**Slide 1: Title Slide**

**Slide 2: Intro to Scientific History**

This slide addresses the motivating question: Why should we learn about scientific history? I often pose this question before giving students the bullet points to get them thinking about why this is important before giving my ideas.

Image: Radiolarian engravings from the HMS Challenger Report (Challenger Reports, Volume 18 (1887), Royal Soc. Edinburgh Archive) [Public Domain]

**Slide 3: ‘Hidden’ History: Expeditions by James Cook, 1768-1799**

This slide introduces James Cook and his expeditions. Cook sailed under the purview of the British empire, with mission goals including discovering the “Terra Australis”, or southern continents that were hypothesized to exist to balance out the landmasses in the Northern Hemisphere; to track the transit of Venus across the Pacific; and to categorize the nature and culture of peoples around the world.

Encyclopedia Britannica’s account of James Cook paints him as heroic and groundbreaking, but does not address the impact of Cook’s journeys on indigenous populations around the world. It is important to recognize this history and realize that modern science was founded with the goal of expanding the British empire and subjugating indigenous groups in the process.

Image: Map of James Cook’s expedition routes, showing a number of paths through the

South Pacific region. Source: Encyclopedia Britannica 2022 [Public Domain]

**Slide 4: Voyages by James Cook- Science in the Name of Colonialism, 1768-1799**

Cook’s legacy includes a myriad of accomplishments for the British Empire and profound impacts on local populations. Traditionally touted accomplishments include advancements in keeping crew healthy onboard, renaming indigenous lands, cataloguing and categorizing species, and expanding the British empire. In particular, he declared Australia “terra nullius”- empty land- that was suitable for colonization, despite the presence of aboriginal populations in the region.

Image: Drawing of Banksia serrata by the shipboard artist Sydney Parkinson, a plant

indigenous to Botany Bay, Australia, where Cook landed. Source: <https://www.anbg.gov.au/gallery/banksia-serrata-parkinson.html> [Public Domain]

Image: Map of Aotearoa, which Cook renamed New Zealand. Source:

<https://en.wikipedia.org/wiki/List_of_New_Zealand_places_named_by_James_Cook> [Public Domain]

Image: The Ship HMS Endeavour. Source:

<https://en.wikipedia.org/wiki/HMS_Endeavour> [Public Domain]

**Slide 5: Voyages by James Cook- Science in the Name of Colonialism, 1768-1799**

Often left out of narratives of Cook’s expeditions are the indigenous perspectives on this impact. This slide shows a quote by a modern aboriginal culture consultant, Shayne T. Williams (Ph.D.). Williams talks about Cook’s landing as the advent of a new era for aboriginal peoples; he also talks about the unintended consequence that early visits by Cook helped to document aboriginal culture at the time, which might not have otherwise existed.

Image: Museum collections from Cook’s Expeditions.

(Image credit: Trustees of the Natural History Museum, London https://www.nhm.ac.uk/discover/hms-endeavour-250.html, accessed September 6 2022)

Image: A sketch from the resident artist onboard - Sydney Parkinson (Image credit: Trustees of the Natural History Museum, London, https://www.nhm.ac.uk/discover/hms-endeavour-250.html, accessed September 6 2022)

**Slide 6: Hidden History: the HMS Challenger**

This slide introduces the HMS Challenger expedition, which is often lauded as the “birth of modern oceanography”. The expedition spanned four years and traversed the globe taking systematic measurements of seafloor depth, plankton communities, and ocean properties such as temperature. Specimens from this expedition still furnish research today and can serve as a pre-industrial baseline for many ecosystems and oceanographic properties. However, the Challenger’s history is not often situated in the colonial context of 19th-Century England.

“The popular discourse surrounding the expedition portrays it first and foremost as a scientific expedition with limited connections to the naval or colonial projects of the period. [...] The rhetorical delineation between the “scientific purposes” of the expedition and the routine work of running the ship contributes to the notion that this expedition was primarily scientific and distinct from earlier surveying expeditions. This type of

language, and the artificial boundary between science and the Victorian empire it

invokes, has been reproduced by historians who portray the expedition as an example

of scientific innovation while also downplaying its historical context. Historians often

highlight the on-board laboratory spaces and the scientific staff as legitimising

evidence that the Challenger was engaged in a purely scientific endeavour, rather

than one intertwined with the imperial practices typical of the Royal Navy.” (Zuroski, 2019)

Image: HMS Challenger Expedition station locations. Taken from open access Fox, L., Stukins, S., Hill, T. and Miller C. G. (2020) Quantifying the Effect of Anthropogenic Climate Change on Calcifying Plankton. Sci Rep 10, 1620 (2020). <https://doi.org/10.1038/s41598-020-58501-w>

**Slide 7: Hidden History: the HMS Challenger**

The figurehead of the HMS Challenger is a powerful symbol of the scientific achievements of the Challenger Expedition, but equally symbolizes the many colonial missions and settlement projects undertaken by the HMS Challenger.

Image: HMS Challenger figurehead on display at the National Oceanography Centre Southampton, and accompanying information. Image released for use in GeoContext courtesy of Gavin Foster (National Oceanography Centre, Southampton)

**Slide 8: Hidden History: the HMS Challenger**

Similar to Cook’s expeditions, the science undertaken aboard the Challenger was a reflection of society at the time and its racist practices and ideas. In addition to cataloguing plants, animals, and physical properties of the world, the scientists also documented the dimensions and nature of local populations. One example of this practice is known as “phrenology” which is the study of cranial (skull) features in order to justify the false idea that different groups of people have systematically lower intelligence.

