Examining the Colonial Legacies of the Hunterian's Mineralogical and Petrological Collection: New Perspectives on Geoscience Collections

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Abstract

The origin of the Hunterian Museum and Art Gallery's mineralogical and petrological collection can be traced back to Sir William Hunter's bequest of his collections to the University of Glasgow upon his death in 1783. Examination of the collection's colonial legacies is only in its nascent stages, reflecting that the scrutiny of colonial legacies is still in its infancy in geoscience museums. Here I review the history of the collection, its composition and usage, and I put those factors into the broader perspective of museums' colonial legacies.

Among the issues I consider are the extent to which the collection contains international specimens and the extent to which these objects are accessed by their source nations. Also explored are the biases which exist in the limited provenance ascribed to objects in the collection and how certain individuals or types of information may be excluded from documentation. The purpose of these investigations is to consider whether the collection continues to contribute to colonial legacies of the museum sector.

After an examination of these aspects of the collection, new ways of working for geoscience collections are proposed, including standards for gathering data; expanding the collection's reach to more users; and repatriating objects. These initial measures can change the power imbalances apparent in the Hunterian collection and the geosciences more broadly.

Introduction

A key component of decolonization is:

> stepping back, looking at what and who we value and how the museum and collections have been shaped by colonizing forces… Decolonizing is about being open and honest about the impact on and role of people in the past and present, particularly Black and Indigenous peoples (Gelsthorpe 2021: 24).

Widespread work on colonial legacies in the natural history portion of museums is only in its earliest stages (Das and Lowe 2018; Ashby and Machin 2021), especially in geological collections (Gelsthorpe 2021). In geoscience museums, mineral exhibits and the stories that exhibits tell have been examined more often (Gelsthorpe 2021; Hearth and Robbins 2022), yet there is still more work to do in understanding how colonial legacies affect geoscience collections and the ways they are used.

In order to confront the legacies of colonialism present in an institution like the Hunterian and its mineralogy and petrology collection, it is necessary to understand 1) the origins of the collection, 2) the geographic reach of collection loans, 3) the network of collectors, and 4) the legacies of those associated with the collection. Only by properly contextualizing this information is it possible to shape future considerations for the museum and the broader discipline. Due to the Hunterian Museum and Art Gallery's location in the UK, the colonial

legacies are primarily those of the British Empire, but as the Hunterian's collection is international there are also other colonial stories hidden in its narratives. Moreover, while the focus here is on the Hunterian, similar histories exist in many institutions and collections, and many of the lessons uncovered from the examination of the Hunterian's collection are equally relevant to other institutions.

The research described here is only the beginning of future work on decolonizing the Hunterian's collection, which will take time and effort at all levels of the museum. Furthermore, the decision to confront the colonial legacies in the Hunterian's mineralogy and petrology collection serves as a case study for other museums planning to interrogate their geological collections and their usage, while sparking further discussions within the geoscience and museum fields.

The Mineralogy and Petrology Collection at the Hunterian

The Hunterian Museum and Art Gallery is part of the University of Glasgow and began with the bequest of the extensive collections of William Hunter, a wealthy doctor, in the late eighteenth century (Brock 1980: 403-7). According to Brock, as a physician, Hunter furthered the study of anatomy and was the personal doctor to Queen Charlotte, wife of King George III. Getting his start from a middle-class family, Hunter grew his wealth and was able to follow many interests, which included mineralogy, palaeontology, and other natural history pursuits. Hunter amassed books and objects related to art, world cultures, anatomy, palaeontology, zoology, numismatics, and geology. Upon his death in 1783, he willed his collections to the University of Glasgow, where his collections were transferred when the museum was ready in 1807.

Brock further describes that Hunter was inspired to start collecting minerals and to form a personal museum after Lady St Aubyn sent him a collection of ores late in his life. He collected around 2,000 minerals, primarily from Europe, typically by purchasing them from dealers but also receiving objects from his former medical students. He spent £1,500, roughly equivalent to £189,591 in 2024,[1] on his mineral collection (Brock 1980: 404). Durant and Rolfe infer that he was interested in potential medical applications of minerals due to his medical background, texts on the subject in his collection, and the use of gems by apothecaries such as his mentor, William Cullen (Durant and Rolfe 1984: 13).

