sewage treatment plant. In 1895, ground was broken for the first sewer plant, and several generations of sewer plants have been built on the island. Today, there is no trace of the mine or mine dumps on the island.

The French Creek Iron Mine - A Collector's Memories of a Lost Mineralogical Treasure

**Bill Stephens, PG
Stephens Environmental**

The French Creek Iron Mine was one of the richest iron ore bodies in the eastern US and the most significant iron ore body exploited in Chester County during its 84 years of operation from the mid 19th to early 20th centuries. Considered a "Cornwall Type" deposit, named aptly for the famous Cornwall Iron Mine in nearby Lebanon PA, the mine became quite famous for the host of interesting and attractive accessory sulfide and gangue minerals associated with the ore body that became a favorite of collectors in post-mining years. Collecting was permitted by fee for many years, and became a favorite non-gem collecting site of mine after visiting the dumps during a Geology Field trip in 1982. I continued to collect up through the 1990's when the property was sold and developed as a subdivision. Collecting is now strictly forbidden and the only opportunity to acquire specimens is through acquisition from other extant collections. The mine is most famous for the rare and distinctive skeletal habit Chalcopyrite prominently featured on the cover of the now out-of-print Mineral Collecting In Pennsylvania localities guide G-33, and no museum collection would be complete without a specimen of Chalcopyrite from this Dana locality. The mine is also famous for Byssolite, which could be collected up until the time the dumps were closed, as well as other associated and accessory minerals.

Xenoliths of the Triassic Passaic Formation in the Monocacy Hill diabase intrusion, Amity Township, Berks County, Pennsylvania

**Robert Kulp
West Chester University**

Tabular xenoliths occur as outcrop and float on Monocacy Hill in eastern Pennsylvania. The xenoliths reach a maximum thickness of 2 feet (61 cm). Relict bedding is prominent in some of the xenoliths. Textures range from very fine to coarse.

The xenoliths show varying effects of assimilation into the diabase magma. These range from xenoliths showing no visible reaction to totally melted immiscible blobs or schlieren of white plagioclase melt in diabase. This melt borders many of the xenoliths. Other xenoliths are penetrated by thin intrusions of the magma. Pyroxene trondhjemite borders some of the xenoliths, and some outcrops along the southwest slope of Monocacy Hill have melted borders of granophyre.

Two types of diabase are associated with the xenoliths. A medium grained diabase is intruded by a fine-grained almost phenocryst free diabase. Orthopyroxene and magnetite are common reaction minerals in the vicinity of the xenoliths. At some of the fine grained diabase xenolith contacts, olivine crystallized in the diabase magma.

In thin section, poikiloblastic, porphyroblastic, and granoblastic textures are commonly seen in the xenoliths. Both monoclinic and orthorhombic pyroxenes are present along with plagioclase, magnetite, wollastonite, sphene, apatite, rare quartz, olivine, garnet and zircon. Alteration minerals are sericite, chlorite and serpentine. Pyroxenes are usually anhedral, forming bands of crystals alternating with fine grained plagioclase. Pyroxene also forms chain like groupings around plagioclase porphyroblasts. The intense green sodium pyroxene forms the groundmass and replaces large plagioclase porphyroblasts in some xenoliths. Wollastonite forms fibrous crystals. Zircon, sphene and olivine are associated with the wollastonite. Magnetite forms subhedral porphyroblasts. Quartz and feldspar form rare micrographic patches between large plagioclase crystals.

The xenoliths represent high temperature low pressure contact metamorphism of lacustrine mudstones, argillite and impure limestone by diabase magma. The xenolith mineralogy is that of the pyroxene hornfels facies. This is the highest grade of contact metamorphism found in the Pennsylvania portion of the Newark Basin.

