Minerals of Maryland

THE
NATURAL HISTORY SOCIETY
OF MARYLAND

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PREFACE

There has been evident for some time now an unusual amount of interest in the study of the minerals of our State. This Society continually receives requests for data pertaining to minerals, mineral deposits, and their localities in Maryland. These requests emanate from a variety of sources including students and collectors who are constantly seeking information about Maryland minerals, as well as from manufacturers, quarry operators, and commercial concerns. To satisfy this demand the Society has prepared this publication.

"Minerals of Maryland" is comprised of an introduction giving the historical background of Maryland mineralogy, and contains a list of all important mineral localities by county, giving their location, rock formation, and the minerals that have been collected or reported by responsible sources. A check list is given as complete as possible to date, and other topics of interest to the mineralogist such as fluorescence, and meteor falls and finds are discussed in brief. A bibliography and reference are also included.

The publication is the result of twelve years of field and laboratory observation, and bibliographical research. It was compiled by Charles W. Ostrander, Curator of the Department of Mineralogy of this Society, and Walter E. Price, Jr., Associate Curator. The Society wishes to express its appreciation to L. Bryant Mather, Jr., Assistant Curator of Mineralogy, Field Museum, Chicago, and Honorary Associate Curator of this Society, for his work and suggestions, to Herbert C. Moore, Editor of the Society's Department of Publication, for his work and constant interest, to William J. Engelbach of the Department of Mineralogy for his valuable assistance, and to Edward L. Crosby, Richard E. Stearns, and Allen R. Green for their splendid photographs made available for this publication.

Edmund B. Fladung,
President

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INTRODUCTION

Maryland because of its geographical position possesses a wide variety of features in climate, topography, soils and mineral resources, and there is probably no other state in the Union of equal size that can compare in this respect. The purpose of this work is to give a comprehensive summary of Maryland mineral localities and consequently a check list of the minerals found in the state. It is evident that due to the ever changing economic history of Maryland, this work is by its very nature incomplete as all previous reports have likewise proven, and it is sincerely hoped by the workers who have made the following pages possible that inspiration will be given therein to all mineralogists to enrich the literature by further study.

Maryland is divided physiographically into three parts: the Coastal Plain, the Piedmont Plateau and the Appalachian Region. The Coastal Plain is the eastern part of Maryland extending from the Atlantic Ocean on the east to a line drawn from Wilmington, Delaware, through Baltimore to Washington, D.C. Baltimore City being on this line has its topography consequently influenced by the division. The Coastal Plain is a level lowland composed of sedimentary beds and only minerals peculiar to such regions are to be found there. The Coastal Plain covers a little more than one-half the land area of the state and is dissected by the Chesapeake Bay whose currents have cut away steep cliffs along its shores thus exposing the thick beds of fossils of creatures that once lived in those waters in dim geologic ages.

The Piedmont Plateau borders the Coastal Plain on the west and extends from there to the foot of the Appalachians. This Plateau comprises more than one-fourth of the land area of Maryland. Because of its crystalline rocks and their complicated relationships, the Piedmont Plateau contains a diversified mineral wealth and it is here that the collector finds mineral localities most profuse because of the many openings that tap the mineral resources of the state. Due to conditions unfavorable to their preservation fossils are not found in the highly metamorphosed rocks of this region.

The Appalachian Region extends from the western border of the Piedmont to the western limits of the state. The region comprises the remaining quarter of the state and consists of a series of parallel mountain ranges with deep cut valleys which the Potomac River in its passage to the sea cuts nearly at right angles throughout most of the distance. The rocks here are of a sedimentary and metamorphic charac-

ter that do not offer great interest to the mineral collector. Here however the coal beds and other deposits of economic importance are to be found, but these are of secondary interest mineralogically in comparison with the Piedmont Plateau deposits. With the absence of conditions of high mineralization fossils are to be found in the rocks of this region in plentitude.

It is noteworthy that because of the humid climate of Maryland, one finds the valley floors to be limestone and the ridges to be of rock resistant to weathering, such as sandstone and similar rocks in the Appalachian Region, and quartzite and like rocks in the Piedmont Plateau. The above explains the existence of valleys such as the Frederick, Hagerstown, and ridges such as the Catoctin and other mountains.

The earliest geographical report of Maryland was given by Captain John Smith who in 1608 entered the Chesapeake Bay and proceeded to explore its waters and tributaries. There is evidence however that still earlier in the 16th century the Spaniards were familiar with the region, as is noted in writings of that time. Maryland in colonial days ranked among the foremost colonies as a producer of metals, and it was in 1782 that Thomas Jefferson made the first observations on the geology of Maryland as is preserved in his letters.

Maryland to-day can look with pride on her past economic geologic history. She has produced building and decorative stones, coal, lime and cement products, flint, feldspar, clay, mica, sands, marls, asbestos, talc, mineral waters and paints, gold, ores of iron, copper, chromium, lead, zinc, and other miscellaneous products.

Very early in her history, even prior to the Revolutionary War, Maryland was producing iron and copper in considerable amounts. The earliest reference to Maryland iron ore appeared in 1648, and twenty years later, the Principio Furnace, the first iron furnace in America, was built in Maryland. Other furnaces followed this one and the ruins of these early iron works are still to be seen in various parts of the state.

Maryland copper also became famous and it is a notable fact that the copper used in the construction of the dome of the National Capitol in Washington came from a Maryland mine. These copper mines were abandoned some time ago but the Liberty, Dolly Hyde and New London Copper Mines experienced a short lived revival in 1914. There is little probability that they will ever again reach prominence because of com-

petition from more extensive deposits in other parts of the country.

Chrome ore was first discovered and mined by Isaac Tyson, Jr. at the Bare Hills just north of Baltimore about the year 1808. Maryland became the chrome producing center of the world and enjoyed this distinction for a considerable period (1828-1850). Chrome was discovered in several other regions of the state and has been mined successfully. These mines in their turn became idle due to economic circumstances and there was an unsuccessful attempt at revival in the days of the World War.

Gold was first discovered in Maryland in the year 1849 near Sandy Springs, Montgomery County, and a small number of mines were opened in this section. The oldest mine in the region was started in 1867 and today there is one mine still operating spasmodically. The gold occurs in quartz veins either in its native state or with sulphides, and although there have been rich finds, the gold is so unequally distributed as to associate much risk in its mining, and consequently its production has reached only a minor state.

Maryland has produced in a small degree other metals besides those mentioned. Lead and zinc were once mined at localities in Frederick and Carroll Counties. It is a notable fact that in 1811 the mineral molybdenite was first discovered on this continent at Jones Falls, Baltimore, occurring with lead and zinc ores, but the deposit was not of commercial value. Manganese deposits have been worked unsuccessfully in several parts of the state; titanium ore has been found in prospectings; and traces of antimony have been found in the Middletown Valley.

Maryland has long been famous for its building stones. Maryland marble, worked for the past hundred years at Beaver Dam, has been used in the construction of the National Capitol in the numerous columns of the dome. Marble from Maryland was also used in the Washington Monument in the Nation's Capital. In Baltimore City, the City Hall, Peabody Conservatory, Washington Monument, and many other structures were built of this marble. Maryland granite and gneiss have been used for such architecture as the Baltimore Cathedral,Goucher College Buildings and Fifth Regiment Armory in Baltimore, while in Washington, D.C. it has been used in the Congressional Library, and Patent Office, and at Annapolis, for the buildings of the Naval Academy. Maryland serpentine (verde-antique) has been used in the corridors of the Empire State Building in New York. Potomac marble has been used as a decorative stone in the Hall of the House of Representatives

in Washington, D.C. These serve as only a few examples of her building stones.

Of her mineral resources Maryland has perhaps exploited her coal measures the most fully. Coal occurs in both Allegany and Garrett Counties but it has been only mined to a small degree in the latter locality. Maryland coal is of bituminous and semi-bituminous varieties and it is the latter type that has been worked most extensively. Coal was first discovered in the Cumberland Basin in 1804 and today the mines of that region are still producing coal that is unsurpassed in quality. The coal occurs in a series of seams, the largest of which is the "14 Foot Vein" of the Cumberland Basin.

Maryland has produced ceramic materials to a considerable extent; openings for flint, kaolin and feldspar occur widely. Flint or vein quartz occurs generally, but it has been mined in largest amounts in Harford County. The finest kaolin and feldspar in the United States are found in a small area of about thirty miles diameter, the center of which is the junction of the states of Maryland, Delaware, and Pennsylvania. Commercial feldspar occurs in two varieties, the potash-rich microcline, commonly flesh-red, and the soda-rich albite, commonly white or gray. Maryland produces both types and at one time (1916-17) she ranked third among the feldspar producers of the United States. Eastern and southern Maryland are rich in marl deposits but they have been developed only for local use. The marl which is of two types, the greensand and the shell marl, is used for fertilizer. Sands and gravels used for building construction occur in many varieties and localities.

Maryland mineral industries also list lime and cement producing deposits, but these are not of as great importance to-day as they were formerly. Mica and asbestos have been worked to a more or less successful degree, while soapstone or talc has been produced to much greater extent. Along the southern border of Baltimore City a number of small openings have been worked for mineral paints or ochres.

Mineral springs are widely distributed over the state, the most abundant being at the "fall-line" in the Coastal Plain and also throughout the Piedmont section. The springs, only of local fame, are used mostly for table waters and in the manufacture of soft drinks, while only a few afford medicinal use. In the western part of the state there is a thermal spring of saline water, and in the southern part there is a sulphur spring.

In mineralogical literature Maryland is known for a

small number of rare mineral species. Baltimorite, a columnar picrolite occurring at the Bare Hills, was named for the city of Baltimore. Gymnite, a variety of deweylite, was first found and described from its occurrence at the Bare Hills. Haydenite, a variety of chabazite, and beaumontite, a variety of heulandite, were first discovered and described as new varieties of zeolites occurring at the Jones Falls Quarries; these minerals were first found in the early 19th century and have become classical examples. Carrollite, a cobaltiferous variety of linnaeite, was first found at the Patapsco mines in Carroll County, and was named from the locality, while remingtonite, now proven to be a discredited species was also found there.

The Mineralogy Department of this Society has been engaged since its founding in the systematic study of the minerals of Maryland and the recording of the data pertinent to them. It wishes to express its thanks and deep appreciation to the United States Geological Survey, the National Museum at Washington, D.C., the Maryland Geological Survey, the Geological Department of the Johns Hopkins University, and to its host of friends who have helped materially in making this work possible.

Walter E. Price, Jr.

MINERAL LOCALITIES AND MINERALS

BALTIMORE CITY

THE JONES FALLS GNEISS QUARRIES

All of the gneiss quarries of the Jones Falls have now been abandoned and filled in. The last to have been worked were two adjacent pits just south of the junction of Stony Run and Jones Falls, between Twenty-sixth, and Twenty-eighth Streets, behind the Pennsylvania round house. The quarries were worked for building stone, and were famous for the many mineral finds which were noted in classical mineralogical reports.

The rock is the Baltimore gneiss intruded by pegmatite. The minerals occur in two associations: in small crystals in pockets in the gneiss, and in the veins of pegmatite which penetrate the gneiss.

The minerals that have been found are the following:- chabazite, variety haydenite in crystals, heulandite, variety beaumontite in crystals, radiated stilbite in red, orange, green, and white; laumontite, harmotome (or phillipsite?), calcite, variety iceland spar, ankerite druses, spherosiderite, barite crystals,gypsum, melanterite, galena, sphalerite, molybdenite, pyrite in cubes and octahedrons, marcasite, chalcopyrite, earthy hematite, magnetite massive and in octahedrons, ilmenite, sphene massive and in crystals, samarskite, apatite crystals, dendritic wad, quartz, microcline, albite variety cleavelandite, oligoclase (with play of colors), orthoclase crystals, epidote in long bladed crystals, hornblende crystals, anthophyllite, garnets, black tourmaline, muscovite, lepidomelane, chlorite, variety helminth, kaolinite, limonite, hisingerite?, halloysite*, and cacoxenite. Old collections from this locality also record cuprite, aragonite, and spinel. Early investigators reported beryl and axinite.

JONES FALLS AT THE TWENTY-NINTH STREET BRIDGE AND FALLS ROAD

Minerals found in a pegmatite dike exposed during excavations for the Twenty-ninth Street bridge in 1938 were large sheets of zonally developed muscovite, small muscovite crystals, biotite, chlorite, microcline crystals, beryl, sphene, hornblende, epidote, autunite, apatite, pyrite

* A mineral similar to halloysite.

crystals, limonite pseudomorph after pyrite, spherosiderite, garnets, black tourmaline, and graphic granite.

AT FALLS AND CLIPPER MILL ROADS

Found in pegmatite during excavations of the water tunnel in 1934 were large crystals of microcline, garnets, large black tourmaline, apatite, and autunite.

DRUID HILL PARK

Large quartz crystals were found at the old Silver Spring in the rear of the Park Zoo. Petrified wood and hollow ironstone concretions have also been collected.

THE WRIGHT QUARRY

This quarry is an old abandoned opening in the rear of the Johns Hopkins University in Wymans Park near the banks of Stony Run.

In pegmatite and hornblende gneiss the following minerals have been found: oligoclase, gray zoisite, thulite, talc in massive, foliated and stellated forms, pyrite crystals, garnets, beryl in quartz, apatite, autunite, epidote, biotite, and hornblende.

ALONG THE BANKS OF THE JONES FALLS AND STONY RUN

In mica schist: garnets, kyanite, staurolite, and black tourmaline are found.

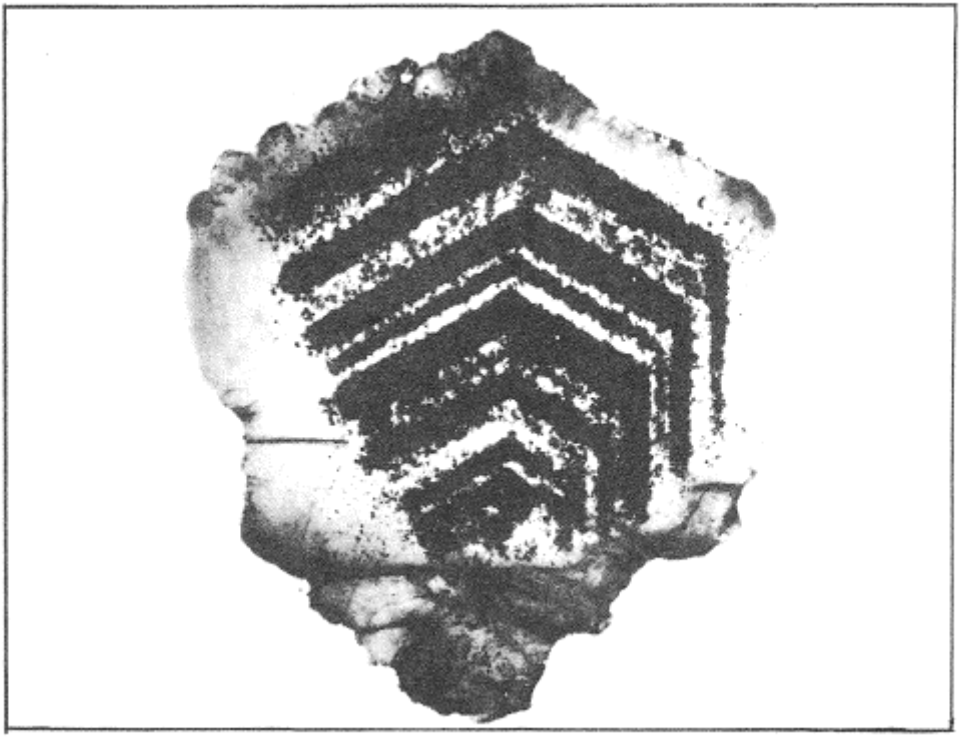
THE WOODBERRY TRAP QUARRY

The quarry is located 500 yards north of Woodberry on the west bank of the Jones Falls at the Pennsylvania Railroad trestle.

