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# INTRODUCTION

It is not a stretch of understanding to see that the current curricula of STEM subjects taught in British institutions are from an overbearing, eurocentric perspective. While teaching of the history of the science within these subjects is far and few between, the small time a name is put to the knowledge students learn paints a picture of mainly western actors from societies that were colonists in recent centuries. Chemistry students will not learn of a non-Western name until the Ramachandran plot is discussed, and many will not discuss his work at all. Biology students only learn of the contributions of Alexander Fleming in discovering penicillin as an off-hand topic, but not of Shibosaburo Kitasato’s contributions to discovering tetanus bacillus caused the bubonic plague. They will learn that reversing stem cell potency is a difficult task being pioneered by scientists, but not Shinya Yamanaka’s lab’s progress in creating induced pluripotent stem cells. The blame cannot be placed entirely on the curricula themselves, except perhaps that its lack of specification doesn’t promote inclusion, or that any historical detail deemed necessary by these curricula specifies western actors that are mostly European or American. Perhaps this seeming reluctance to accredit or acknowledge non-Western knowledge production is rooted in the very nature of education in the western world. Much of this is Humboldtian, the hybridised research and theory-based approach most institutions adopt, requiring the combination of a habit of experimentation and the usage of archived literature to form a basis or argument for a theory. Strangely, it is nations that have employed Humboldtian epistemologies since the earlier 1900s that are accepted into the curricula. But is it that a different method of scientific exploration and recording are grounds sufficient to justify not including scientific contributions of these communities? Why then do these scientific communities continue to gain so little exposure within the western curricula? Or perhaps, more likely, it is the implementation of these western epistemologies surrounding science and knowledge production that has been used as a tool of oppression of indigneous knowledge production and possession by western colonialists. This paper will investigate ths, the contact zone between European and non-European cultures, including the methods of suppression by colonialist epistemologies, and the impact on both knowledge production and diffusion globally into circles that have become predecessors to today’s students who study in the curriculum that teaches sciences as a product of their forefathers’ achievements.

# FOREWORD ON TERMINOLOGY

It should be noted before the review is begun that several terms that are used to describe similar concepts are utilised in this paper. While much of it pertains itself to the same meaning, there are slight contextual differences that should be discussed.

The first and most widely utilised in this paper is that of when two distinct populations of people have been attempted to be referred to, from the perspective of science originating from European colonising and adventuring nations. Terms used to refer to this group, who were often the people who would be exposed and be raised in Eurocentric society were also the writers, adventurers, explorers and naturalists (oftentimes all of these titles at once) who wrote about the information they would uncover during their travels for an Eurocentric audience in a non-European country. This paper uses the terms European, Western and colonist to refer to this group of people, who are writers of their discoveries in other parts of the world, and whose writings have shaped the perception of their viewers of the lands that they explore, and consequently, the impression and breadth of information that is subsequently open to us today. The latter term, ‘colonist’, is rather used more frequently in the latter part of the review, when referring in contrast to members of colonised territories’ native inhabitants, or members who are employed under the East India Company, or individuals who have travelled from countries that are the origin of the branches of the Company. The term ‘Western’ is used to also include naturalists who originate from America, but is a term used in this paper loosely to refer to the aforementioned populations, due to the trend in science, colonisation and suppression that can be geographically summarised as between the East and the West. Individuals that fall outside of this population are usually referred to as, therefore, Eastern, vernacular, indigenous, local or native people, as terms used contextually to contrast with the first population. The terms used to describe this therefore is and should be read largely in contrast, rather than in their literal definitions.

Another usage of terms that must be clarified is in terms of referring to science and its state during the time frame of the events in this review. It should be mentioned that this paper makes use of the term ‘naturalist’ to refer to the science of the individuals from the Western world that would in modern day be known as ‘scientists’, ‘explorers’, ‘adventurers’ or ‘travellers’, as all of these occupations were often accomplished holistically by the individual, due to there not being a distinction present between these titles. As such, this paper’s use of these terms are used to refer to the same similar concept, as vague as it is, for the purpose to reinforce that all of these tasks were often completed by the same person. Furthermore, the decision to utilise the term ‘naturalist’ over ‘scientist’, or the like, is due to the fact that the science that we study today would be a subset of the specialisation of a researcher in the 18th century. The study of the natural world - thus the term ‘naturalist’ - encompasses both the science subjects familiar to us, as well as theology and philosophy, which were regarded within the same context of science and studied in conjunction with the other sciences. As such, to make this distinction and retain accuracy of occupation, the term ‘naturalist’ is used.

