

# A Descriptive Catalog of Minerals Occurring in the Vicinity of Baltimore

By Robert Gilmor

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XXXVI. *A Descriptive catalogue of Minerals occurring in the vicinity of Baltimore, arranged according to the Distribution Methodique of Haüy, by ROBERT GILMOR, Jun. Esq.*

To the Editor of the American Mineralogical Journal.

Sir,

I beg leave to return you my contribution of acknowledgment for the pleasure and information I have derived from

\* See No. 3, of the Am. Min. Journal. I have since found three other crystals of pyrites also in the Connecticut meteoric stone.

Pert are found in volcanic countries as well as that of Bithoung, which is in the region of the extinct volcanoes of the Rhine. The most striking dissimilarity is, that those of France and Louisiana are compact, without any appearances of a vitreous substance or a cellular structure: but like that of South America, they may perhaps contain cavities in the interior, and (probably by attrition,) be compact on the surface.—The crystallization of the iron in one of these masses in octaedrons is worthy of notice. It appears that iron, whether slightly alloyed by nickel, oxyd of iron, or oxyd of chrome, preserves the same crystalline form.

As crystallized substances have been found in meteoric bodies,\* this discovery will scarcely affect any theory of the formation of these singular masses. On the one hand we have the established fact of the fall of the three bodies in Bohemia, Hungary, and Thuringia; and on the other, that the locality of several of these masses is a volcanic region. I should therefore be inclined to adopt the theory of celestial origin for some of these masses, and that of the volcanic for others. But having met with but imperfect accounts of the other masses of native iron, and having only seen those of Thuringia and Siberia, I leave the discussion of this subject to abler pens and more willing minds.

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your valuable Journal, and I trust that every year will evince its utility, by the dissemination throughout the country, of mineralogical knowledge; and by exciting a spirit of inquiry and research among those whose leisure and opportunities may enable them to bestow some attention upon the mineral treasures of this hitherto unexplored field.

It has often occurred to me that it would facilitate and advance the object of your Journal, if the different gentlemen who are attached to the study of mineralogy, would carefully examine and furnish a list or description of the mineral substances in their immediate neighbourhood, stating the locality of each as nearly as possible, with such occasional remarks as might be deemed proper: a collection of such information would prove an useful manual for a mineralogical or geological traveller, and would, if the plan was generally adopted, soon furnish a mass of interesting knowledge respecting every district of our country. The advantages to the community at large from this knowledge being so extensively derived, are sufficiently obvious; and every lover of mineralogy would be able at once to discover the mineral he may be in pursuit of, or may wish to examine, or the spot with a view to its situation and accompanying substances. I confess I have often wished for such information while passing through districts which promised to reward me, if time would have afforded me the full and complete examination of them; and more than once has it happened to me to learn afterwards that had I been aware of the circumstance, my search would have been repaid by interesting discoveries.

Under this impression, and as a faint and imperfect specimen of the manner in which such a list or description might be drawn up, I beg leave to offer you the following sketch of the mineral substances to be found in the neighbourhood of Baltimore; chiefly limited to the range of twelve miles, except in a few instances where the mineral was too interesting to pass unnoticed. The arrangement is after the manner and nomenclature of Hally, occasionally bearing also that of

Werner; and as it is a first attempt of one whose limited knowledge of the subject should rather have forbid his exposing it in print, was it not for his desire to gain the same information from others, which he endeavours in this way to impart, he hopes that if the motives should be found sufficiently worthy to authorise your giving it a place in the Journal, you will have the goodness to excuse the imperfections with which he is too sensible the plan is executed.

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EARTHY SUBSTANCES.

LIME.

*Carbonate of Lime* is found about 9 miles north west and north of the city, crossing the Falls turnpike and the York turnpike. It is principally pure white, and is crystallized, lenticular, laminated, fibrous, saccharoidal, compact, and pulverulent. The saccharoidal and compact furnishes the lime used in building, as well as slabs and steps for houses.—The kind called by the lime-burners alum limestone, is a pure white, semi-transparent marble, and of a very large grain.