In the centuries after the Hunterian Museum was formed, its collection grew to approximately 120,000 specimens. Further donations were added to Hunter's collection from Frederick Eck, Thomas Brown, James Young, and Frank Rutley, to name a few. Other major collections came from regions outside Scotland, including Antarctica and Australia.[2]

The mineralogical and petrological collection has also grown due to its close relationship with the School of Geography and Earth Sciences (GES) at the University of Glasgow. A member of the department's staff was even appointed honorary curator at one time (Leake 2011a: 108). The current collection comprises four types of geological objects that are typical for geological collections: meteorites, minerals, gems, and rocks (Figure 1). Given the age of the collection, data regarding the specimens vary in quality. Precise location data exist for some specimens; for instance, the original location of one specimen is identified relative to a sheep paddock on a hill (Figure 2). For others, only general information such as the country of origin is available, or there is no information at all. The varying quality of information is also true of other data such as collectors. Similarly, a significant portion of the collection remains uncatalogued. This sort of backlog is common in museums, given their often-low staffing levels and the amount of work required to remedy such a backlog while also fulfilling day-to-day operating tasks (Fredheim et al. 2020: 170).

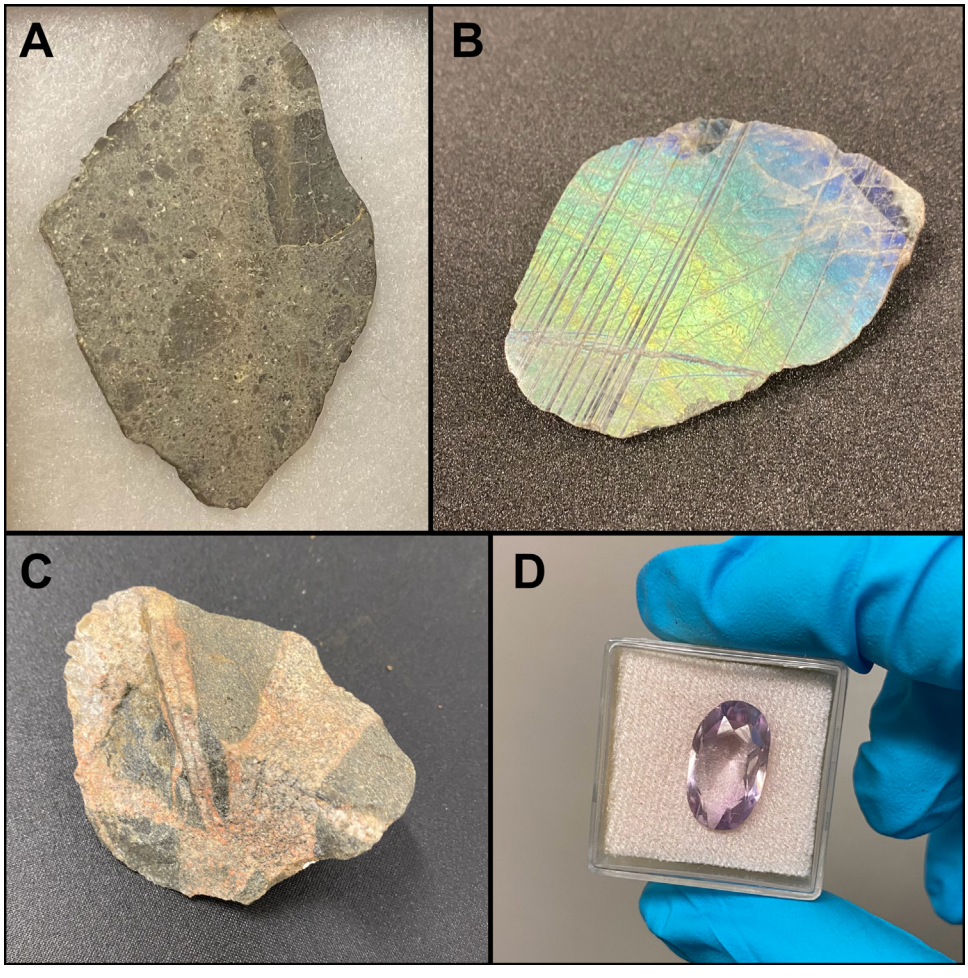

Figure 1: Specimens from the Hunterian's mineralogy and petrology collection A) Meteorite: piece of achondrite meteorite NWA 1929 (GLAHM 156814) B) Mineral: Anorthite, variety labradorite showing labradorescence from Labrador, Canada, from the Thomas Brown collection (M2375) C) Rock: granite-schist contact, noted in its collection record as collected by Lord Webb Seymour and John Playfair sometime around 1807-1808 (GLAHM 164431) D) Gem: Quartz, variety amethyst, from the Frederick A. Eck collection, donated by Miss Eck in 1883 (GLAHM 102352). All photos by Erika Anderson, the Hunterian 2023.