Finally, a clarification should be made in the discussion henceforth. The term ‘vulgar’ was used by several explorers and naturalists of the time, and while this paper highlights the potential issue of this term being used to present a negative image of non-European communities to the European audience to confer inferiority, it is also suggested that the term was also used with a definition more alike to ‘indigenous’ or ‘local’, and thusly, was not intended to confer such a negative message. However, it should still be noted that even though this may not have been the intention, the same writers often use other words and literary or narrative techniques to confer inferiority, especially usage of uncomfortable terminology.

# LANGUAGE AS A NARRATIVE TOOL OF DIFFERENTIATING, CREDITING OF LOCAL INDIVIDUALS AND MATTAPANY.

Language as a tool of reference to the indigneous communities has been a major contributing factor to how the western populations understand these people, or the stunted extent of the same. Often a tool to exhibit authority or credibility, it is observed that several writers present themselves in the seat of the author to gain respect and reliability with their Western audiences, gaining acceptance as the ‘discoverer’ of the land or item, or items in question. Appropriation of local knowledge and knowledge systems was often a much required aspect of writing that colonial naturalists and explorers would utilise to produce the impression of seeming universal to their audience. Even further to this point, more official writings such as letters from monarchy and intended to be delivered across tradelines also help historians understand the limitedness of the impression people had of non-European communities. Miles Ogborn states that imperialism brought along with it politicisation and the “birth of different ways of representing people and places”. While these letters would give a sense of respect to non-Western communities involved in trade, it would also be quite common that the perception of these communities back to colonialist countries would be skewed due to misinterpretation of their systems of power and knowledge.

The dependence on the local peoples and their knowledge systems were evident and an essential part of producing their writings, though admitting this was a point of reluctance for the aforementioned reasons of maintaining an authoritative narrative. Henry Barham, a naturalist writer and owner of several plantations in Jamaica, relied upon local informants for his knowledge and writings, but maintained their anonymity, as a reason for reinforcing himself in the position as an author of knowledge[[1]](#footnote-0). Amongst the lack of mention of these indigneous actors, though few, are cases that subvert this rule, though still for the same purpose of presenting authorship. Barham mentioned by name an indigneous healer, Majoe, who held considerable fame in Jamaica and amongst colonial explorers would serve the purpose of reinforcing this authority in narration. Caesar, was a slave in South Carolina in 1749 who was awarded freedom and a yearly pension of £100 for his remedies, cures and antidotes, several of which made their way into popular reprint in the British Atlantic territories. This included his specific use of plantain, a widely used European plant that was very familiar to and associated with colonists, that drew upon procedures more common in African and Native American medical traditions to prepare an antidote for poisons, along with another plant of North American origin, the wild horehound. This preparation of the antidote was then named “Caesar’s cure”, and was in several prints until into the 19th century. This reputation of his abilities, as a physician, the local and often, wider, recognition of these individuals also help add to the credibility of the explorer’s claim. The awarding of freedom to slaves, in itself, also would undermine the knowledge of the local communities. An example of this is that of Graman Quassi, a Surinamese ex-slave in the 18th Century date, who was subject to individual fame because of his deeds. The deed he was recognised for, in which his role could be construed as nothing more than a middle man, was the production of a medicine from a specific root to treat an epidemic disease, a procedure known to the native populace for at least 40 years prior to Quassi’s release. Many local Surinamese physicians speak of their discontent at his freedom, accusing Quassi of making a fortune at the expense of the image of the rest of the “vulgar” slaves.

It is interesting to observe that these opinions and freedom of Quassi occurred at a similar timeframe as the colonial physician, Dr Richard Brooke’s publications on Mattapany, a tea that he named after his own birth town. Brooke’s letters about Mattapany tea is an example of presenting themselves in the seat of the author to gain respect and reliability with their audience back home. Kathleen Murphy’s investigation into Brooke’s letters reveal he justifies placing himself in the role of the author to gain popularity within the higher class back in Europe, saying that he “would be most pleased should the most beautiful lips enjoy tasting [his] tea”, a direct indication of the target class of his writings: the learned, wealthy and lavish. In Brooke’s publications, while he acknowledged his dependence on the authorship of indigenous peoples to explore and amalgamate their knowledges, the informants were never named or spoken of such that they would assume the role of the author. The origins of where the knowledge came from and the community therewith in were extensively written of. The informants remained unnamed and were denied authorship of any local information. Anthony Robinson Brooke would transform this local American knowledge into a form more acceptable and considered universal by his European audience by first verifying its efficacy through observing its use and experimentation, and then sending back samples and reports for others to attempt as well.