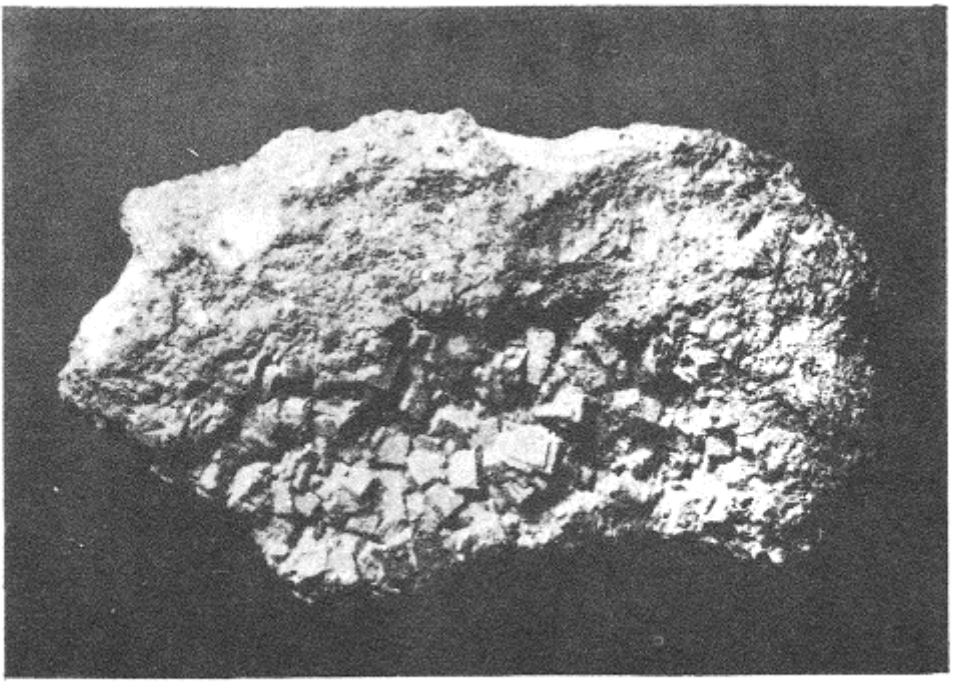
The rock is gabbro with milky quartz veins and quartz diorite. The minerals to be found are the following: laumontite crystals, stilbite, heulandite, apophyllite, natrolite, analcite, chabazite, laumontite pseudomorph after analcite, calcite crystals, pyrite, marcasite, garnets, black tourmaline, chlorite, ilmenite, zoisite, uralite, epidote, pyroxene, hornblende, anhydrite, and dendritic wad.

THE GWYNNS FALLS GNEISS QUARRY

This quarry, still in operation, is an opening in the



Muscovite Showing Zonal Development by Inclusions
Jones Falls, Baltimore City



Heulandite on Haydenite
Jones Falls Gneiss Quarry, Baltimore City

Baltimore gneiss similar to that of the Jones Falls Quarry. The quarry is on the west bank of the Gwynns Falls about 500 yards north of the Pennsylvania Railroad bridge.

The minerals to be found are the following: large beautiful pyrite crystals in quartz, large black tourmaline in chlorite schist, anthophyllite, quartz crystals, epidote crystals, marcasite, spherosiderite, galena, sphalerite, almandite-spessartite garnets, muscovite, prochlorite, chalcopyrite, melanterite, oligoclase (with play of colors), magnetite, ilmenite, asbestiform tremolite, hornblende, apatite, chalcedony, stilbite, orthoclase crystals, calcite, limonite in pyrite cavities, laumontite, microcline, kaolinite, and halloysite*.

THE HILTON GNEISS QUARRY

This quarry is just south of the Gwynns Falls Quarry on the west bank of the Gwynns Falls about 1200 feet north of the Pennsylvania Railroad bridge. The rock is a continuation of that at the Gwynns Falls Quarry, and is worked spasmodically.

The minerals to be found are the following: pyrite crystals, plagioclase with a play of colors, microcline, spherosiderite, molybdenite, garnets, epidote in bladed crystals, muscovite, biotite, black tourmaline, chlorite, dendritic wad, kaolinite, hornblende, and albite crystals.

THE COOKS LANE TRAP QUARRY

This quarry is located directly on the city line about 200 yards west of Cooks Lane and one-half mile south of Franklintown. Much of the gabbro is badly weathered, and the quarry has not been worked for several years.

In gabbro are found: radiated black tourmaline, green zoisite, actinolite, orthoclase crystals, hornblende crystals, laumontite,calcite, hyalite,uralite, and dendritic wad.

GWYNNS FALLS WEST OF THE HILTON STREET BRIDGE

At the iron bridge over the Gwynns Falls on the Franklintown Road, several hundred yards west of the Hilton Street Bridge in loose gabbro boulders are found: analcite crystals, natrolite, laumontite, stilbite, tremolite, calcite crystals, olive green zoisite, actinolite, rutile, and pyrrhotite.

* Same mineral as that found at the Jones Falls Quarry.

THE HILLSDALE TRAP QUARRY

This quarry, abandoned for a number of years, is located on the west bank of the Gwynns Falls one-half mile southeast of Dickeyville, on the Hillsdale Road.

In gabbro and meta-gabbro: hornblende, magnetite, epidote, chlorite, and milky quartz.

THE GATCH TRAP QUARRY

The quarry is located on the west side of the Belair Road just north of Glenarm Avenue.

In meta-gabbro: laumontite crystals, black tourmaline, epidote, calcite, quartz crystals,garnets, muscovite, pyrite, hornblende, chlorite, and feldspar.

WILLOUGHBY ROAD QUARTZITE QUARRY

This small quarry in quartzite has yielded black tourmaline crystals in clusters.

AT PIMLICO IN GABBRO

Black tourmaline in quartz, brown zoisite, and radiated actinolite have been found in gabbro boulders in the vicinity of Pimlico.

LOCH RAVEN TO MONTEBELLO WATER SHAFT WORKINGS

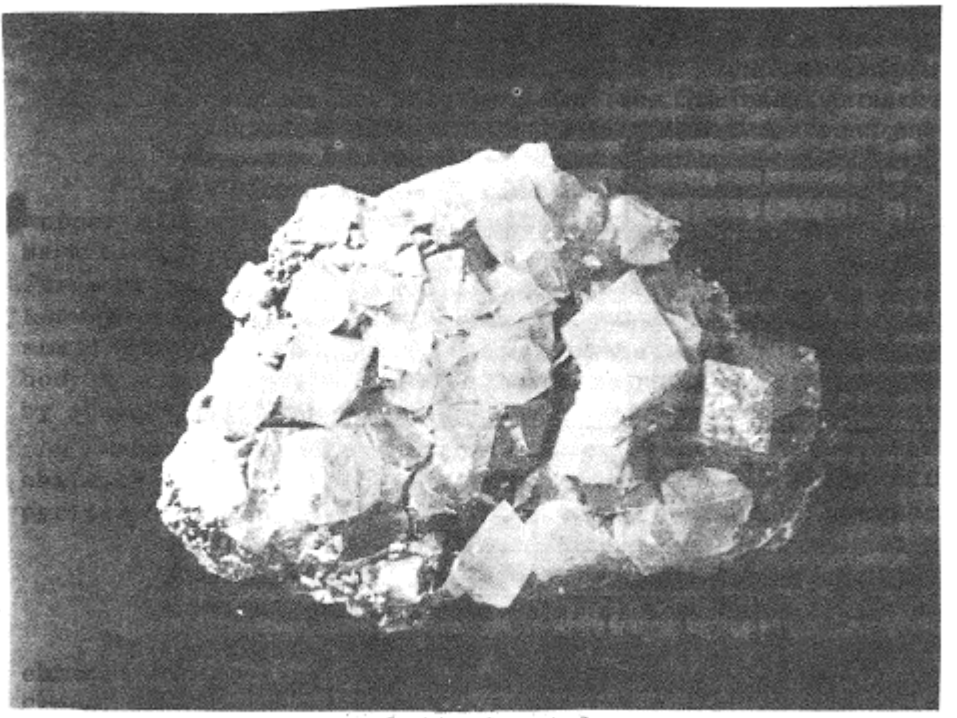
During the excavations for the tunnel in 1938-39 which traversed the Baltimore gneiss and the Gunpowder granite at a depth of 200 feet below the surface the following minerals were collected in the rock debris from the shafts: purple fluorite, plagioclase, microcline, orange calcite, massive magnetite, garnets, black tourmaline crystals, ilmenite, pyrite, pyrrhotite, hornblende, stilbite, epidote, chlorite, diopside, beryl, specular hematite, muscovite, and biotite.

THE MONTEBELLO FILTRATION PLANT AND VICINITY

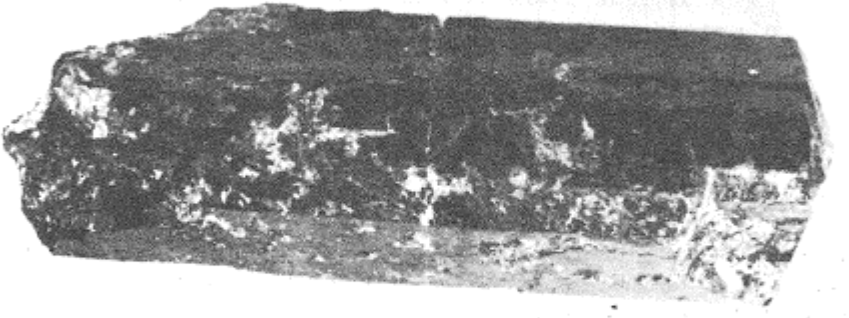
In sedimentary deposits were found black tourmaline in soil, ironstone concretions, petrified wood, lignite, and iridescent limonite on quartz pebbles.

AT RASPEBURG

Petrified wood has been found in the Coastal Plain deposits at Raspeburg.



Calcite Crystals
Woodberry Trap Quarry Baltimore City



Black Tourmaline Crystal
Gwynns Falls Quarry Baltimore City

BALTIMORE COUNTY

THE ARBUTUS CANYON AND VICINITY

The Arbutus Canyon is located on the north side of the Baltimore to Washington Boulevard. Several hundred feet west of Sulphur Spring Road the locality consists of an eroded cut in the side of the hill caused by spring and rain action, and affords a cross section of the Lower Cretaceous deposit of the Coastal Plain at this point.

The minerals to be found are the following: limonite replacing wood, red earthy slickensided hematite, goethite in small seams, siderite massive and in crystals, manganite crystals, lignite in blue clay, concretionary siderite, kaolinite, marcasite, melanterite, turgite, and water-worn quartz pebbles.

THE LINK SAND PITS

The sand pits are found on the north side of the Baltimore to Washington Boulevard. Several hundred yards west of Sulphur Spring Road there is a large opening which covers much of the surrounding area, and affords a splendid example of the Lower Cretaceous deposit. In cross section on the walls of the opening, beautiful banding is observed in varying shades of red, brown, white and yellow, caused by the deposition of hematite and limonite in the sand.

The minerals in the pit and vicinity are red ochre, silicified wood, kaolinite,limonite replacing wood, hematite, limonite, marcasite, varied colored quartz pebbles, and fossil cycad stumps.

TWO MILES WEST OF BALTIMORE

In a sand pit two miles west of Baltimore occurring in an alluvial deposit were found in ironstone, stalactitic and spheric masses of deep blue to heavy black ore containing cobalt and manganese as noted in an early report.

AT CATONSVILLE

In quartz: gold has been reported.

AT ORANGE GROVE STATION

In gabbro and meta-gabbro on the east bank of the Patapsco River at Orange Grove Station on the Baltimore & Ohio

Railroad are found smaragdite, epidote, and zoisite (Hobbs).

ILCHESTER AND VICINITY

On the Patapsco River near the Baltimore & Ohio Railroad bridge in cortlandite is found talc and asbestiform anthophyllite.

In gabbro diorite the following minerals are found: rutile with ilmenite and titanomorphite (leucoxene), hornblende, pyroxene, allanite, and epidote.

Northwest of Ilchester Station on the Baltimore & Ohio Railroad olivene is found in peridotite.

In serpentine a few hundred feet northwest of Ilchester Station is found actinolite in talc. (Hobbs).

In pegmatite the minerals muscovite, black tourmaline, graphic granite, and microcline occur.

THE NATIONAL PARK SERVICE QUARRY

In the Patapsco State Forest on Bull Branch in metagabbro are found zoisite, epidote, chlorite, pyrite, magnetite, ilmenite, and pyrrhotite. The quarry is now abandoned and little of interest is to be collected.

THE HOLLOFIELD TRAP QUARRIES

The older and larger of the Hollofield Trap Quarries is an opening on the east side of the Patapsco River in gabbro and serpentinized gabbro 200 feet south of the bridge at Hollofield Station.

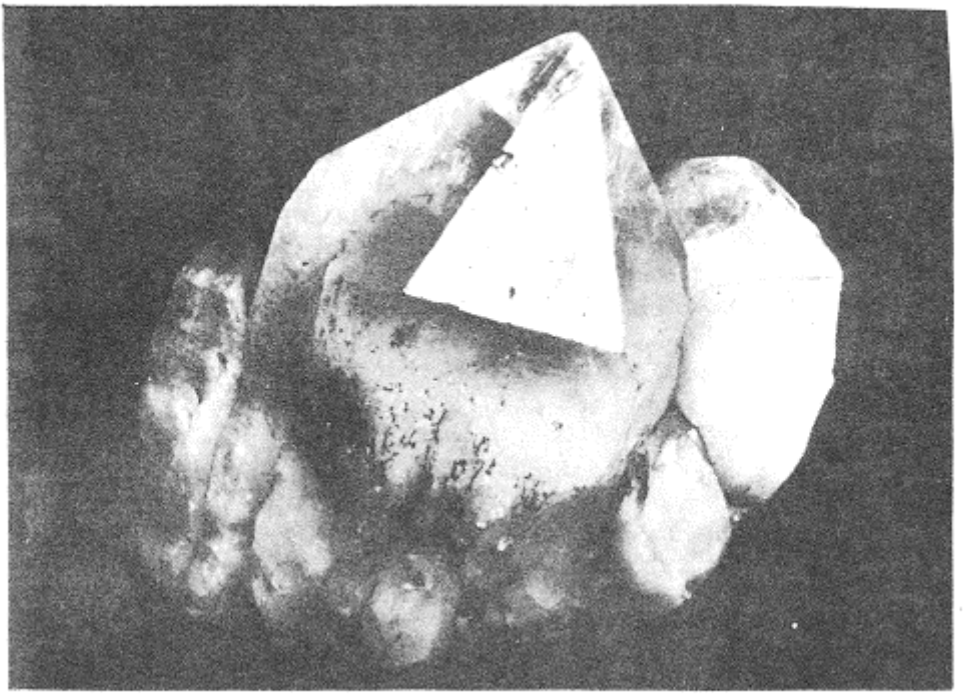
Minerals to be found are enstatite, chlorite, vermiculite, aragonite, and bronzite.

The smaller quarry is located about 200 feet north of the Hollofield bridge, and is also on the east bank of the river.

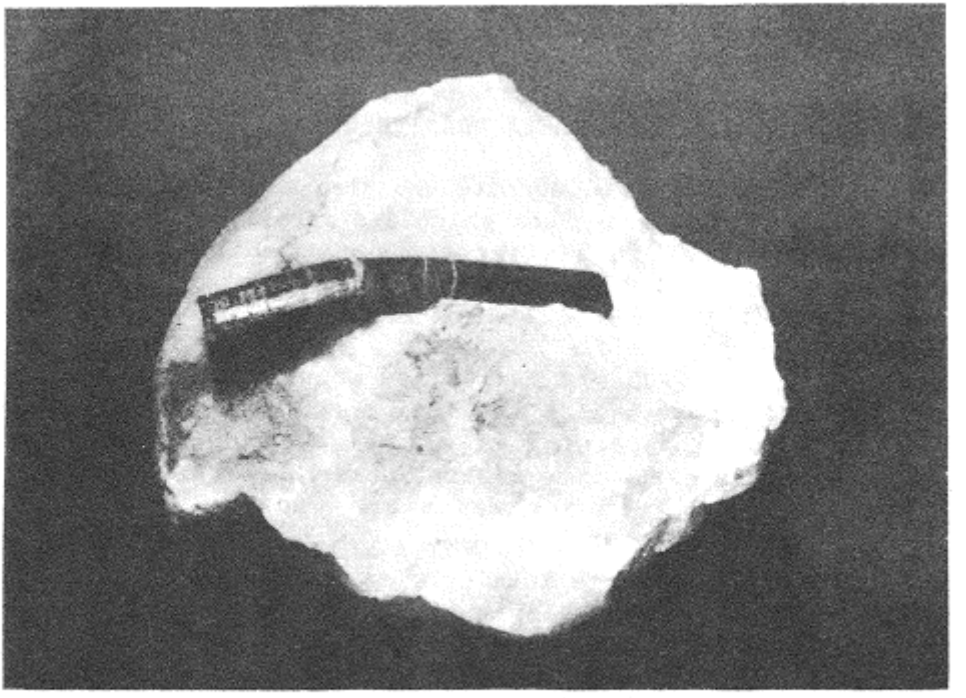
This opening is in gabbro and meta-gabbro. The following minerals are found: garnet, pyrite, pyrrhotite, chlorite, enstatite, bronzite, laumontite, and calcite.

VICINITY OF HOLLOFIELD

On the east side of the Patapsco River near Hollofield Station in pegmatite are found garnet crystals, microcline, quartz hematite, muscovite sheets five to six inches across, and black tourmaline.



Quartz Crystals Silver Spring
Druid Hill Park, Baltimore City



Curved Black Tourmaline in Quartz
Pimlico, Baltimore City

BOK ASBESTOS MINE

On the property of Mr. Frederick Bok, .6 of a mile northeast of Hollofield Station, and about 350 feet west of Dogwood Road ligniform anthophyllite, talc, and chlorite are to be found.