Image: Inspection of a caught specimen on the ship’s deck. (Source: <https://en.wikipedia.org/wiki/Challenger_expedition> and British Library, accessed September 6 2022) [Public Domain]

Image: Text excerpt from the Challenger report demonstrating the use of phrenology to

justify racist attitudes towards indigenous groups (Turner, W, 1883-1884) [Public Domain]

**Slide 9: Hidden History: the HMS Challenger**

In addition to supporting the foundations of race science, the expedition itself was fueled by the labor of enslaved peoples, directly and indirectly.

The fact that these specimens from the original expedition are still used point towards the importance of understanding the history and context in which they were collected. By denying this history modern scholars are then at risk of perpetuating the same ideas that fueled the collection of human skulls for the purpose of race science.

Image: Page from the HMS Challenger report describing the process of investigating

crania (skulls) of local human populations. (Turner, W (1883-1884), HMS Challenger Reports, Volume 10) [Public Domain]

**Slide 10: References**

**Resources and Works Cited: Cook Section (Slides 2-4)**

* Challenger Reports, vol. 18 (1887), Royal Soc. Edinburgh Archive [Public Domain]
* [*https://www.anbg.gov.au/gallery/banksia-serrata-parkinson.html*](https://www.anbg.gov.au/gallery/banksia-serrata-parkinson.html)*, accessed September 6th 2022 [Public Domain]*
* <https://theconversation.com/captain-cook-wanted-to-introduce-british-justice-to-indigenous-people-instead-he-became-increasingly-cruel-and-violent-127025>
* <https://www.bl.uk/the-voyages-of-captain-james-cook/articles/an-indigenous-australian-perspective-on-cooks-arrival>
* <https://www.nationalarchives.gov.uk/education/resources/captain-cook-in-hawaii/>
* Villiers, Alan John. "James Cook". Encyclopedia Britannica, 9 May. 2022, <https://www.britannica.com/biography/James-Cook>. Image from Encyclopædia Britannica (2022), accessed September 6 2022 [Public Domain]
* <https://en.wikipedia.org/wiki/List_of_New_Zealand_places_named_by_James_Cook>, [International Cartographic Association](https://mapdesign.icaci.org/2014/09/mapcarte-269365-map-of-the-coast-of-new-zealand-by-james-cook-1769/), [accessed September 6 2022] [Public Domain]
* <https://en.wikipedia.org/wiki/HMS_Endeavour> , [National Library of Australia, nla.pic-an5921609](http://nla.gov.au/nla.pic-an5921609), [accessed September 6 2022] [Public Domain]

**Resources and Works Cited: Challenger Section (Slides 5-9)**

* Bronwen, D. and Ballard, C. (Eds, 2008). Foreign Bodies: Oceania and the Science of Race 1750-1940. Australian National University Press.
* Dowling S. (2021). “The quest that discovered thousands of new species”, BBC Future , <https://www.bbc.com/future/article/20210204-the-quest-that-discovered-thousands-of-new-species> (Accessed September 6 2022) [Public Domain]
* Fox, L., Stukins, S., Hill, T. and Miller C. G. (2020) Quantifying the Effect of Anthropogenic Climate Change on Calcifying Plankton. Sci Rep 10, 1620 (2020). <https://doi.org/10.1038/s41598-020-58501-w>
* Jones, E. (2019). Making the ocean visible: Science and Mobility on the Challenger Expedition, 1872-1895. PhD Thesis, University College of London.
* Moseley, H. N. (1892). Notes by a Naturalist: An Account of Observations Made During the Voyage of HMS" Challenger" Round the World in the Years 1872-1876... AMS Press.
* Murray, J., Thomson, C. W., Nares, G. S., & Thomson, F. T. (1885). Report on the scientific results of the voyage of HMS Challenger during the years 1873-76 under the command of Captain George S. Nares and the late Captain Frank Tourle Thomson (Vol. 2). HM Stationery Office.
* Thomson, C. W. (1878). The Voyage of the" Challenger": The Atlantic: a Preliminary Account of the General Results of the Exploring Voyage of HMS" Challenger" During the Year 1873 and the Early Part of the Year 1876 (Vol. 1). Harper & Brothers.
* Images on Slide 5 - Image credits: Trustees of the Natural History Museum, London, <https://www.nhm.ac.uk/discover/hms-endeavour-250.html>, accessed September 6 2022
* Turner, W. (1883-1884). Report on the human crania and other bones of the skeletons collected during the voyage of HMS Challenger in the years 1873-1876, Volume 10
* Zuroski, E.J. (2019). Depths of Knowledge: HMS Challenger and the Reconfiguration of Modern Science. PhD Thesis, University of Auckland.
* <https://www.bbc.com/travel/article/20200719-hms-challenger-the-voyage-that-birthed-oceanography>
* <https://www.theguardian.com/environment/2022/aug/27/scientists-set-for-ocean-crisis-debate-150-years-after-extraordinary-expedition>
* [https://military-history.fandom.com/wiki/HMS\_Challenger\_(1858)](https://military-history.fandom.com/wiki/HMS_Challenger_%281858%29)
* <https://dura-dundee.org.uk/2017/08/21/djcad-masters-show-2017-msc-forensic-art-and-facial-identification/>
* Sydney Mail, Sat. Sept. 19, 1868. Fiji: <https://trove.nla.gov.au/newspaper/article/166803071>