Though this last discussion was an example of appropriated knowledge, a trend and technique very common amongst colonial explorers at the time, the narrative and recording practices of colonial writers such as Brooke and Barham continued to abuse local informants and knowledge systems’ authority of claims over their local knowledge. Anthony Robinson, an naturalist, however, acknowledged the authority of local peoples, though still failed to name them. As such, there are converse cases where authority is awarded to the local communities, yet the lack of identity only serves to reinforce to undermine their validity or importance as the author. This failure to include individual names is an example of the importance of actors who are invisible to the records of history. There is a third set of cases different to where authorship or credit to identity has not been assigned. These cases involve practices that cause the local people to give up their authorial voice. Edward Bancroft would award slaves that were able to bring him a snake with a glass of rum. In this way, the slaves would be accepting an offering in exchange for the claim to credit of any new discoveries. The slaves would recieve a reward for their labour yet would be removed from the line of communications that award credit for discoveries, instead assigning credit to Bancroft as all of these discoveries were part of a collection that belonged to Bancroft. Bancroft, therefore, was in this line, or circle, of communication.

It is important here to summarise and understand that the credibility of the claims of colonial naturalists, explorers and other Western actors were verified and established by social networks. However, the social networks of the local people, or social networks of slaves in plantations, in which knowledge existed and was gathered from, were separate from the social circles of the colonial and Western worlds, who gather and assign credit to claims. In this way, it is easier to see why Bancroft’s method of using slaves to gather new discoveries for him resulted in a loss of authorship for the slaves, to whom the social circle of the Western world was such a far removed concept that it would not be known to them that they were losing claim to credit for the knowledge they presented. However, they would still be gathering information for Bancroft, who was in the Western circles, and therefore could claim credit for this information. It is important to mention that Bancroft, like other Western actors, would interact with the social networks of plantations, slaves and local communities, but are still present in the other social circles. There are no situations in these writings where members of the non-European circles are given a way to communicate the Western social circles, as the only points of interaction of the majority of the Western social circles with the slave circles is via reading colonial explorers’ writings. This socioeconomic relationship inherent to the slaves meant htat they could never claim credit for new discoveries, having to accept the loss of their authorial voice.

Clearly apparent amongst these themes is the concept of invisible actors without whom, the writings of colonial actors would have been impossible to accomplish, but are not named or mentioned in said texts. These roles are absolutely essential in the history of science, especially as Western science is not all but autarkic by any means. People such as sailors, navigators, collectors, artists were essential members in expedition parties and to a journey’s success. A reason, as Schlagintweits says, for these invisible people might be due to the sheer work labour forces required by the expedition party, including indigneous peoples especially, and as such, it is difficult to acknowledge every individual involved in the expedition.

Questions about how well European accounts can communicate non-European views of nature have been a part of this discussion. We are able to observe a lack in this in the ability of letters spreading a misinterpreted version of Eastern political systems. In fact, royal letters of voyages from the English East India Company have been a way to understand these relationships since the 15th century, in addition to producing an image of the company organisation and management, and that of non-European or non-Western communities, especially in Asian trade routes during the colonial past of these regions[[2]](#footnote-1). Edward Said, in his book “Orientalism”, mentioned his studies that with imperialism came the politicisation of modes of representation of people and places. These did and still do limit the ways that people other than Europeans were and are understood by European audiences. The letters, a representation of imperialistic history that tells us about communication, politics and the organisation within the English colonial infrastructure, is an example of this. Letters can be dissected into two categories: private and public. Private letters would often be hand-delivered by trusted individuals who knew the customs and which protections to use. These people would often have their own trusted translators to ensure the intended translation of letters between representatives of colonial powers and local figures of influence, such as the monarchs of local areas. An example is Lancaster having a trusted interpreter from the Barbary Coast present to translate a letter of importance to a local king. Additionally, gift-giving was a habit used by the Company as a method to ensure misreadings would not occur, and were a way of the colonialists to ensure that they could achieve the desired meaning of the letter should translation fail, in exchange for other potential offerings that may be valuable, which was often in other trades. These royal letters would give the Eastern communities power and respect sufficient to garner a fruitful relation between Crown and Company, The letters were sent with the expectation of a reply, and was a way to guarantee a response, trading relations and reliance of the Company on politically grounded trading agreements. They allowed the local Princes to enforce their will, and thus these letters were at the heart of the relationships of the Company with Asian polities.