WARDS CHAPEL MICA PROSPECT

The prospect amounts to two small pits in an open field about one mile from the Liberty Road on the Wards Chapel Road. Large muscovite sheets, feldspar, and black tourmaline in smoky quartz occur.

THE NASH FARM AT GRANITE

Found loose in a field on the Nash Farm are quartz crystals up to six inches long and three inches in diameter, phantom quartz crystals, and amethyst.

THE GRANITE COMPANY QUARRY

One mile due east of Woodstock in granite is a quarry now abandoned and filled with water.

Minerals reported from this locality are biotite in masses five inches wide and two to three feet in length, quartz, and microcline. (Shannon)

THE EUREKA GRANITE QUARRY

Two miles north of Granite and also abandoned and filled with water is a quarry from which are reported biotite crystals two to four inches across in pegmatite. (Shannon)

THE MILFORD TRAP QUARRY

The Milford Quarry is located about 100 yards west of the Milford Avenue and .7 of a mile north of the Liberty Road at Rockdale. The opening is in the gabbro and meta-gabbro common to this area. The mineral occurrences are usually in the quartz and feldspar veins and pockets.

The minerals to be found at this locality are olive green and brown zoisite in single crystals and large masses, laumontite crystals, chlorite in sheets and rosetted crystals, platy ilmenite, pyrite in masses and crystals, pyrrhotite, stilbite, natrolite, calcite crystals and cleavages, flattened garnets, black tourmaline crystals, albite, quartz

crystals up to five inches long, kaolinite, marcasite crystals and stalactitic forms in cavities, magnetite massive and in brilliant octahedral crystals 1/4 inch across, rutile crystals, sphene in brown and green crystals, hornblende crystals in quartz three inches long, chalcopyrite, radiated actinolite, pyroxene, prochlorite, scolecite in white radiated crystal groups, analcite crystals, laumontite pseudomorph after analcite, epidote in long bladed single crystals and crystalline masses, prehnite crystals, mizzonite Ma_{33} Me_{67}, molybdenite, andesine crystals, radiated phillipsite, talc pseudomorph after actinolite, and muscovite.

THE CHOATE CHROME MINE

The Choate Chrome Mine is located three miles west of Owings Mills on the Deer Park Road. The openings were made in the well known Soldiers Delight serpentine barrens. The locality has been abandoned for a number of years leaving only a water filled shaft and small dumps, most of the refuse having been used as road ballast.

The following minerals are to be found: chromite in masses and as birdseye ore, magnesite, picrolite, baltimorite, chalcedony, rhodochrome, jasper, and williamsite.

VICINITY OF THE CHOATE MINE

In the surrounding serpentine barrens of Soldiers Delight are found jasper, agate, goethite and wad which have weathered out of the serpentine and are found lying on the surface.

THE WEIR CHROME MINE

The Weir Mine is found four miles west of Owings Mills on the Wards Chapel Road one and one-half miles north of Holbrook. This mine was the largest chrome working in Baltimore County, and is also in the Soldiers Delight serpentine area.

The minerals found are chromite, serpentine, picrolite, talc, chalcedony, deweylite, magnesite, rhodochrome, and calcite.

THE HARRIS CHROME MINE

The Harris Mine is located on the F. A. Warner property four miles west of Owings Mills and one-fourth of a mile northeast of the Weir mine across the run. One open shaft

and a prospect cut are all that remain of the mine.

Minerals are lamellar serpentine, picrolite, chromite in fine disseminated grains in serpentine, chalcedony, calcite, and talc.

AT PIKESVILLE

In gabbro: dodecahedral garnets. (Williams)

MOUNT HOPE STATION

On the Western Maryland Railway one-fourth of a mile west of the Reisterstown Road in gabbro and gabbro-diorite with quartz are green hornblende, black tourmaline, garnet, and hypersthene. (Williams)

ALTO DALE PROPERTY

At McDonogh on the Alto Dale Farm are found white cleavage masses of topaz and quartz crystals in soil weathered from a pegmatite dike.

MCDONOGH STATION

At McDonogh on the Western Maryland Railway in granitoid gneiss is found allanite in parallel growths in epidote.

In schist at McDonogh School are kyanite, sillimanite. (Shannon)

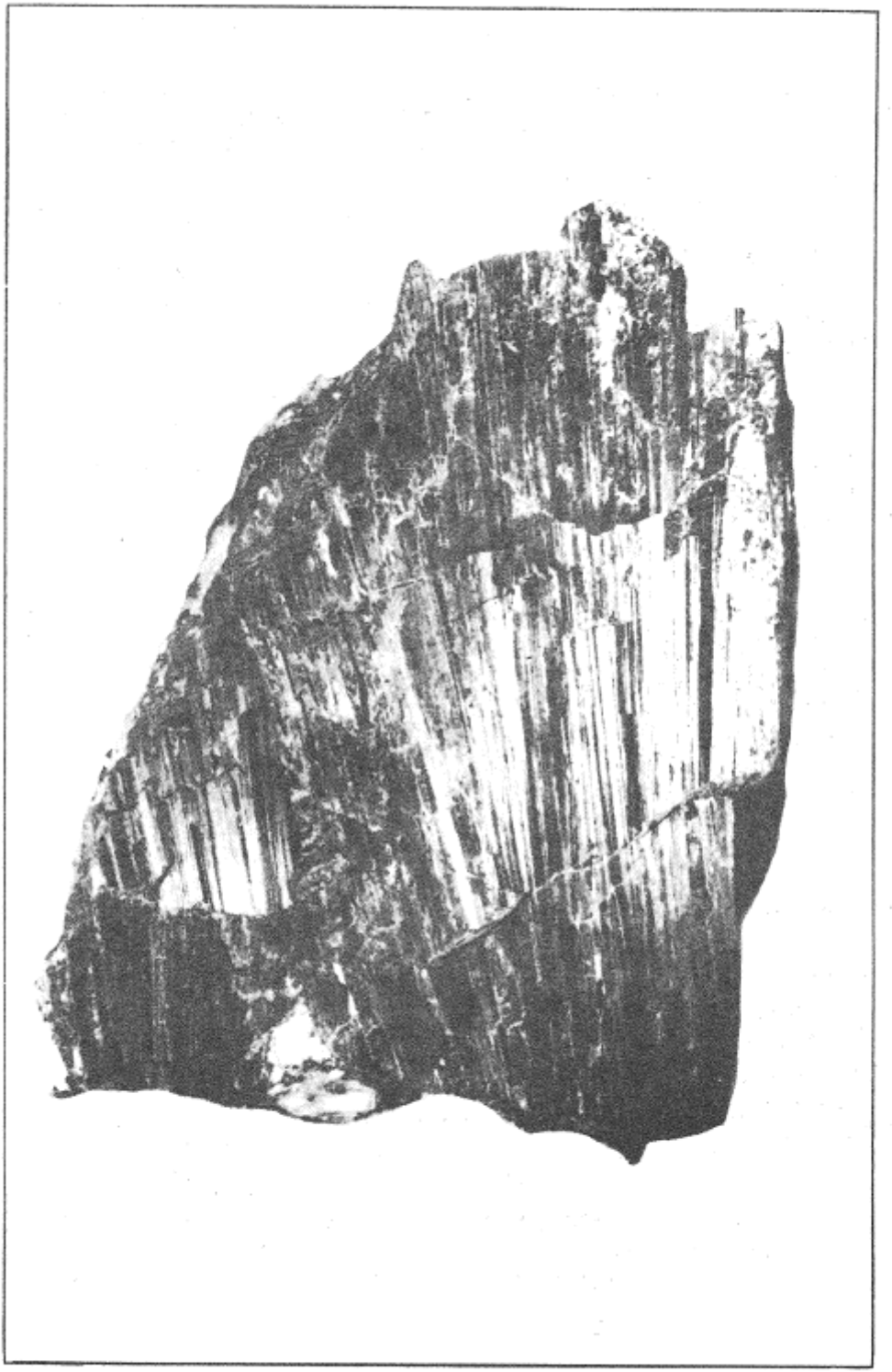
Near McDonogh School is a muscovite mica deposit. (Sterrett) One mile southeast of McDonogh School: quartz crystals in soil.

PLEASANT HILL

On the Reisterstown Road about one-half mile north of Owings Mills near the old red brick school house in mica schist are purple garnets, kyanite, staurolite, and sillimanite.

THE YOX QUARTZITE QUARRY

Two miles southwest of Delight is the Yox Quarry, an opening in quartzite. Minerals occurring are stretched black tourmaline and limonite.



Zoisite

Milford Trap Quarry Baltimore County

THE DYER SERPENTINE QUARRY

The Dyer Quarry is one and one-fourth miles west of Delight on the Reisterstown Road, and just south of the Nicodemus Road. A large opening has been made in the serpentine and is worked spasmodically.

The following minerals are to be found: picrolite, large dolomite cleavage rhombs bounded by picrolite, calcite, baltimorite, antigorite, williamsite, chalcedony, common white opal, large veins of magnesite and deweylite, jasper, moss agate, wad, magnetite in dolomite and picrolite, and garnierite.

Rutile is an abundant micro constituent of the hornblendic rock on the south edge of the serpentine. (Williams)

One crystal of corundum has been found in the serpentine of the Delight area. (Williams)

THE SHOEMAKER QUARTZITE QUARRY

Along Setters Ridge three-eighths of a mile west of Chattolanee on the old Garrison Road in quartzite are small black tourmaline crystals, milky quartz, and muscovite.

THE STEVENSON QUARTZITE QUARRY

The Quarry is an opening in the Setters quartzite three-eighths of a mile west of Stevenson Station along Setters Ridge south of the Green Spring Valley.

Minerals noted are milky quartz crystals, abundant small black tourmaline crystals often weathered from the matriz, muscovite, limonite, pyrolusite, and psilomelane.

THE BUTLER QUARTZITE QUARRIES

The largest opening is found on the east side of the Falls Road at Butler.

Minerals to be found are microcline, biotite, black tourmaline, small quartz crystals, muscovite, pyrite, garnet, marcasite, and ilmenite.

On the west side of the road an opening has been made by the Artcraft Company. The minerals ilmenite, black tourmaline crystals, and rutile in one inch masses are found.

AT SCOTTS MILLS

Eighteen miles north of Baltimore the minerals magnet-

ite, cyanite, staurolite, sillimanite were reported by Tyson.

THE CAVES

On the Caves Road two and one-half miles northeast of Owings Mills is an old abandoned iron mine at the Caves.

The minerals found are goethite, kyanite in quartz, and aragonite. (Williams)

THE MCMAHON LIMESTONE QUARRY

The McMahon quarry, an opening in the Cockeysville Marble intruded by pegmatite, is located on the west side of Greenspring Avenue one-half mile north of Smith Avenue.

The following minerals are found: pyrite crystals in cubes and octahedrons, brown tourmaline, phlogopite, calcite crystals and cleavages, iceland spar, black tourmaline in microcline, sphalerite grains, minute garnets, fuchsite, epidote, muscovite, talc,dolomite, limonite, quartz crystals, pyrrhotite, rutile, sphene, serpentine, and graphite.

THE BARE HILLS COPPER MINE

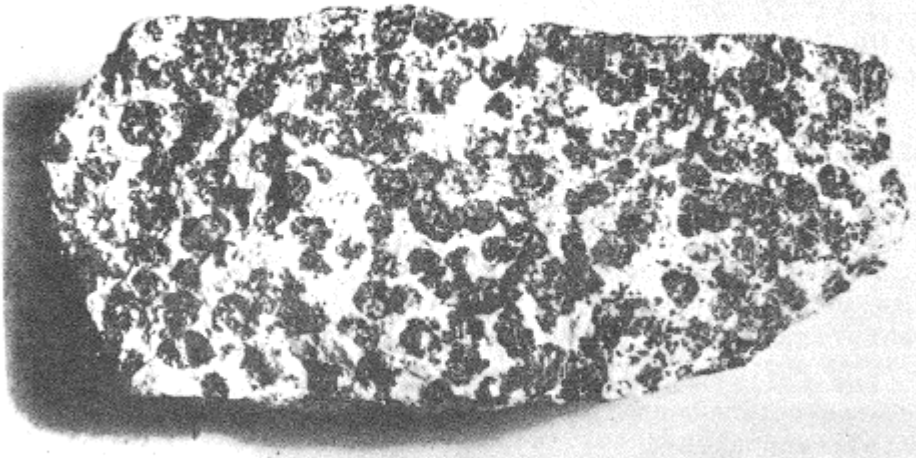
The famous old Bare Hills Copper Mine is located on Smith Avenue about one mile east of Old Pimlico Road. The shafts have long since filled in, and only the much weathered dumps.are available to the mineralogist, these being on the north side of the road. The basic rock is meta-gabbro and steatite.

The minerals are amphibole-anthophyllite, cummingtonite, actinolite, tremolite, octahedral magnetite in steatite, magnetite in large masses, malachite, azurite, radiated epidote, hornblende crystals, calcite, milky quartz, talc, stilbite, laumontite,albite, chlorite, chalcopyrite, bornite, feldspar, garnet, chalcanthite, blue quartz, chalcocite, chrysocolla. In the Lee Collection-radiated actinolite and covellite.

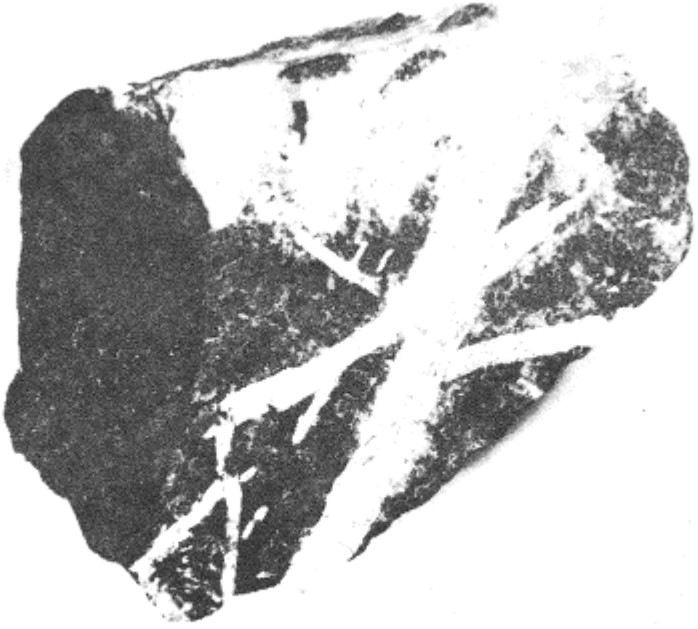
THE BARE HILLS SERPENTINE QUARRIES

At the intersection of Falls Road and Old Pimlico Road are two adjacent serpentine quarries now abandoned.

The minerals found are williamsite, chrysotile in small veins, magnesite, chalcedony, talc, chlorite, calcite, dolomite, drusy quartz, opal, baltimorite, deweylite, marmolite, chromite, and dendritic wad.



Disseminated Chromite in Serpentine
Choate Chrome Mine, Soldiers Delight,
Baltimore County



Mizzonite Crystals on Trap
Milford Trap Quarry Baltimore County

THE BARE HILLS CHROME MINE AND VICINITY

In the Bare Hills Serpentine barrens in the vicinity of the intersection of Falls Road and Old Pimlico Road numerous shafts and pits are to be found where the first commercial deposit of chrome in the world was worked by the Tysons.

Minerals in this area are chromite, talc, chalcedony, opal, baltimorite, chrysolite, sepiolite (meerschaum), magnesite, chlorite, rhodochrome, gymnite in chalcedony (deweylite), dendritic wad, marmolite, williamsite, porcellophite pyroxene, hyalite, hydromagnesite, and moss agate.

Eastern border of serpentine area- beryl and adventurine feldspar (Haydon). Ligniform asbestos (Gilmor). Beryl (Tyson).

AT ROCKLAND

About one mile north of Bare Hills on the Falls Road at Rockland in a pegmatite dike are found muscovite, microcline crystals, fine tourmaline in quartz and garnet.

AT ASHLAND

In schist- kyanite, staurolite, and garnets.

VICINITY OF TIMONIUM

On the Pott Springs Road at several old iron openings are found goethite, calcite, tremolite, fetid quartz, limonite, and phlogopite.

H. T. CAMPBELL LIMESTONE QUARRY

The Campbell Quarry is located about one-fourth of a mile west of the York Turnpike at Texas. In the Cockeysville Marble, famous from this vicinity, an immense opening has been made. The limestone at this point varies from the white sugary alum stone to the dark compact dolomitic marble banded by phlogopite veins. Accessory minerals are most abundant in the white coarsely crystalline marble.

Minerals to be found are tremolite in radiating and bladed masses, pyrite in pyritahedrons, octahedrons and masses, phlogopite crystals, calcite crystals, pink dolomite crystals, wollastonite, pyroxene altered to serpentine, fuchsite, dendritic wad, purple fluorite crystals, pink calcite crystals, galena, barite in white crystals and masses, sphalerite, pyrrhotite, smoky quartz, quartz crystals, beau-

tiful brown tourmaline in terminated crystals, pink, grey, and white wernerite crystals, sphene in dark brown crystals, rutile, limonite, chlorite, talc, molybdenite, fibrous calcite, margarite, green diopside, mountain leather (amphibole asbestos), and fetid feldspar.

