



*The Honorable*  
**GEORGE KNOX**  
(1765–1827)

*Parliamentarian and Mineral Collector:  
His Collections in Trinity College, Dublin, Ireland*

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*The mineralogical collections of Trinity College, Dublin, Ireland date from the late 1700's. One important collection, acquired in 1827, is that assembled by the Honorable George Knox (1765–1827), one-time Member of Parliament in Dublin and London. His collection contains Irish, European and American specimens. Knox's catalogs contain precise descriptions of specimens and of the physical properties of mineral groups. The catalogs are important, as they outline Knox's own arrangement of the collection, which is similar to that of Werner.*

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## INTRODUCTION

The University of Dublin was founded in 1592 with one constituent college: Trinity College. The Dublin University Museum was founded in 1777 to house Polynesian artifacts collected during the voyages of Captain James Cook (Ball, 1853; McDowell and Webb, 1982). The driving force behind its establishment is thought to have been Rev. William Hamilton (1755–1797), one-time Fellow of the University, who is perhaps better known for his geological observations of the Giant's Causeway, and his arguments that these basalts are of igneous origin (Hamilton, 1786).

The Geological Museum in its present form dates from 1857, when the Dublin University Museum was subdivided into a number of smaller units. For nearly a century the Geological Museum occupied a large room in the building constructed for the University Museum at Trinity College. In 1953 this large room was subdivided and converted into geological laboratories, and the collections were moved to a smaller room nearby, where the Geological Museum is presently situated (Gill, 1956).

The Geological Museum is best regarded as a research and

teaching museum, and its collections are displayed for the benefit of university students, schoolchildren and the general public. Material from the Museum is utilized in undergraduate teaching programs and is frequently borrowed for academic research. A comprehensive account of the history of the Geological Museum and its holdings is given in Wyse Jackson (1992).

This article briefly outlines the historical development of the Geological Museum and the origins, scope and extent of its collections, and focuses on the 18th-century mineralogical collection of the Honorable George Knox.

## ACQUISITION OF THE TRINITY COLLEGE COLLECTIONS

Within a decade of its founding the Museum had acquired some geological material, notably fish fossils from Monte Bolca, Italy, collected by a Dublin cleric, George Graydon (1753–1803) in 1794 (Graydon, 1794; Vaccari and Wyse Jackson, 1995). By 1807 the Museum housed a collection of 1089 minerals, some petrological



**Figure 1. Dublin University Museum in 1819 (from Taylor, 1819).**

specimens, including rocks from Vesuvius also gathered by Graydon, and some fossils (Stokes, 1807).

For nearly 70 years following 1780 the Museum had no permanent curator, although Whitley Stokes, a lecturer in natural history whose political activity brought him into conflict with the University authorities, was responsible for the collections from 1816 until 1844. Few important collections were added to the Museum during this period, with the exception of the large Knox mineral collection, and some Silurian and Jurassic fossils presented by John Phillips (1800–1874), who served in 1844–1845 as the first Professor of Geology at the University.

The welfare of the Museum improved through the efforts of Robert Ball (1802–1857), a noted naturalist who in April 1844 was appointed the Museum's first full-time director; at the same time, responsibility for the geological and mineralogical collections was entrusted to the incumbent professors of Geology and Mineralogy respectively.

Ball encouraged many geologists and naturalists (including the Earl of Enniskillen, Thomas Oldham, Sir Richard Griffith, Joseph Bette Jukes, Baron Cuvier, and J. D. Hooker) to donate geological material (Ball, 1846, 1847, 1848, 1853). He also arranged for the entire museum of the peripatetic Geological Society of Dublin (later the Royal Geological Society of Ireland) to be housed at Trinity College (Herries Davies, 1965). This collection was composed of Irish Carboniferous invertebrates, Jurassic ichthyosaurs, gastropods from the Pleistocene of Italy, a collection of volcanic and other rocks from continental Europe, zeolite minerals from the basalt of County Antrim, and some Irish rocks (M'Coy, 1841; Ball, 1848).