Figure 2: Label for R6910 denoting a precise locality. Photo by Catherine Rushmore, the Hunterian 2023.

Of the part of the mineralogy and petrology collection that is catalogued, only a portion of the information has been digitized and is available online. A large portion, estimated at around 75 per cent (approximately 90,000 specimens), remains undatabased, except at the lot level, referred to as Hunterian Unaccessioned Groups (HUGs). The records for these lots include some information, such as where they were found, recorded mostly at the country level. The number and identification of specimens in each HUG are not commonly recorded, and some HUGs include specimens from multiple countries. HUGs primarily consist of rocks, with some mineral specimens. This may be due to decisions to prioritize catalogue entries for what may be perceived as higher value items, such as gems, meteorites, and minerals (Anderson 2023: 517). In order to assess the provenance of objects, I tallied catalogued mineralogy and petrology specimen information available in EMu, the museum's digital collection management system, on 13 April 2023, as well as HUG data from 14 October 2022. This included the areas of origin of specimens (when known) and resembled the analysis performed on the Manchester Museum's collection in Gelsthorpe (2021) (Tables 1 and 2). For the purpose of this study, oversea territories were counted within their sovereign nation's jurisdictions, but remains an area for further study.

Continent	In Database	Portion of HUG
Africa	2.58%	9.25%
Europe	38.41%	61.75%
Asia	1.25%	3.68%
North America	3.21%	5.96%
South America	1.16%	0.76%
Oceania	1.20%	4.94%
Antarctica	0.35%	0.25%
Seas	0.04%	0.89%
Unknown	51.79%	12.55%

Table 1: Continent of origin for database specimens and continents of origin of Hunterian Unaccessioned Groups.

Continent	In Database	Portion of HUG
Africa	5.35%	10.58%
Europe	79.68%	70.58%
Asia	2.59%	4.20%
North America	6.67%	6.81%
South America	2.41%	0.87%
Oceania	2.48%	5.65%
Antarctica	0.73%	0.29%
Seas	0.09%	1.01%

Table 2: Continent of origin for database specimens and continents of origin of Hunterian Unaccessioned Groups with unknowns removed.

Scottish specimens make up the largest portion of the mineralogy and petrology collection in both the database of specimens (7909 specimens, 26 per cent) and the mineralogy and petrology HUGs (256 lots, 34 per cent). This is unsurprising because the museum is a major repository for rocks and minerals from research and collecting conducted in the area. Gelsthorpe (2021) finds a similar trend in the Manchester Museum's mineral collection, showing that the largest proportion of specimens originated from the UK and Ireland (41 per cent). This can also be seen in the Bristol Museum's collection, where 63 per cent of the objects are from the UK and Ireland. It is probable and reasonable to assume that other museums with geology collections follow a similar trend.

Specimens from outside the country – at the Hunterian and elsewhere – are held for a variety of reasons, such as for public engagement, education, or research. J.S. White has argued that large museums should hold collections from abroad when source nations lack the capacity to preserve the objects (White 1991: 252), an idea that could be interpreted as a colonial attitude. In addition, as geology is not constrained by geopolitical borders, rocks and minerals from outside a country are important for research at institutions like the Hunterian

and the university, as well as by industrial entities.

Regardless of the reasons for their collection, European specimens dominate both database and HUG specimens, but for the specimens with a known provenance there is a slightly higher proportion of rocks from outside Europe in the HUGs compared to the digitized specimens (Table 2). This may show a bias towards cataloguing specimens from Europe or indicate that certain specimens were used more often for research or exhibits so they were prioritized for cataloguing. There is also a higher proportion of African and Oceanian specimens in the HUGs. It is difficult to ascertain why specific specimens were prioritized in the past since cataloguing strategies are not typically recorded. Currently, staff prioritize cataloguing specimens that will be used shortly for exhibitions or research, and it is reasonable to assume this may have been the case in the past as well, which may have influenced the cataloguing decisions towards materials from certain areas.

The Hunterian's Loans

Continuing the examination of the history and colonial legacies of the Hunterian's mineralogy and petrology collection, a review of the institution's loans is necessary in order to ascertain the countries in which loan recipients were located (Table 3) since the collection holds worldwide specimens. To achieve this goal, I examined mineralogy and petrology loans from 1963-2013, where the information was available on paper forms. Some of the loan records were decades old, and recorded prior to the development of more rigorous collections data standardization; consequently, information on the receiving institution is increasingly likely to be missing as one delves further into the past. In some cases, initials are used in place of full names, likely the result of the recording staff member being familiar with the borrower and their place of work, so the full name and address was not written out (this is an example of institutional memory being lost in time). Sufficient information was recorded for just under half of the total number of loans so that I could ascertain them to be internal loans to the museum and the university. Additional loans may have been internal and simply not recorded as such. Analyses of this sort on the historical legacies of the collection offer additional reasons, on top of the general principles of collection management, as to why documenting full information for existing specimens and loans is imperative.