THE BEAVER DAM QUARRY

The Beaver Dam Quarry, noted for its excellent building stone, is found one-half mile west of Cockeysville. The quarry is now abandoned and filled with water.

The following minerals occur: tremolite, wollastonite, quartz crystals, dolomite, phlogopite, calcite cleavage, and small black tourmaline.

CARBONATE SAND PIT

On the west side of the York Turnpike, between Texas and Cockeysville, and opposite the Old Gunpowder Quarry is a carbonate pit.

The following minerals are found: mountain leather (amphibole asbestos), tremolite crystals, wollastonite, fetid calcite, and smoky quartz.

THE GUNPOWDER LIMESTONE QUARRY

One-half mile north of Texas on the east side of the York Turnpike is the abandoned Gunpowder Quarry in the Cockeysville Marble.

Minerals noted are: pyrite, phlogopite, wollastonite, dolomite, quartz, tremolite and brown tourmaline.

THE MARYLAND CALCITE COMPANY QUARRY

Located some 300 yards southwest of Texas Station this quarry in the Cockeysville Marble is now abandoned and filled with water.

Minerals occurring are pyrite crystals, phlogopite, tremolite, brown tourmaline, dolomite, chlorite, sphene, white, pink and grey scapolite crystals, calcite cleavages, rutile, pyroxene altered to serpentine, and fuchsite.

THE OREGON IRON FURNACE

The old Oregon Iron Mine, now filled with water and used as a swimming hole, is found one mile east of Shawan on the Falls Road. In an open field 100 yards northeast of the

opening are found goethite, iridescent, earthy, and botryoidal limonite, feldspar, quartz crystals, biotite, pyrite, and pyrolusite.

THE WHITTINGHAM QUARTZITE QUARRY

At Pine Hill one-half mile west of the York Turnpike on the Gold Bottom Road in quartzite is a small abandoned quarry.

Minerals to be found are muscovite, feldspar, black tourmaline, magnetite, hematite, and rutile.

THE BLUE MOUNT TRAP QUARRY

The Blue Mount Quarry, operated by the J. E. Baker Company, is the largest quarry in Baltimore County, and is situated on the Gunpowder Falls, along Big Falls Road, one mile southwest of White Hall, and about two miles east of Hereford. The immense working is in a slightly serpentinized basic igneous rock (trap) purplish-black in color and very hard. The serpentinized portion is encountered on the north wall.

The following minerals are to be found: apatite crystals in chlorite, williamsite, baltimorite, iceland spar, dolomite crystals and cleavages, pyrite, chalcedony, opal, drusy quartz, quartz crystals, bronzite, magnetite, talc, vermiculite, limonite, actinolite, aragonite in sheaf like groups of crystals, magnesite, hydromagnesite, brucite in crystals and masses, red, brown, and white deweylite, chlorite, fibrous calcite, stilbite, chromite, genthite, tremolite, wad, radiated marcasite, amesite, graphite, and calcite crystals (nail head spar) often beautifully covered by iron.

AT BLUE MOUNT STATION

On the Northern Central Railroad one mile south of White Hall in pegmatite and gabbro are found graphite, green apatite crystals in orange calcite (Lee Coll.). Vermiculite, ilmenite in quartz, and black tourmaline also occur.

THE MCCOMAS IRON ORE BANKS

The iron workings are found one mile southeast of White Hall, and just north of Blue Mount Station on the Northern Central Railroad. The openings were made in the side of the hill in a compact chlorite schist containing large quantities of almandite-spessartite garnets. Also foliated talc, limo-

nite after magnetite, radiated actinolite in chlorite, apatite, magnetite, hornblende crystals, and chlorite.

THE NORRIS IRON ORE BANK

Two and one-half miles northeast of White Hall, and one mile southeast of Glenmills on First Mine Branch in serpentine is found massive magnetite (Md. G.S.); also chlorite and garnets.

AT PARKTON

Amphibole asbestos.

THE ARUNDEL GNEISS QUARRY

Located one-fourth of a mile north of the Harford Road on the west bank of the Gunpowder River in Baltimore gneiss intruded by pegmatite veins.

The following minerals are found: gem beryl-variety of aquamarine, trapezohedral garnets up to two and one-half inches in diameter, large microcline cleavages, muscovite in large masses, biotite, magnetite, black tourmaline, pyrite, epidote and allanite crystals.

LOCH RAVEN AND VICINITY

Along the banks of the Gunpowder above Loch Raven: sillimanite in large radiating masses. (Williams)

Sixteen miles north of Baltimore on the Gunpowder: molybdenite and graphite. (Tyson)

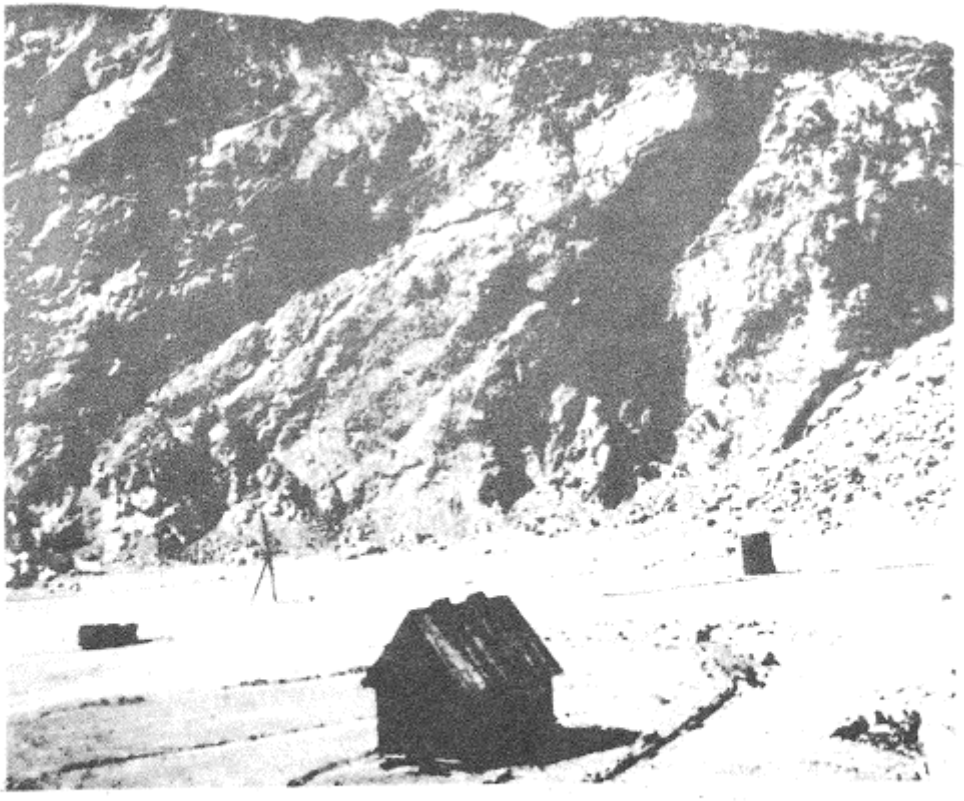
Twenty-five miles north of Baltimore on the Gunpowder: topaz, magnetite,titanite, chalcopyrite in quartz. (Old Dana)

Along shore at Loch Raven are quartz crystals, iceland spar, and black tourmaline in quartz.

THE GILMOR LIMESTONE QUARRY

The quarry is an opening in the Cockeysville Marble intruded by pegmatite one-fourth of a mile southwest of Summerfield Station and is now abandoned.

Minerals to be found are tremolite crystals up to three and one-half inches long loose in the soil around the top of the quarry, large radiating masses of tremolite, calcite crystals, feldspar, garnets, phlogopite, and vermiculite.



Blue Mount Quarry in Serpentinized Trap
Near White Hall, Baltimore County

HOWARD COUNTY

THE BEN MURPHY MICA MINE

This opening is located one mile southwest of Scaggsville in mica gneiss and pegmatite.

Minerals from this locality are muscovite mica, beryl in translucent and opaque yellow green masses, feldspar, and quartz. (Sterrett)

THE PARLET MICA PROSPECT

In the mica gneiss and pegmatite of this area is located the Parlet Prospect, one and one-half miles north of Scaggsville.

Minerals noted are muscovite, microcline, and quartz.

THE OLD MARYLAND MICA MINE

The mine is located on the Arrington Property near Simpsonville about six miles from Laurel and one and three-fourth miles northwest of Scaggsville. The opening was made in mica gneiss and pegmatite.

The following minerals are to be found: muscovite, quartz crystals, micaceous hematite in quartz, black tourmaline, microcline, ilmenite, pyrite, limonite pseudomorph after pyrite, chlorite, amphibole, amethyst crystals, pyrolusite, and pyrophyllite.

AT BROWNS BRIDGE NEAR OLNEY

In steatite are found octahedral crystals of magnetite.

NATIONAL PARK SERVICE QUARRY

Located in the Patapsco State Forest Reserve, the small opening is in serpentinized rock which was used for road ballast.

The minerals to be found are picrolite, williamsite, antigorite, talc, chrysotile, and dendritic wad.

O'CONNORS FELDSPAR QUARRIES

These openings are to be found about one mile southwest of Orange Grove in one of the several highly feldspathic granitic intrusions of pronounced pink color with prominent

pegmatite facies that are common to this region.

Minerals are feldspar, muscovite, and black tourmaline in quartz.

THE PINDELL FELDSPAR QUARRIES

Several openings have been made one mile south of Ilchester on the Pindell Farm. The largest are in two parallel dikes of pegmatite about 500 feet apart. The feldspar, pink in color, occurs both in coarse and fine grained granitic structure.

Minerals found: feldspar, magnetite, apatite, quartz, and muscovite.

THE ILCHESTER FELDSPAR QUARRY

On the River Road just south of Bonnie Branch is a quarry in an intrusive pegmatite dike similar to others of this area.

Minerals to be found are pyrite, feldspar, magnetite and hematite between mica cleavages, dendritic magnetite, and garnets.

MOUNT ST. CLEMENTS COLLEGE FELDSPAR QUARRY

Located one-half mile northwest of Ilchester on the grounds of the Mount St. Clements College is a small and now abandoned quarry in a pegmatite dike.

Fine specimens of graphic granite are to be found; also microcline crystals of large size, muscovite, black tourmaline, and quartz.

THE ELLICOTT CITY GRANITE QUARRIES

The quarries are to be found on the north side of the Frederick Pike just east of Ellicott City. The openings were made in the Woodstock granite, and have long been abandoned.

Minerals are to be found but rarely because of the close grained structure of the granite, and consist of feldspar, biotite, milky quartz, calcite, stilbite, and olivene.

THE FAGAN FELDSPAR QUARRIES

On the E. E. Fagan property one-half mile south of Hollofield Station on the west bank of the Patapsco River are several openings in a pegmatite dike.

Minerals noted are feldspar, muscovite, and quartz. Reported by Shannon - black tourmaline crystals 1 1/2 inches in diameter.

THE FROST FELDSPAR QUARRY

The quarry is to be found on the Fannie Frost farm one-half mile south of Davis, between the Old Frederick Road and the Patapsco River. The opening is in a pegmatite dike which has intruded into the Cockeysville Marble. The pegmatite differs from the usual pegmatite of the area in that it represents a transition between this and the soda dikes of Cecil County. The quarry has been abandoned for a number of years but is still of great interest to the mineralogist.

Minerals to be found are white albite, light grey to flesh colored microcline and orthoclase, deep red sphene crystals, pyrite, pyrrhotite, hornblende var. paragasite, pyroxene var. coccolite, vesuvianite, dolomite, pyrope garnet, epidote, allanite, smoky quartz, large crystals of diopside, uralite, actinolite, very little muscovite, biotite, and phlogopite. Also clinozoisite, orthoclase crystals four feet across, and albite crystals one foot across.

THE ARLINGTON QUARRIES

Another of the now abandoned quarries of this vicinity is the Arlington openings located on the land of Frank Arlington one-half mile southeast of Davis, and 2000 feet northeast of the Frost Quarry. The pegmatite dike, six to twenty feet in width, contains white feldspar.

Minerals reported are microcline, quartz, biotite, muscovite, garnet, and black tourmaline. (Watson)

AT ALBERTON

Anthophyllite asbestos - silky and ligniform between schistose actinolite and serpentine at an abandoned opening. In schist-form anthophyllite large rutile crystals. (Shannon)

WOODSTOCK GRANITE QUARRIES

In the abandoned quarries in granite are found allanite surrounded by epidote, cubic crystals of pyrite, and sphene. (Williams)

AT GLENELG

In quartz, large cubes of limonite pseudomorph after pyrite.

THE TUNNEL FELDSPAR MINE

Located one-half mile south of Marriottsville the now abandoned opening was made in pegmatite, producing white potash feldspar. This is the only locality that feldspar has been mined in Maryland.

Minerals are white cleavage microline, microline crystals, a little muscovite, biotite, and black tourmaline.

In schist near the mine are found kyanite, staurolite, garnets, limonite pseudomorph after pyrite, and quartz crystals.

NEAR MARRIOTTSVILLE

One-fourth of a mile south of Marriottsville in an abandoned limestone opening are found tremolite crystals and masses, fetid calcite, phlogopite, vermiculite, talc and dendritic wad.

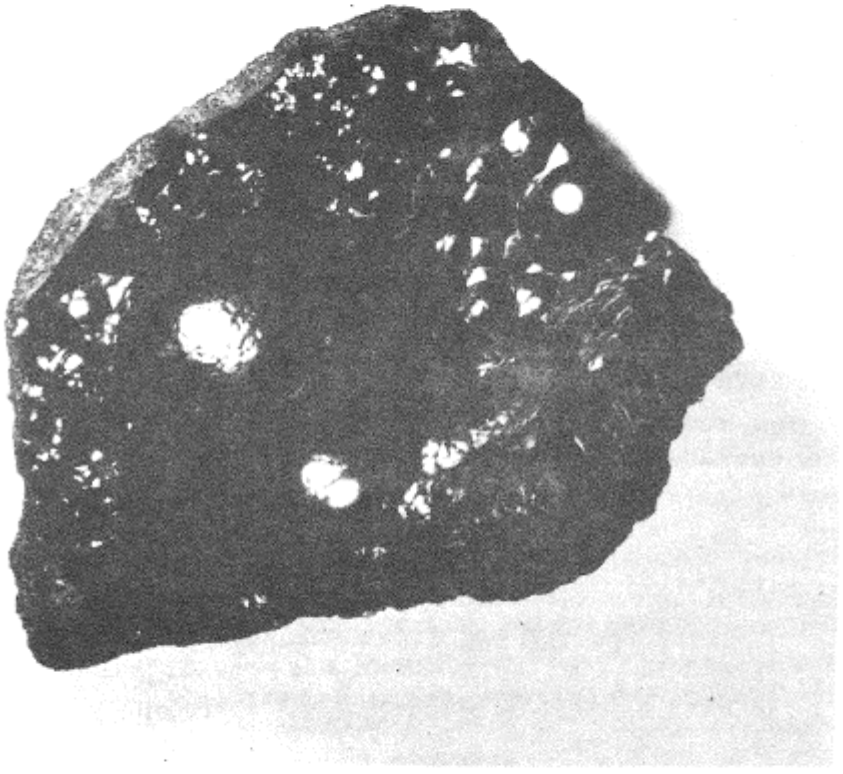
One-fourth of a mile west of Marriottsville in a steatite opening - talc.

NEAR CLARKSVILLE

In field: smoky quartz crystals loose in soil.

ON THE MANOR CARROLL ESTATE

In mica schist: kyanite and staurolite.



Goethite

Oregon Iron Mine Baltimore County

MONTGOMERY COUNTY

THE KENSINGTON MICA MINE

An opening in a pegmatite dike, this mine is located two miles north of Burnt Mills near Sligo Creek on the B. H. Warner property. At one time this mine was known as the Gilmore Mine. (Sterrett)

The following minerals have been reported: orthoclase, cinnamon garnet, autunite, grayish apatite in large crystals, golden beryl, microlite, zinnwaldite, gahnite, quartz, albite, black tourmaline, hatchettolite, cleavelandite, wad, bertrandite and muscovite.

THE ETCHISON CHROME MINE

Located on the Griffith property one mile west of Etchison, and a little east of Great Seneca Creek, the opening was made in serpentine and phyllite. The mine has not been worked for many years, and little of interest remains at the site.

Minerals occurring are chromite, chrome ore (a chrome spinel-picotite?) green chrome tourmaline, fuchsite, green margarite, rutile in reddish-brown encrustations, magnesite, amesite?, magnesioferrite?. (Shannon)

On the adjacent hill just south of the mine, quartz crystals are found in the soil.