In 1857 the Museum collections were dispersed throughout the College campus: most of them, including the geological collections, were housed in a new Museum building erected for the purpose between 1854 and 1857 at a cost of 24,000 guineas. The hallway of this building contains columns and balustrades of nearly a dozen Irish marbles and elaborate floral and faunal decorative carvings.

Responsibility for the new Museum fell to James Apjohn (1796–1886), who held two chairs in Chemistry at the University and was Professor of Mineralogy from 1845 to 1881, and to Samuel

Haughton (1821–1897), Professor of Geology from 1851 to 1881. It was a period of sparse acquisition by the Museum: specimens of particular interest include a collection of rocks from Napoleon's island prison of St. Helena; a collection of lavas from various eruptions of Vesuvius; and the main mass of the Dundrum meteorite, which fell in central Ireland in 1865.

In the 1950's the Museum and its holdings were radically affected by a rationalization program. Space for teaching was required, and the Museum was removed to a room one-third of its former size. In addition, a number (probably considerable) of specimens were discarded; it is evident that these unfortunately included many specimens of immense historical interest.

Many specimens were incorporated into teaching collections, and labels were removed, making it difficult to work out the specimens' provenance and history. It was fortunate that the old handwritten catalogs were not also discarded.

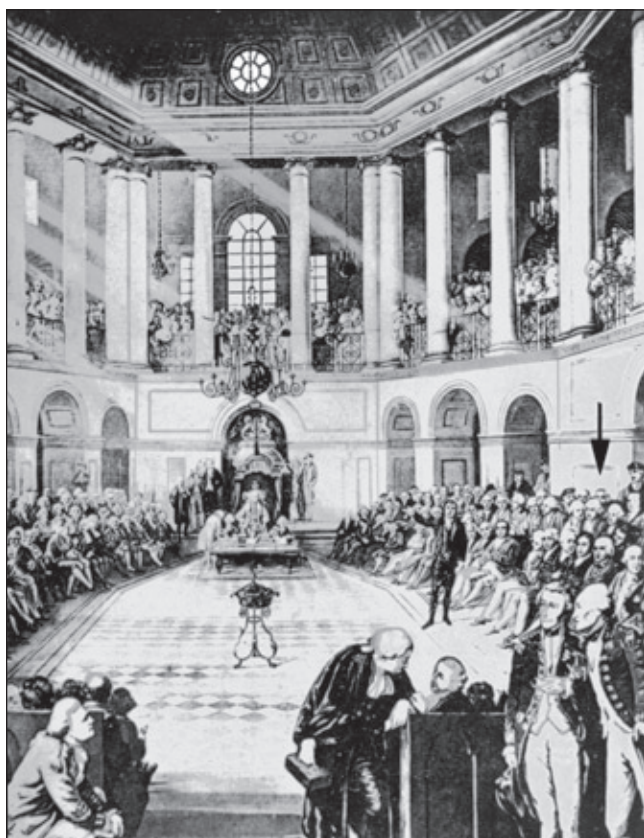
The postgraduate research program initiated in the 1960's has led to a rapid increase in the holdings of the Geological Museum. Most recent accessions are micropaleontological, but some macropaleontological, petrological and occasional mineralogical material continues to find its way into the Museum collections. Occasionally specimens are purchased from mineral dealers; a number of meteorites were acquired in this way in 1990 and 1991.

At present the Geological Museum contains approximately 72,000 specimens. These holdings include 7,000 mineralogical specimens, 15,000 petrological specimens, and about 50,000 paleontological specimens. Approximately 60% of the specimens are adequately curated. Systematic cataloging of the collections only began in the early 1960's. The Museum archives contain a number of early 19th-century handwritten catalogs of certain named collections: those of George Knox, Rev. George Graydon, and Robert Mallet (1810–1881)—the seismologist whose collection of Italian volcanic material is largely lost (Wyse Jackson, 1998). Unfortunately, it is now very difficult to correlate entries in these catalogs with extant specimens. In the near future the storage of the geological collections will be reorganized into a more systematic scheme than that previously employed; archival catalogs will be checked and specimens correlated with them.