*Phosphate of Lime, or Apatite* is found disseminated in grains and hexahedral prisms in a granite, the felspar of which is white, on the Falls turnpike, about two or three miles from town. It was at first mistaken for the emerald, from its being found in the same manner as the beryl of Philadelphia, and New-York. The colour varies from a bluish green to a bright lemon yellow.

*Sulphate of Lime.*—In Mr. Caton's lime-quarry, about 9 miles from town on the Falls turnpike, compact gypsum has been found in a small vein; and in the iron-mine bank near Hammond's ferry, a distinct crystal of selenite, which however may have been accidentally produced by the decomposition of pyrites in a calcareous soil.

#### STRONTIAN.

*Sulphate of Strontian* is believed to be discovered in a vein in one of the stone quarries on the Falls turnpike, on the east side of the Falls, about  $1\frac{1}{2}$  miles from town. It is however questionable.

#### MAGNESIA.

*Native Magnesia* is supposed to be found at the Barchills, about 7 miles from town in a serpentine rock.—It is in small flat prisms, acuminate to a dihedral summit. These crystals are found insulated, of a pure white and transparent; they are also found radiated from a common centre in every direction, and incrustated with a yellowish talcose substance. They calcine before the blowpipe into a white light powder, and effervesce briskly with nitric acid—*quere*.—Is it not a carbonate of lime combined with magnesia?

#### QUARTZ.

*Hyaline or vitreous quartz* found in every direction, viz.

*Crystallized* in white and brown crystals of all sizes.—

I have a fragment of one from the Mill-race at Ellicott's Mills, weighing nine pounds; it is 5 inches in diameter, and presents the upper part of a prism regularly terminated in an hexahedral point.

*Rounded pebbles.*—The hills on which the city is built, present immense quantities in beds of various thickness.

*Concretionated*, in a ferruginous quartz on the Liberty Tour road, 4 miles. The concretions are milk-white, and covered with minute crystals. It is usually called *Calcedony*.

*Radiated.*—I do not find mention made by any writer, of *radiated quartz*. Yet such is certainly to be found on the Falls turnpike about 8 miles from town, where it occurs in large masses scattered over the hills. It is distinctly radiated, and the summits of the crystals which are compressed by each other to a point at the centre, are terminated at the surface in regular hexahedral pyramids.

*Quartz—Agate—Amorphous*; on the Fredericktown turnpike, between the 6th and 7th mile stone.

*Quartz—Resinite*; Pechstein of Werner.—At the Barehills, 7 miles on the Falls turnpike. It occurs in thin veins in a serpentine rock; it is of a yellowish brown, and carious on the surface; when fresh broken it is of a dirty white, and resembles calcedony so much as to have been often mistaken for it: on exposure to the air for any time it becomes smoky brown.

*Quartz—Jasper.*—A very beautiful specimen was found on the Fredericktown turnpike, 7 miles.

#### GARNET.

*Primitive, trapezoidal, and prismatic* garnets abound in the neighbourhood; on the Falls turnpike they occur pretty large in a micaceous schistus.

#### FELSPAR.

*Compact Felspar*, compose great part of the gneiss and granite of the neighbourhood,—white, red, and green.

*Pearly Felspar*, or *adularia*, of a pure white, reflecting a light blue, is found in a granite vein in the quarries west of Jones's Falls, half a mile above the first turnpike gate.

*Aventurine Felspar.*—A small fragment was found at the Barehills.

*Decomposed Felspar* is found in considerable quantities, particularly on the Falls turnpike road, and would no doubt furnish an excellent material for the manufacture of porcelain.

*Crystallized Felspar* occurs in veins in the quarries on Jones's Falls accompanied by chlorite, epidote and axinite, (as it is believed) precisely resembling the same substances, and combined in the same manner as the specimens from the St. Gothard.

#### CORUNDUM.

An hexahedral crystal, an inch in diameter, was found at the Barehills, which in all its external cha-

racters corresponds with corundum, as described by Hatty; but the writer considers it as doubtful.

