

The Price of Knowledge

Science, imperialism and the 1828 Triton expedition



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Introduction

On the 20th of May 1828, the crew of the ZM Triton and the ZM Iris spotted the coast of New Guinea. Lieutenant Second Class Justin Modera described the coastline of the island as being “incredibly low, covered in thick woods. The treetops were the same height wherever we looked, such that we could not accurately determine our own position in relation to the coastline.”¹ One day later, on the 21st of May, the ships arrived at the mouth of the Dourga river at 1:30pm.² At 5.30pm, an armed sloop was launched and headed for the mouth of the river. Aboard this sloop were, next to a number of military officers, two men with a distinctly scientific mission. The first was Heinrich Christian Macklot, the head of the five members of the *Natuurkundige Commissie* (*Natural History Committee for the Dutch East Indies*, hereafter generally referred to as ‘the committee’ unless stated otherwise) aboard the expeditionary ships. The committee was a state-funded organisation, tasked with gathering information on the botany, zoology and geology of the Dutch East Indies - both to grow the scientific prestige of the kingdom and to map the colonies’ exploitable resources.³ The second “man of science” was Lieutenant Boers, tasked with carrying out hydrographic measurements.⁴ This expedition has come to be known as the *Triton* expedition, named after the larger of the two participating warships.

Historical studies on the Triton expedition, such as those by Jeroen Overweel and Willem F.J. Mörzer-Bruyns, have held that the presence of the committee was meant to serve as a cover-up so as not to draw too much attention to the construction of the fort.⁵ Mörzer-Bruyns researched the expedition as to contextualise his publication of two primary sources. In this paper, Mörzer-Bruyns discusses the political background of the event and the scientific activities of the Natural History Committee, but understandably does not engage in bigger historiographical debates. Jeroen Overweel has written a short article on the *Triton* expedition in 2002, which remains unpublished. This paper focuses on the political and economic goals of the expedition, with relatively little focus on the scientific elements, although Overweel did suggest a connection between the *Triton*

¹ Justin Modera, *Verhaal van eene reize naar de Zuid-Westkust van Nieuw-Guinea* (1830), 20.

² Now known to be a strait.

³ W.F.J. Mörzer-Bruyns, *Met de Triton en de Iris naar Nieuw-Guinea. De reisverhalen van Justin Modera en Arnoldus Johannes van Delden uit 1828* (2018) 92-93.

⁴ Modera *Verhaal van eene reize*, 1-2, 21.

⁵ Mörzer-Bruyns, *Met de Triton en de Iris naar Nieuw-Guinea*; Overweel, J. ‘Keep Them Out! Early Nineteenth Century English and Dutch rivalry in eastern Indonesia and Australia, and the founding of Merkus-oord.’, *not published* (2002).

expedition and Dutch imperialism.⁶ As such the *Triton* expedition largely still remains to be incorporated into the existing historiography surrounding scientific and military expeditions of the early nineteenth century.

The nature of the relationship between the military and science in a colonial context is a well-studied topic. For the European empires, such as the British in India, conducting science in overseas territories was an expensive endeavour. Funding was thus a key issue, and the one institution that happened to have the funds and manpower to conduct science was the military, which had a strong presence in the colonies to begin with.⁷ For example, maintenance of the army in India cost the East India Company £8 million in 1813 and £13 million by 1826 and was the main item of British expenditure in India.⁸ The scientific knowledge produced by the colonial military was, according to Peter Boomgaard, “practical” in nature as opposed to “purely” scientific. Increasingly, Europeans became involved in “improving” their colonial possessions through collecting information on geology, botany and, at sea, astronomy and cartography.⁹ Naval surveys and expeditions were instrumental to empire building according to Roy MacLeod, and were used to map the economic potential of overseas territories.¹⁰ Again, the British case is exemplary. The voyages of James Cook are held to have heralded a new form of “sciences of exploration”. On these voyages, scientists were attached to the expeditions, a tradition that continued after Cook. According to Joseph Hodge, the navy thus became a conduit to science. As with the colonial army in India, it had the manpower, presence and funds to support scientific activities.¹¹ Hence, European colonial science in the early nineteenth century had a strong imperialistic and militaristic component: science became “tools of empire”.¹²

As for the Dutch case, Boomgaard argues that Dutch military presence in the colonies was much less pronounced than in the case of the British Empire and that this kind of imperialist science was thus less prevalent in the Dutch colonies. Furthermore, the Dutch kingdom seems to have lacked the centralised institutions that financed such scientific activities.¹³ *Funding* again appears to be a key issue.

⁶ J. Overweel, ‘Keep Them Out! Early Nineteenth Century English and Dutch rivalry in eastern Indonesia and Australia, and the founding of Merkus-oord.’, *not published* (2002).

⁷ P. Boomgaard, ‘Introduction. From the Mundane to the Sublime: Science, Empire and the Enlightenment (1760s-1820s)’, in: Boomgaard, P. (ed.) *Empire and Science in the Making: Dutch Colonial Scholarship in Comparative Global Perspective (1760-1830)* 22-23.

⁸ D. Arnold, ‘Science and the Colonial War-State: British India, 1790–1820’, in: Boomgaard, P. (ed.) *Empire and Science in the Making: Dutch Colonial Scholarship in Comparative Global Perspective (1760-1830)* 41-42.

⁹ Boomgaard, ‘Introduction’, 23-24.

¹⁰ R. Macleod, ‘Discovery and exploration.’, *The Cambridge History of Science*, vol. 6: 48-49.

¹¹ J. M. Hodge, ‘Science and Empire: An Overview of the Historical Scholarship’, in: Bennett, B.M. and J.M. Hodge, *Science and Empire Knowledge and Networks of Science across the British Empire, 1800–1970* (2011) 5-6.

¹² Idem, 8.

¹³ Boomgaard, ‘Introduction’, 23.