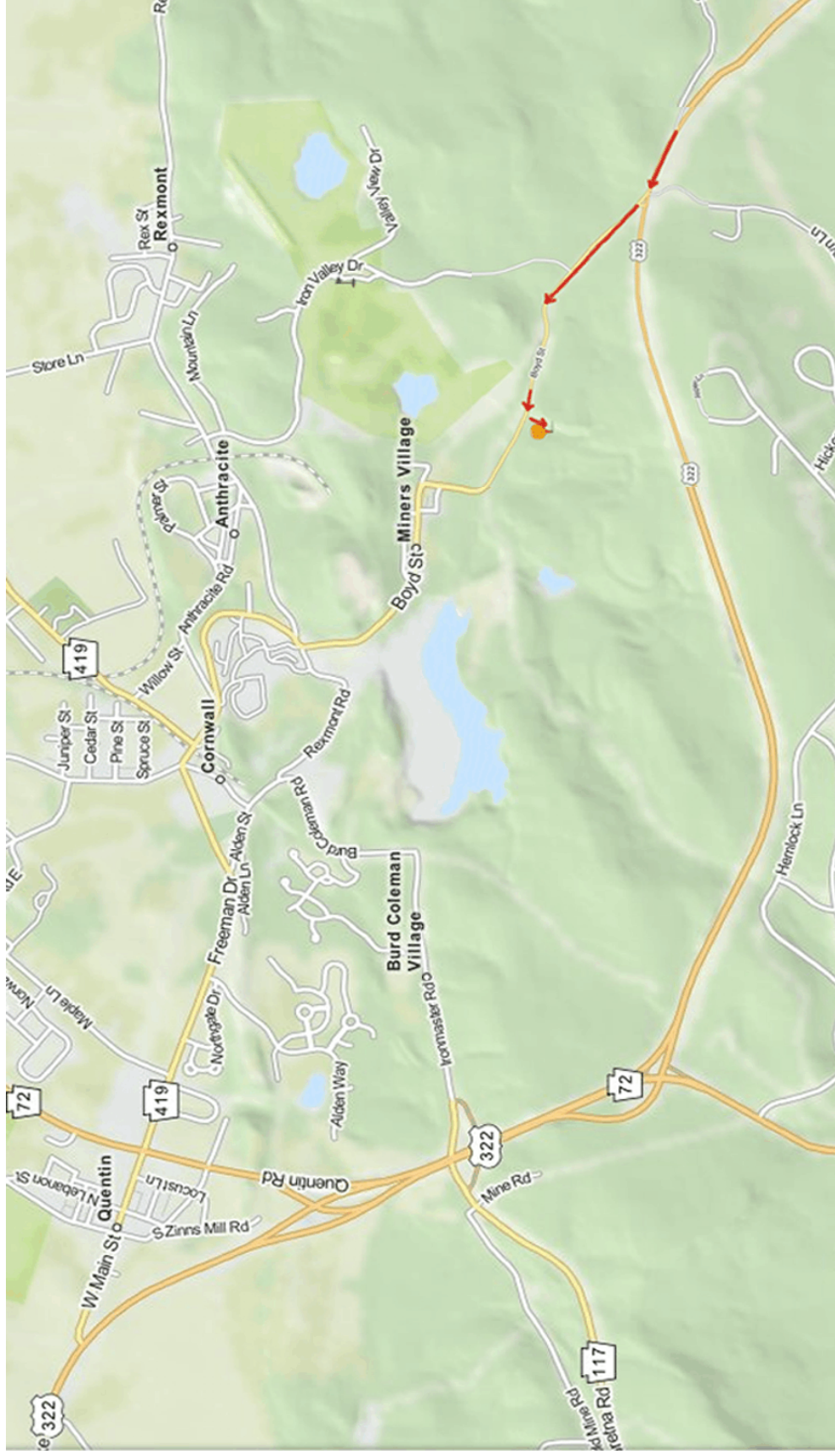
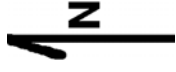
Mining History of the Serpentinities, Pennsylvania and Maryland

Stephen Shank
Pennsylvania Geological Survey

The varied geologic history of the ultramafic rocks in southeastern Pennsylvania and adjacent areas of Maryland has resulted in a wide range of mineral and stone resources. Intrusion and subsequent fractional crystallization of a basaltic magma resulted in chromite ore and ultramafic dunite and peridotite cumulates. Later low-grade metamorphism altered the ultramafic rocks to serpentinite. Emplacement in and reaction with quartz-rich metasediments, intrusion of pegmatites, and hydrothermal and supergene alteration produced additional mineral deposits including talc, asbestos, magnetite, corundum, vermiculite and magnesite. Some mining localities also produced outstanding mineral specimens.

Mining and quarrying span the time period from the pre-Columbian era to the present. As long as 4,000 years ago, Indians quarried and carved soapstone for use as cooking vessels and ornaments. Much later in the early 1800s, chromite was discovered at Bare Hills, Maryland near Baltimore. Isaac Tyson, a local businessman, was the first to recognize the association of chromite and serpentinite and thus quickly controlled the industry. The Pennsylvania-Maryland region swiftly became the largest producer and exporter of chromite in the world, and this dominance lasted until the mid-19th century. The Wood Mine in southern Lancaster County was the most productive deposit. The industry declined due to fires and other accidents and competition from newer and richer ore deposits in Turkey and California. Sporadic, minor production continued up to World War I. The chromite was predominantly used by the chemical industry for the production of pigments (chrome yellow). In addition, the serpentinite region was also the major source of magnesite for production of magnesia and Epsom salt in the early and mid-19th century.