**Figure 2. Museum Building, Trinity College, Dublin. The present Geological Museum is situated on the upper floor on the right-hand side of the building. Declan Burke photograph.**



**Figure 3. View of the Irish House of Commons in 1790 (reproduced from Maxwell, 1956). George Knox (arrow) is seated first on the right in the back row.**

### **GEORGE KNOX: PARLIAMENTARIAN AND MINERAL COLLECTOR**

The Honorable George Knox (1765–1827), one-time Member of Parliament for Dublin University, was a member of a wealthy family which held considerable estates in Dungannon, County Tyrone. He was the fifth son of Thomas Knox, a Member of the Irish Parliament for Dungannon, who was later Baron Wells and then Viscount Northland. Thomas' sons gained high offices: Major-

General John Knox (1758–1800) was also Member of Parliament for Dungannon and later became Governor of Jamaica; two other sons, William Knox (1762–1831) and Edmund Knox (1773–1849), became bishops of Derry and Limerick respectively (Burke, 1849), William succeeding Frederick Hervey, Earl of Bristol (1730–1803), the noted amateur vulcanologist and builder of large houses.

Knox trained as a barrister at Lincoln's Inn, London, and was later called to the Irish Bar (Keane *et al.*, 1982). He received two honorary degrees in law, D.C.L. from Oxford (Foster, 1888) and LL. D. from Dublin (Todd, 1869). While in London he became a close friend of Theobald Wolfe Tone, and was a godfather to his son. Tone later organized an insurrection, with French aid, against the British authorities in 1798, and committed suicide after its failure. Prior to 1798 Knox had encouraged Tone to leave Ireland with his family, as his political activities were considered dangerous (Elliott, 1989).

Knox married twice and outlived both of his wives. He had five sons and one daughter (Burke, 1849). He lived at 8 Merrion Square East, a fashionable part of Dublin—probably, like many parliamentarians, he was well off. He served in the Irish Parliament as Member for the Borough of Dungannon from 1790 to 1797, and as Member for Dublin University from 1797 until the Act of Union of 1800 (Foster, 1888). He is noteworthy as an early campaigner for Catholic emancipation, which would have enfranchised the (Roman Catholic) majority of Ireland's population. Limited measures were passed in 1793 (Johnston, 1957), but Knox's motion that Roman Catholics should be eligible to sit in Parliament was thrown out (Elliott, 1989). Full emancipation came in 1829.

In the late 1790's the Irish Parliament was thrown into controversy over the attempts to disband it and create a union of the Dublin and London parliaments. Knox was opposed to the measure and resigned a government position in 1799 on account of it (Ingram, 1887; Malcolmson, 1978). The Act of Union was passed in 1800 and the Dublin Parliament was abolished; nevertheless Knox continued to serve as University Member to the Westminster Parliament in London until 1807, when he lost his seat in the general election of that year. Knox was also returned as Member for Dungannon in 1801



and 1805 by his father, in case he failed to be elected by the University. During his period in London he was restored to favor and was appointed a Lord of the Treasury and a Privy Councillor (Ingram, 1887). Knox retired from Parliament in 1807, after which he served for two years as a Commissioner of Customs, receiving an annual pension of £400. In 1809 he was granted a pension of £800 per annum for life (Aspinall, 1986), and died at Velletri in Italy on June 13, 1827, after an accident involving a carriage.

Why Knox served the University of Dublin in Parliament is something of a mystery, as prior to 1797 his only connections with the College were that he was suggested as a possible Provost (Head of the College) in 1792 (Aspinall, 1986), and that he was conferred with an honorary degree of Doctorate of Law in 1795. Perhaps it was because of his service in Parliament that his mineral collection found its way into the College Museum.