Country	Percentage
Australia	0.22%
Belgium	0.11%
Canada	0.22%
Denmark	0.11%
England	8.71%
France	0.22%
Germany	0.76%
Ireland	0.76%
Italy	0.11%
Northern Ireland	0.33%
Poland	0.11%
Scotland	76.71%
Sweden	0.33%
United Kingdom	0.11%

USA	0.54%
Wales	0.87%
Unknown	9.79%

Table 3: Countries receiving Hunterian mineralogy and petrology specimens on loan from 1963 to 2013.

As the records of loan recipients were collated, the reason for the loans was also recorded. Again, the older loan paperwork does not capture as much information; in this case, the reason for the loan is more likely to be absent. This circumstance accounts for the majority of the unknown loan uses in Table 4. Since the Hunterian is a university museum, it is not surprising that many loans were for teaching. Most of these loans were to the university itself, but some went to other schools in the UK. Research was the other major reason for loans from the Hunterian, which is typical for geological collections (e.g. research on Australian coals by Steel in 1895, or the isotopic work on meteorites in Carracedo et al. in 2022).

Loans for exhibits were less frequent than those for research and teaching, and rarely left the country. Natural history exhibits are commonly long term and updated less frequently than those in art galleries, which further explains why there would be fewer loan requests. In addition, many natural history museums source specimens from their own collections for geological exhibits. Other loans were made for events, usually to accompany something like a lunchtime presentation or an outreach program. Disposals were also recorded as loans when objects exited the museum. A small portion of the loans were noted as being for art, with some notes indicating that the specimens were to be used for constructing art, mostly outside the university. This is unusual for geological collections but shows the versatile nature of specimens. With the data underscoring the historical loan records and the locations of the loan recipients and their use, it is possible to explore the data in the broader context of colonial legacies of the collection.

Loan reason	**Percentage**
Art	0.4%
Assessment	0.4%
Conservation	0.2%
Disposal	3.3%
Event	2.8%
Exhibit	7.3%
Photography	2.2%
Research	21.1%
Preparation	1.8%
Teaching	17.7%
Unknown	42.7%

Table 4: Reasons given for objects exiting the Hunterian.

Implications of the Loan Network

Due to trade routes and exploration, British museums' collections include a greater number of objects from countries that formed the British Empire than from elsewhere (Ashby and Machin 2021: 45). Interestingly, this trend is not reflected in the destinations of the Hunterian's

mineralogy and petrology loans. The loans are primarily requested for locations in close proximity to the Hunterian and sent to countries of the Global North.

The majority of the museum's loans have been to recipients in Scotland and the rest of the United Kingdom. Some loans have gone to recipients within the university – museum or academic staff. The external loan network has been fairly small, which suggests that researchers and institutions tend to query more familiar collections. The loan network may reflect borrowers meeting Hunterian employees at local conferences; visiting institutions close to the Hunterian; colleagues previously having worked at the Hunterian; and institutions wishing to save on shipping and travel costs as well as on international paperwork; whilst, more broadly, many loan requesters may have attended schools and universities in the UK, developing networks there. In contrast, institutions located outside the UK may have repositories closer to them than the Hunterian from which they could request loans. For example, scientists in Canada looking for rocks will likely first look at nearby museums or geological surveys, and then to institutions in the United States before reaching out to institutions in Europe.

Nevertheless, the limited reach of institutional loans reflects another area in which the museum could improve; in particular, it would be helpful if specimens could be used, either through loans or repatriation, by people of their countries of origin. Moreover, due to the limited reach of the loan network, and the use of loans in teaching and research as seen above, the benefits from using these specimens are mostly only realized in the Global North.

Collectors Networks

Another aspect of the Hunterian's collection to analyze in order to understand its range is the network of collectors, yet many of their identities are unknown or unrecorded. This gap appears in the archival records, labels (see Figure 2), and in the process of transcribing data from existing labels into the database. As with loan records, the inclusion of full names is not guaranteed, which can make collectors hard to trace. This shortage of information in the database suggests a strong argument for further and more thorough historic research about collectors, which should be funnelled into digitization efforts.