#### TOURMALINE.

*Black Tourmalines* of all sizes are found in the immediate neighbourhood of the town, insulated and grouped. At the quarries on Jones's Falls, they are found in a granitic vein, upwards of three inches in circumference and several inches long.

#### AMPHIBOLE.

Or *Hornblende*, both *laminated and acicular*, is found near the city, and composes a great part of the rocks which form the bed of Jones's Falls. The *compact* forms a species of trap on the Frederick turnpike, about 5 miles from town.

#### STAUROTIDE.

In a micaceous schistus on the Falls turnpike,  $7\frac{1}{2}$  miles from Baltimore. The staurotide is found in small crystals, crystallized in hexahedral prisms with dihedral summits, resembling so much the pyroxene as one time to be mistaken for it. The schistus being in a state of decomposition, renders the staurotide when first obtained very tender and liable to be broken; so that no complete cross formed by the junction of two prisms has yet been discovered, but fragments of such junctions are frequent. It is occasionally accompanied by the *Disthene Perihexaëdre*.



## EPIDOTE.

Very beautiful crystals of epidote are found at the quarries on Jones's Falls, and in a quarry near the Frederick turnpike, about  $2\frac{1}{2}$  miles from the city. They traverse a vein of crystallized felspar and chlorite.

## MESOTYPE.

Very recently small yellow crystals of a pearly lustre, in quadrangular prisms, terminated by a lateral pyramid, which in their form precisely resemble the *mesotype pyramidalé* of Haüy, have been found in a vein in the gneiss quarries, on Jones's Falls, accompanying chlorite, felspar, and epidote, and particularly very small crystals of a mineral not yet ascertained, but which appears to be metallic.

*Radiated zeolite* was found about 3 miles from the city, South of the Frederick turnpike.

## MICA.

*Crystallized and foliated*, is found in almost every direction.

## DISTHENE.

Or *Cyanite*, (lamellar,) of a pale green (rarely blue) is found in a micaceous rock, about 20 miles from town, on the Falls turnpike, at Scott's Mill, 7 miles from the York turnpike.—The crystals are large and small, many of them 4 and 5 inches in length; the loose masses in which it is also found, are of all sizes, and sometimes presenting little else but crystals of disthene

shooting in every direction, connected together by granular quartz.—It is also accompanied by garnets, and a heavy magnetic iron ore, which changes the disthene to a dirty brown. Perihexahedral and prismatic six-sided crystals are found on the Falls turnpike,  $7\frac{1}{2}$  miles from town.

#### GRANULITE.

Or *Tremolite*, is found among the limestone 11 miles from town, crystallized and compact; particularly at Nesbit's Marble quarry, York turnpike, &c.

#### ASBESTUS.

*Flexible, hard and ligniform* as well as *radiated* asbestus is found at the Barehills.

#### TALC.

*Talc Steatite or Specstein*,—waxy, at the Barehills.

*Pierre Ollaire or Potstone*,—at the same place.

*Talc Chlorite*,—at the quarries, and at the Barehills.

*Crystallized Talc*,—at the Barehills.

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#### COMBUSTIBLE SUBSTANCES, NOT METALLIC.

*Bituminous Wood* has been found in several places, particularly near General Ridgeley's Furnace, 10 miles from town; and also at the edge of the city, where the red clay-bank of the harbour joins Fell's Point, near the Ship Yards.

*Bovey Coal* is found disseminated in the clay of Catón's ore-bank, near the Washington road, 3 miles from town.

*Coal* is also said to be found in immense beds near the Bodkin Point, at the mouth of the Petapsco, 15 miles from town; and the proprietor of the land is now sinking a shaft with a view to working the mine, if it shall prove to be of the right kind.

#### METALLIC SUBSTANCES.

##### LEAD.

*Galena* has been found in a small vein in the quarries about the First Falls Turnpike gate, on the west side of Jones's Falls, accompanied by *black lead ore*, and blende or sulphuret of zinc. It is also asserted to be lately found in a large vein within 7 miles of the city, but the direction is kept a secret. The specimen seen by the writer, and said to come from the spot, was a large mass of galena.