This is further complicated by the fact that “imperialism” as such has only recently gained consensus and acceptance in Dutch historiography. As stated by Remco Raben, Dutch scholars (and society as whole) tend to differentiate between colonialism and imperialism; where the empires of France and Britain expanded rapidly in the late nineteenth century, the Dutch have considered their own colonialism as simply consolidating their holdings in the east and west indies in the second half of the nineteenth and the early twentieth century. In Raben’s words: “‘Imperialism’ would seem to be too grandiose a term for what happened in the late colonial period.” Colonialism, in turn, was business-oriented and technocratic rather than the cultural imperialism of, say, the British Empire.¹⁴ However, this conceptual divide has disappeared somewhat over the past two decades, and a tentative consensus has been formed that attributes some form of imperialism to the Dutch colonial state - though concentrated on the latter half of the nineteenth century.¹⁵

The *Triton* expedition has not been studied in the light of these perspectives. As stated above, Mörzer-Bruyns and Overweel have chosen to interpret the expedition from a political angle rather than trying to incorporate the scientific elements of the expedition into theory on science and the military or imperialism. What focus has been given to the importance of the expedition for the history of science, has separated the scientific findings of the Natural History Committee from its political and military context. For example, a rather extensive study about the ornithological findings of the expedition was published in 1994 by G.F. Mees and C. Achterberg.¹⁶

Yet the *Triton* expedition seems to be exemplary of the kinds of expeditions described by MacLeod, Hodge and Boomgaard. The *Triton* expedition was a military surveying and exploring expedition with attached scientists. The Dutch (colonial) navy seems to have been the conduit, the *enabler*, of scientific activity on New Guinea in 1828. At the same time, the literature would suggest that there was no large-scale military funding of scientific activities in the Dutch colonies in the early nineteenth century. As Boomgaard states at the end of his introductory paper: “From the 1820s, the Netherlands had a more centralized structure than before, both as a polity, and in regards to the scholarly world. Conditions for participating more fully in the creation and circulation of knowledge regarding overseas (colonial) territories were now better, and during the later part of the nineteenth century, Dutch “colonial” scholarship came (again) into its own.”¹⁷ This would suggest that the *Triton* expedition was an anomaly that went against Dutch

¹⁴R. Raben, ‘A New Dutch Imperial History? Perambulations in a prospective field.’, *BMGN*, vol. 128 no. 1 (2013) 9-10.

¹⁵ For an overview, see Kuitenbrouwer, M. ‘Het imperialisme-debat in de Nederlandse geschiedschrijving’, *BMGN-Low Countries Historical Review* vol 113 no. 1 (1998) 56-73.

¹⁶ G.F. Mees & C. Achterberg, *Vogelkundig onderzoek op Nieuw Guinea in 1828* (1994).

¹⁷ Boomgaard, ‘Introduction’, 24.

colonial policy and practice of the time. This raises the question whether this was indeed the case.

This study thus aims to shed light on the military funding of Dutch colonial science in 1828 by recontextualising the *Triton* expedition, placing it in the debate on Dutch colonial science and imperialism. I will be answering the question to what extent the science of the *Triton* expedition should be considered “imperial science” or a “tool of empire”. As has become clear by now, *funding* appears to have been an important factor in conducting science as a “tool of empire”, and as such a proper contextualisation of the *Triton* expedition would include analysing its funding - an analysis that, for as far as I know, has not been made thus far. What were the costs of keeping the ships involved afloat? The salaries of the crewmen and the soldiers? The costs of sustaining the people on board - the sailors, soldiers and native Indonesian workers? Without any of these factors, the 1828 expedition would have been impossible. Even more importantly, mapping these costs and the specific reasons for funding the expedition allows for comparison with the funding of ‘regular’ scientific institutes around the same time, like universities or the Dutch academy of sciences. This will show just to what extent the Dutch military supported science in the early nineteenth century - and to what extent science and the military were intertwined. If this is indeed the case, Dutch colonial science in the early nineteenth century might come out to be a much more significant “tool of empire” and thus more “imperial” than scholars such as Boomgaard, Mörzer-Bruyns or Overweel have assumed.

Focusing merely on the funding of the expedition might lead to a monocausal analysis, however. As such the expedition will also be analysed from a qualitative-textual perspective, reconsidering the source material used by previous studies that focused on this expedition. By combining this analysis with a financial perspective, the precise nature of the *Triton* expedition - as simply an anomaly in Dutch colonial history or as an indicator of a broader military-scientific complex engaging in imperialist activities - will come to the fore.

By doing this, this study will contribute to a number of topics. Scientific naval expeditions such as this one necessarily also relate to the concept of *Humboldtian science*, a concept that has come to indicate a particular *zeitgeist* among nineteenth century scientists. MacLeod has used this concept to explain the willingness of men of science to embark on far-flung voyages.¹⁸ Humboldtian science has some inherent tensions between its conception of the purity of science on the one hand and utilitarian motives of using science, particularly when going on military expeditions across the globe, on the other. An analysis of funding at an institutional level, when combined with qualitative sources, might contribute to this highly complex concept by showing these tensions in practice.

¹⁸ Macleod, ‘Exploration and Discovery’, 43-44.

The Dutch context, furthermore, will hopefully provide new insights that add to the existing studies focusing on British science by showing the particulars of Dutch colonial science funding, which may induce questions of a similar nature on (military) science funding in other colonial powers in the nineteenth century. The subject matter itself, too, is international: as Andreas Weber has shown in ‘Collecting Colonial Nature’, the Natural History Committee and the Dutch East Indies employed large numbers of European, mainly German, personnel.¹⁹ The *Triton* expedition also included many Indonesians from the Moluccas and Java and of course came into contact with a number of Papuan tribes. An analysis of funding can contribute to this image of the “webbedness” of the Dutch East Indies by showing the origin of goods and materials used on the expedition.