Since the Hunterian collections have existed for hundreds of years, the standard for gathering data has evolved. As observed on old labels, collection data can consist of scant location information and little else, compared to a modern data record, which may contain fields for specimen identification, locality, collector, donor, geological formation, and more. Even now, such information may not always be available, as the type of data museums record may not be a high priority for those conducting geological fieldwork, as not all research specimens are deposited into museum collections in geology research.

Geological Record-keeping Conventions

While contemporary geoscience collection data fields have not been standardized to the same degree as those for biological specimens (see, for example, the popular biological data field standard Darwin Core (Byrd 2018)) basic information is commonly requested in acquisitions, including the specimen's identification, its source, the collector's name, and the site where it was found (locality). The Hunterian is an accredited museum following the Collection Trust Spectrum standards. Yet the amount of recorded information on accompanying labels or in ancillary material still varies by acquisition method and specimen type. Often the individual donor or vendor determines which information follows an item into a geoscience collection, though institutions may ask for more, as it depends on the choices they make for record-keeping.

A facet of mineral collections, such as a subset of the one at the Hunterian, is the purchase of specimens from dealers and collectors. The mineral market is known for large international gem and mineral shows like the Tucson Gem and Mineral Show in the United States.[3] Dealers from around the world come to these shows to sell specimens. Some dealers sell specimens primarily from their countries, while others will sell specimens from a wide variety of locales.

When specimens are purchased from dealers by museums like the Hunterian, the associated data can be scarce. Commonly, only the mineral name(s) and the locality will be available on the label that accompanies a specimen. The locality can be precise if the mine

is well known, but sometimes only a region is noted. Well-known historical or contemporary collectors will sometimes be noted on labels. However, when the mining operation is more commercial, or the minerals are a by-product of resource mining, the name of the miner who collected the specimen will not be on a label. Miners may have been local community members, such as Indigenous peoples, or settlers who sold to dealers or middlemen, who in turn may have sold to other dealers, as is seen in contemporary markets like the aforementioned Tucson Gem and Mineral Show (Ferry 2013).[3] The names of intermediaries will typically not be on labels, nor will the name of the person who prepares the specimen by cleaning it and removing extraneous minerals. At the Hunterian, collection records for provenance will include the dealer's name for commercially-obtained specimens.

Gems, too, are frequently purchased for geoscience collections without much accompanying provenance information. The country of origin may be included, as some nations are famous for their gems (e.g. Colombia is known for its emeralds). The gem trade is also complicated because large corporations are the main players in the diamond sector, while for other stones, the mining sector is more artisanal and informal (Cartier 2019: 1013). In addition, gem polishing and faceting may occur outside the mineral's country of origin (Cartier 2019: 1014-5). Once gems are faceted and polished, they are mostly sold without much information on who mined the specimen, who cut the specimen, and how many hands the stones passed through. Polishing can also strip away some of the contextual clues to a gem's locality, though geochemical analyses may aid in pinpointing its origin (Rossman 2009).

Conversely, specimens or collections that currently arrive at the Hunterian directly from collectors, whether they are amateurs or researchers, are likely to be associated with information on the collector, the date of collection, the precise locality, and other relevant points. As a university museum, the Hunterian receives rock collections from geology professors and students as projects are completed, students graduate, or staff retire. This leads to variations in the information that accompanies the donated collection. Ideally, the Hunterian would also receive field notes, geochemical data, GPS coordinates of sample locations, and other such data, but, as discussed above, this has not always been the case, especially over the long history of the museum's collection.

The lack of provenance information from the different acquisition types can also lead to invisibility or 'hidden figures' as described in Das and Lowe (2018: 8), where people from the Global South or from Indigenous communities of the Global North are often left out of the histories and stories of specimens. Some of the rocks and minerals would not have been collected without locals helping with colonial and/or research expeditions, as seen historically in Coverley-Price and McKinnon Wood's (1933) description of their Peruvian expedition with John W. Gregory (discussed below). They received help from many unnamed locals. Similar tendencies are apparent in the erasure of Māori contributions to finding a New Zealand coal seam from which a specimen was collected that made its way into London's Science Museum collection (Walsdorf 2024). Further work investigating the Hunterian's mineralogical and petrological collection through its history is needed to uncover untold stories behind acquisitions from the market or direct collecting.