BROOKEVILLE AND MECHANICSVILLE MANGANESE MINES

Tyson mentions in his report of 1862 a manganese deposit one and one-half miles west of Brookeville. (No traces now to be seen).

Ducatel and Alexander give a locality in 1835 as near Mechanicsville, (now Olney); probably this is one and the same locality. (M.G.S.)

THE EARTH PRODUCTS COMPANY FELDSPAR QUARRY

In a pegmatite prospect four and one-half miles northwest of Laurel, an opening was worked for feldspar.

The following minerals are to be found: opaque green beryl, garnets, muscovite, black tourmaline and albite.

THE DICKERSON TRAP QUARRIES

These quarries consisting of two openings in trap on adjacent sides of a stream one-third of a mile south of the town of Dickerson are now abandoned and filled with water.

Minerals reported from this locality are hematite, prehnite, albite, chabazite druses of colorless crystals, epidote, garnets, laumontite, calcite, scaly specular hematite, stibnite in diabase. (Shannon)

POTOMAC RIVER NEAR SENECA CREEK

Sulphur in limestone. (J.H.U. collection)

MONTGOMERY COUNTY GENERAL

Sphalerite and graphite reported by Ducatel.

GREMOSES MICA MINE

Consisting of an opening in a pegmatite dike twelve miles north of Washington, D.C. the following minerals occur: bottle green gahnite, muscovite and albite. (Chatard)

AT GLEN ECHO

The following minerals are reported: galena, sphalerite, pyrite crystals, and double terminated quartz crystals, (Ulke); chalcopyrite and gold. (Shannon)

AT WIDEWATER ON THE CHESAPEAKE AND OHIO CANAL

Minerals found in pegmatite are bornite, magnetite, malachite, chalcopyrite, and azurite. (Ulke)

AT CHAIN BRIDGE

In quartz - prochlorite, kyanite, and ilmenite.

THE SAWYER GOLD MINE

This mine now abandoned is located on the old Milburn property just off Persimmon Tree Road. The country rock consists of quartz veins in chlorite schist. Minerals noted: gold in quartz, dolomite, limonite.

THE FORD GOLD MINE

The Ford Mine is found about one hundred yards east of the Potomac River above Great Falls and near the canal. It has recently been reopened. In quartzite - gold, pyrite, ferruginous quartz, tetradymite, and electrum.

THE MARYLAND GOLD MINE

This is the most accessible of the Montgomery County gold mines, and is located at the intersection of the road from Potomac with Conduit Road. The mine has also been reopened recently. The following minerals are found in quartz veins in chlorite schist: gold, pyrite, galena, and ilmenite.

THE MONTGOMERY GOLD MINE

The shafts and prospect pits of the old Montgomery Mine are to be found on the farm of Robert Davidson on Rocky Run two hundred yards off Persimmon Tree Road. The minerals found in quartz veins in chlorite schist are gold, pyrite, galena, and limonite.

THE MILLER GOLD MINE

Several abandoned shafts and prospect holes are located in the angle of intersection of Bradley Road and Wilson Lane. In weathered gabbro and chlorite schist are found gold in quartz, siderite, black tourmaline, pyrite, malachite, calcite, and steatite.

THE HUDDLESTONE GOLD MINE

Near Bethesda in steatic gabbro are gold, ankerite, steatite, chlorite, pyrite, limonite and needled black tourmaline. (Ulke)

CARROLL COUNTY

THE SPRINGFIELD IRON - COPPER MINE

The Springfield Mine, abandoned for many years, is located one mile north of Sykesville to the west of the main road on the old Beasman property. It is the southernmost of the iron-copper workings along the Sykesville to Finksburg vein. The ore is found as a vein deposit with quartz gangue, in a country rock of mica schists weathered to talcose and chloritic schists. The width of the vein is extremely variable, ranging from almost nothing to over fifteen feet. The mine though originally worked for iron began producing copper in paying quantities at the depth of one hundred feet. There are two openings on adjacent hills separated by a small stream. The shafts have long since caved in leaving only the extensive dumps available to the collector.

Minerals to be found are specular hematite, massive magnetite, pyrite, limonite, large masses of chalcopyrite and bornite, malachite, azurite, chalcanthite, covellite, chrysocolla, carrollite, linnaeite, talc, quartz crystals lining cavities in calcite, epidote, calcite, feldspar, asbestiform actinolite, blue gahnite (cobalt) in quartz, actinolite crystals in steatite, riebeckite - arfvedsonite in green radiating crystals on quartz.

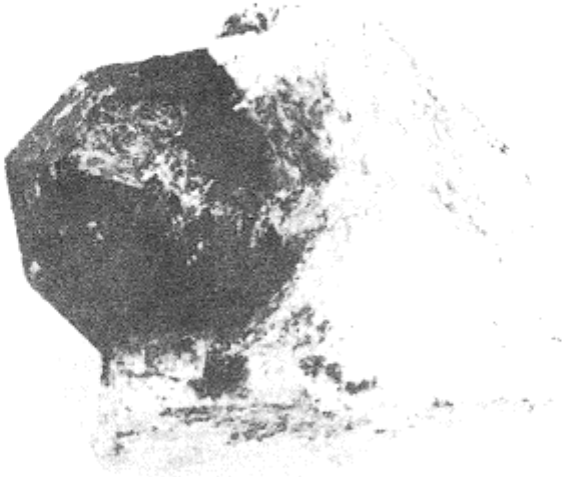
THE CARROLL IRON - COPPER MINE

This mine along the same vein is found on an adjacent hill one-half mile north of the Springfield Mine. Two main shafts were sunk and numerous prospect holes dug. Judging from the size of the dumps the mine was never worked to a great extent.

The following minerals are found: specular hematite, epidote in crystals and masses, massive garnet, chrysocolla, azurite, malachite, limonite, bornite, siderite, octahedral magnetite, hornblende, actinolite crystals in steatite, chalcanthite, chlorite, pyroxene, botryoidal and fibrous malachite, linnaeite, zoisite and quartz.

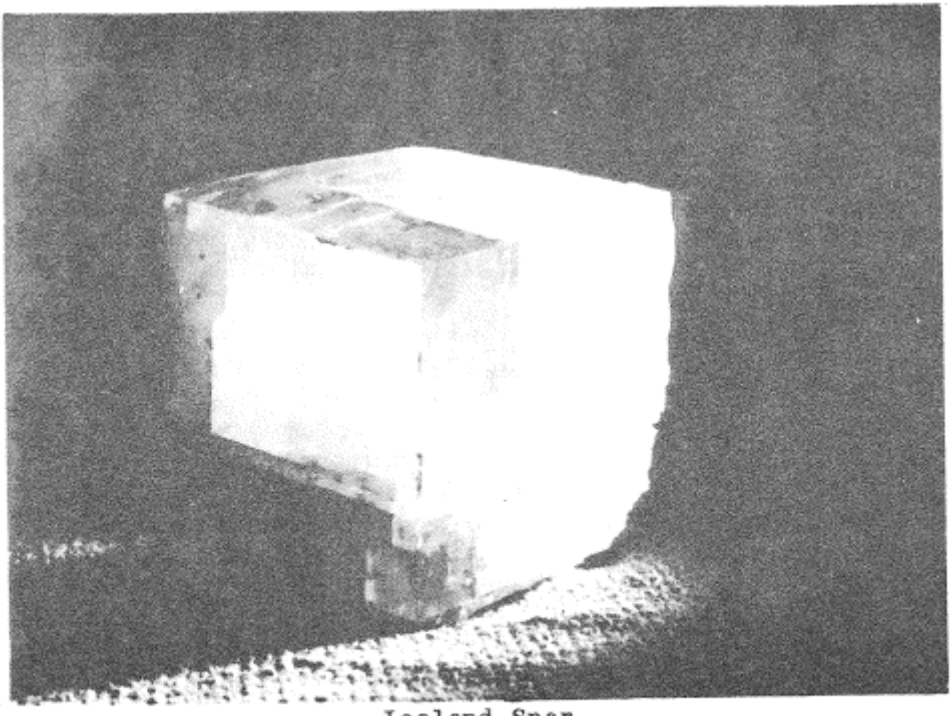
THE MINERAL HILL MINE

The Mineral Hill Mine is located less than a mile south of Louisville, and about three hundred yards east of the main road. It is the most extensive of the openings along this vein. The mine was worked for iron as far back as revolutionary times. Several large shafts are visible but have



Garnet

Arundel Gneiss Quarry Baltimore County



Iceland Spar

Loch Raven Baltimore County

long since caved in, leaving two large dumps on the hill side. The width of the vein at this point is variable, but runs on an average of about two and a half feet wide.

Minerals occurring are massive magnetite, micaceous specular hematite, chalcopyrite in octahedral crystals and masses, bornite, linnaeite, siderite, sphalerite, limonite, melaconite, malachite, black talc, melanterite, chalcanthite, actinolite crystals in steatite, tremolite, muscovite, chlorite, biotite schist, fibrous augite, hornblendic asbestos, epidote, pink calcite,chrysocolla, blue gahnite (cobalt) in quartz, and garnets. Also carrollite, zoisite and chalcocite, (Overbeck); gold, (Dana).

THE PATAPSCO COPPER MINES

The Patapsco Mines consist of two openings at the east end of Finksburg bisected by the Westminster Turnpike. This is the northernmost of the iron - copper mines along the Sykesville to Finksburg vein. The vein is about two feet in thickness outcropping in the form of magnetite greatly stained with copper salts. The country rock is a silvery schist with small magnetite crystals disseminated through it. The copper deposit at these mines was so near the surface that the iron output was very small. The deposit is interesting as the first reported occurrence of carrollite and linnaeite, being the type locality of the former. Shannon regards these minerals as identical.

Minerals occurring are magnetite, malachite fibrous and massive, chalcopyrite, carrollite, linnaeite, chrysocolla, pyrite, bornite, limonite, azurite, talc, epidote crystals, feldspar, quartz, hornblende, zoisite, white radiated stilbite, chlorite, blue gahnite (cobalt), niccolite, and remingtonite*. Specular hematite, sphalerite and covellite. (Overbeck)

THE ALBAUGH LIMESTONE QUARRY

This quarry is an opening in the volcanics and variegated limestone, located just north of the road between Spring Mills and Westminster, and three-fourths of a mile east of Spring Mills. The following minerals are found in small quantities: pyrite, limonite pseudomorph after pyrite, milky quartz crystals, chlorite schist, malachite, azurite stains on quartz, and bornite.

* Remingtonite is a cobalt deweylite consisting of a very thin purple coating. It has proved to be erythrite elsewhere. (Shannon)

THE HYDE LIMESTONE QUARRY

The Hyde Quarry is a large opening in variegated limestone between Westminster and New Windsor and is one-fourth of a mile north of the New Windsor Pike. The limestone is a fine grained marble varying in color through shades of white, red, grey, and brown. Minerals occurring are quartz crystals, some double terminated, calcite crystals and cleavages, small amounts of pyrite, chert, chlorite, malachite stains, chalcopyrite, iceland spar, gypsum varieties of selenite and satin spar.

THE AVONDALE IRON ORE BANKS

Two miles west of Westminster on the New Windsor Road on the B.F.Shriver Company property are located several old iron openings dating as far back as revolutionary times. Minerals noted in the pits and in the surrounding fields are goethite, iridescent limonite, hematite, and limonite.

AT TANEYTOWN

In slate has been reported bornite. (Tyson)

GOLD PROSPECT NEAR WINFIELD

Located about one mile south of Winfield in vein quartz surrounded by chlorite schist; the mine consists of one shaft and an open pit. Little actual excavation has been done.

Minerals noted are auriferous galena and pyrite, feldspar, dolomite, quartz, limonite, and chlorite.

RUBY FLINT QUARRY

The Ruby quarry is an abandoned opening in quartz, three-fourths of a mile north of Gaither on the Ruby farm. The occurrence is quartz veins in schist, particularly interesting because of molybdenite flakes in vein quartz reported by the Maryland Geological Survey. This is the only locality where molybdenite has been reported in the Maryland quartz deposits. Limonite pseudomorphs after pyrite also occur in quartz.

BETWEEN MIDDLEBURG AND BIG PIPE CREEK

Chrysocolla has been reported in red sandstone.

FREDERICK COUNTY

THE NEW LONDON COPPER MINE

The New London Copper Mine is the southernmost of the copper mines in the limestone belt which runs between New Market and Taneytown. The workings which have been abandoned for many years are to be found just west of the town of New London. Little is left except a filled in shaft, several small dumps, and some old concrete foundations. The ore body was contained in a very close grained marble surrounded by shale similar to other limestone outcroppings in this area.

Minerals found are strontianite, orange calcite, malachite, limonite, chalcocite, and limonite pseudomorph after pyrite. Chalcopyrite and bornite were reported by Overbeck.

THE DOLLY HYDE COPPER MINE

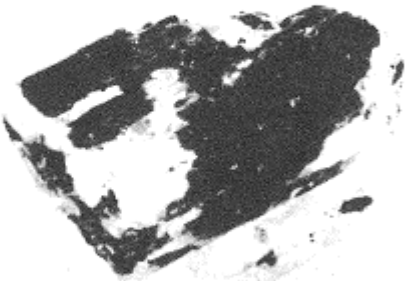
The old Dolly Hyde mine is located one-fourth of a mile east of the town of Liberty, on the banks of the Dolly Hyde Creek, 200 yards south of the Liberty Road. The large shaft and several smaller pits were sunk in the limestone near its contact with the shale. The mine has been abandoned for many years, but was reported to have been reopened for a short time in 1914. The dumps have been overgrown but an old stone building in a sad state of disrepair still stands to mark the site.

Minerals found were chalcocite, bornite, chalcopyrite, malachite, argentiferous galena, pyrite, limonite, chrysocolla, calcite crystals, and sphalerite. Ottrelite (chlorite), in phyllite plates containing minute rutile needles. (Shannon)

THE LIBERTY COPPER MINE

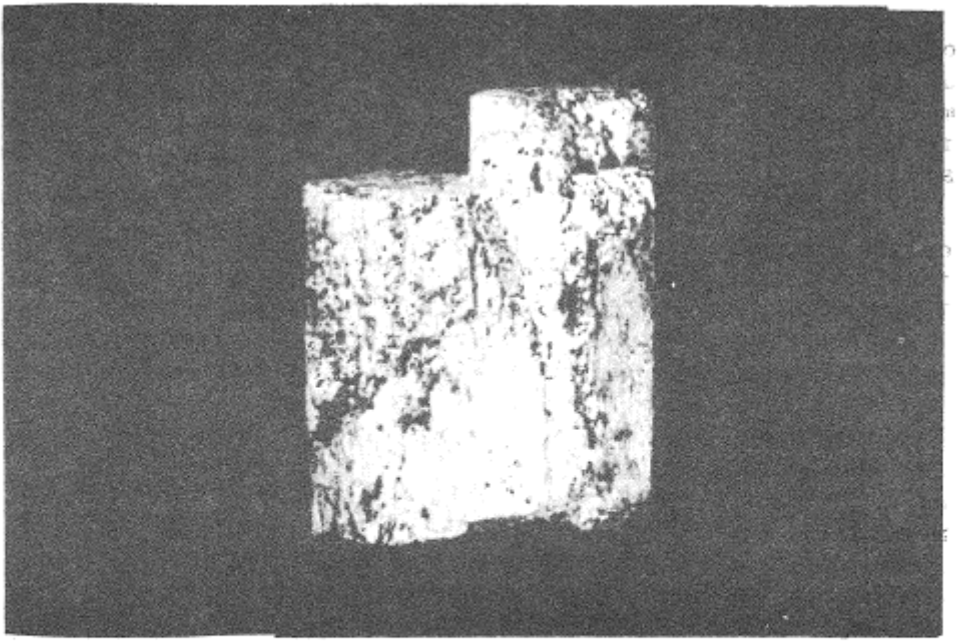
The largest and most recently worked of the copper mines in the New Market to Taneytown belt was the Liberty Mine, located about four miles north of Liberty and about one mile west of the Union Bridge Turnpike on the Copper Mine Road. A large number of deep shafts and open cuts combined with a very extensive dump tell a clear story of considerable mining and prospecting operations. The Mine was worked up until about 1914 when it was abandoned because of the expense incurred by difficulties in locating the ore pockets in the limestone. Several good sized concrete foundations and an old lime kiln are still to be seen.

The main ore was chalcocite, seconded by bornite. Other minerals to be found are white cleavage barite, malachite in



Wernerite Crystal in
Limestone
H.T. Campbell Quarry
Baltimore County

Phlogopite Crystal in
Limestone
H.T. Campbell Quarry
Baltimore County



Tremolite Crystal
Gilmor Limestone Quarry
Loch Raven Baltimore County

botryoidal masses and in crystals, chalcopyrite, epidote, magnetite, feldspar, limonite, azurite, pink calcite, quartz crystals, chlorite schist, chalcanthite, dendrites on limestone, and chrysocolla. Other minerals reported are gold, octahedral pyrite, specular hematite, tenorite, (Old Dana); tetrahedrite. (Lee coll.).