However, the situation with public letters was much different. These were letters that, either by intention or happenstance, informed the public of culture in non-European countries. While private letters would give Asian polities influence and authority, and proper translation of these letters was ensured at several steps and deemed with extremely high regards, it is evident that this was not always the case with public letters. Understanding is lost in some papers, as it becomes evident that categories of honour and profit are misunderstood and is instead used to promote the pursuit of profit of “vulgar people and men of inferior fortune”. Here, we see an example of ‘dressing merchants in robes of honour’ as an attempt to stabilise aristocratic relations between the cultures. In fact, this is a pattern seen quite often, as even private letters have been used to guarantee or establish trade routes across other parts of the world, such as Australia and South-Eastern Asian territories were proposed for the existing local Eastern powers, but these were often simplified. In this way, we see these attempts by the Western colonies to stabilise politically tense situations and pacify the local powers that felt as though they may have been on the weaker side of the deal. Additionally, by the pre-mentioned quote, we can observe a further example of the language used to describe non-European peoples that was returned and read by the Western audience, thus helping to form a particular image of the non-European cultures as “inferior” peoples.

# LINNAEAN CLASSIFICATION AS A TOOL OF CULTURAL OBSCUREMENT.

Kapil Raj states in his paper on the relocation of modern science[[3]](#footnote-2) that knowledge is inherently circulatory, owing to the meeting and mixing of sciences over time. This substantiates his argument that the nature of Western science is an aggregation of non-Western sciences. While the nature of knowledge is such that they are absorbed, it is the job of the history of science to document the existence of the precursors, the fusion and the offsprings of such aggregative events. Put eloquently in Lorraine Daston’s ‘The Sciences of the Archive’, it is the nature of scientists’ timeless perspectives to look upon old theories with the intention of deriding them. Naturalists were no different, in this sense, perhaps more brutal in their documenting habits. It is important to understand that the nature of science and scientists has parallels throughout history and through the development of the terms used to describe the population of this profession, the practices have retained the tradition of disregarding older or pre-existing ideologies. There exists herein an inherent filtering of knowledge to create the sciences that perpetuate in modern society, which is composed of recent years of research. Thus, the inherent loss and replacing of knowledge is a well-documented and well-observed phenomenon that occurs through history. It can therefore be rationalised that identities can fall under knowledge that is lost as this pruning of knowledge into the future takes place.

The previously discussed examples are concerning the use of language as an indirect device that created an impression to the Western reading audience of the non-European peoples as “inferior” or crude due to lack of credibility by removing their ability to claim authorship of their knowledge. However, this section of the paper will discuss a more direct mode of suppression of non-European audiences by language alteration.

The loss and replacement of cultural identities is a well-researched phenomenon. Linnaeus was an 18th century botanist who proposed the binary nomenclature system that has become commonplace today across the scientific community in the 21st century. While it is important to acknowledge that today’s rules surrounding this system are different from those that Linnaeus initially suggested, it is these initial rules on nomenclature that have played a role in obscuring scientific contributions from communities outside of European scientific circles. Londa Schiebinger argues that the Linnaean classification is a form of “linguistic imperialism”[[4]](#footnote-3), a phenomenon that accompanied globalisation and colonisation. This inherently refers to the concept of the loss and replacement of existing cultural identities. The example that this paper will discuss of this phenomenon is via the dismissal of native naming conventions, native names and nuances of that language, and the authority bestowed upon individuals who met a specific criteria. Examples include the practice of West Indies slaves often taking up the names of their masters. Slaves of French territories were required to take names of obvious African origin, needing to replace their original names for easier identification on the part of the Western community.

Nomenclature of local populations prior to colonisation, and its influence on these communities, would aim for resemblance, either of its physical appearance or its applications. Names for local plants would often be based on the medical virtues of the plants themselves and would serve as a tool for local physicians to understand the usage of the plant. In this way, the names would hold a purpose of communicating information. This, as argued by Michael Adanson, who argued opposing the binary classification system, suggests that traditional names could hold value to professionals who can communicate easily between each other, particularly if the plant or product is economically important. Later, when the system was extended to animals as well as plants, Georges-Louis Leclerc, Comte de Buffon criticised the same system arguing that Old World taxonomies could be a useful tool in tracking the distribution and migration of organisms across the globe[[5]](#footnote-4). Some communities, including the University of Lima in Spain’s Peruvian territory, argued that physicians should learn the local language, Quecha, to understand how the plant is used. Martin Sesse, a royal botanist from Spain, also agreed with a similar notion; he had a similar opinion on learning the Incan language to understand the usage of the local plants. It seems that the purpose of naming systems for plants and organisms in non-Western societies during this time were for and derived from the usages of the organism. Thus, resemblance to the organism was the overbearing factor for naming that was used.