Of course, funding in absolute numbers is not very telling. For this reason, this study will compare both cases to the funding of other academic/scientific institutions during the same timeframe, such as universities and the Royal Academy of Sciences (the current KNAW). While universities during this timeframe were rarely involved in any large-scale research, literature on early nineteenth century science does have a tendency to gravitate towards professors. Scholars such as Bert Theunissen and Ad Maas have already argued that this approach leaves out large sections of the Dutch scientific community, which was by and large more interested in disseminating ‘useful’ knowledge through civil societies rather than concern themselves with “pure” science, let alone conducting research at universities.²⁰ This study will contribute to these insights. By showing the (relatively) little funding institutes such as universities had for scientific research, this study will make the importance of militarily-funded science even more obvious. Looking at the budget of the KNAW provides a more direct comparison to an actual research-conducting institute. Making this comparison, I will attempt to show that military funding of science in 1828 was in fact the *main* route in which the Dutch state engaged in scientific funding. When analysed in combination with the historiography of Dutch science and imperialism, I will be able to show that separating “science” from “empire” in the early nineteenth century may be an erroneous effort.

Terminology and Translations

An attentive reader will have caught on to the fact that I use the term “scientist” loosely in this study. I am well aware of the anachronism of the term “science” or

¹⁹ A. Weber, ‘Collecting Colonial Nature. European Naturalists and the Netherlands Indies in the Early Nineteenth Century’, *BMGN - Low Countries Historical Review*, Vol. 134 no. 3 (2019) 72-95.

²⁰ E.g. B. Theunissen, *Nut en nog eens nut. Wetenschapsbeelden van Nederlandse natuuronderzoekers, 1800-1900* (2000);

A. Maas, ‘Civil Scientists: Dutch Scientists between 1750 and 1875’. *History of Science*, xlviii (2010) 75-103.

“scientist” in an early-nineteenth century, especially Dutch, context. However, I feel this is justified in order to avoid becoming overly verbose; whenever I use the term “scientist”, I refer to what might more accurately be called a “man of science”. Regarding the topic at hand, this specifically refers to all civilian members of the Natural History Committee, but *not* the naval officers who also conducted scientific measurements - I will specify the latter whenever I discuss them. “Science”, in my usage of the term, means everything that a Dutch person would call *natuurwetenschap*, or natural science. Anything that might thus be classified as natural science in the 21st-century sense of the word, such as physics, biology or geology, is contained in this term.

In a similar vein, I tend to refer to the various peoples that inhabited the Malay archipelago by relatively modern terms such as “Indonesians” and “Papouans”, or, when the source material permits me to be more precise, by such descriptors as “Moluccan” or “Javanese”. The Dutch term in most cases would have been “inlander”, but due to the imprecise nature of the word I will omit its usage. Only rarely does the Dutch source material indicate the specific kingdom or tribe to which a particular individual belonged, and I will try to include this information wherever possible.

As for the usage of Dutch translations: I will limit myself to using the original Dutch word or phrase only once, when initially introducing a topic. I will put the English in parentheses, and will only refer to said word or phrase using the English translation afterwards. If I refer to passages from Dutch archival sources, I will generally only include a translation along with a reference of where the original passage can be found. Although it is common form to include the original Dutch passage in a footnote, practical inaccessibility to the source material as of the time of writing prohibits me from doing so. Unless specifically mentioned, all translations (and, by extension, translation errors) are my own.

Source Material

The first detailed description of the 1828 expedition is by the hand of *Lieutenant Tweede Klasse* (Senior Lieutenant) Justin Modera, crew member of the *Triton*. Modera wrote a diary during the expedition, which he later decided to publish as a booklet. An advertisement in the *Oprechte Haarlemsche Courant*, a newspaper of the Dutch town of Haarlem, shows us that this booklet cost *f*2.20.²¹

Justin Modera seems to have been the very model of a modern senior lieutenant: he had information vegetable, animal and mineral. Next to the obvious recounting of the entire expedition, he at times puts the chronology on hold in order to go into detailed ethnographic, geological and zoological descriptions. A part of

²¹ Oprechte Haarlemsche Courant, 16 June 1830.

this information was provided to him by members of the *Natuurkundige Commissie*, which he acknowledges, but this only confirms that he seems to have held an interest in these subjects during the expedition itself: a fact that underlines the so-often remarked overlap between natural history and naval officers at the time.

While a retroactively published booklet should raise suspicions about its veracity, Modera does seem to write in a rather unbiased, matter-of-fact style, which is not at all unpleasant to read. Rarely does he commit to a moralizing tone and most of the details of his recollection can be corroborated with the other source for the expedition.

This second source is the diary of Arnoldus Johannes van Delden, the civil administrator tasked with founding and managing the fort on New Guinea. Van Delden's diary was never meant to be published, now being found in the family archives Van der Hucht in the Dutch National Archives in The Hague. As such, Van Delden's journal is less prosaic and less narrative than Modera's booklet, but he does go into a number of issues that are not covered by Modera, such as the conflicts between Steenboom, commander of the *Triton* and himself.

Both of these sources have been compiled and edited by Willem Mörzer-Bruyns in 2018, for which any historian concerning themselves with this expedition should be grateful.²² I trust this to be a faithful compilation, but I have tried to always read these sources next to Mörzer-Bruyns' summary and analysis at the front of the compilation, in order to draw my own conclusions wherever possible.

Another written source for the *Triton* expedition comes to us in the form of the official report of the leader of the committee members, Heinrich Macklot, to the governor-general of the Dutch East Indies. I will be using this report mainly to chart what knowledge was deemed useful for the Dutch authorities by the scientists aboard the *Triton*. The report also gives us limited insight as to how the committee members conducted their research while on the expedition.

The finances of the expedition are almost wholly located in the Dutch National Archives, in the archives of the Ministry of the Colonies. I will be basing my calculations on the costs of maintaining both the *Triton* and the *Iris* for the duration of the expedition, as well as maintaining their crews and the cost of the supplies needed to feed everyone, including the committee and the soldiers/workers who were to build and occupy the fort. The salary of these soldiers has been excluded as this has proven to be almost impossible to determine accurately. The salary of the naval crew, as well as the salary of the members of the committee, have been

²² Mainly shortening the run-on early nineteenth century sentences of both Van Delden and Modera, and rewriting specific terms into more readable formats, such as 'West-Southwest' instead of the original 'west south west'.

included in the calculation. For the latter, I will base myself on the research done into this by Andreas Weber.