In addition to mineral production, the serpentinites have been long quarried for aggregate, building and decorative stone and for industrial uses. Building stone was widely used in the Philadelphia area from colonial times through the Victorian era, but use declined in the late 19th century because the serpentinite deteriorated rapidly when exposed to air pollution. Decorative ‘green marble’ or verde antique from Cardiff, Md. was quarried from the late 1800s until the early 1980s. The main use was for terrazzo granules, but slabs were used in many buildings including the White House, the Empire State building and many federal and state government buildings. In addition, talc and soapstone were also quarried and used for refractory linings, ceramics, and washtubs and as filler for paint. Today serpentinite is quarried for use as crushed stone.



CORNWALL, PENNSYLVANIA, AREA Mapquest Map Builder Beta and Mapquest.com

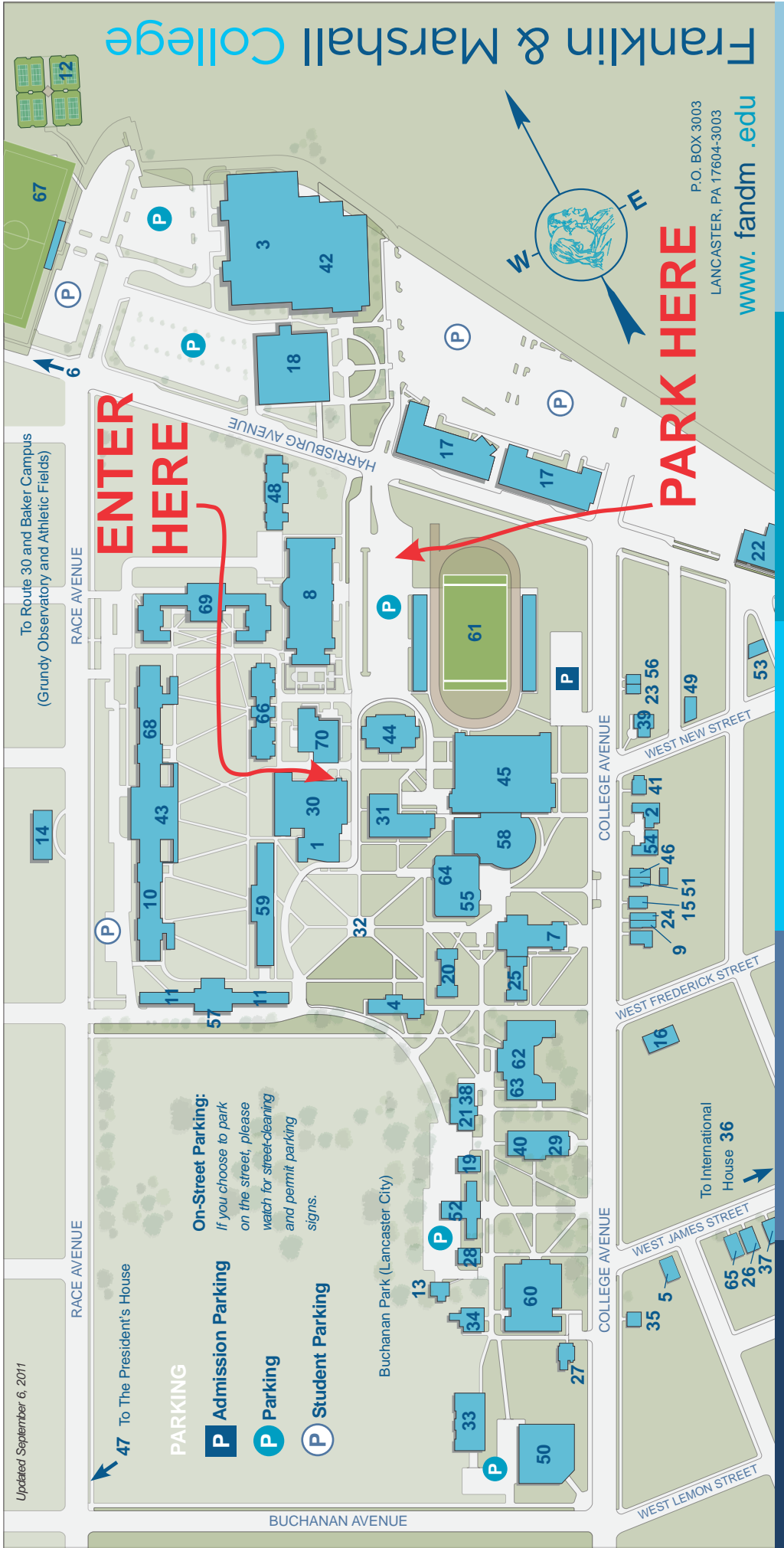
DIRECTIONS TO CORNWALL MATERIALS QUARRY, CORNWALL, PA

From the Lancaster area, go north on PA 501 (Litz Pike, straight through Litzitz, PA) approximately 12 miles.