However, as globalisation progressed with the growth of colonisation and its consequent development, nomenclature saw a transformation from a hinting towards resemblance, and a method of communicating information, to solely a referencing tool. The binary system of classification became the most significant perpetuator of this change in most scientific circles, and today is the most commonly used naming convention in science today. This classification system and its prepositions put forward by Linnaeus initially removed any names in all languages, including European, that didn’t have Greek or Latin roots. In some cases, if the name showed these roots or could be likened to words that exist in those languages, they were kept even if no resemblance of property or provenance was preserved. Any other names were termed “barbarous” and removed. While this also removed then-current European names, it is important to understand the reasoning behind limiting to solely Greek and Latin etymologies, and the consequences on global interaction opinion that formed therefrom. Latin was chosen as it was the ‘language of learning among the learned men of Europe’. He proceeded to also propose that “no one ought to name a plant unless he is a botanist”. These criteria both intrinsically limit the involved parties in the naming tools to European scientific communities, again placing the Western world on a pedestal above the non-Western societies in Western and colonial writing, and thus limiting cultural preservation across texts in time that would utilise the Linnaean classification system, as well as exclude members of scholars who were present in European communities and cultures. Latin was a language that was spoken only in the Western world, and was chosen to represent a global compilation of names. Thus, non-Western nomenclature was replaced along with their identities, including and surrounding words in their language, and the plants that are a part of their culture, with Western words and nomenclature (words of the colonisers). Thus, we see a loss in the pre-existing identities of the cultures that the binary classification system replaces.

Another result of these criterions may be read as that the rules intend to limit any possible contribution to naming of plants and organisms solely to men, excluding female botanists and physicians. This extends to non-European cultures as well European. It is important to add, however, that for a time in the 18th Century, ‘he’ and its variations were used as gender-neutral pronouns, and as such, this particular phrasing of the word may not directly be an attempt to discriminate against women. However, it is quite evident that while the wording may not be an attempt to discriminate, there is plenty of evidence for discrimination against women within attempts to instill the new system of classification. At the time, due to restrictive education traditions and opportunities, few women read Latin. As such, while this classification aimed to facilitate communication, this communication between scholars of the time would still exclude a large majority of the population and a minority within scholars who were women. The 20th Century English botanist William Stearn suggested directly that Latin was chosen for the reason that it would exclude women from these conversations[[6]](#footnote-5). We can explore this by looking at the politicisation that circulated, around the Linnaean naming conventions and the drive of botanists of the time to assimilate into its utility. The classification, for a long time, until the code released in 1905, still gave authorship to educated males over gardeners, informants or collectors of any race or sex. The classification system was an inspiration for living botanists at the time, due to the attractiveness of being guaranteed into the permanent records of history as a reward for scholarly achievement. This refers to the rule, which was very likely used as a tool to induce interest in the system within the scientific communities initially, that botanists could suggest a name for a newly discovered species after themselves, serving as motivation for those who wished to partake. Oftentimes, it is recorded that this system has a point of political ridicule, further to its unusuality for practices present at the time of suggestion, but also in this competition and naming conventions that resulted in petty infighting and rivalries that preceded and impacted one’s own research. As such, such competition in itself would have impacted the ability of any educated individual’s name into the records even without the consideration of sex. Considering that far fewer women were respected academics during these times, it was to be even more unlikely that their names would be input.

Despite this, there is more blatant evidence to the discrimination of women in the systems within the Linnaean classification convention. A clear example of this was in the case of Maria Sibylla Merian, who named a flower in possession of Dutch settlers in Surinam (its original name as it was referred to by the locals from where it was taken is not known, nor the exact nature of Merian’s encounter with the flower) *flos pavonis*. A large majority of her practices were identical to her male counterparts, and other male botanists and naturalists, yet the fact that not only was she not involved into the naming conventions of the Linnaean system, it is suggested she was also not aware that she might not have been aware of the politicisation of the system and the subsequent renaming that the *flos pavonis* experienced. She developed deep friendships and collaborations with the locals, employing them as guides, information providers and physicians or naturalists in their own rights, including retaining the local names of the local insects and fauna in her literature, as per the practices of most naturalists and Western venturers (travel writers) who journeyed into non-European communities, and thusly also her male counterparts. She would often credit the communities themselves as the informants as well. Furthermore, it is important to recognise that the Linnaean classification system of naming contains very few names of women, and the few that existed were added during the later years of Linnaeus’ life. Merian was eventually commemorated into the system, though not by her own doing. Her discoveries were recognised by another botanist who worked in Surinam during the late 1790s, who named several plants and animal or insect species after Merian. As such, it is quite observable that women were blatantly excluded in the definition of a botanist, if not by the writing then by the ideology of the times for sure.

It should be noted however, that Linnaeus possibly did not pose the system with the wish to replace the vernacular nor the identities of non-European communities, but rather to pose a system of reference that botanists could use to collectively and quickly refer to a specific species. We can learn this from Linnaeus’ words himself: “I do not object to any nation retaining its own vernacular names for plants,” he continued, “[W]hat I do earnestly desire is that all learned Botanists should agree on the Latin names”. Though this may not have been his initial intention, it is undeniable that there have been blatant losses in the identities of several non-European cultures, as has been explored in this segment.