Structure

This study is divided into three parts. The first part will cover the historiography of science and the military in the nineteenth century, both in general and in the Dutch East Indies. I will show that this is heavily intertwined with the historiography of imperialism, and that scientific expeditions have been argued either to be a part of or separate from modern imperialism. I will also include historiography on naval scientific expeditions specifically, and its relation to Humboldtian Science. Finally, I will cover the existing studies on the Natural History Committee. This will serve to contextualise the *Triton* expedition's source material into the debates on colonial science and imperialism.

The second part focuses on the *Triton* expedition and its preparations: I will show how existing literature on the expedition has neglected to mention the importance of the scientific character of the expedition. Thus, I will show that science was in fact the factor that ultimately enabled the naval expedition, inverting the usual role pattern of the navy being a conduit to science. I will then argue that the interactions between the civil servants, naval officers and scientists, as well as the scientists' report, show us that the committee engaged in a particular form of *Humboldtian science* with a Dutch characteristic due to its utilitarian character. I will use this to argue that, for the 1828 naturalist, there was no demarcation to be made between "pure" and "useful" science, nor a real divide between military and scientific knowledge. This will show that Dutch colonial science, as it relates to the *Triton* expedition, was imperialist science.

I will cement this position in the third part, which leads us to a major topic of this study: the funding of the expedition. It has been established that imperial science was defined for a large part by the amount of funds and manpower the navy and army in an imperialist nation had. Consequently, in order to determine whether we should consider the *Triton* expedition imperialist science, we should determine the significance of the military funding of this expedition. The analysis of both the budgeting of the Dutch Royal Navy and its realised expenses will exemplify just how much money the state was willing to pour into the *Triton* expedition. This will then be compared with the funding of universities in the same time-frame, as well as the Dutch Royal Academy of Sciences and the observatory in Brussels. This comparison will show the extent to which the Dutch state was willing to use its military funding for scientific expeditions and how science was seen by the state as a tool for the expansion of its empire.

I. Science, Imperialism & The *Natuurkundige Commissie*

As stated in the introduction, science and imperialism have a strong connection in international literature, having been described as “tools of empire”. Nevertheless, the Dutch connection to these developments has remained somewhat lacking, not in the least due to the complicated nature of the concept of imperialism in Dutch historiography.

In this section, I will first sketch the definitions of imperialism as used in the case of the Netherlands. I will show how scholars have moved away from monocausal explanations focused on top-down initiatives from the metropolis and towards network-based theories. I will then use this to relate this to developments within the history of science. I will further elaborate on the relationship between science and imperialism as touched upon in the introduction, and especially the relationship between science and the navy. These findings will then be connected to Dutch science of the early nineteenth century. I will also show that imperial expeditionary science cannot be understood without the concept of Humboldtian science. Likewise, I will connect this to the specificities of the Dutch context. Finally, I will give some general background on the Natural History Committee, showing it to in fact be a centralised, state-funded scientific organisation. These topics will provide the background necessary to engage with the source material of this study and answer the main question.

The Imperialism Debate in the Netherlands

The concept of imperialism has proven to be a contentious one in the historiography of the Dutch colonial past. As explained in the introduction, the term itself has never gained traction in Dutch popular usage, ‘colonialism’ being heard more often. Nevertheless, there has been a debate surrounding the (non)existence of Dutch imperialism, especially in the last decade of the 20th century, after which an uneasy consensus seems to have been formed. The debate has more recently shifted from discussing the character or causes of imperialism to unearthing its effects, especially on *subaltern* groups like the various Indonesian peoples.

One of the most influential concepts within the discussion on European imperialism, and the earliest of such concepts to gain a foothold among Dutch scholars, were Betts’ *preemption* and *contiguity* as driving forces for imperialism. Betts argued that these were the main two driving forces in nineteenth century imperialism, the ‘Scramble for Africa’ being the most prominent example.

Preemption was the fear that, when a (European) power would not jump on the opportunity to colonise an area, a rival power would. This fear created a constant race between the colonial powers to be the first to take new territory. Related to this, was the concept of *contiguity*, the idea that expansion always came and was justified from existing territorial claims, e.g. the French expansion into Tunis from their existing holdings in Algeria.²³

For the Netherlands, these concepts have been used mainly by M. Kuitenbrouwer and H.L. Wesseling. Kuitenbrouwer has argued that the Dutch expansion in the Malay archipelago in the latter half of the nineteenth century was motivated out of both *preemption* (fearing the loss of the archipelago if they didn't assert their hegemony) and out of *contiguity* (operating out of the base of operations that was Java).²⁴ Wesseling, who had initially dismissed Dutch imperialism entirely, argued that Dutch expansion was almost entirely motivated by *contiguity* and simple confirmation of older power relations. In this sense, Wesseling put more emphasis on Robinson and Gallagher's model of *reluctant imperialism*, meaning that Dutch officials generally held the belief that the Dutch possessions were large enough as they were, and were only interested in expansion when it proved beneficial at the bottom line. As such, this explanation of imperialism is largely economic in nature.²⁵

Most other Dutch historians that were involved in the matter, took the middle ground in some way. For example, C. Fasseur characterised the Dutch expansion in the East Indies between 1830 and 1870 as a form of *frontier imperialism*: there was no centrally organised plan to subjugate the archipelago, but rather local initiatives by colonial officials without interference from the metropolis. Even though the official stance of the Dutch government in this period called for consolidation rather than expansion, numerous small expansions of territory were nevertheless acquired - this is what Fasseur called the *colonial paradox* of the Dutch East Indies.²⁶ This position is, in essence, a rephrasing of the older *turbulent frontier* thesis as used by J. S. Galbraith.²⁷ The expansion in the colonies during this period shows that the large-scale expansion into, for example, the Aceh sultanate at the end of the nineteenth century was very much a continuation and escalation of earlier local colonial policy, and this an example of *contiguity* more than *preemption*.