VICINITY OF LIBERTY

Barite and specular hematite were reported by Tyson .

BARITE PROSPECT NEAR JOHNSVILLE

On two adjacent hills one and one-half miles southeast of Johnsville, and about one mile east on the Copper Mine Road are to be found two abandoned barite prospects. The occurrence is in limestone and appears never to have been worked very extensively. The barite occurs in large white cleavage masses often stained slightly by limonite. Occasional small groups of tabular crystals were noted.

COPPER PROSPECTS NEAR JOHNSVILLE

Three long abandoned copper prospect pits in the radius of about a quarter of a mile are located one mile southeast of Johnsville, one-half of a mile east and one-fourth of a mile north of the Copper Mine Road. The openings were made in the typical Frederick County limestone, and small dumps still show where operations were carried on.

Minerals to be found are chalcopyrite, bornite, chalcocite, calcite crystals, salmon colored calcite, malachite in masses and in small crystals, and quartz crystals fairly large but poorly formed.

THE MOUNTAIN VIEW LEAD MINE

The Mountain View Lead Mine has the distinction of being the only opening ever worked for lead ore in the State of Maryland, although it never amounted to very much commercially, and was abandoned many years ago. The mine was found on the Cox property about three miles southwest of Union Bridge at Beaver Dam Churches on Beaver Dam Run. The openings and dumps are located about 100 yards southeast of the Churches. Several very old openings were made to the north but were reported to have been worked for copper though no trace of any ore can be found.

Minerals to be found are galena, white cleavage barite,

chalcopyrite in masses and octahedral crystals, bornite, green transparent and gray opaque sphalerite, specular hematite, calcite crystals, orange colored calcite cleavages, pyrite, epidote, chalcanthite, quartz crystals, and traces of malachite and azurite. Cerrusite and sulphur. (Williams)

ZINC PROSPECT NEAR UNIONVILLE

A prospect for sphalerite was made near Unionville in the Frederick County limestone. Long abandoned the mine has been filled in and ploughed over leaving no trace of its existence.

Minerals reported from the prospect were calamine, smithsonite, sphalerite, chalcopyrite, malachite, bornite, and dendritic wad.

NORTH BANK OF TWO PIPE CREEK NEAR DETOUR

In a vein deposit in the Newark red sandstone the following minerals were found: native copper, cuprite, chrysocolla, malachite, azurite, and quartz crystals.

NEW MARKET AND VICINITY

In slate bornite was reported. (Tyson)

In soil were found double terminated quartz crystals inclosing limonite clay. (Md. Acad. Sc.)

Near New Market associated with copper, manganite was mined.

THE THOMAS SPIELMAN LIMESTONE QUARRY

Located east of Linwood on Little Pipe Creek sphalerite was reported found in brecciated limestone. (Williams)

MEADOW MOUNTAIN

Rock crystal was reported to have been found. (Tyson)

AT FOXVILLE

Quartz crystals are found in soil.

SUGAR LOAF MOUNTAIN

Quartz crystals are found on northern and southwestern slopes. (Ducatel)

AT GRACEHAM

Quartz crystals. (J.H.U. coll.)

AT THE HEADWATERS OF LITTLE HUNTING CREEK

Near Phillips Delight School, large specimens of platy ilmenite. (J.H.U. coll.)

IN THE MIDDLETOWN VALLEY

One mile southeast of Middletown in quartz are found stibnite, radiated ilmenite, magnetite, chalcopyrite in calcite, and quartz crystals. (Lee coll.)

SOUTH MOUNTAIN AND VICINITY

In road cuts of the new Frederick to Hagerstown Pike are found feldspar crystals, quartz crystals, chalcopyrite crystals, bornite, epidote, chlorite, jasper pebbles in breccia, piedmontite on aporhyolite, and withamite (pink epidote). Red sapphire in minute grains at the eastern base of South Mountain. (Tyson) Scheelite. (Williams)

AT POINT OF ROCKS

Potomac breccia, chlorite, and epidote.

M. J. GROVE LIMESTONE QUARRY

Located about one-half mile east of Frederick on the Baltimore to Frederick Pike and one-fourth of a mile south of the road in a large opening in limestone are found calcite crystals.

NEAR FREDERICK IN LIMESTONE

Pink fluorite has been found in limestone. (Md.Acad.Sc.)

FOUNTAIN ROCK

In limestone are found pink dolomite crystals and calcite crystals.

AT BUCKEYSTOWN

Calcite crystals are found on limestone.

LEHIGH-PORTLAND CEMENT QUARRY

An immense shallow quarry is operated just south of Union Bridge in limestone. Due to an inclusion of clay in the limestone it can be ground, heat treated, and used for natural cement.

The following minerals are to be found: several types of calcite crystals, red, white, and grey calcite cleavages, contorted sericite schist, quartz crystals, malachite stains, dendrites, ophicalcite, and chlorite.

NEAR UNION BRIDGE

Chalcocite in limestone. (Lee coll.)

Barite, white massive, has been found loose in soil.

CATOCTIN FURNACE

The openings are to be found on the Frederick to Emmitsburg Turnpike three and one-half miles south of Thurmont on the eastern slope of Catoctin Mountain.

The following minerals have been reported: specular hematite, goethite, limonite, red hematite, and native silver in sphalerite and galena. (Ulke) Franklinite and ilmenite. (J.H.U. coll.)

ON CATOCTIN MOUNTAIN

Native copper, chalcopyrite, calcite crystals. (Tyson) At the water supply intake are found small fine quartz crystals. In the Catoctin region - cassiterite. (Keith)

NEAR MONTEREY

Red ochre and specular hematite in quartz, and scheelite and piedmontite in rhyolite are found near Monterey.

THE FREDERICK GOLD MINE

A gold prospect now being worked is found about one and one-half miles west of Frederick and one mile south of the Middletown Road. The opening has been made in a soft steatite schist intruded by quartz stringers. Small amounts of the auriferous sulphides of iron and lead are to be found.

HARFORD COUNTY

THE HOPE IRON MINE

Two miles southwest of Jarrettsville on the Schuster property is the now long abandoned Hope Iron Mine. The mine was a typical brown iron ore deposit.

The minerals to be found are goethite, hematite, and imperfect quartz crystals.

THE REED CHROME MINE

One of the largest chrome workings in the State, the Reed Chrome Mine is located two miles northwest of Coopstown near Jarrettsville. Several shafts, prospect cuts, and a a large open pit are to be found in the serpentine.

The minerals occurring are chromite, rhodochrome, brucite, magnesite, limonite, williamsite, picrolite, baltimorite, chrysotile, picrolite and chalcedony.

THE WILKINS CHROME MINE

The Wilkins Chrome Mine is to be found along the Jarrettsville to Coopstown Road and about a mile and a half from Jarrettsville, and fifty feet north of the road. The six small openings in serpentine were made in a line parallel to the road and are now filled in, and the refuse from the dumps has been used for road stone.

Minerals to be found are of poor quality and consist of massive chromite, translucent williamsite, picrolite, and rhodochrome.

COOPSTOWN AND VICINITY

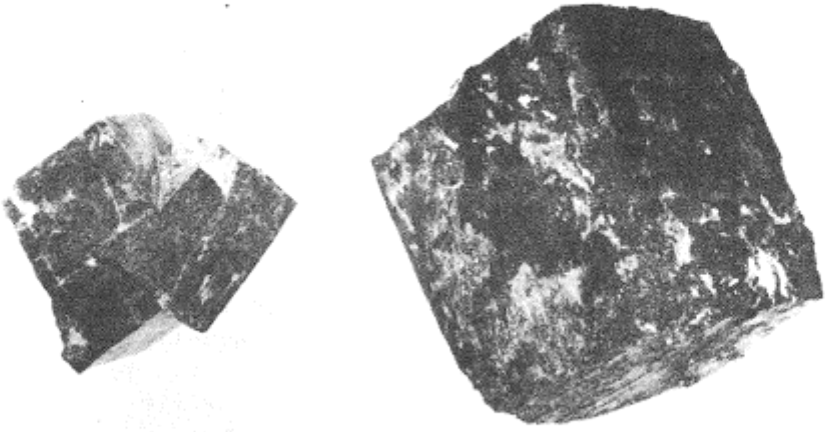
On the serpentine barrens and around the old chrome prospects are to be found chromite, picrolite, antigorite, williamsite, rhodochrome,actinolite, talc,diallage, bronzite, aragonite, chlorite, deweylite, magnesite, and dendritic wad. Magnetite and chalcopyrite were reported by Tyson .

AT MADONNA

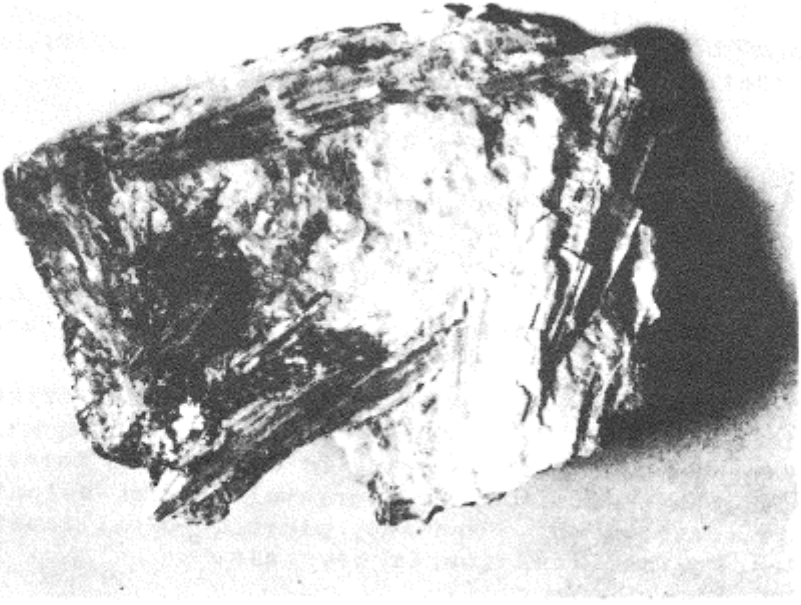
Black tourmalines are found in quartz.

CHROME HILL

At Chrome Hill and on the surrounding serpentine barrens



Limonite Pseudomorph after Pyrite
Dinning Rutile Prospect
Near Pylesville Harford County



Kyanite in Quartz
Rocks of Deer Creek, Harford County

are found chromite, rhodochrome, octahedral magnetite, chlorite, bronzite, and marmolite.

ROCKS OF DEER CREEK

In the boulders and quartzite outcroppings at Rocks along Deer Creek the following minerals are found: kyanite in quartz, specular hematite, ilmenite, sillimanite, andalusite, chlorite, muscovite, and garnets. Octahedral magnetite in chlorite. (Old Dana)

MINE FIELDS AND VICINITY

On the surrounding serpentine barrens of Mine Fields and vicinity are found drusy quartz (various colored varieties including amethystine), chalcedony,opal, magnetite, hematite, black tourmaline in quartz, graphite, jasper, pyrolusite, ligniform asbestos, goethite, chromite, deweylite, magnesite, marmolite, and bronzite. Enstatite reported - (Md.Acad.Sc.). Talc in large green translucent sheets. (Lee coll.).

AT MILL GREEN

At Mill Green and vicinity are found the following minerals: foliated talc, sillimanite, magnetite crystals in chlorite, prochlorite, actinolite, and rutile in quartz.

LITTLE CREEK NEAR CLERMONT MILLS

Found in the country rock are asbestos,actinolite, talc, and epidote. Smaragdite (J.H.U. coll.).

THE DINNING RUTILE PROSPECT

The Dinning Rutile prospect is located about one mile northwest of Bushes Corner, and three miles west of Pylesville. The country rock is a compact steatite schist, containing chlorite and serpentine. One open shaft was sunk, and several trench prospects cut, but work was never carried on commercially.

The minerals found are dark red disseminated crystals of rutile in chlorite,large octahedral crystals of magnetite, limonite pseudomorph after pyrite in cubes up to three and one-half inches square, pyrite crystals, talc, dolomite, ankerite, massive white apatite, picrolite, williamsite, calcite crystals, and quartz crystals.

JENKINS ASBESTOS MINE

In steatite one-half mile north of Pylesville is the Jenkins Asbestos Mine, consisting of several open pits now abandoned.

The following minerals have been found: tremolite asbestos in white silky fibers up to eighteen inches in length, byssolite, dolomite, calcite, green translucent talc, mountain leather, actinolite, iridescent limonite, malachite, tetrahedrite, picrolite, pink dolomite, quartz pseudomorph after calcite, dendritic wad, and talc pseudomorph after picrolite.

VICINITY OF PYLESVILLE

Ilmenite, fibrolite, loose quartz crystals, and goethite are to be found. On the Bennet C. Wheeler farm sillimanite is found in quartz.

THE BROAD CREEK SERPENTINE AREA

At the Iron Ore Banks near Cherry Hill, the only opening for magnetite in the serpentines of Harford County, are found octahedral and massive magnetite in chlorite, fibrous talc, rinidolite, and magnesite. (Johannsen)

In the serpentine near Cherry Hill a corundum crystal was found. (Johannsen)

In serpentine just east of Mine Branch near Cherry Hill several old chrome prospects were found. Minerals noted were chromite in disseminated grains, and chlorite.

THE BROAD CREEK SERPENTINE QUARRY

On Broad Creek is a quarry in serpentine (variety Verde Antique). The following minerals are to be found: picrolite, antigorite, magnesite, opal, chalcedony, williamsite, deweylite, aragonite, magnetite- octahedral crystals in chlorite, talc, and drusy quartz.

NEAR SCARBORO

In steatite is found pyrite cubes, also limonite pseudomorph after pyrite.

At the Scarboro Store have been found large octahedral crystals of magnetite. (Lee coll.)

In quartz-fuchsite, garnets, and ilmenite. (Shannon)

HARFORD TALC AND QUARTZ COMPANY QUARRIES

About one-half mile west of Dublin several large openings have been made in steatite.

Minerals to be found are green translucent foliated talc, radiated actinolite, ankerite, asbestiform anthophyllite, dolomite, calcite, brown vermiculite, chlorite, limonite, and calcite crystals in compact phologopite schist.

WILLIAMS SLATE QUARRY

The Williams Slate Quarry is a large opening made in the Peachbottom Slate found in the area between Cardiff and Whiteford.

Minerals found are small radiating crystal groups of black, white, and brown wavellite, and graphite.

THE CARDIFF SERPENTINE QUARRY

A very large opening in serpentine (variety Verde Antique) over 200 feet deep is located at Cardiff on the Maryland-Pennsylvania State line. The Verde Antique has been removed in large rectangular blocks and used for ornamental building stone for which it is very famous.

Minerals to be found in the surface quarries are antigorite, picrolite, williamsite, pyrite, malachite stains, chalcopyrite in small octahedral crystals, breunnerite, drusy quartz, chalcedony, calcite crystals, fibrous calcite, dolomite, actinolite, hyalite, talc, and dendritic wad.

THE STANDARD LIME AND STONE COMPANY QUARRY

At Havre de Grace in this granite quarry are found large cubes of pyrite, garnets, epidote, calcite, and chlorite.

THE UPPER BAKER QUARRY

North of Havre de Grace in granite are found epidote in radiating crystals four to six inches in length, clinozoisite, and pyrite.

NEAR THE CONOWINGO DAM

In the rocks in the stream bed below the dam are found octahedral magnetite, epidote, quartz crystals, octahedral pyrite crystals, and loose goethite.