Thus, we can observe that European systems and scientific practice have resulted in the loss of non-European identities, cultures and scientific practice. This could thus also be a reason why in today’s scientific climate in the UK and in several parts of the globe, European names and practices are still observed largely in the scientific community. There are, definitely, other ways in which European practices have affected the way we perceive non-European sciences and vernacular in modern science.

# MUGHAL ELEPHANTS AND THEIR PERCEPTION IN WESTERN VERSUS NON-WESTERN SOCIETIES.

One can observe another case of when European practices have made an impact that would replace vernacular knowledge and practice. Though this scenario diverts from the purely scientific eyes through which we have been viewing the matter thus far, in order to explore another well-observed method that has been employed by the East India Company as a way of documenting the Eastern world for the European populace, but shows clear signs as an attempt to replace the vernacular identity of the Eastern communities. A practice quite commonly observed is one that could be referred to as “rationalising” the vernacular practices of India that the East India Company observed during their operations in the country.

This act of “rationalising” refers to the attempts by the East India Company to distance themselves from the local practices at the time by the portrayal of the vernacular practices and traditions as irrational. This, in part, mirrors the discussion earlier that saw a reluctance in Eastern naturalists in admitting their dependence on the local knowledge systems, often placing themselves in the line of the narrative to shift the focus of the credit. However, the following discussion diverges from this in its examination of a case study in which the East India Company was unsuccessful in their attempts to diverge from the vernacular and create a distinct system, and explores this idea of ‘rationality’ as a literary notion to convince the readership of credit.

It is worth discussing where this idea of ‘rationality’ as a tool came from in the context of the East India Company. The notion is quite central, with the British Empire following a principle of ‘rational natural improvement’, justified by divine incentive to “subdue” other areas and territories[[7]](#footnote-6). As such, by portraying non-European communities as irrational, by virtue of superstition or wastefulness, European communities were able to instil their as a higher epistemological system tier. This rationality, and its lack of, is a common and recurrent theme in the history of the empire, and a commonly observed tool used to suppress other culture’s epistemologies and vernacular concepts. From the point of view of the European scientific population, this was a mechanistic by-product of the classification of the natural world that was already occurring during the late 18th and early 19th century, during this period of globalisation and colonisation, where a rationality akin with Western methodologies were being applied to that of other cultures. It is observed both as a tool to discredit vernacular epistemologies, and also as a function that would be used to adapt the pre-existing ideologies in another phenomenon we will discuss - appropriation.

We must first provide context to understand the preconception of the West of the vernacular Mughal elephant in India, via the eyes of naturalists, explorers and those employed under the East India Company. The Mughal practices were seen distinctly in two different lights: as Edward Moor stated, one part preached to the vulgar, and the other. However, this disdain for another epistemology was well-shared, with Mughals’ view that the Christian gods’ having appeared on Earth could not possibly be true given the limited extent of their scientific progress. The Mughals’ treatment of elephants, where each elephant would be named and have their own staff, were deemed too heathen. This is not an unreasonable practice within the Hindu culture, especially when deific figures such as Ganesh that revolve around elephant physiological representation constitute significant aspects of the religion’s mythology, beliefs and traditions, including several appropriated ideas in modern life such as the mystical sound ‘Om’, that symbolises Ganesh. This level of anthropomorphism by the native cultures, to the European colonists was seemingly uncomfortable and promptly deemed as irrational. It is quite clear in this anecdote, a clear example of discrediting of the vernacular by the Western colonisers using rationality as justification for this rejection. In fact, this disdain is well surmised in Edward Turner Bennett’s suggestion that perceptions of intelligence of the elephants was a misguided illusion and those that claim it were fooled by their outward appearance.

It might be ironic, and certainly characteristic of appropriation, therefore, that evidence of anthropomorphism of elephants was a practice more frequently adopted in remaining accounts by the colonisers and Western writers. It could be argued that there is evidence of rationality used again as a concept to attempt appropriation of elephants and their practices in India. For after all, it was the practice of anthropomorphism of elephants that the colonisers were so uncomfortable with, yet it was the very practice that they used to submit a degrading view to the Western population of the vernacular culture surrounding the elephants, as well as to increase their worth as a commodity towards the merchants and consumers of the elephants trade. However, the distinction that the colonists have attempted to make between these practices of anthropomorphism is a “rational” approach that removes ideas of intelligence of elephants and views them as mere beasts under captivity, and thus those that worship or uphold vernacular practices surrounding elephants as similar beasts, or “uncivilised communities'', as stated by Charles Knight, that were as powerless as “the beasts of the field”, the latter quote referring to the elephants themselves. The elephants and their worship of them, and the Hindu god Ganesha, would often be viewed with an air of superstition. It is possible to feel the spite from the quotes of writers thus mentioned towards the communities that pursued this worship. It could be implied that the company’s Western employees would feel morally degraded, that an animal be venerated to the same degree as an anthropic god that isn’t envisaged alongside an animal such as the elephant.

