African Naturalists: Recovering Hidden and Documented Contributions

Overview

Following Lesson 2's exploration of how maritime scientific networks relied on diverse expertise that was often unacknowledged, Lesson 3 focuses specifically on recovering the contributions of enslaved and free people of African descent to early modern science and technology in the Atlantic World. In this lesson, you will be introduced to and practice applying the skill of "reading against the grain" through analyzing John Gabriel Stedman's accounts of African naturalists Graman Quacy and Joanna. You will also examine Olaudah Equiano's account as a contrasting example of a directly recorded voice, helping you understand both the value of first-hand accounts and the challenges historians face when such accounts don't exist. This lesson highlights how European naturalists relied on African knowledge and labor while simultaneously dehumanizing these contributors through scientific racism and slavery and glossing over their contributions to scientific research. Regardless of European attitudes at the time, enslaved and free people of African descent made original and invaluable contributions to "Western science."

As you read, keep in mind the historical biases of the European authors but also consider how important it is to the historical record that they, unlike many of their contemporaries, acknowl-

edged their interactions with African naturalists and what they learned from them. In addition, think about what these accounts reveal about the knowledge and skills Indigenous peoples, and in this module, specifically Africans, developed in Africa and the African diaspora. This work will help you better decipher the primary sources that accompany this lesson.[1]

Historical context: The role of slavery in scientific pursuits

The significant contributions of enslaved Africans to the knowledge and labor of European naturalists can be traced back to the 17th century. As we've seen in earlier lessons, King Charles II's granting of a royal charter to the Royal African Company and the Royal Society brought the British and Africans into closer contact. By the late 17th century, when the Royal African Company shifted its focus from interest in African natural resources to acquiring free African labor through enslavement, colonial naturalists had already begun to recognize the potential of free and enslaved Africans in collecting natural specimens. Another joint-stock company, the South Seas Company (established in 1711), also saw the value in this partnership and joined forces with the Royal African Company in the transatlantic slave trade and collecting specimens.

In the same decades, prominent Royal Society Fellows like naturalists James Petiver and Hans Sloane began building specimen collections through extensive colonial networks. These networks included naturalists, ship captains, surgeons, and other agents who were persuaded to collect specimens and transport them—or knowledge of them—by British ships, including those directly involved in the slave trade. Petiver, in a rare act of recognition, not only

1. Note: Historical sources often contain language that modern readers may find outdated or offensive. Despite this problematic language, it is important to preserve it when analyzing history because it helps us recognize how perspectives and power dynamics have shifted over time.

Key Terms:

Atlantic World

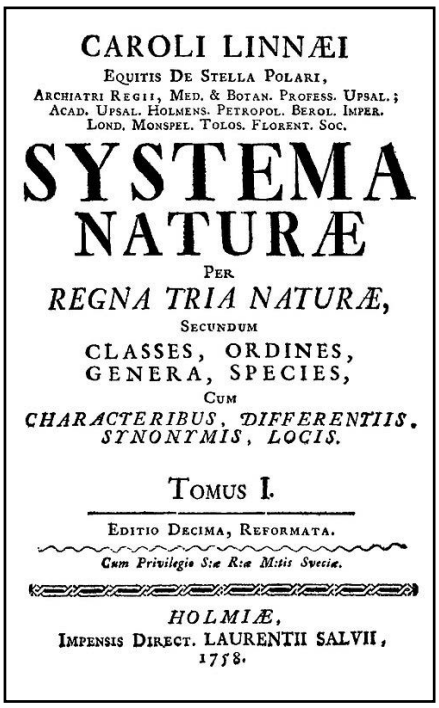
Colonization

Obeah

Reading Against the Grain

Scientific Racism

Transatlantic Slave Trade


CAROLI LINNÆI
EQUITIS DE STELLA POLARI,
ARCHIATRI REGII, MED. & BOTAN. PROFESS. UPSAL.;
ACAD. UPSAL. HOLMENS. PETROPOL. BEROL. IMPER.
LOND. MONSPEL. TOLOS. FLORENT. SOC.
SYSTEMA NATURÆ
PER
REGNA TRIA NATURÆ,
SECUNDUM
CLASSES, ORDINES,
GENERA, SPECIES,
CUM
CHARACTERIBUS, DIFFERENTIIS,
SYNONYMIS, LOCIS.
TOMUS I.
EDITIO DECIMA, REFORMATA.
Cum Privilegio S:æ R:æ M:tis Sveciæ.
HOLMIÆ,
IMPENSIS DIRECT. LAURENTII SALVII,
1758.