Toward the end of the 1700's Knox became active in scientific circles in Dublin and London and was a close friend of the mineralogist Sir Charles Lewis Giesecke (1761–1833) (Wyse Jackson, 1996). Knox was elected a member of the Royal Society of London in 1802, and was a member of the Royal Irish Academy, the Dublin Society (Vice-President from 1820 to 1827), and the Kirwanian Society (President). The Kirwanian Society was established in 1812 to further the ideas of Richard Kirwan and to carry out mineralogical studies (McLaughlin, 1954). However, membership never rose above 77 and the Society disappeared after 1818. Knox contributed two papers to the Society: the first, on fiorin grass (a variety of *Agrostis stolonifera*—creeping bent-grass), was read on March 21, 1813, but was never published, while the second, which outlined the mineralogy of County Dublin for “scientific travelers,” appeared long after the Society’s demise (Knox, 1826). In it Knox listed 43 mineral species and gave reasonably precise locality details for prospective collectors.

Knox was interested in analytical methods in mineralogy and carried out many experiments in the laboratories of the Royal Dublin Society. His results appeared in three papers: on the Calp Limestone of the Dublin region (Knox, 1802); on “pitchstone” from Newry, County Down (Knox, 1822); and on bitumen in rocks (Knox, 1823). In the first paper, published by the Royal Irish Academy, Knox described the distribution of the Lower Carboniferous argillaceous Calp Limestone, and gave an analysis of it. Calp limestone was widely used as a building stone in Dublin until the late 18th century. The meaning of the word “calp,” first formally used by Kirwan (1794), is unknown; it may have been used earlier as a quarrying term (Marchant and Sevastopulo, 1980).

In the second paper (1822), Knox outlined to the Royal Society of London his experimental methods in deriving bitumen from three different pitchstones. He distilled crushed stone to derive bitumen or bitumenous water, and an artificial pumice. He expanded this research by analyzing 28 rocks and minerals for bitumen (Knox, 1823), and found that iron-bearing clays contained up to 18% bitumenous water, while obsidian, tourmaline, augite and hornblende were nearly devoid of bitumen. Concluding this work, Knox argued that previous mineral analyses were unreliable unless the rock or mineral had been distilled and the distillate analyzed. And he postulated that the so-called “Floetz” rocks (flat, stratified, fossiliferous rocks and associated basalts) of Werner were the chief source of the ejected volcanic rocks.

## THE KNOX MINERAL COLLECTION

The Knox mineral collection was purchased by the University of Dublin for £500, a considerable sum at the time (Apjohn, 1850). The date of the purchase is unclear: Apjohn (1850) gives 1823, while Giesecke (1832) states that the collection was purchased for the Museum “after his [Knox’s] lamented death”—Knox died in

Quartz Family Jasper.	
<i>Sloped. Riband Jasper 10. - Quartz Jasper 11. - Jasper 12. - 13.</i>	
d 1218 <sup>1796</sup>	Earthy, large and flat conchoidal forming nearly a circle reddish brown much mixed with grey from Gournahill 1797
d 1219 <sup>1796</sup>	Live brown and dirty green.
d 1220 <sup>1797</sup>	Flat conchoidal circular concentric colour varying from towards lavender blue. from 3 <sup>rd</sup>
d 1221 <sup>1796</sup>	Entirely earthy, yellowish white with light red stripes from 9 <sup>th</sup>
d 1222 <sup>1797</sup>	Red brown with some greenish white flat conchoidal fracture from 3 <sup>rd</sup>
P 1223 <sup>1796</sup>	3 <sup>rd</sup> cut and polished
P 1224 <sup>1797</sup>	Narrow stripes of live brown tabella yellow brownish red and yellowish green. from 3 <sup>rd</sup>
d 1225 <sup>1797</sup>	Brownish red, pearl grey, varying towards greyish green with faint white spots; cut and polished from 3 <sup>rd</sup>
d 1226 <sup>1797</sup>	Lavender blue mixed with brown reddish, tabella with white and greenish white. cut and polished from 3 <sup>rd</sup>
d 1227 <sup>1797</sup>	Greenish grey passing in some stripes into apple green and tabella yellow with brown red variegated spots. cut and polished. from 3 <sup>rd</sup>
d 1228 <sup>1797</sup>	Live brown passing into light red with dark green stripes. Also called Jasper onyx - best in Lybessa
d 1229 <sup>1797</sup>	Live brown with one dark green stripe running through the stone. It passes into conchoidal brownish being nearly

Figure 4. Page of Knox Catalog Number 3 with entry for “Riband Jasper,” number P1224 [TC.M2906].