This rational anthropomorphism of the elephant is quite the change from the vernacular, and this is evident in the treatments of the elephants under the care of the East India Company. The elephants shipped across the nation under company watch were on a diet and treatment that diverged from the vernacular methods, and their arrival in poor health is evidence enough to the result of this. One may interpret this rationalisation in a more literal term through observing the practices of the Company itself. Two particular types of elephants were valued, and the Ceylonese elephant was bigger in size than the Bengal-originating species. The bigger size was of greater awe to the merchants of the time, and as such several more of these were sold and recorded. As a statistic, the superiority of the Ceylonese elephants in size and as merchandise reduced them to financial arithmetic. This transformation of a culturally significant aspect of the vernacular tradition into numbers in a trade is an example of how rationalisation is used by Western colonisers as a tool to re-represent or suppress the local vernacular, as a means to their ends. It is important to note that though this may not have been the primary intention of the company at the time, it is undoubtedly a consequence of this act. We can further observe the treatment of the elephant as an item or good to be treated by understanding that they were often given as gifts, especially to symbolise subservience under Mughal rule.

It is quite interesting that though that the company that critiqued the anthropomorphism of the elephant, and further evidence of this rational anthropomorphism, or at least, positive characterisation, of the elephant can be observed in tales written for the Western community, and mostly in retrospective narratives. To clarify, the anthropomorphism of the elephant in Western literature seemingly is to highlight its subservience under human, particularly Western or Company, command. An example of this ‘retrospective characterisation’ can be observed in a story of the elephant riders versus a tiger. Nobleness was awarded to the elephants in this exchange for following the command of its riders and successfully defeating the tiger and that no harm was brought to human life. In its ability to serve under Western command, it was awarded. In this sense, a reward system is applied, or alternatively, the reverence of the vernacular traditions are respected or paralleled only in cases when the elephant serves under Western command. In this way, we can see the demotion of the local practices, and a view to the western world that what the east worships are subservient to the western powers present.

The extent of this narrative viewpoint when mentioning the elephant persists in several Western literature, especially those that impact the Western public and scientific community’s viewpoint of the East, It can be clarified here, that this view of the scientific world that is held by the Western scientific world, often done so so that a more interesting narrative is presented to the readership, and that credit is given to the writers who were the same explorers, created this idea of the west versus everywhere else, a very distinct ‘us’ versus ‘them’ mentality that underlies the entire of European or Western science at this time. In fact, an example that we can observe that is far closer to the West is the famous example of Chuny, an elephant that was brought to a zoo in Exeter and was shot dead when it broke out. It should be noted the purpose of erecting menageries and zoos in the West was with the intent of bringing the colonial territories more familiar with the Western public at home. This story gives us an insight into the standard of anthropomorphism that the elephant experienced in the eyes of the German public: the public spoke of the elephant as a friend. Despite this, the Western narrative never failed to highlight the subservient manner of the elephant as it was slain. Chuny was cornered and slain by hails of bullet rounds. An excerpt from a newspaper presented the moments of the elephants’ demise as the elephant rising onto its haunches and “expired, in the posture he assumed when about to be loaded” - a presentation of the death of a venerated idol of Eastern cultures as still a beast of burden, submitted to its demise by Western powers. The excerpt also features quite graphic wording of the western firepower injuring Chuny, such as “lacerated”, while he struggled, which may be interpreted as another attempt to display the superiority of the West over an Eastern idol of worship, though the author of this paper believes it is more likely that this description was for dramatic effect. After his death, whether or no Chuny was respected is ambiguous due to nature of actions taken by the Western world, though it is quite sure that the practices that befell Chuny’s body after his death would not be approved of by the Western world. Chuny saw his appearance in the Western scientific world posthumously as he was entered into Johann Sprurzheim’s phrenological collection, his trunk cut off and his body parts sold to students. The skull was then placed into a museum - an act that would say that Western science had finally mastered the creature. It can be said that for a culture that venerated the elephant with traditions and teams of staff, the placing of Chuny’s skull in the museum would have likely been against the traditions of the vernacular. In light of this, perhaps it is not a stretch to say that the previous newspaper article’s use of words were presented in the suggested manner intentionally. It is quite clear the intentions of the western public were not to read the elephant in a manner that would reflect the respect they received from their vernacular, but rather as a specimen for science and nothing more than the beast of burden for their size that the West saw them as.