Title page of Carl Linnaeus's Systema naturæ, 1758.

acknowledged the role of enslaved people in this process but also encouraged his collaborators to utilize their expertise in collecting, identifying, and transporting specimens.

The emergence of scientific racism

In grotesque irony, European naturalists often regarded enslaved African collectors themselves as scientific specimens. This was another racist facet of early modern Western science. Following the developments of early modern Europe's attempt to order science itself and related to the abundance of species European colonists encountered in the Americas and elsewhere, naturalists' interest in a consistent classification method of species blossomed. Swedish naturalist Carl Linnaeus developed a binomial nomenclature (two-part naming) system to classify specimens. In his work, Linnaeus included *Homo sapiens* (humans) and created four geographic varieties (*Homo variat*): *europaeus*, *americanus*, *asiaticus*, and *africanus*. By 1758, his classification expanded beyond geography to include physical traits like skin color and behavioral characteristics that reflected European biases rather than empirical observation. While scholars debate Linnaeus's personal intentions, his classification system became foundational to scientific racism as later European scientists built hierarchical theories that justified slavery and colonial exploitation.

Legal institutionalization of slavery

Location of Jamaica.

This development led to the institutionalization of British laws on slavery. Slave codes solidified British (and European) claims to own other human beings. The earliest British code in Barbados was built on existing Spanish systems. It was meant to protect white property rights and protect minority white populations in slave colonies. The British Barbados code (1664) influenced slave codes in other British colonies like Jamaica. Jamaica's Slave Act (1684) extended British claims that enslaved peoples were chattel (personal property) owned by white colonists. Over the next few decades, British colonies in North America based slave codes on the Barbados model. These codes differed based on local demographics. For example, the relative numbers of white colonists versus enslaved people, and enslavers' interpretations of how to best codify racial hierarchies and property rights, varied by location and society.

Importantly, while we might assume that racist beliefs led to discriminatory laws, historians have shown that often the reverse occurred: laws protecting property and enslavement came first, and racial hierarchies developed afterward to justify these economic and legal systems.

Regardless, scientific and legally-sanctioned racism left enslaved people without rights. Dehumanized and regarded as a homogenous group, their identities, individual skills, interests, and contributions to British (and Western and global) history were largely dismissed. Most enslaved peoples' histories were never recorded in Western texts, or if they were, individuals were most often anonymous figures or left to the footnotes of history.

"Hidden Figures" in British science

Illustration of insects on a banana plant, from her 1705 book Metamorphosis.

As earlier lessons have revealed, British naturalists often relied on African traditional knowledge to develop research, commodities, agriculture, and technology for British benefit. Africans brought knowledge from their homelands in West Africa and gained new knowledge in the European colonies, providing local and global scientific expertise, scientific fieldwork, and labor. While European scientists sometimes credited these contributions, they typically framed them as manual labor rather than scientific work. Due to racism, lack of formal European education, and exclusion from institutionalized science, enslaved and free Africans were not regarded as scientists or researchers. Their contributions often remained hidden or were reduced to brief references as "faithful servants" or "assistants" rather than being credited as equal partners. Most enslaved and free Black naturalists' work likely went unacknowledged or unrecorded in European records.