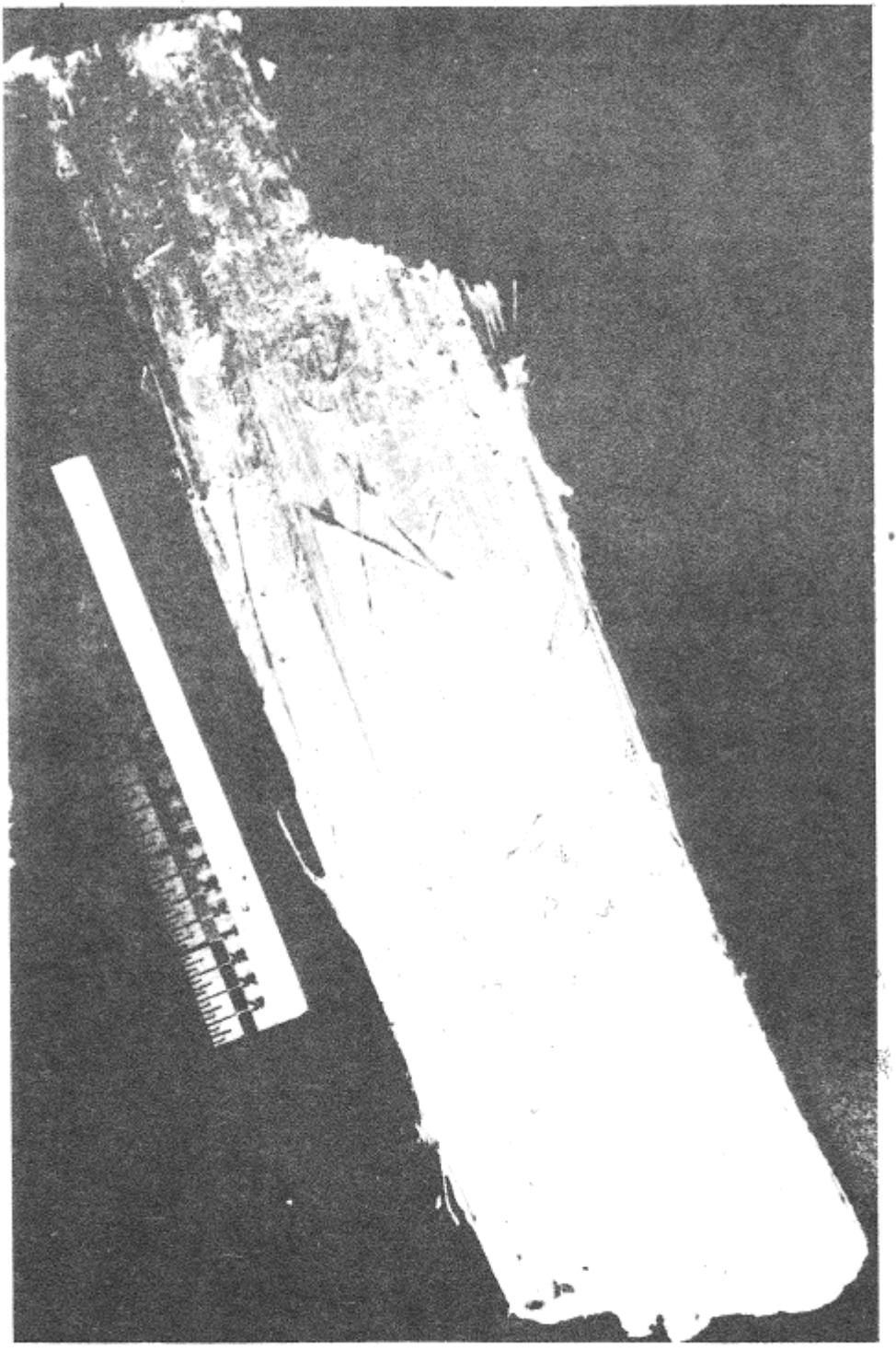
FLINTVILLE AND VICINITY

Minerals noted from this area are moss agate, garnierite, talc pseudomorph after picrolite, chlorite, jasper, pyrolusite, and magnetite.

In a steatite quarry is found vermiculite, talc, and ankerite.

VICINITY OF HAVRE DE GRACE

Reported from Harford County near Havre de Grace are cinnabar and gold bearing quartz.



Asbestos
Jenkins Asbestos Mine
Pylesville Harford County

CECIL COUNTY

PORT DEPOSIT GRANITE QUARRY

At Port Deposit on the Susquehanna River a large opening has been made in the Port Deposit Granite long famous as a building stone. The granite is very close-grained and accessory minerals are scarce.

The following occur in small quantities: pyrite, titanite, chlorite, hornblende, and milky quartz.

NEAR RISING SUN

Large quartz crystals are found in soil on the Rawlings property.

Staurolite occurs in soil. (Md. Acad. Sc.)

Altered staurolite and muscovite have been reported at Liberty Grove. (Shannon)

BALD FRIAR

On the serpentine barrens are found honeycomb rock, the residue of serpentine weathering from quartz, drusy quartz crystals, amethystine quartz, jasper, moss agate, and chalcedony.

WEIANT SERPENTINE QUARRY

Located near Oakwood and one mile northeast of Pilot on the west bank of Conowingo Creek the Weiant quarry is operated for Verde Antique, a commercial name for a variety of serpentine used for decorative purposes. Originally the opening was worked for white albite feldspar. The opening is abandoned at the present time.

The following minerals are found: picrolite, baltimorite, williamsite, deweylite, actinolite, talc, opal, chalcedony, magnesite, wad, magnetite, pyrite, vermiculite, chlorite, dolomite, calcite, oligoclase in crystals and masses in a feldspar dike, chrysotile, and sunstone.

In miarolitic cavities in albite, small crystals of colorless albite, apatite, and beidellite. (Shannon)

AT PILOT

Graphite (Lee coll.)

AT ROCK SPRINGS

Ilmenite in quartz. (Lee coll.): Steatite. (Shannon)

GOLDINGS FELDSPAR QUARRY

The Goldings quarry which has been abandoned for several years is located one-half of a mile north of Rock Springs. The dike is an occurrence of white soda feldspar.

Minerals occurring are kaolinite, feldspar crystals, torbernite, oligoclase in transparent crystals and opaque white cleavages, amphibole asbestos and talc from a steatite exposure in the quarry.

THE STATE LINE CHROME PITS

The State Line Chrome Pits (Lowes Mine) is found in the serpentine barrens of northern Cecil County. The workings consist of several abandoned shafts three-fourths of a mile north of Rock Springs, just over the Mason Dixon Line under which the shafts penetrate. The chromite was found in pipe like masses surrounded by several feet of semi-transparent williamsite.

Minerals to be found are large masses of almost pure chromite, translucent williamsite, yellow and purple botryoidal masses of chalcedony, purple talc,picrolite, magnesite, zaratite, opal, deweylite, hematite, hydromagnesite, penninite (rhodochrome), and chlinochlore.

WEST NOTTINGHAM

In serpentine - chrysotile

KEYSTONE TRAP QUARRY

Near Frenchtown in a gabbro quarry are found bytownite crystals, drusy quartz, chlorite, ilmenite, dendritic wad, pyrite, and stilbite.

WASHINGTON COUNTY

AT THE CRYSTAL GROTTOES

Near Boonsboro in limestone caverns is found cave aragonite in the forms of stalactites and stalagmites.

AT BURKITTSVILLE

Near Gapland are found quartz crystals.

NEAR EAKLES MILLS

At an old iron mine occurs massive hematite.

NEAR KEEDYSVILLE

Quartz crystals are found inclosing limonite. (Shannon)

AT WEVERTON

On the Van Meter Farm are found smoky and milky quartz crystals in sandstone.

From the Weverton Sandstone, blue quartz. (Shannon)

AT MARTIN'S MOUNTAIN

On Tonoloway Creek in limestone purple fluorite is found.

NEAR HARPERS FERRY

One mile east of Harpers Ferry are found large orthoclase crystals in quartz, plagioclase, epidote, thuringite, and small crystals of garnet and apatite.

At the Potomac Mine in Pleasant Valley near Harpers Ferry manganite was reported. (Shannon)

AT CLEAR SPRING

West of Hagerstown at Clear Spring have been found beautiful twinned crystals of nailhead spar calcite in clay fissures in limestone. (Md. Geo. Sur. Coll.)

ON HAGERSTOWN TO CUMBERLAND PIKE

At the bridge over Conococheague Creek in limestone

occur small double terminated quartz crystals and saddle-shaped dolomite crystals.

NEAR HANCOCK

In quarries in the Oriskany Sandstone between Hancock, Maryland and Berkeley Springs, West Virginia are found large milky quartz crystals lining pockets, often showing crystal growth.

Galena, barite, specular hematite, and argentiferous galena. (Tyson)

AT COCKEYS DAM

Near Utica is found black silicified wood.

ALLEGANY COUNTY

DEVILS BACKBONE

Near Cumberland in cavern formations aragonite occurs in stalagmite and stalactite formations.

AT MOUNT SAVAGE

Siderite has been found near old iron furnaces. (Williams)

AT KEYSERS RIDGE AND BEAR CREEK

In the Youghiogheny valley is found manganese ore.

AT BRADYS STATION

Five miles south of Cumberland on the Baltimore & Ohio Railroad have been collected celestite crystals on limestone. (Md. Acad. Sc. coll.)

NEAR CUMBERLAND

Purple fluorite has been reported in limestone.

Hematite and radiating marcasite have been noted on coal. (Ducatel)

ON WILL'S, EVITT'S, AND TUSSEY'S MOUNTAINS

Hematite is to be found.

TWO MILES FROM FROSTBURG

Barite crystals and iridescent siderite have been reported.

WESTERN BOUNDARY OF ALLEGANY COUNTY

In a narrow belt veins of coal have been found.

GARRETT COUNTY

VICINITY OF THE YOUGHIOGHENY RIVER

Barite nodules are reported in the stream bed. (Tyson)

A few miles east of the river is found pyrolusite. (Tyson)

In clay deposits: flint in round concretionary forms and massive ledges.

VICINITY OF THE SAVAGE RIVER VALLEY

In veins in Devonian shales and sandstone occur thin flakes of the sulphides of lead, zinc, iron, and copper, showing small amounts of gold and silver.

GARRETT COUNTY GENERAL

Scattered throughout the county - coal.

ANNE ARUNDEL COUNTY

AT CAPE SABLE ON THE MAGOTHY RIVER

In the sedimentary deposit at this locality are found succinite, amber, marcasite, alum (Old Dana). Reported, probably in error: kalinite, alunite, and alunogen. Also to be found are marcasite replacing wood, and lignite.

SULLIVANS COVE

In sedimentary beds are found lignite, marcasite replacing wood, melanterite, and amber.

AT HANOVER

Iridescent siderite in grey nodules, marcasite, lignite, limonite pseudomorph after wood, and hematite in the sedimentary deposits of this area.

AT PINE POINT

In the Cretaceous deposits of this vicinity are found marcasite and lignite.

AT GREENBURY POINT

In grey clay in bog is found vivianite.

AT BODKIN POINT

In Cretaceous deposit lignite is found in grey clay.

SOUTH HAVEN BEACH

Fossiliferous limonite occurs.

NEAR PINEHURST

About one mile north of Pinehurst on the bay along the beach in a Cretaceous deposit of grey clay are found large logs of lignite often coated with radiated crystals of marcasite. Marcasite nodules, limonite, and hematite occur in sand and gravel.

PRINCE GEORGES COUNTY

VICINITY OF BELTSVILLE

Just north of Beltsville in the Arundel sedimentary deposit is found silicified wood uncovered by stream action.

VICINITY OF MUIRKIRK

In the Arundel sedimentary formation of this area there are a number of old abandoned iron workings. Minerals to be found: goethite, limonite, hematite, and lignite.

AT FORT WASHINGTON

In grey clay gypsum crystals are to be found.

SAINT MARYS COUNTY

NEAR CHANCELLORS POINT

One-fourth of a mile south of Chancellors Point in the Pleistocene formation are found radiated groups of gypsum crystals in grey clay.

AT SAINT MARYS CITY

In clay beds, gypsum crystals in radiating groups.

CHARLES COUNTY

ON THE POTOMAC RIVER AT POPES CREEK

In the sedimentary beds are blue gypsum crystals up to one inch long in glauconite nodules.

CAROLINE COUNTY

AT FEDERALSBURG

In sedimentary deposits is found bog iron ore.

SOMERSET AND WORCESTER COUNTIES

In the northern parts of these counties bog iron ore was once mined, and vivianite was found filling cavities in the ore (Tyson).

MISCELLANEOUS

COASTAL PLAIN DEPOSITS OF MARYLAND

The glauconite sand of the Eocene period contains zircon, staurolite, rutile, epidote, tourmaline, kyanite, chloritoid, sillimanite, andalusite, corundum, topaz, brookite, dumortierite, monazite, glaucophane, anatase, zoisite, titanite, muscovite, chlorite, hypersthene?, clinozoisite?, hematite, and ilmenite.

The Calvert Miocene contains zircon, staurolite, garnets, epidote, tourmaline, sillimanite, rutile, kyanite, and chloritoid.

In the Coastal Plain deposits collophanite is found in fossil bone, and aragonite in fossil shells.

Siderite occurs in nodules, also limonite pseudomorph after siderite.

Along the Chesapeake shore line ilmenite occurs in the sands.

Vicinity of Lyons Creek Wharf in the Basal Miocene phantom quartz crystals are found.

Opal (diatomaceous earth)-a bed 30 feet thick at the base of the Miocene has been traced from Herring Bay on the Chesapeake to Popes Creek on the Potomac across Anne Arundel, Calvert, and Charles Counties.

CHECK LIST OF MARYLAND MINERALS *

Actinolite (amphibole family)	- Mineral Hill, Carroll Co.; Dublin, Harford County
Albite (feldspar family)	- Rock Springs, Cecil County
Allanite	- Arundel Quarry and Ilchester, Baltimore County
Almandite, var. of garnet	- Hollofield, Baltimore Co.
Alum, see Potash Alum	
Alunite (Alumstone)	- Rep't., probably in error, from Cape Sable
Alunogen (aluminum alum)	- Rep't., probably in error, from Cape Sable
Amazonite, see Microcline	
Amber (probably Succinite)	- Magothy River, Anne Arundel County
Amesite (chlorite family)	- Blue Mount, Baltimore Co.
Amethyst (see Quartz)	- near Laurel, Prince Georges County
Amphibole family (see Actinolite, Hornblende, etc.)	
Analcime	- Gwynns Falls, Baltimore Co.
Analcite - see Analcime	
Anatase	- State Line Chrome Dist.?, Cecil County
Andalusite	- Rocks of Deer Creek, Harford County
Andesine (in plagioclase series)	- Milford Quarry, Baltimore County
Andradite, var. of garnet	- Rockland, Baltimore Co.
Anglesite	- Mountain View Lead Mine, Frederick County
Ankerite	- Dublin, Harford County
Annite - see Lepidomelane	- Jones Falls, Baltimore City
Anorthite	- Mt. Hope, Baltimore City, (ref., Williams, G.H.)
Anorthoclase, see Orthoclase	
Anthophyllite	- Bare Hills Copper Mine, Baltimore County
Anthracite	- Frostburg, Allegany County (rep't. U.S.B.M.)
Antigorite	- Bare Hills, Baltimore Co.
Apatite	- Jones Falls, Baltimore City; Blue Mount, Baltimore Co.; Pilot, Cecil County
Apophyllite	- Woodberry, Baltimore City
Aragonite	- Blue Mount, Baltimore Co., Cumberland, Allegany Co.
Arfvedsonite-Riebeckite (amphibole family)	- Springfield Mine, Carroll County

* Only the most important localities are listed.

Argentiferous galenite, see Galena and Silver	
Asbestos of amphibole, Crysotile	- Pylesville, Harford Co.
Augite	- Woodberry, Baltimore City
Autunite	- Jones Falls, Baltimore City
Axinite	- Jones Falls, Baltimore City
Azurite	- Patapsco Mine, Carroll Co.
Baltimorite, see Chrysotile	- Bare Hills, Baltimore Co.
Barite	- Jones Falls, Baltimore City; Texas, Baltimore County
Bastite, see Antigorite	- nr. Pylesville, Harford Co. (ref. B.C. Wheeler)
Beaumontite, var. of Heulandite	- Jones Falls, Baltimore City
Beidellite	- Weiants Quarry, Cecil Co. (ref. Shannon, E.V.)
Bertrandite	- nr. Kensington, Montgomery Co. (ref. Shannon, E.V.)
Beryl	- Kensington, Montgomery Co.; Gunpowder River N. of Harford Road, Baltimore County
Biotite	- Jones Falls, Gwynns Falls and Gunpowder Quarries, Baltimore County
Bornite	- Springfield, Carroll, and Patapsco Mines, Carroll County; Liberty Mine, Frederick County
Breunnerite	- Dublin, Harford County (ref. Bascom, F.)
Bronzite	- Hollofield, Baltimore Co.
Brookite	- Coastal Plain Deposits (ref. M.G.S.)
Brucite	- Blue Mount Trap Quarry, Baltimore County
Byssolite	- Pylesville, Harford Co.
Bytownite (plagioclase series)	- Mt. Hope, Baltimore City (ref. Williams, G.H.)
Calamine - see Hemimorphite	- New Windsor, Carroll Co.
Calcite	- Texas and Cockeysville, Baltimore County; Union Bridge, etc., Frederick County

Carnelian, var. Chalcedony	- Soldiers Delight, Baltimore County
Carrollite	- Patapsco Mine, Carroll County
Cassiterite	- Catoctin Furnace, Frederick County
Celestite	- Nr. Cumberland, Allegany Co. (J.H.U. coll.)
Cerussite	- Mt. View Lead Mine, Frederick County
Chabazite	- Jones Falls, Baltimore City
Chalcanthite	- Bare Hills Copper Mine, Baltimore County; Springfield Mine, Carroll County
Chalcedony	- Bare Hills, Baltimore Co.; Line Pits, Cecil County
Chalcocite	- Liberty Mine, Frederick Co.
Chalcopyrite	- Springfield and Mineral Hill Mines, Carroll Co.; Bare Hills Copper Mine, Baltimore County
Chert, var. Chalcedony	- Tolchester, Kent County
Chlorite	- Milford Quarry, Hollofield, Blue Mount, Baltimore Co.
Chloritoid	- Cretaceous deposits, (ref. M.G.S.)
Chrome Spinel - see Picotite	- Etchison, Montgomery Co.
Chrome Tourmaline, see Tourmaline	- Etchison, Montgomery Co.
Chromite	- Bare Hills, Soldiers Delight, Baltimore Co.; Reed Mine, Harford Co.; Line Pits, Cecil County
Chrysocolla	- Patapsco Mine and Springfield Mine, Carroll Co.
Chrysolite - see Olivine	- Ilchester, Baltimore Co.
Chrysotile	- Bare Hills, Baltimore Co.
Cinnabar	- Nr. Havre de Grace, Harford County
Citrine, var. of Quartz	- Gwynns Falls, Baltimore City
Clay	- Arbutus, Howard County
Cleavelandite - see Albite	- Jones Falls, Baltimore City
Clinochlore (chlorite family)	- Dublin, Harford County
Clinozoisite	- Frost Quarry, Howard Co.
Coal, see Anthracite, etc.	