²³ Raymond F. Betts, *The False Dawn: European Imperialism in the Nineteenth Century* (1975), 82-83.

²⁴ Kuitenbrouwer, 'Het imperialisme-debat in de Nederlandse geschiedschrijving', 59-60.

²⁵ Idem, 61. Also see: J. Gallagher and R. Robinson, 'The Imperialism of Free Trade', *The Economic History Review*, Vol. 6 no. 1 (1953) 1-15.

²⁶ Idem, 59; C. Fasseur, 'Een koloniale paradox: De Nederlandse expansie in de Indonesische archipel in het midden van de negentiende eeuw (1830-1870)', *Tijdschrift voor Geschiedenis*, vol. 92 (1979) 162-186.

²⁷ John S. Galbraith, 'The "Turbulent Frontier" as a factor in British expansion', *Comparative Studies in Society and History*, Vol. 2, No. 2 (1960) 150-168.

E. Locher-Scholten's study of the Jambi sultanate is, according to Kuitenbrouwer, often considered one of the seminal works on the question of Dutch imperialism.²⁸ Locher-Scholten presents an integration of all the various different explanatory models of imperialism; she holds Kuitenbrouwers' dissertation as an example of such an integrated explanation. She argues:

"What emerges is a far more subtle causality than was customary in traditional exegeses. Imperialism is no longer viewed as a deliberate policy of expansion devised by the mother country, specifically arising from the economic interests of a small group in that country. Instead, it is seen as a complex and nuanced interplay between West and non-West, between the center and periphery, and among the Western powers. This vision divests imperialism of both its monocausal and its monolithic character."²⁹

In her study, Locher-Scholten herself chooses to use the model of imperialism as proposed by Fieldhouse in *Economics and Empire, 1830-1914*. She argues that the case of the Jambi sultanate shows a steady progression of Dutch imperialism from the start of the nineteenth century through the early twentieth century. There was continuity in policy, which for the first half of that period was formed almost entirely by local colonial officials with no interference from the government in The Hague. Near the end of the twentieth century, the Dutch grasp on Jambi formalised as it was annexed into the Dutch colonial state proper, after which the central government gained a larger role. Finally, fear of foreign powers played a role in the early twentieth century, but by that time the Dutch consolidation of Jambi had long been fact.³⁰ Locher-Scholten shows that Dutch imperialism cannot be explained by merely economic or political; or peripheral or metropolitan factors, but that it was in fact an intricate combination of all of the above. This aversion for monocausal explanations of Dutch imperialism opens up the possibility that scientific motives may have played a role in imperialist expansion.

In order to determine whether the *Triton* expedition should be called "imperialist", one should be on the lookout for any of these factors. The expedition took place in the very early stages of nineteenth-century Dutch expansion, and we should thus expect imperialist policy to originate not in the metropolis, but on the frontier, devised by local officials, catalysed by any number of factors; political, economical or otherwise.

²⁸ Kuitenbrouwer, 'Het imperialisme-debat in de Nederlandse geschiedschrijving', 56; Locher-Scholten's original work in Dutch is from 1994. I will be referring to the English translation of 2004.

²⁹ Idem, 24.

³⁰ E. Locher-Scholten, *Sumatran sultanate and colonial state : Jambi and the rise of Dutch imperialism, 1830-1907* (2004), 248-251.

Science and Imperialism in the Nineteenth Century

This still leaves us with the issue of science and imperialism. One of the most extensive overviews of scientific expeditions in the eighteenth and nineteenth centuries is Roy MacLeod's paper 'Discovery and Exploration'.³¹ Macleod emphasises the aspect of discovery in science, both in a spatial and epistemological sense. The scientific expedition of the nineteenth century became a 'place of knowledge' where the European scientists would broaden the metropolis' knowledge of the earth.³² More importantly, however, MacLeod emphasises that these expeditions were as much exploratory as they were conquering in nature: "In 1800, much of the earth's surface remained speculative. If Africa was the Dark Continent, most Europeans knew little of Asia, or even of the Americas, and nothing at all of Antarctica. Scarcely a century later, European science was as ubiquitous as European commerce."³³ Scientific expeditions would be an asset of the state, and would often coincide with (military) strategy, or even be interdependent. For example, Macleod shows that Cook's 1769 voyage to the Pacific had two aims: obtaining measurements of the transit of Venus and to deny French access to New Holland. On top of that, Cook was given instructions to report on the geology, flora and fauna of the region.³⁴

According to MacLeod, the voyages of the late eighteenth century became models for the early nineteenth century, when "science and [state] power converged". Georges Cuvier (1769-1832) of the Muséum d'Histoire Naturelle sent out naturalists on voyages across the globe to collect specimens and, furthermore, to use ships as "floating laboratories", outfitted with measuring instruments.³⁵ This is perhaps one of the best examples of a scientific expedition as a 'place of knowing': not only the surroundings, but the actual ship used to carry out the expedition determined the way science was done. Another aspect highlighted by MacLeod, is that scientific expeditions were instrumental to colonial settlement and expansion. Surveying expeditions were used to map the economic potential of uncolonised territory and were used to deny other colonial powers that same territory.³⁶

Of note is MacLeod's use of "empire" and "imperial" when describing these developments, all occurring decades before the consensually agreed-upon start of modern imperialism after the 1870s. Hodge, citing MacLeod, has noted that historians should keep in mind the differences between *colonial science*, *scientific colonialism* and *imperial science* and *scientific imperialism*. Colonial science simply refers to science as conducted in the European colonies, whereas scientific

³¹ Macleod, 'Discovery and exploration.', 34-59.

³² Idem, 37-38.

³³ Idem, 39-40.

³⁴ Idem, 42.