Maria Merian (1647–1717), a German entomologist (a scientist who studies insects), naturalist, and scientific illustrator, gave credit for contributions to her scientific work to those she referred to only as "my slaves" in her 1705 *Metamorphosis Insectorum Surinamensium* (*Transformation of the Surinamese Insects*). While Merian gave her respect for the knowledge they shared with her, other European scientists criticized her work for its reliance on what Europeans often considered folk remedies now regarded as non-scientific and, thus, inferior sources. In one fell swoop, the naturalist Lansdown Guilding dismissed both Merian's and her collaborators' work in an 1834 sexist and racist review in a British natural history publication, stating, "The grand defect of the work is the introduction of idle stories, related to her by strangers."

Portrait of Maria Sibylla Merian, c. 1700.

Other naturalists' references included only brief descriptions of "*Negroes*," "*Negress*," "*Slaves*," "*Mulatto*," and "*my black servant*." John Gabriel Stedman, a British soldier and amateur naturalist, is one of the few well-known naturalists who specifically described enslaved people's contributions to British natural sciences and identified them by name. However, his descriptions of them and their knowledge and skills are deeply troublesome. Although these references to African naturalists use problematic language and ideas characteristic of the historical period, they remain crucial sources to help historians uncover the "hidden figures" of British science by "reading against the grain."

What is "Reading Against the Grain"?

Reading against the grain means looking for voices, perspectives, and experiences that dominant sources marginalize or silence. When we read historical documents this way, we ask:

1. **What does the source say explicitly?**
2. **What does it leave out or minimize?**
3. **Whose voices are missing or marginalized?**
4. **What can we infer about those hidden voices?**

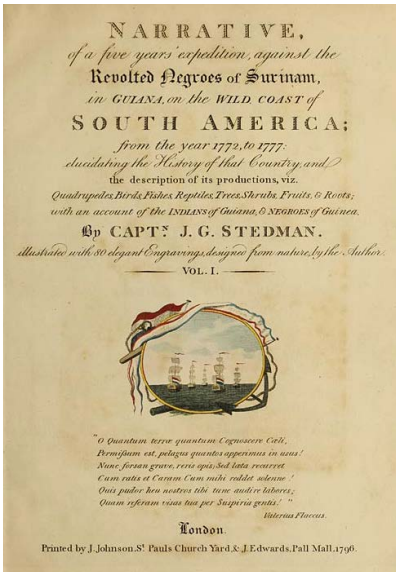
Practice: Let's try this with Merian's collaborative work and the scathing review of it discussed above.

What does the source say explicitly? Merian credits «my slaves» for contributing to her work. The reviewer dismisses this as «idle stories, related to her by strangers.»

What does it leave out or minimize? Neither source names the enslaved people or describes their specific knowledge. The reviewer dismisses their contributions entirely.

Whose voices are missing? The enslaved people›s own accounts of their botanical and medicinal knowledge.

What can we infer about those hidden voices? The enslaved people clearly possessed sophisticated knowledge about plants and insects that Merian found valuable enough to include in her scientific work. The contradiction between Merian using this knowledge and the reviewer dismissing it as "idle stories" reveals how European racism determined whose knowledge counted as "scientific"—regardless of its actual value or accuracy.


NARRATIVE,
of a five years' expedition, against the
Revolted Negroes of Surinam,
in GUIANA, on the WILD COAST of
SOUTH AMERICA;
from the year 1772, to 1777:
elucidating the History of that Country, and
the description of its productions, viz.
Quadrupedes, Birds, Fishes, Reptiles, Trees, Shrubs, Fruits, & Roots;
with an account of the INDIANS of Guiana, & NEGROES of Guinea.
By CAPTN J. G. STEDMAN.
Illustrated with 80 elegant Engravings, designed from nature, by the Author.
VOL. I.
London.
Printed by J. Johnson, St. Pauls Church Yard, & J. Edwards, Pall Mall, 1796.

Graman Quacy, Joanna, and John Gabriel Stedman

John Gabriel Stedman's *Narrative of a Five Years' Expedition against the Revolted Negroes of Surinam*, volumes 1 and 2 (1796), describes his experiences in Suriname, in northern South America, where colonial troops fought to suppress Maroon (escaped enslaved people living independently) resistance. The region, long populated by Indigenous groups, attracted Spanish, Dutch, British, and French colonizers in the 17th century. British planters and enslaved peoples created the first European settlement but competed with Dutch rule.