Figure 5. “Aplome” variety of andradite crystal group, 8 cm, from Breitenbrunn, Saxony, Germany. G. Knox collection, TCD.M3706; Declan Burke photo.

1827. Unfortunately the minutes of the College Board for the years 1823–1830 do not clear this matter up, as they contain no mention of the collection. However, contained in the present holdings of the Museum are beryl specimens collected in the Mourne Mountains of County Down, probably in 1824 or 1825 (Giesecke, 1825b). It seems probable that the Knox collection was acquired after George Knox’s death. Indeed, one would wonder why a zealous collector would sell his collection except for the money, and Knox was a man of some means who probably had no need of additional funds.

It is unclear how many specimens were purchased by the College. A list at the beginning of the first catalog states that the Knox

**Table 1. Arrangement of the Knox Mineralogical Collection.**

*Class 1. Earthy Substances [1498 specimens], containing eight genera:*

- i. Diamond Genus
- ii. Zircon Genus
- iii. Silica Genus
- iv. Clay Genus
- v. Talc Genus
- vi. Lime Genus
- vii. Yttria Genus
- viii Hallite Genus

*Class 2. Salts [26 specimens], containing five genera:*

- i. Carbonatic Genus
- ii. Boratic Genus
- iii. Nitric Genus
- iv. Muriatic Genus
- v. Sulphuric Genus

*Class 3. Inflammables [63 specimens]*

These are not listed in the catalogs.

*Class 4. Metallic Substances [687 specimens], containing 28 genera:*

- |              |                 |                  |
|--------------|-----------------|------------------|
| i. Platina   | ix. Copper      | xix. Manganese   |
| ii. Iridium  | x. Iron         | xx. Nickel       |
| iii. Osmium  | xi. Lead        | xxi. Cobalt      |
| iv. Rhodium  | xii. Tin        | xxii. Arsenic    |
| v. Palladium | xiii. Bismuth   | xxiii. Molybdena |
| vi. Gold     | xiv. Zinc       | xxiv. Uranium    |
| vii. Mercury | xv. Cadmium     | xxv. Scheelium   |
| viii. Silver | xvi. Antimony   | xxvi. Titanium   |
|              | xvii. Tellurium | xxvii. Chromium  |
|              | xviii. Selenium | xxviii. Cerium   |

*Class 5. Colors [124 specimens]*

These are not listed in the catalogs.