Another critical point in making provenance information more accurate and inclusive is that while the mineral collecting community is predominantly male (Wilson 2014), and high-end mineral dealers are similarly described as primarily being white,[3] exact demographic data for geological collectors, dealers, and museum staff worldwide is lacking. A global survey of the communities associated with geoscience collections is required, as adequate plans cannot be made for increasing inclusive efforts or tracking progress towards goals without comprehensive baseline information (Dewidar et al. 2022: 6). Moreover, a diversity of perspectives is needed to illuminate the colonial impacts of geological collections and their associated networks and histories, which, like the Hunterian's, may have been neglected in the past.

Collection Legacies

The previous section has emphasized the difficulties posed when members of the collection network are unknown. Known collectors can be problematic as well: an institution like the Hunterian must grapple with its many legacies as well as with museum colonialist structures

(Abungu 2019), determined in part by figures closely tied to the institutions. One such person linked through the university is James Watt, whose statue and instruments sit on display at the museum.[4] Watt revolutionized the steam engine, but he was also involved in the slave trade through his family business, and he sold an enslaved Black boy, Frederick.[5]

It is similarly important to note John Walter Gregory's impact on the Hunterian's collection. A famed geologist, Gregory was a University of Glasgow professor from 1904 to 1929 (Leake 2011a: 100; Leake 2011b: 193). As Keeper (curator), Gregory amassed a large collection of rocks during his worldwide travels which were incorporated into the Hunterian collections. He dabbled in many disciplines outside geology, writing on palaeontology and anthropology (Leake 2011c) and eventually publishing on racial segregation and interracial marriage (Leake 2011c; Leake 2011d). In one of his publications, he argued for segregation as a means to prevent interracial marriage and 'cross-breeding', using the selective breeding of domesticated animals as an analogy (Gregory 1931). He spoke to the Eugenics Society and visited the southern United States to learn about segregation (Leake 2011d: 175). These activities illustrate an enthusiasm for racist subject matter that exceeds that of his contemporaries.

While others associated with the Hunterian's collection may not have shared Gregory's biases, it is important to confront his legacy, as he was a prominent geologist associated with the university and remains a figure of interest. At the university level, the name of the geology building has been changed from the Gregory Building to the Molema Building, after Modiri Molema, a South African who graduated in 1919.[6] Changing the name of the building is an outward show of addressing Gregory's legacies, but it does not address his potential impact at the Hunterian. Gregory's association with segregation may generate negative feelings around his specimens, the museum's collections, and/or the museum. Since Gregory was Keeper (Leake 2011a: 108), his biases may remain in aspects of the mineralogy and petrology collection. These could be reflected in how he built his own collections, the sites he targeted for sampling, and the people he chose to interact with while performing his duties. The Hunterian must account fully for the effects of his racism. This may be difficult to quantify and may affect the mineralogy and petrology collection in ways typically not considered, perhaps even leading to new biases in the collection and research based on some of its specimens.

The description of a collecting trip to Africa in Gregory's The Great Rift Valley (1896) offers an example of the ways in which his biases affected his work. Those who travelled with him from the UK are named. However, the identities of his field companions are not well established, with only a few people named among the many assistants and soldiers. At the same time, he makes sweeping generalizations about different ethnicities. His rock specimens in the museum's collection are noted on the labels as coming only from him (Figure 3); however, it is possible that his field assistants and/or local people collected specimens which were subsumed under Gregory's name in the records.

The story of Gregory's death offers an example of the erasure of local workers. He drowned crossing a river in Peru (Coverley-Price and McKinnon Wood 1933: 31). An unnamed Indigenous field assistant perished at the same time. The record of the incident focuses on Gregory, lamenting the loss of the famed geologist, his scientific instruments, and the field notes (Leake 2011e: 206). In the narratives of the tragedy from Coverley-Price and MacKinnon Wood's original narrative to Leake's more recent retelling, the minimization of the death of the unnamed individual exhibits how biases from the past can lead to stories remaining incomplete.

Gregory's legacy highlights issues with other collectors whose materials reside within the Hunterian's as well as other natural history collections. The field parties are unnamed in many of the Hunterian collections, and this may continue with modern acquisitions as it is not as common to record the names of everyone in a field party, especially those in support roles.

More broadly, during the history of the Hunterian, Gregory's racist views were common, and it is possible that other collectors associated with the museum could have been influenced by racist, sexist, homophobic, transphobic, ableist, or other views that many people today would find abhorrent. Further historical research is needed to identify such legacies and their effects on introducing anthropogenic biases in the composition of the museum's collection and catalogue information.