Title page of John Gabriel Stedman's 1803 Narrative of a Five Years' Expedition.

Location of Suriname in South America.

Portrait of John Gabriel Stedman standing over a slave after the capture of Gado Saby, a village of Maroons in Surinam, from his Narrative of a Five Years' Expedition, 1803.

Stedman, of Dutch-Scottish heritage, also worked as an amateur naturalist, reporting on the region's flora and fauna. In his narrative, published in London, he described his interactions with two enslaved people he identified by name: Graman Quacy and a 15-year-old domestic servant known only as Joanna, who provided him with medical care. Stedman's account of his relationship with Joanna presents a complex textual and ethical challenge.[2] While he described what he called an unofficial marriage, this relationship must be understood within the context of what scholars have identified as "Suriname marriage" or "colonial concubinage"—a widespread colonial institution where European men purchased enslaved women as temporary domestic and sexual partners.

As scholar Mary Louise Pratt has shown, Stedman's romantic language hides the reality of exploitation, turning sexual violence into a love story. Historian Brooke N. Newman's research on colonial Jamaica reveals that these relationships were fundamentally about white men asserting power over enslaved Black women through sexual violence, not consensual partnerships. While Newman studied Jamaica, these patterns existed throughout Caribbean slave societies including Suriname. Despite this deeply problematic framing, Stedman is one of the few well-known naturalists who specifically described enslaved people's contributions to British natural sciences and identified them by name. Scholars have noted that a significant aspect of Stedman's narrative is his focus on high mortality rates due to disease rather than military action. In recounting his and his fellow soldiers' experiences with disease, Stedman revealed local knowledge of medicinal flora and fauna, including the expertise of Quacy and Joanna in discovering and using this knowledge to treat both European and African patients. Although these accounts use problematic language and ideas characteristic of the historical period, and despite the exploitative relationships through which this knowledge was documented, they remain crucial sources for historians seeking to uncover the "hidden figures" of British science by "reading against the grain."

Quacy (also spelled Kwasi) was born on the Gold Coast (around present-day Ghana, in West Africa) around 1690. Captured by Europeans as a young man, he was transported to Suriname, where he was forced to work on sugar plantations. He was an accomplished obeah, skilled in Afro-Caribbean medical and spiritual knowledge using flora and fauna as medicine. While obeah is a complex practice, European colonists and Western medicine tended to dismiss its practices, which sometimes included beliefs in supernatural forces. Quacy, however, gained repute among Europeans, and he treated enslaved and free patients.

2. The 1796 published edition used in this lesson's primary source reading was edited by publisher William Thomson from Stedman's original 1790 manuscript, though even in edited form the account reveals the fundamental power imbalance and exploitative nature of these colonial arrangements.

Joanna and Quacy, as depicted by artists in 1803 and 1815, and represented in John Gabriel Stedman's Narrative.

Quacy became especially well-known for his discovery and use of a plant known as bitterwood in around 1730. He found that bitterwood works to induce vomiting, serves as a medicinal digestive agent in the form of tea, and can treat fevers. It is also used to ward off lice, fleas, and mosquitoes. As interest in bitterwood grew among European colonists, Quacy finally sold his closely guarded medical knowledge of the plant to Daniel Rolander, a Swedish entomologist and botanist who brought the plant and its uses to Europe in 1756. Quacy used the money he earned from the sale to help buy his freedom.

Artist's illustration of Quassia amara, from Koehler's Medicinal-Plants, 1897.

European interest in bitterwood's medicinal uses led to the plant becoming a significant export from Suriname. Linnaeus, perhaps unexpectedly, dubbed bitterwood *Quassia amara* in honor of Quacy. It continues to be used today for stomach and intestinal problems, diabetes, lice, and skin conditions. It is also sometimes used as a flavoring and an insecticide.

As with Quacy's, Stedman recorded Joanna's work. He became enamored with Joanna and formed a complex and inequitable relationship with the young woman. Stedman's record of Joanna includes her treatment of him when white doctors had given up hope of his recovery from a "dreadful fever." She also successfully treated him for ulcers caused by fleas.