³⁵ Idem, 45.

³⁶ Idem, 48-49.

colonialism refers to the use of science in enacting colonial policy (in existing colonies). Analogously, imperial science refers to the type of networks described in the preceding paragraphs: networks of scientists and institutions across the colonies and the metropolis. Finally, scientific imperialism was a specific (scientific) doctrine enacted during the New Imperialism of the later nineteenth century (in new colonies).³⁷

In the British case, the involvement of such men as Joseph Banks in high-level institutions as the Royal Society created “imperial knowledge networks”, which linked these institutions with colonial actors and institutions, most notably the East India Company. John Gascoigne has stated that cultivating science became a way for Company officials and of the empire more generally to increase their societal prestige.³⁸ Science thus helped form an empire both culturally and by ways of providing knowledge on the colonies, yet as Michael Worboys has pointed out, imperial science exceeds mere colonial science in the sense that imperial science is also *shaped by* its setting. The imperial context dictated what kind of knowledge was produced in such fields as botany and geology.³⁹ It only stands to reason that science as conducted on an expedition like the one under scrutiny in this study would fit this mold.

A counterargument to this perception has been provided by Lewis Pyenson’s concept of embedded scientists. By describing three nineteenth century expeditions (American, Argentinian and Russian), Pyenson has argued that nineteenth-century militaries might have expected scientists to agree with and provide support in various imperialistic activities, but because of deeply-rooted convictions they did not do so and in fact often condemned the violence inherent to these expeditions.⁴⁰ For example, George Grinnell (1849-1938), who had joined General George Armstrong Custer (of the infamous 1876 defeat at Little Big Horn) on a number of expeditions, detested “civilised” expansion into the American wilderness and turned down to join the ill-fated expedition of 1876 and later became a spokesman for the indigenous peoples of the Americas.⁴¹ From this and the two other case studies, Pyenson attempts to separate science and scientific freedom from imperialism: he argues that scientists like Grinnell were not afraid to voice disagreement with the actions of the military, and were likewise not influenced by pressure from the

³⁷Hodge, ‘Science and Empire’, 13-14.

³⁸ J. Gascoigne, ‘Science and the British Empire from its Beginnings to 1850’, in: Bennett, B.M. and J.M. Hodge, *Science and Empire Knowledge and Networks of Science across the British Empire, 1800–1970* (2011) 58-59.

³⁹M. Worboys, ‘The Emergence of Tropical Medicine: A Study in the Establishment of a Scientific Specialty’, in: Lemaine, G., R. MacLeod, M. Mulkay and P. Weingart (eds) *Perspectives on the Emergence of Scientific Disciplines* (1976) 75–98.

⁴⁰ L. Pyenson, ‘Athena’s Retinue: nineteenth-century scientists embedded in the army’, *The British Journal for the History of Science* Vol. 45, No. 3 (2012) 399-400.

⁴¹ Idem, 386-388.

military to publish their findings in any other way than they deemed fit. Pyenson points to the importance of the contact scientists had with each other and their mentors at scientific institutions and universities, stating that this contact was likely far more influential than military pressure.⁴² The one point where scientists did resemble their military colleagues, however, was in their hierarchy: the scientific hierarchy was similar and almost mirrored the military hierarchy according to Pyenson. Scientists travelled with servants and assistants - no unions, no democracy: "The men at the top were authoritarian to the point of irascibility."⁴³

As such, looking at the history of scientific expeditions in the early nineteenth century might seem to be a prelude of sorts to the more extensive New Imperialism of the second half of the nineteenth century; MacLeod views scientific activities on expedition as being instrumental to empire-building and thus being completely intertwined with Empire. Yet, as we have seen in the introduction, Peter Boomgaard has held that this kind of imperial science was not as strong in the Dutch colonies due to a lesser degree of militarisation and fewer centralised institutes that would provide funding for imperial expeditionary science.⁴⁴ An analysis of the *Triton* expedition and its funding will thus shed light on this issue.

Science and the Navy

Regardless of the exact nature of the interdependence between science and the military, military officers naturally had an important role to play. In the case of the 1828 Triton expedition, the officers in question were naval officers. One famous and similar example is HMS Beagle's second voyage and the relationship between its captain, Robert Fitzroy (himself an avid naturalist) and Charles Darwin. MacLeod refers to "an almost invisible army of 'scientific travelers'" coming into existence and accompanying these military vessels in the early nineteenth century.⁴⁵

A number of scholars have delved into the relationship between naval officers and men of science in this period. Writing on the history of meteorology, Azadeh Achbari traces the development of that field as cooperation and occasionally conflict between scientists and naval officers.⁴⁶ M. Reidy provides a similar analysis in *Tides of History*, stating that the publishing of a "manual of scientific enquiry" by the British Admiralty in 1847 was no more than logical, as it symbolised the tight relationship between the state and science.⁴⁷ Reidy presents this dynamic as a conscious effort on the parts of both the admiralty and the scientists themselves; the

⁴² Idem, 398-399.

⁴³ Idem, 399.

⁴⁴ Boomgaard, 'Introduction', 23.

⁴⁵ MacLeod, 'Discovery and Exploration', 50.

⁴⁶ A. Achbari, *Rulers of the Winds - How academics came to dominate the science of the weather, 1830-1870* (Amsterdam 2017) 9-10.

⁴⁷ M.S. Reidy, *Tides of History - Ocean Science and her Majesty's Navy* (2008) 254-255.

admiralty used scientists to expand the resources of the empire, while scientists used the admiralty to advance both their own position and the position of science in society.⁴⁸ The Admiralty would repeatedly call on scientists to aid overseas expansion; this, Reidy holds, resulted in a continually-growing relationship between the two. Where the interdependence was still 'inchoate' at the beginning of the nineteenth century, by the end of it the Admiralty had fully embraced science⁴⁹ Reidy indicates that all [western] seafaring nations contributed to this intricate relationship, but mentions no case of the Dutch.