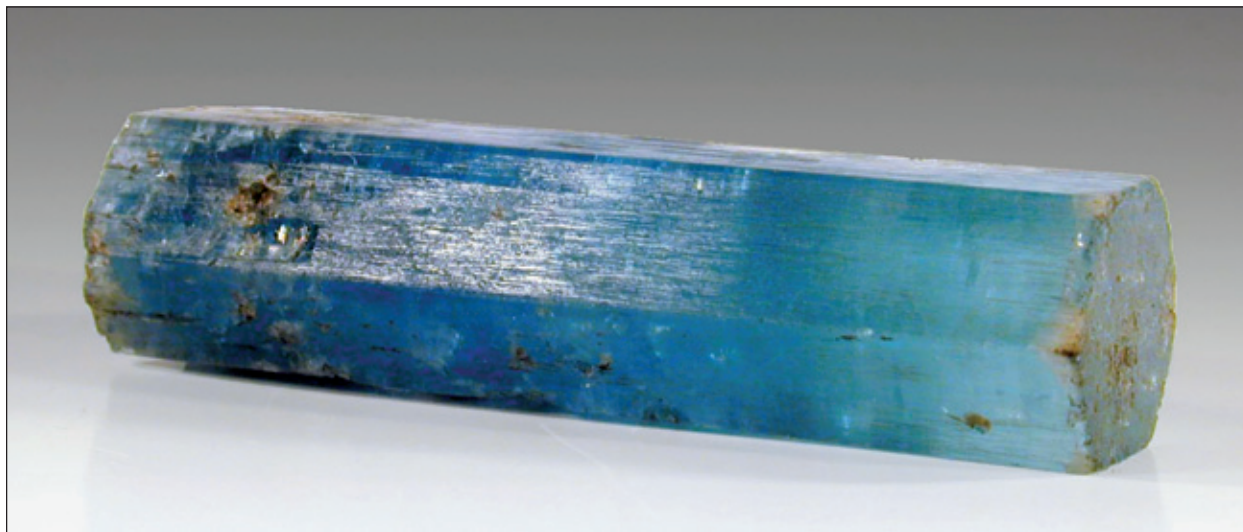


**Figure 6. Beryl crystals in quartz, 7.5 cm, from Ravenstein, Siberia, Russia. G. Knox collection, TCD.M3586; Declan Burke photo.**

collection numbered 2,398 specimens. However, considering that a catalog of the Museum's minerals produced by Stokes (1818) five years prior to the Knox collection purchase lists 1,204 specimens, and the museum catalog produced by Apjohn in 1850 lists only 1,991 specimens, the number of mineral specimens purchased from the Knox collection may not have been greater than 600. In addition, Giesecke and Sir Richard Griffith donated minerals to the Museum in the years between the publication of the two catalogs.

Accompanying the Knox collection were three large catalogs in Knox's handwriting containing precise descriptions of specimens, locality details, and information about the physical properties of the mineral groups in general. The catalogs were compiled at various times; the first was made after 1814, the second (watermarked 1820) is a copy of the first; and the third (watermarked 1823) contains most of the information in the earlier two.

Examination of Knox's catalogs reveals that many specimens were collected in the Americas (particularly the British colonies of



**Figure 7. Aquamarine beryl crystal, 5.1 cm, locality unknown. G. Knox collection, TCD.M5555; Declan Burke photo.**





**Figure 8.** Aquamarine beryl in smoky quartz, 8 cm, from the Mourne Mountains, County Down, Ireland. G. Knox collection, TCD.M1548; Declan Burke photo.

**Figure 9.** “Botryolite” variety of datolite, 5.5 cm, locality unknown. G. Knox collection, TCD.M4787; Declan Burke photo.



the Caribbean), Brazil, Scandinavia, Siberia, Greenland and Saxony. No doubt Knox’s older brother John, the Governor of Jamaica, collected or otherwise assisted in the acquisition of many of the Caribbean specimens, and a note in one of the catalogs indicated that some specimens from Greenland were given to Knox by Giesecke. A reasonable number were from Britain and Ireland, the Irish localities including the Giant’s Causeway (Giesecke, 1825a), County Down (Giesecke, 1825b) and Dublin (Knox, 1826).

As a member of the Royal Irish Academy, Knox would have known Richard Kirwan (1733–1812), the prominent Irish mineralogist and chemist; indeed the two men received their honorary degrees in Law within a year of each other. It is possible that Kirwan encouraged Knox, and may have advised on the arrangement of the collection, as the catalogs are laid out according to Wernerian principles which Kirwan promoted.

Specimens are placed into five classes (Table 1). The arrangement corresponds closely to the scheme laid out in Abraham



**Figure 10.** Diopside and grossular crystal group, 8 cm, locality unknown. G. Knox collection, TCD.M3517; Declan Burke photo.