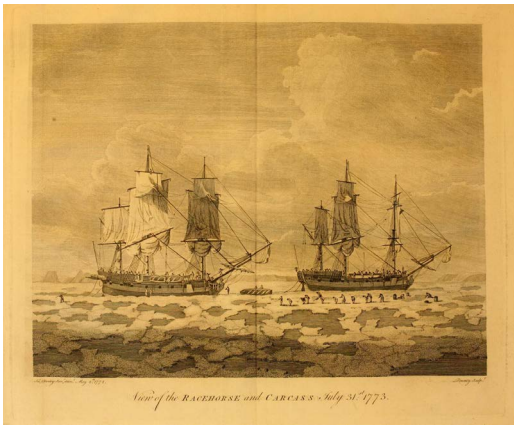
Olaudah Equiano: A contrasting voice

Olaudah Equiano (1745–1797) was a prominent figure in the history of Black sailors in the Atlantic World and a leading abolitionist. He served aboard several ships both as an enslaved and later freed man, and traveled extensively, working on naval ships and merchant vessels in the Caribbean, South America, the American colonies, and a

remarkable Arctic journey. His records of his life and experiences, captured in his 1789 autobiography, The Interesting Narrative of the Life of Olaudah Equiano or Gustavus Vassa, the African: Written by Himself, provide valuable insights into enslaved and free Africans' 18th-century maritime life, while his travels gave him a broad worldview and firsthand knowledge of the slave trade. This made his later abolitionist work particularly effective, but his accounts of maritime life and global trade were invaluable in other ways, too.

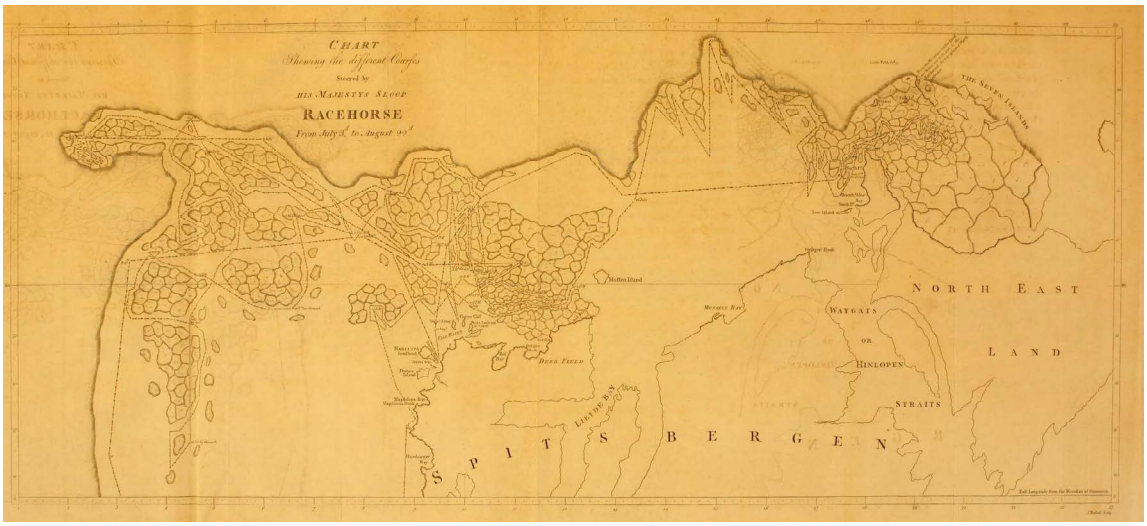
Portrait of Olaudah Equiano, 1789.

Though perhaps best remembered for his telling of his capture and enslavement, Equiano's autobiography also includes passages relating to his maritime voyages. As discussed in Lesson 2, in 1773 Equiano joined a British naval expedition seeking an Arctic polar route to the East Indies, serving as scientific assistant to Dr. Charles Irving. His contributions to this Royal Society-sponsored voyage included operating water distillation apparatus and documenting Arctic wildlife, as well as other scientific observations. Equiano paid close attention to the natural history of the places he visited, while also describing shipboard and sailing conditions.