At traffic light in Brickerville, turn left on US 322 West and go 5.0 miles.

In the middle of the woods in a valley, bear right onto Boyd Street and go 0.9 miles to driveway for Cornwall Materials on the left.

Drive up the driveway and meet the group by 8:00 a.m. EST.



- 1 Lisa Bonchek Adams
Auditorium in Kaufman Hall
637 College Avenue
- 2 Admission, Wohlsen House,
637 College Avenue
- 3 Alumni Sports & Fitness
Center, 929 Harrisburg Avenue
- 4 Appel Infirmary
Asian Cultural Center,
see Multicultural Affairs
- 5 Arts House,
602 West James Street
- 6 Baker Campus,
1300 block of Harrisburg Pike
- 7 Ann & Richard Barshinger
Center for Musical Arts in
Hensel Hall I
- 8 Ann & Richard Barshinger
Life Sciences & Philosophy
Building
- 9 Black Cultural Center,
615 College Avenue
- 10 Bonchek College House
Bookstore, see Distler House
- 11 Brooks College House
- 12 Brooks Tennis Center
- 13 Buchanan House
- 14 Business Office,
644-646 Race Avenue
- 15 Career Services,
619 College Avenue
- 16 Centennial Conference Office,
HEDS Consortium, Frederick
Street entrance of Lancaster
Theological Seminary
- 17 College Row
College Square
- 18 Counseling Center,
see Appel Infirmary
- 19 Diagonthian Hall
- 20 Dietz Hall
- 21 Distler House/Campus
Bookstore
- 22 Facilities Services,
415 Harrisburg Avenue
- 23 Faculty, Emeriti Faculty &
Foreign Language Tutor
Offices, 711 College Avenue
- 24 Financial Aid,
617 College Avenue
- 25 Franklin-Meyran Hall
- 26 French House,
548 West James Street
- 27 Gerhart House
- 28 Goethean Hall
- 29 Green Room Theatre
- 30 Hackman Physical Sciences
Laboratories
- 31 Patricia E. Harris Center for
Business, Government &
Public Policy
- 32 Hartman Green
- 33 Dr. Leon Herman Arts Center
- 34 Huegel Alumni House
- 35 Huegel Alumni House Annex,
College Guest House
445 College Avenue
- 36 International House,
446-448 West James Street
- 37 James Street Apartments,
534 West James Street
- 38 Jazzman's Cafe & Bakery
- 39 Joseph International Center,
701 College Avenue
- 40 Kaufman Hall, see Lisa Bonchek
Adams Auditorium in Kaufman Hall
- 40 Keiper Liberal Arts
- 41 Klehr Center for Jewish Life,
645 College Avenue
- 42 Kunkel Aquatic Center,
929 Harrisburg Avenue
- 43 Marketplace Dining Hall
- 44 Martin Library of the Sciences
- 45 Mays Physical Education
Center
- 46 Multicultural Affairs,
625 College Avenue
- 47 The President's House,
508 North School Lane
- 48 New College House
- 49 New Street Studio
- 50 North Museum
- 51 Office of Student Academic
Affairs, 623 College Avenue
- 52 Old Main
- 53 Other Room Theatre
- 54 Philadelphia Alumni Writers
House, 633 College Avenue
- 55 Phillips Museum of Art
- 56 POGIL, 713 College Avenue
- 57 Public Safety
- 58 Roschel Performing
Arts Center
- 59 Schneider Residence Hall
- 60 Shadok-Fackenthal Library
- 61 Sponaugle-Williamson Field
- 62 Stager Hall
- 63 Stahl Auditorium
- 64 Steinman College Center
- 65 Sustainability House,
550-52 West James Street
- 66 Thomas Residence Hall
- 67 Tylus Field: Ken Gramas Pavilion
- 68 Ware College House
- 69 Warehouse, see Facilities Services
- 69 Weis College House
- 70 Carolyn W. & Robert S.
Wohlsen Center for the
Sustainable Environment
Writers House, see Philadelphia
Alumni Writers House
- www.fandm.edu