Cobaltiferous Gahnite, see Gahnite	- Springfield and Mineral Hill Mines, Carroll County
Coccolite	- Frost Quarry, Howard Co.
Collophane (fossil bone)	- Cumberland, Allegany Co.; Coastal Plain Deposits (M.G.S.)
Collophanite - see Collophane	
Copper (Native)	- Detour, Frederick Co.; Blue Ridge, Wash. Co.
Corundophilite	- Harford County
Corundum	- Harford County (Insley-M.G.S.)
Covellite	- Springfield and Patapsco Mines, Carroll Co.
Cummingtonite	- Bare Hills, Baltimore Co.
Cuprite	- Detour, Frederick County
Cyanite - see Kyanite	
Dendrite (Psilomelane, Limonite, etc.)	- Bare Hills, Gwynns Falls Quarry, Baltimore Co.: Hyde Quarry, Carroll County.
Deweylite	- Bare Hills, Dyer Quarry, Blue Mount, Baltimore County
Diallage	- Frost Quarry, Howard Co.
Diatomite - see Opal	- Lyons Creek Wharf, Calvert County
Dickite (Clay mineral)	
Diopside	- Frost Quarry, Howard Co.
Dolomite	- Cockeysville, Baltimore County
Dumortierite	- Coastal Plain Deposits (M.G.S.)
Electrum	- Great Falls, Montgomery County
Enstatite	- Hollofield, Baltimore Co.
Epidote	- Jones Falls and Gwynns Falls Quarries, Baltimore City
Erythrite?	- Patapsco Mine, Carroll Co.
Feldspar family, (see Orthoclase, Microcline, etc.)	
Fibrolite - see Sillimanite	- Pylesville, Harford Co.
Flint, var. of quartz	- Lonaconing, Allegany Co.

Fluorite	- Campbell Quarry, Texas, Baltimore Co.; near Cumberland, Allegany County
Franklinite	- Catoctin, Frederick Co.
Fuchsite	- Campbell Quarry, Texas, Baltimore County
Gahnite	- Etchison, Montgomery Co.; Springfield and Mineral Hill Mines, Carroll Co.
Galena	- Mt. View Lead Mine, Frederick County
Garnet family, (see Almandite, Andradite, etc.)	
Garnierite	- Dyer Quarry, Baltimore Co.
Genthite	- Line Pits, Cecil County
Glauconite	- Anne Arundel County
Glaucophane	- Coastal Plain Deposits (M.G.S.)
Goethite	- Oregon, Baltimore County
Gold	- Great Falls and Vicinity, Montgomery County
Graphite	- Mine Fields, Harford Co.
Grossularite, var. of Garnet	- Frost Quarry, Howard Co.
Gymnite, var. Deweylite	- Bare Hills, Baltimore Co.
Gypsum	- St. Marys County
Halite	- Ocean City, Wicomico County, etc.
Halloysite	- Jones Falls Quarry, Baltimore City
Harmotome	- Jones Falls, Baltimore City
Hatchettolite	- Kensington, Montgomery County
Haughtonite, var. of Biotite	- Jones Falls, Baltimore City
Haydenite, var. of Chabazite	- Jones Falls, Baltimore City
Helminth, var. of Chlorite	- (ref. Powell, S.L.)
Hematite	- Lansdowne, Baltimore Co.
Hemimorphite	- New Windsor, Carroll Co.
Hessonite, var. of Garnet	
Heulandite	- Jones Falls, Baltimore City
Hisingerite?	- Jones Falls, Baltimore City
Hornblende	- Bare Hills Copper Mine, Woodberry, Milford, Blue Mount, Baltimore County

Hydromagnesite	- Blue Mount, Bare Hills, Dyer Quarry, Baltimore County
Hydrotalcite, near Pyroaurite	- Blue Mount, Baltimore Co.
Hypersthene	- Hollofield, Baltimore Co. etc.
Ice (see water)	- Winter
Iceland Spar, var. of Calcite	- Loch Raven, Baltimore Co.; Union Bridge, Frederick County
Idocrase	
Ilmenite	- Milford Quarry, Jones Falls, Baltimore Co.; Rocks, Harford Co.
Infusorial Earth - see Diatomite	
Iron	- Lonaconing and Emmitsburg meteorites
Jasper, var. Chalcedony	- Soldiers Delight, Baltimore County
Jefferisite	- Dublin, Harford County
Kammererite - see Rhodochrome	- Line Pits, Cecil Co.; Reed Mine, Harford County
Kaolinite	- Arbutus, Baltimore County
Kyanite	- Rocks of Deer Creek, Harford County
Labradorite, var. rock, feldspar family (plagioclase)	- Jones Falls, Baltimore City
Lancasterite = Brucite + Hydromagnesite	- Line Pits, Cecil County
Laumonitite	- Woodberry and Milford Quarries, Baltimore Co.
Lepidomelane	- Jones Falls, Baltimore City
Leucoxene partly = to Sphene	- ref. Bascom, Montgomery County
Lignite	- Arbutus, Baltimore County
Limonite	- Lansdowne, Baltimore Co.
Linnaeite	- Mineral Hill Mine, Carroll County
Magnesioferrite	- Etchison, Montgomery Co.
Magnesite	- Bare Hills, Dyer Quarry, Baltimore County
Magnetite	- Bare Hills Copper Mine, Baltimore County; Mineral Hill Mine, Carroll County

Malachite	- Springfield and Patapsco Mines, Carroll County
Malacolite	- Frost Quarry, Howard Co.
Manganite	- Lansdowne, Baltimore Co.
Manganocalcite	- Union Bridge, Frederick County
Marcasite	- Sullivans Cove, Anne Arundel County
Margarite	- Etchison, Montgomery Co.
Marmolite, var. of Serpentine	- Bare Hills, Baltimore County
Meerschaum - see Sepiolite	- Bare Hills, Baltimore County
Melaconite - see Tenorite	
Melanterite	- Sullivans Cove, Anne Arundel County
Mica family (see Muscovite, Biotite, Phlogopite, etc.)	
Microcline	- Jones Falls, Baltimore City
Microlite	- Montgomery County
Mizzonite (Ma_{33} Me_{67}) Var.Scapolite	- Milford Quarry, Baltimore County
Molybdenite	- Jones Falls, Baltimore City - (First rep't. here from the U.S.A.)
Monazite	- Coastal Plain Deposits (M.G.S.)
Moonstone, var. of Albite	- Great Falls, Montgomery County
Moss Agate, var. of Chalcedony	- Soldiers Delight, Baltimore County
Mountain Leather, var. of Amphibole	- Cockeysville, Baltimore County
Muscovite	- Jones Falls and Gwynns Falls, Baltimore City; Wards Chapel, Baltimore Co.; etc.
Natrolite	- Gwynns Falls, Baltimore City. (Cohen's Diss.)
Niccolite	- Patapsco Mine, Carroll Co.
Nontronite	- Chevy Chase, Montgomery Co. (ref. Wells, R.C.)
Ocher, see Limonite and Hematite	
Oligoclase (plagioclase family)	- Jones Falls, Baltimore City
Olivine	- Line Pits, Cecil County

Opal	- Bare Hills, Baltimore County
Ophicalcite, var. of Antigorite	- Cockeysville, Baltimore County
Orthoclase	- Jones Falls, Baltimore City
Ottrelite, var. of chlorite	- Dolly Hyde Mine, Frederick County
Owenite - see Thuringite	- Nr. Harpers Ferry, Washington County
Peat, see Lignite	
Pectolite	- Dickerson Quarry, Montgomery Co. (ref.Bascom)
Penninite - see Rhodochrome	
Phenacite	- Frederick County
Phillipsite	- Jones Falls, Baltimore City; Milford Quarry, Baltimore County
Phlogopite	- Campbell Quarry, Texas, Baltimore County
Picotite	- Etchison, Montgomery Co.
Picrolite, var. of Chrysotile	- Bare Hills, Dyer Quarry, Delight, Baltimore Co.
Piedmontite	- Blue Ridge, Washington County
Pitchstone (a rock, not a mineral)	- Bare Hills, Baltimore County
Plagioclase family, (see Albite, Oligoclase, Andesine, Labradorite, etc.)	
Pleonaste - see Spinel	- Soldiers Delight, Baltimore County
Porcelainite, var. of Dolomite	- Blue Mount, Baltimore Co.
Porcellophite, var. of Antigorite	- Bare Hills, Baltimore County
Prochlorite	- Frederick County
Prehnite	- Dickerson Quarry, Montgomery County; Milford Quarry, Baltimore Co.
Psilomelane	- Near Harpers Ferry, Washington County
Pyrite	- Gwynns Falls and Jones Falls, Baltimore Co.; Dinning Rutile Mine, Harford County
Pyrolusite	- Brookeville, Montgomery County
Pyrope, var. of Garnet	- Frost Quarry, Howard Co.
Pyrophyllite	- Simpsonville, Howard Co.

Pyroxene Family (see Augite, Diopside, Malacolite, etc.)	
Pyrrhotite	- Milford Quarry, Baltimore Co.; Frost Quarry, Howard County
Quartz	- Hancock, Washington Co.; Mine Fields, Harford County, etc.
Remingtonite (discredited species)	- Springfield Mine, Carroll County
Riebeckite - Arfvedsonite	- Springfield Mine, Carroll County
Ripidolite	- Lowes Mine, Cecil County
Rock Salt - see Halite	
Rutile	- Dinning Rutile Mine, Harford County
Samarskite	- Jones Falls, Baltimore City
Saponite?	- Hollofield, Baltimore Co.
Scapolite	- Campbell Quarry, Texas, Baltimore County
Scheelite	- South Mountain, Frederick County
Scolecite	- Milford Quarry, Baltimore County
Selenite - see Gypsum	- Near Chancellors Point, St. Marys County
Sepiolite	- Bare Hills, Baltimore County
Sericite	- Union Bridge, Frederick County
Serpentine- Antigorite + Crysotile,	a rock
Siderite	- Lansdowne, Baltimore Co.
Sillimanite	- Rocks of Deer Creek, Harford County
Silver	- Catoctin Furnace, Frederick County
Smaragdite	- Ilchester, Baltimore Co. (ref. Hobbs)
Smithsonite	- Mt. View Lead Mine, Frederick County
Soapstone - see Talc	
Spessartite, var. of Garnet	- Kensington, Montgomery County
Sphalerite	- Mt. View Lead Mine, Frederick Co.; Campbell Quarry, Texas, Baltimore County
Spherosiderite - see Siderite	- Jones Falls and Gwynns Falls, Baltimore City

Sphene - Frost Quarry, Howard Co.; Milford Quarry, Campbell Quarry, Baltimore County

Spinel - Baltimore City; Soldiers Delight, Baltimore Co.

Staurolite - Rockland, Baltimore County

Stibiconite (alt. prod. of Stibnite) - Middletown Valley, Frederick County

Stibnite - Middletown Valley, Frederick County

Stilbite - Jones Falls Quarry, Baltimore City, Milford Quarry, Baltimore County

Strontianite - New London Mine, Frederick County

Succinite - Cape Sable, Sullivans Cove, Anne Arundel County

Sulfur - Potomac River, Montgomery Co. (ref. Dana); Mt. View Lead Mine, Frederick Co. (ref. Williams)

Talc - Dublin, Harford Co.; Bare Hills, Baltimore Co.

Tenorite - Liberty Mine, Frederick County

Tetradymite - Great Falls, Montgomery County

Tetrahedrite - Jenkins Asbestos Mine, Harford County

Thulite, var. of Zoisite - Wrights Quarry, Baltimore City

Thuringite - Near Harpers Ferry, Washington County

Titanite - see Sphene

Titanomorphite - Sphene + Ilmenite + Rutile - Ilchester, Baltimore Co. (ref. Williams)

Topaz - Nr. McDonogh, Baltimore County

Tobernite - Jones Falls, Baltimore City

Tourmaline - Jones Falls and Gwynns Falls, Baltimore City; Campbell Quarry, Texas, Baltimore County

Tremolite - Campbell Quarry, Gilmor Quarry, Baltimore Co.

Turgite - see Hematite

Brucite from the Blue Mount Trap Quarry, Baltimore County, fluoresces dark green and luminesces.

Calcite from the gabbro along the Franklintown Road, west of the Hilton Street bridge, Baltimore City, fluoresces a pale yellow and strongly luminesces.

Calcite of a golden brown color from the Woodberry Trap Quarry, Baltimore City, fluoresces pale yellow and strongly luminesces.

Calcite occurring as a powdery deposit on the limestone at the H. T. Campbell Quarry, Baltimore County, fluoresces green, strongly luminesces, and is thermoluminescent.

Chalcedony, a botryoidal deposit on the limestone at the H. T. Campbell Quarry, Baltimore County, fluoresces pale green and luminesces.

Chalcedony from the Dyer Serpentine Quarry, Baltimore County, weakly luminesces.

Deweylite from the Bare Hills Serpentine area, and the Dyer Quarry, Baltimore County, fluoresces a dull green, the specimens from the latter locality reacting the strongest.

Dolomite, variety porcelainite, from the Blue Mount Trap Quarry, Baltimore County, strongly luminesces.

Dolomite cleavage rhombs from the Dyer Quarry, Baltimore County, exhibit triboluminescence, and weakly luminesces.

Dolomite, variety Blue Stone, from the H. T. Campbell Quarry, Baltimore County, exhibits triboluminescense.

Fluorite from the H. T. Campbell Quarry, Baltimore County, exhibits thermoluminescense.

Gymnite, variety of deweylite, found in chalcedony at Bare Hills, Baltimore County, fluoresces green.

Gypsum crystals found in the clay banks of the St. Marys River (Pleistocene deposit) about one-fourth of a mile south of Chancellors Point fluoresce a deep green and luminesce weakly.

Hydromagnesite, occurring in the serpentinized trap rock of the Blue Mount Trap Quarry, Baltimore County, fluoresces a pale green and luminesces weakly.

Magnesite from the Bare Hills serpentine area, and the Dyer Quarry, Baltimore County, strongly luminesces, specimens from the latter locality affording the best reaction.

Scapolite (grey crystals) from the H.T. Campbell Quarry, Baltimore County, fluoresces bright yellow in patches.

Scapolite (pink and white crystals) from the H. T. Campbell quarry, Baltimore County, fluoresces pale green.

Sepiolite (meerschaum) from the Bare Hills serpentine area, Baltimore County, fluoresces a dull green.

Tremolite from the H. T. Campbell Quarry, Baltimore County, exhibits thermoluminescense.

METEORITIC FALLS AND FINDS IN MARYLAND

The fact that a meteor is a body emanating from the infinities of space and entering our own atmosphere has always surrounded these falls with much scientific and public interest. The relative scarcity of actual falls of meteorites which have managed to withstand the tremendous heat of friction as they travel through our atmosphere places them in the class of the unusual.

Meteorites can be roughly classified in three divisions: (1) Iron meteorites, or meteoric irons, of practically all metal composition. (2) The stony irons, or pallasites, meteorites consisting of a sponge-like mass of metal, the cavities of which are occupied by silicate materials. (3) Meteoric stones, or aerolites, composed almost wholly of stony-silicate minerals.

There have been two recorded falls of meteors in the State of Maryland, and four finds up to the present time. Considering the relatively small area of the State, this is considered a large number of individual falls and finds.

The first meteor fall to be recorded was the Nanjemoy, a meteoric stone or aerolite which fell in Charles County at noon on February 10, 1825. The aerolite consisted of one stone of 7.5 kilograms of which 2.525 grams are accounted for in collections.

The Emmitsburg meteorite, ploughed up in a field in Frederick County in 1854, was of the metallic type composed of siderite, and weighed 177 grams.

The Lonaconing meteorite, also of the metallic type, was ploughed up by a farmer in Garrett County in 1888, and weighed 1260 grams.

The St. Marys aerolite, of the stony variety, fell in St. Marys County at about 6 P.M. on June 20, 1919, and weighed 25 grams. Persons observing the fall claimed that the meteor exploded before reaching the earth, most of the fragments falling into the Chesapeake Bay.

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