It should also finally be highlighted that the appropriation of the vernacular extended to attempts to diverge from the practices that was shared to the British in the company, and as explored before, the British relied on the information that locals held. They were taught how the locals communicated with and understood elephants, and their behaviour that displayed sensitivity, and their likeness to humans was first here established. The Company was also taught ways of catching elephants, as written in Captain Thomas Williamson’s books, by the locals, including ways of driving elephants into a *keddah* and taming them into submission by starvation and cajoling. Males expelled from their herd could be lured into these pens by use of a decoy female. This sort of treatment was deemed by several explorers, including Daniel Johnson, as “disordered and uncivil” and would use such anecdotes to present the Indian relations to the environment as violent and savage - a viewpoint that both justified their intent to diverge from the local practices, as well as a method to emphasise the inferiority of the vernacular communities and their practice, and place the Company and rationality on a higher pedestal within the hierarchy.

Thusly, in attempts to diverge from this vernacular traditions that they had condemned, it is a well observed phenomenon that naturalists aim to adapt these modes of observing the vernacular. The greatest example is again with these elephants. John Corse Scott, for example, sought to apply scientific methods to the management of the elephants under the company, again attempting to bring what can only be likened to the concept of applying a ‘rationality’ to the local practices. As such, it can be interpreted as a clarification to the term, that the Western scientific method sought to introduce a rationality to the local practices that the European populations thought missing - a lack of order, or “disordered”. It also therefore follows that by dismissing the local epistemologies as ‘uncivilised’ or ‘disordered’, and instead attempting to create a different practice that instils western scientific concepts that would ideally seek to replace the pre-existing practices, we can see an example of where Western epistemologies again have sought to suppress and replace the vernacular and leading to what would have been a loss of identity for the local practices. The fact that the loss would have been surrounding one of the vernacular’s most revered religious figures too would undoubtedly emphasise this point. It can be seen as an appeal against this that the intention of the West was to simply adapt and expand upon the knowledge of the local practices. However, were this the case, it would contradict the attitudes towards these practices in the first place as “uncivilised” and “disordered”, though it is fathomable that such a portrayal should emphasise personal or company financial and reputational gain though this would still feed to the point, and that this ideal would have been a difficult point to balance with these attitudes, and that even if this was attempted, the significance of the vernacular epistemologies are not observed, much less that a balance between the two is. As such, by intention or as a consequence, it is observed that the Western scientific intervention results in a consequential replacing of vernacular knowledge, credit and thusly, identity. In fact, it is possible to see this rejection furthermore with higher clarity in the example of John Gilchrist, who attempted to dismiss Indian medical knowledge, and claimed that his aim was to improve the usefulness of the elephants for the company —though the result of this has been discussed with the state of these elephants being far less than ideal.

Following this vein of thought, it is quite possible to see that these attempts to rationalise or apply a scientific method to the vernacular have more likely resulted in a failure to successfully diverge from the locally present practices, and subsequently, appropriation of the vernacular moreso. We, instead, more commonly observe new hybrid forms of information that have resulted as a collaboration between coloniser and colonised, though the nature of this collaboration seems to have been more an attempt to replace the vernacular, rather than an honest latticification of the two, as has been thus explored in this review.

# CONCLUSION

Local knowledge systems and communities would often be given recognition for the “know-how” rather than the knowledge itself, a narrative perspective that would serve to further undermine the same local knowledge systems. This is poised in the sense such that credit is given for knowing how to utilise local resources, but often not for knowing ‘why’ that resource yields the result it does.

This epistemological suppression is a strong theme across several colonial naturalists and explorers’ writings. Often used as a way to exhibit authority or credibility, it is observed that several writers. This is, not by the least, supported by naming the tea after the place where he was himself born.

Murphy documents the attitudes of colonial naturalists towards indigneous people as a tool for reducing their influence, increasing the author’s own, as an attempt to front a sense of detachment from dependency on the former group to their European audiences.

While the origin of his discovered knowledge is stated, the indigneous informants never assume the role of an author. Further to this, credit is not usually given for the origin of knowledge, but rather for the “know-how”. This is a tool used by Brooke, as well as several other explorers, to frame indigneous knowledge with a lack of rationality.

The attitudes and relationship of colonial naturalists towards indigneous peoples and knowledge has been quite consistent in their attempts of rationalising much vernacular knowledge to create an unique knowledge. However, there seems to be more consistency in this resulting in nothing short of appropriation, and their attempts to create distance from the vernacular epistemologies often seem to suggest an anxiety from their evident dependence on these said epistemologies, and often, lack of western epistemologies such as rationalising and experimentation was their justification for treating these systems as aliens.

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