Depiction of the HMS Racehorse and HMS Carcass, from an account by Constantine John Phipps Mulgrave, the commander of the 1773 expedition.

The history of Black sailors in British maritime service, exemplified by figures like Equiano, demonstrates that African and African-descended individuals participated in experiences and efforts that proved significant for naval exploration and scientific advancement. Unlike the sources we must "read against the grain"—for example John Gabriel Stedman's descriptions of Graman Quacy and Joanna—Equiano's own words provide direct testimony about African contributions to British maritime science.



Route of the HMS Racehorse and HMS Carcass, the ships used during Equiano's Arctic voyage.

African agricultural, aquatic, and medical knowledge

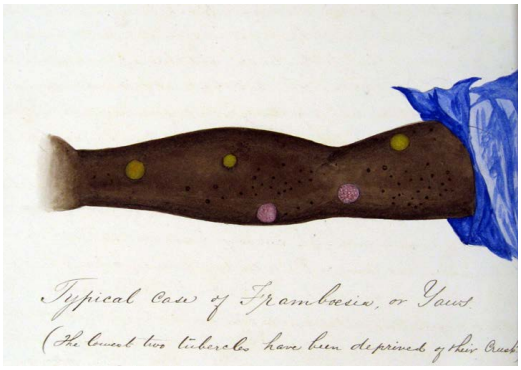
As noted in this module, Africans forcibly transported to European, including British, colonies, brought with them centuries of agricultural, medical, and other scientific and technological knowledge. They also brought African plants with them. For example, some Africans (likely women) braided grains of African rice into their hair. Africans, who had domesticated the crop, a unique variety, knew how to grow and process it. They were able to transport and grow rice in the Americas successfully.

Hans Sloane wrote of African rice in his narrative, "[It] is . . . planted by some *Negros* in their own Plantations [likely he is referring to "slave gardens"], and thrives well, but because it requires much beating, and a particular Art to separate the Grain from the Husk, tis thought too troublesome for its price, and so neglected by most [white] Planters."

As noted in Lesson 2, Africans also possessed advanced swimming and sailing abilities, skills that many Europeans, including sailors, generally lacked. Africans' knowledge of aquatic environments extended to other activities like deep diving, fishing, as well as advanced skills in navigation. Such activities represented one of the many ways enslaved Africans maintained and adapted their skills in enforced environments, including, research suggests, collecting aquatic plants and animals for European naturalists. Sources reveal enslaved Africans hunting for dangerous creatures like alligators and deep diving for pearls, while white onlookers watched from safe distances onboard boats or dry land. This specialized knowledge represents another domain where Europeans benefited from African expertise in collecting specimens while simultaneously devaluing its origins.

Like Quacy, Africans also brought or developed medical knowledge and treatments for diseases like yaws (a tropical infection), including inoculation. Yaws, which had long been present in Africa, arrived in the Americas aboard slave ships, and as it was highly infectious, it affected Europeans as well as Africans. British doctors such as Thomas Sydenham (1624–1689) studied and described the disease:

> It was introduced into Europe . . . from the West Indies [Caribbean], it being, before that time, unknown even by name. Hence, the disease is usually considered endemic to the American colonies. In my mind, however, it is rather referable to the coast of Guinea or to some portion of the Negro country thereabout. This I think because many of my countrymen have told me that, in slave-ships, even before they have reached America, the disease breaks out —also that it breaks out with the natives in the country itself, and . . . in some cases, it afflicts a whole family —men, women, and children. The disease . . . thus comes spontaneously[.] The symptoms, the pain, and the ulcers are the same —making allowance for the difference of climate only. The name, however, is different. The African disease is called the yaws.



Depiction of a "typical case of Framboesia or Yaws" from surgeon John O'Neill's journal of diseases on the west coast of Africa, 1874.