Achbari builds on Reidy's analysis, but disagrees with the notion that the relationship between science and the military grew throughout the nineteenth century and was cemented at the end of it. She argues that the relationship between men of science and military officers helped shape and demarcate scientific disciplines; by framing themselves as the authority on natural observation and measurement, scientists eventually managed to place themselves above instrument makers and military observers, thus marginalizing the latter.⁵⁰ Achbari's focus is thus mainly on tracing the demarcation of the meteorological discipline away from military officers and towards scientifically-trained men. In order to make this point, Achbari chooses to focus on the Dutch naval officer M. H. Jansen (1817-1893) and his relationship with the American officer M. F. Maury (1806-1873) and Dutch meteorologist Christopher Buys Ballot (1817-1890). In 1828, this demarcation had not yet taken place, and the relationship between naval officers and men of science would, according to both Reidy and Achbari, have been somewhat equal in regards to their scientific authority.

Next to their relations with men of science, Dutch naval officers in the early nineteenth century would have been quite well-versed in various scientific fields themselves. Although the Royal Institute for the Navy (*Koninklijk Instituut voor de Marine*, KIM) was not founded until 1829, its predecessor, the Maritime Training College (*Kweekschool voor de Zeevaart*) had existed since 1785. In these institutes, young aspiring naval officers were taught relevant disciplines such as hydrography, cartography and meteorology, all significant parts of effective navigation at sea. Helmsmen in the navy had to pass a state-mandated exam, which was regulated by the 'Committee for the Examination of Naval Officers, the Finding of the Longitude at Sea and the Improvement of Naval Maps' (*Commissie tot het examineren der zee-officieren, het vinden der lengte op zee en het verbeteren der zeekaarten*).⁵¹ This made the nineteenth century Dutch naval officer similar to the scientist in one major

⁴⁸ Ibidem.

⁴⁹ Idem, 255.

⁵⁰ Achbari, *Rulers of the Winds*, 13-14.

⁵¹ C.A. Davids, 'Van Vrijheid naar dwang. Over de relatie tussen wetenschap en zeewezen in Nederland in de 19e en vroege 20e eeuw.', *Tijdschrift voor de Geschiedenis van de Geneeskunde, Natuurwetenschappen, Wiskunde en Techniek*, vol. 13 No. 1 (1990) 6-7.

respect: his understanding of systematic, scientific measuring and reasoning.⁵² Combining this with the analyses offered by Reidy and Achbary, we should expect the naval officers aboard the *Triton* to have knowledge of scientific affairs. Because fields such as hydrography or meteorology were not yet their own separate disciplines in 1828, the *Triton* naval officers would have counted as being as much “experts” in these fields as the members of the Natural History Committee were considered to be “experts” in natural history.

Dutch Imperial Science

Since science and imperialism were either interdependent (MacLeod) or at least coexistent (Pyenson), as shown above, we can thus conclude that science would have been one of these factors in imperialism - looking into the *Triton* expedition, we can determine whether this was the case for *Dutch* imperialism and science as well. In the Dutch context, it makes sense for historians of science to focus on colonial expeditions. If we are looking for the ‘places of knowledge’ where scientific research was carried out, the twenty first-century observer might be inclined to look towards the universities. The universities in the Netherlands at the turn of the nineteenth century, however, engaged only minimally in scientific research. Education, both of students and of the masses was the first priority for Dutch professors. What little research was done, was often passed on to students without formal publication.⁵³ This does not mean that these activities should be disregarded - a utilitarian focus on education was simply considered part of “doing science” - but it does mean that the *production* of natural knowledge lay elsewhere, and often abroad.

The idea that science played a significant role in Dutch imperialism is not novel. Andrew Goss has introduced the term ‘floracrats’; the use of natural knowledge (specifically botany) by the state over the course of the nineteenth and twentieth century. Nature, like the colony and its peoples, had to be classified, understood and governed. In turn, this knowledge had to be transferred to the colonial subjects, in an effort to “civilise” them. These Enlightenment values turned botanists into imperial agents. Goss argues that the center of these activities moved towards the colonies and away from the continental Netherlands over the course of the nineteenth century, in a process that ultimately created scientific institutions virtually independent from their continental counterparts.⁵⁴ This is a case of what MacLeod would call imperial science.

⁵² G.M.W. Acda, *Op de deining van de wetenschap. Leven en werk van Gustaaf Frederik Tydeman (1858-1939), zeeofficier en hydrograaf*.

⁵³ Bert Theunissen, *Nut en nog eens nut*. (2000) 41-42.

⁵⁴ Andrew Goss, *The Floracrats: State-Sponsored Science and the Failure of Enlightenment in Indonesia* (2011) 6-8.

As the more extreme perspectives on the nature of Dutch imperialism have evolved into more nuanced positions over time, attention has shifted to the effects of imperialism, and the history of science is no exception to this development.⁵⁵ One such frame of analysis comes in the form of “webbedness”, or network analysis - analogous to the ‘imperial knowledge networks’ mentioned above. Research in this form on the Dutch colonies has, according to Remco Raben, been lacking.⁵⁶ This is not to say that no work has been done: within the history of knowledge, Fenneke Sysling, has charted the networks of ethnologists in the early twentieth century, for example.⁵⁷ Robert-Jan Wille has shown that the developments within laboratory biology in the nineteenth-century Netherlands cannot be properly understood without the colonial context.⁵⁸ An important consequence of these types of analysis is the fact that they move away from explaining imperialism as a monolithic, top-down process where expansion and empire-building was driven by policy makers in the metropolis. Rather, they show how imperialism’s character was often local, enacted first by colonial actors and officials and only later by the central European government; this echoes Fasseur’s *colonial paradox* and Locher-Scholten’s synthesis.⁵⁹

As such, this study focuses on showing how Dutch *colonial science* of 1828 was also *imperial science* and looks to find whether it contains elements of *scientific colonialism* or even *imperialism*. In other words, we are gauging to what extent the Natural History Committee and the Dutch colonial navy formed an ‘imperial knowledge network’ by looking at their relations, both on an interpersonal level and a financial level. This will show how the committee’s activity functioned as a way for the Dutch colonial authorities to expand and control the East Indies, and to what extent the Dutch navy played a role in this, both by funding the expedition and providing manpower and material, as well as by contributing to science by having its officers engage in scientific activities. This will show us whether the committee’s work on the *Triton* expedition was indeed a “tool of empire”.