##### COPPER.

*Grey Copper*, stated to be found near the city, and a good specimen of it is in the writer's possession; but the place is concealed.

*Green Carbonate of Copper*, and pyrites, the writer himself found on the Frederick turnpike when it was making, but could not ascertain whence it came.

*Black Oxyde of Copper* has also been found on the Frederick road.

## IRON.

*Magnetic iron ore* is found near Scott's mill, 20 miles on the Falls turnpike, and also about  $9\frac{1}{2}$  miles on the same road.

*Specular Iron*, occurs in the quarries near the town.

*Sulphuret of Iron*, (or common martial pyrites) abounds in all the quarries, and about 15 miles on Elkridge are found cubical pyrites an inch and more in diameter. At the Bodkin point, pyrites, common and *fossil* are to be found in very large quantities, and will probably become at some future day an object of importance.

*Hematites* occur on the York turnpike 9 miles, and on the road to Scott's mill.

*Argillaceous Iron stone* forms extensive beds to the south, southwest and west of the city about 3 miles. It is generally nodular, in concentric layers, between two of which it occurs crystallized in minute crystals of a blackish brown, known by the name of *velvet ore*. The furnaces in the vicinity are supplied chiefly from these beds; and from the ore bank on the York turnpike, 9 miles, some of the cannon of the United States has been made.

*Chromate of iron* is found in large quantities at the Barchills, 7 miles on the Falls turnpike, massive and granular, in veins and masses disseminated through a serpentine rock. Perhaps in no part of the world has so much been discovered at one place: it furnishes the means of preparing the beautiful paint called the chromic yellow, with which

carriages and furniture are now painted in Baltimore.

*Chromate of Iron* in octaedral crystals, very small, and magnetic, is found at the same place, and has no where else been discovered, as far as we can learn from the writings of mineralogists. The crystals mixed are found in the ravines, and on the sand of the rivulets off the Barchills, mingled with granular chromate of iron.

#### ZINC.

*Sulphuret of Zinc* or *Blende* is found in small quantities in a thin vein of lead ore at the quarries, half a mile above the first gate of the Falls turnpike, on the west side of the Falls.

#### MANGANESE.

*The black oxyde* is found disseminated among the rocks of the neighbourhood.

#### MOLYBDENUM.

*Sulphuret of Molybdenum* is found at the quarries on the Falls turnpike.

#### TITANIUM.

*Red oxyde of Titanium*, crystallized, has been found to the westward about 12 miles. The writer picked up a small piece on the Frederick turnpike (when it was making) within a mile of the city.

*Siliceo-calcareous Titanium* is disseminated throughout the granite at the Falls of Petapsco, about 10 miles on the Frederick turnpike, (of which the cathedral is built,) and also at the

Barehills, in a yellowish felspar aventurine. The crystal is Haüy's *Ditetraedre*.

CHROME

Is already mentioned among the iron ores. The *green oxide*, is also found at the Barehills, colouring the talc, as well as the *ruby or violet coloured ore*.

The aggregates, including the clays, which form a very large portion of the alluvial soil of the neighbourhood, shall be communicated in a future list, when they shall have been carefully examined.

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XXXVII. Description of some of the combinations of TITANIUM occurring within the UNITED STATES—by the EDITOR.

OF the many new discoveries which have enriched the science of Mineralogy, none have proved more interesting and worthy of notice, than those which relate to the metals; the number of which has been increased within a few years to an extent not to have been expected, when we consider the few which fell within the observation of the ancient mineralogists. For these we are, in great measure, indebted to the improvements which have taken place in analytical chemistry. To Scheele, and several of the late chemists, and particularly those of the present day, we owe much for our knowledge of the new metals, most of which have been recognized within the United States; and several which are of rare occurrence in the eastern, are found in abundance in the western hemisphere. Among these is *Titanium*; some of the ores of which, that occur in the United States, it is the object of the present paper to describe. The first discovery of Titanium, is due to an English