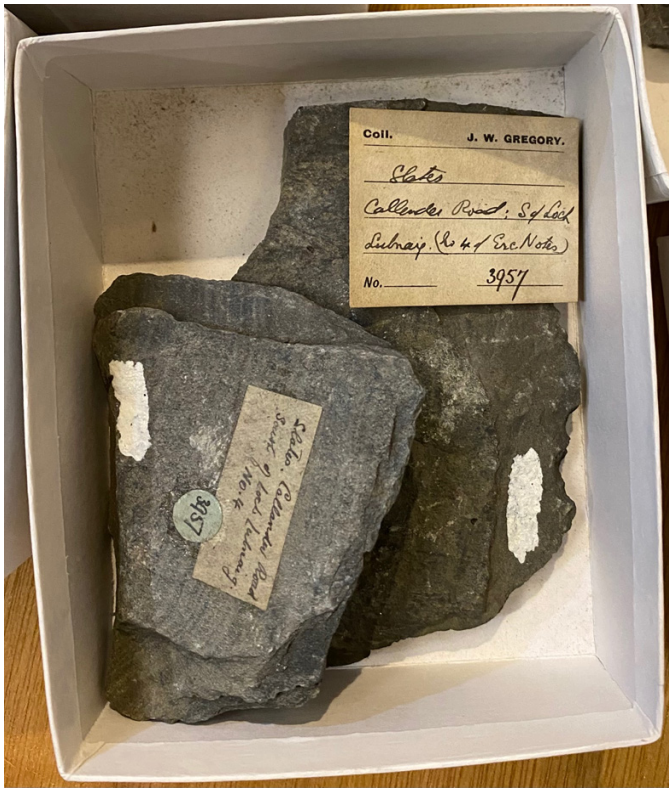

Figure 3: Slate from Gregory's collection in HUG material showing the limited information on a typical label. Photo by Erika Anderson, Hunterian Museum 2023.

Future Considerations for Addressing Legacies in the Geoscience Museum Sector

Record-keeping

To address the issues previously discussed, it is imperative for institutions to work with the different communities and collaborators that feed into the geoscience collection ecosystem. These include researchers, students, amateur collectors, and museum workers, as well as the peoples from whose land minerals are extracted. This would mitigate the scarcity of untold stories in collections like the Hunterian's. While it is important for collector information to be included in data, it must also be balanced with an individual's right to privacy and local laws. For example, museums must account for the EU's General Data Protection Regulation (GDPR), as discussed by Groom et al. (2022) while working on biological data obtained from people.

Going forward, museums could also work with mineral dealers from the local to international level to obtain extensive data for the labels. The same standard of information should be required from other sources, such as university staff and students or mineral collectors where this information is frequently recorded at the time of collection but does not always get transferred with the physical specimens. This would require museums, other collecting institutions, and their staff to come together with communities to agree on standards and communicate them. The focus on provenance that is seen for art (Mariani 2023: 63) could be applied to natural history collections, which would mean asking for records of permits and purchases. Over time, as museum standards become more stringent, some institutions might

refuse to accept acquisitions without this information except in extreme circumstances, such as for historical collections. Collectors or miners might wish to keep some localities secret, but this would make provenance and permissions difficult for museums to establish.

At a minimum, the following information should be recorded:

1. Mineral or rock identification and the person who identified it
2. Precise locality (including rock formation and GPS coordinates if available)
3. Collector(s)
4. Collection date
5. Provenance (dealers/suppliers/preparators/assistants, and others).

Any publications mentioning specimens, field data, analysis, and information on the treatment or preparation of specimens should also be recorded.

Repatriation and Decolonization

The museum sector in Scotland and in the broader UK has taken measures to start the hard work of decolonization, as exemplified by two reports: the Museums Association's *Supporting Decolonisation in Museums* and *Empire, Slavery & Scotland's Museums Steering Group Recommendations* (2022). The recommendations made in the former touch upon research and cataloguing work in collections, and the report poses important questions to ask.[7] The Empire, Slavery & Scotland's Museums Steering Group's recommendation that is most relevant to this discussion is: 'Museums should commit to research, interpret, and share the histories of Scotland's links to empire, colonialism, and historic slavery'.[8]

The University of Glasgow has also started examining its historic ties to slavery.[9] The Hunterian itself has made strides in confronting the legacies within the museum and finding new ways of working to dismantle the colonial impacts of the museum including an 'active process of institutional "discomfort"'.[10] This includes looking at the museum's exhibits and collections and bringing in wider perspectives. One recent effort was the intervention 'Curating Discomfort', co-curated by members of the Glasgow community with diverse geographical backgrounds and expertise.[11] The Hunterian is also working on repatriating human remains from the anatomy collection[12] and has repatriated a specimen of the extinct Giant Jamaican Galliwasp to the University of the West Indies.[13] This momentum may promote further efforts in other museum disciplines where work is just beginning.