As a disease that affected enslaved Africans and, subsequently, Europeans, European doctors were interested in treating the disease. They were, however, skeptical of African knowledge even though Africans had long

lived with and treated the disease. In his *The History, Civil and Commercial of the British Colonies in the West Indies* (1793), Bryan Edwards, a planter in Jamaica, described an African method of inoculation for yaws, which he heard from an enslaved woman, Clara. In a lengthy footnote, Edwards wrote,

> Clara, a very faithful and well-disposed woman, who was brought from the Gold Coast [in West Africa] to Jamaica at the end of 1784, relates . . . a remarkable fact: that the Natives of the Gold Coast give their children the yaws [a tropical bacterial infection of the skin, bones, and joints] by inoculation. She described the manner of performing the operation as making an incision in the thigh and putting some of the infectious matter inside. I asked her what benefit they expected from this practice. She answered that by this means, their infants had the disorder lightly and recovered speedily, whereas by catching it at a later time of life, the disease, she said, "got into the bone." That was her expression.

European skepticism of inoculation turned to acceptance after learning about it from African and Asian sources. This knowledge led to the development of the world's first vaccine. In 1796, a British doctor and Royal Society member, Edward Jenner, introduced a smallpox vaccine. Western history remembers Jenner, rather than women like Clara, as "the father of immunology" and a man who, in his time, British colleagues claimed to have saved more lives than any other in human history. The knowledge of people like Clara regarding inoculation was largely forgotten in this history.

Conclusion: Systemic racism

The contributions of enslaved and free people of African descent to early modern science and technology in the Atlantic World were systematically undervalued and obscured by the racist ideologies and institutions of the time. The development of scientific racism served to dehumanize Africans, justify their enslavement, and leave their lives, experiences, and accumulated knowledge largely absent from the European historical record.

Despite the official end of the British slave trade in 1807 and the abolition of slavery in most British colonies by 1834, full emancipation in British colonies did not occur until 1838, and racial inequalities in scientific endeavors persisted well into the 19th century and beyond. European naturalists continued to rely heavily on the knowledge, skills, and labor of Black collaborators, often without providing due credit or recognition. This practice of appropriation and under-acknowledgment reflected deeply ingrained racial biases and colonial attitudes.

Illustration of hummingbirds from Philip Henry Gosse's The Birds of Jamaica, 1847.

The "Hummingbird Display Cabinet" from the Museums Victoria, created using taxidermied study skins.

The case of Philip Henry Gosse and his collaborations in Jamaica exemplifies this complex dynamic. Gosse's work, particularly *The Birds of Jamaica* (1847), was largely based on the contributions of Samuel Campbell, a young Black Jamaican man, and Richard Hill, a prominent local figure of mixed racial heritage. Despite their invaluable input, Campbell was referred to merely as a "faithful servant" in a footnote, while Hill was credited as an "assistant" rather than co-author.

These examples mirror the earlier treatment of figures like Quacy and Joanna, whose knowledge and skills were utilized by European naturalists like Stedman, yet rarely fully acknowledged.

The pattern of excluding African voices from formal recognition shaped the very institutions we studied in Lesson 1. While the Royal Society created global networks and promoted empirical observation, its "gentlemanly" approach systematically marginalized the African knowledge that made those networks successful. This contradiction—relying on African expertise while denying African humanity—was fundamental to how British science developed during this period.

In recent years, there has been a growing recognition of the need to give credit to Black contributors. British museums and botanical gardens have begun to reassess their col-

lections and narratives, aiming to highlight the often-overlooked contributions of African and Indigenous peoples to the development of Western science. This is the focus of Lesson 4, the module's conclusion.

Discussion questions

- Examine the paradox of European naturalists relying heavily on African knowledge while simultaneously developing scientific racism. How did this contradiction shape the development of Western science?
- Consider the long-term impact of overlooking or minimizing African contributions to early modern science. How does acknowledging these contributions change our understanding of scientific history and development?
- Think back to Lessons 1 and 2, and consider how this Lesson 3 reading helps explain why so many African contributions to the Royal Society networks remained hidden. What examples from this text help to explain the marginalization of African labor and knowledge?

Further Reading

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