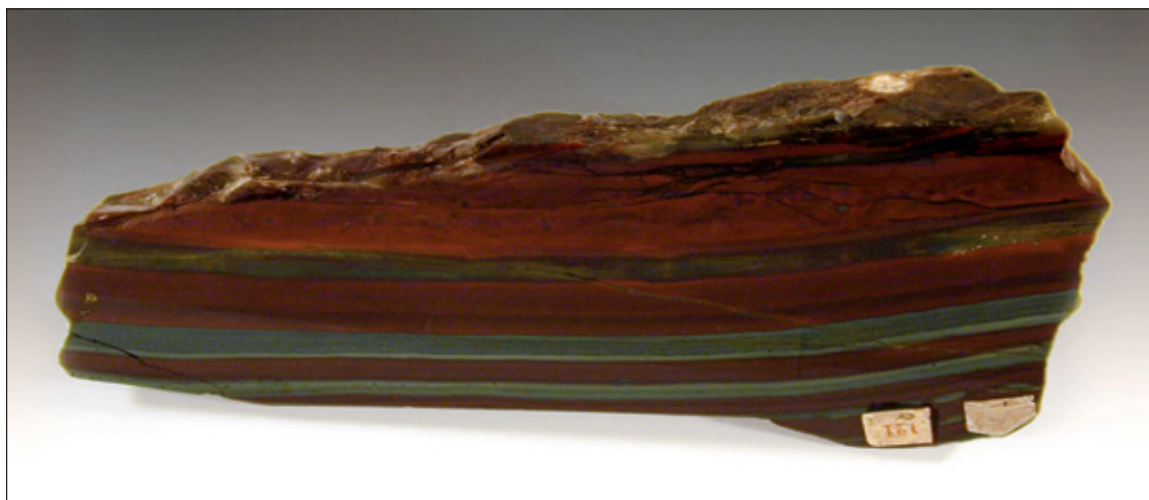
**Figure 11.**  
Gold on quartz,  
6.6 cm, from  
Koespatack mine,  
Transylvania.  
G. Knox  
collection,  
TCD.M1425;  
Declan Burke  
photo.



**Figure 12.**  
Graphite, 5.5  
cm, from  
Borrowdale,  
Cumbria,  
England. G.  
Knox collection,  
TCD.M1959;  
Declan Burke  
photo.

Gottlob Werner's *Letztes Mineral-System* (1817), with a few exceptions: to Class 1 is added the genus *Yttria*, while Werner's genera called *Barite* and *Strontian* are reduced to familial level; in Class 4 the number of genera is greater (28, as against Werner's 22). Knox may have been the author of these modifications, but this is not stated in the catalogs. The constituents of Knox's 5th Class—*Colors*—are unlisted, but may be related to categories in Werner's *Nomenclature of Colors* (1814).

In 1850 Knox's mineral collection was incorporated with the Museum's pre-existing mineral collections by James Apjohn, who compiled a catalog of the complete mineral holdings of the College in 1850. The specimens listed in this catalog are today distinguished by small printed red numbers. Knox's specimens have distinctive handwritten labels bearing a number code corresponding to entries in his catalog. Sadly, many of these labels were removed in the past. Nevertheless it should be possible to recognize much of Knox's material.



**Figure 13.** "Riband jasper" displaying alternating leek-green and brownish red layers, 17.5 cm, from Saxony, Germany. G. Knox collection, TCD.M2906; Declan Burke photo.





**Figure 14.** Muscovite and quartz, 8.5 cm, from Schlaggenwald, Bohemia, Germany [Slavkov, Bohemia, Czech Republic]. G. Knox collection, TCD.M3938; Declan Burke photo.

**Figure 15.** Pyrite, 7 cm, from County Dublin, Ireland. G. Knox collection, TCD.M2356; Declan Burke photo.



**Figure 16.** Tourmaline crystals in granular quartz, 9.5 cm, from Abo, Finland. G. Knox collection, TCD.M4832; Declan Burke photo.



## CONCLUSION

The Knox collection, hitherto largely unknown outside of Trinity College, is important in terms of size and documentation, and in these senses it compares favorably with other mineralogical collections of the 1700's, and illustrates minor modifications of Werner's classification of minerals.

It is widely known that a small number of geologists in Ireland were at the forefront of the Neptunist-Vulcanist debate: men such as Kirwan and William Richardson (1740–1820) for the former, and Hamilton and Hervey for the latter, all took active roles. Although it is unclear what Knox's views were, it is probable that he sided with the Neptunists, given his involvement with the Kirwanian Society. This is the first piece of evidence of potential parliamentary input to the Neptunist-Vulcanist debate!

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