The broader discipline of geology has started to address decolonization on top of work on equity, diversity, and inclusion (EDI) (Liboiron 2021). Recommendations have been made to promote diversity in the geosciences, including in the university environment (Marín-Spiotta et al. 2020; Mogk 2021). There have also been steps forward on working with Indigenous communities for natural science research (Wong et al. 2020). Unfortunately, institutional geological collections have not been examined through these lenses to the same degree. The Hunterian's work will therefore add to university efforts. Some work has been done on examining colonial legacies in the wider field (Gelsthorpe 2021; Hearth and Robbins 2022),[14] but this is only the beginning of confronting legacies in geoscience collections.

Discussions should also focus in making collections more widely available. The Hunterian holds specimens taken from worldwide localities, yet there is a limited range of loans. One of the ways to make the collection more available to global communities is to have them accessible online. Currently, digitally catalogued specimens represent approximately 25 per cent of the mineralogy and petrology collection.[15] This can be expanded by uploading data onto global repositories, although geoscience databases like Earthcube[16] are not as comprehensive or as collection-focused as their equivalents in the biological sciences such as the Global Biodiversity Information Facility (GBIF),[17] or Tropicos.[18]

Loans are only temporary transactions that do not have the same use or the same significance as repatriation. Natural history disciplines, compared to other museum sectors, are beginning to discuss repatriation (Ashby and Machin 2021: 47). Geological specimens

are not prioritized for repatriation compared to cultural artefacts or human remains, and it is commonly thought that geology specimens may not be requested for repatriation (Gelsthorpe 2021: 24). Nevertheless, repatriation must be considered in discussions about geological specimens in museum collections, and these discussions must be conducted in a framework that recognizes laws, as well as traditions at sites of origin. The most important consideration, therefore, is consultation with source communities. Their needs and wants will shape discussions of whether and how repatriation should occur.

An additional suggestion is to explore the repatriation of data directly to communities in addition to or instead of specimen repatriation (Gelsthorpe 2021: 24). Three-dimensional scans and reproductions like those done by the Smithsonian (Hollinger et al. 2013) could be options, so institutions could retain some form of repatriated specimens. However, these would likely have limited use for geological research.

Similarly, communities have many priorities for repatriation, and as a result, discussions pertaining to these types of specimens may take time. Many countries also hold local specimens in geological surveys, museums, and university collections, so they may not see a need for specimens to be returned. The place to start, however, might be to work with source communities in selecting specimens that have significance or come from sacred areas. Culturally modified (carved) stones or minerals exist in many geological collections, showing how stones can be used, and they should be assessed in discussions with communities.

Indeed, it is difficult to find instances of geological repatriation of specimens that have not been culturally modified. A great deal of the focus is on cultural objects taken from the land, but not pieces of the land itself that were taken. According to the Royal Alberta Museum (RAM), an instance of repatriation of a geological object is the return of *Manitou Asinîy*, a meteorite from Alberta that is sacred to Canadian Indigenous communities.[19] The fragment, also known as the Iron Creek meteorite, was removed from the land in 1866 by a missionary to convince the local Indigenous communities people to convert to Christianity. After some time, the meteorite was sent to Ontario, ending up at the University of Toronto and on display at the Royal Ontario Museum (ROM). The meteorite was repatriated from the ROM to the RAM in 2001, after being on long-term loan for 29 years, and is being held there until a purpose-built space is available for the communities. The RAM conducted extensive consultations with the relevant Indigenous communities to determine culturally appropriate protocols for care of the meteorite; these include cleansing the space with sage, as well as barring photography and videography of the meteorite.

To discuss the legacies of a collection, especially to open discussions with communities, it is important for everyone to know what a collection contains.[20] This is another reason why digitization efforts are vital to all museums and will also be beneficial to future co-curation at the Hunterian. While not every specimen may be photographed or fully catalogued, even skeletal records online can make a collection more accessible to communities.

In order to address legacies of colonialism in museums and geology more widely, several key questions need to be addressed:

- Would communities be interested in the repatriation of geological objects?
- How does the way an object was acquired (collected versus donated versus purchased) influence repatriation efforts?
- How does the relationship between mining and the geosciences affect what is kept in collections?

These questions are only the beginning of a process to address issues in geological collections, such as the Hunterian, but the effort is worthwhile as it will lead to more inclusive and accurate records, exhibitions, and research.

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