Humboldtian Science and Dutch Scientific Culture

Why did scientists decide to embark on these journeys with the military? Macleod points to Humboldtian science as the main reason. This concept, exemplified by its

⁵⁵ Kuitenbrouwer, ‘Het imperialisme-debat in de Nederlandse geschiedschrijving’, 67-70.

⁵⁶ Raben, ‘A New Dutch Imperial History?’, 13-14.

⁵⁷ F. Sysling, ‘Geographies of Difference: Dutch Physical Anthropology in the Colonies and the Netherlands, ca. 1900-1940.’, *BMGN*, vol. 128 no. 1 (2013) 105-126.

⁵⁸ R. Wille, *Mannen van de microscoop. De laboratoriumbiologie op veldtocht in Nederland en Indië, 1840-1910* (Nijmegen 2018).

⁵⁹ B.M. Bennett, ‘The Consolidation and Reconfiguration of ‘British’ Networks of Science, 1800–1970’, in: Bennett, B.M. and J.M. Hodge, *Science and Empire Knowledge and Networks of Science across the British Empire, 1800–1970* (2011) 30-31.

namesake Alexander von Humboldt (1769-1859) has expanded from its originally narrow definition, to a broader conception of science held to some degree by many scientists throughout the nineteenth century. Von Humboldt is credited with invigorating a new kind of professionalism in science at the turn of the nineteenth century; traditionally, Humboldtian science has been held to emphasise gathering knowledge for knowledge's sake through meticulous measurements. In Humboldt's own words in a diary entry: "The great problem of life is how to produce a great number of exact measurements in a short amount of time."⁶⁰ This was combined with a belief in the unity and interconnectedness of nature - rather than limiting itself to any one field, Humboldtian science necessitated the utilisation of many different fields to get a complete picture of nature; only by direct involvement could the scientist understand the connections between geography, geology, meteorology, botany, zoology and physics.⁶¹ The conviction of science having to precisely measure every possible quantity of nature, led the Humboldtian scientist to travel across the globe, accruing ever more data.⁶² For the Humboldtian scientist, travel was obligatory, as only by travelling could the scientist observe the diversity of nature yet grasp its unity.⁶³ MacLeod refers to the "centrality of the periphery", arguing that Humboldtian science motivated men of science to go on expeditions, like Humboldt himself had done, to Oceania, Africa, the Americas and Asia.⁶⁴ Humboldtian science may thus have stimulated scientists to become imperial scientists by pushing them towards the periphery and having them engage with nautical and colonial institutions, such as the Dutch navy and the government of the Dutch East Indies.

Humboldtian science took on a particular form in the field of natural history. Malcolm Nicolson differentiates floristic study from the study of vegetation; the former is more Linnaean in nature, and focuses on collecting and describing the various types of plants growing in one particular region. The latter is Humboldtian, interested in the interconnectedness of various types of flora with both local and global geography and geology.⁶⁵ This was related to the idea of natural unity mentioned earlier:

⁶⁰ M. Dettelbach, 'The Face of Nature: Precise Measurement, Mapping, and Sensibility in the Work of Alexander von Humboldt', *Studies in History and Philosophy of Biology and Biomedical Sciences*, Vol. 30 No. 4 (1999) 480; Original source: Tagebuch I, 81r. Humboldt Nachlaß, Staatsbibliothek Preussischer Kulturbesitz, Berlin, Haus 1..

⁶¹ Idem, 473-474;

MacLeod, 'Exploration and Discovery', 43-44.

⁶² Dettelbach, 'The Face of Nature', 480-481.

⁶³ M. Nicolson, 'Alexander von Humboldt, Humboldtian Science and the Origins of the Study of Vegetation.' *History of Science*, Vol. 25, no. 2 (1987) 176.

⁶⁴ MacLeod, 'Exploration and Discovery', 45.

⁶⁵ Nicolson, 'Alexander von Humboldt, Humboldtian Science and the Origins of the Study of Vegetation.', 168-169.

"This science, which without doubt is one of the most beautiful fields of human knowledge, can only progress by individual study, and by the bringing together of all phenomena and creations which the surface of the earth has to offer. In this great sequence of cause and effect, nothing can be considered in isolation. The general equilibrium, which reigns amongst disturbances and apparent turmoil, is the result of an infinity of mechanical forces and chemical attractions balancing each other out. Even if each series of facts must be considered separately to identify a particular law, the study of nature, which is the greatest problem of *la physique générale*, requires the bringing together of all the forms of knowledge which deal with modifications of matter."⁶⁶

In practice, this meant creating what Malcolm Nicolson calls a *plant geography*: the various geographical and meteorological data of a given region were measured using a wide array of instruments, as was the local vegetation. This was then extensively tabulated and compared with different regions.⁶⁷ Classification of species was done differently than in the Linnaean system. Rather than taxonomy being the main factor in deciding classification, it was the region of habitat that determined the place of a species in the Humboldtian system. This was, as Nicolson notes, not meant to *rival* the Linnaean system, but to serve a different purpose; the creation of a plant geography.⁶⁸

As Humboldt was less interested in utilitarian motives than he was in determining the interconnectedness of natural phenomena, this put him apart from the naval officers, hydrographers and navigators, at least in theory. There is a slight tension in MacLeod's description of Humboldtian science with its intentions of scientific purity and with how most scientists on (military) expeditions behaved. As established above, scientific findings - often Humboldtian in nature - aided the expansion of the colonial state by providing information on resources, local peoples and sea routes.

This tension between "knowledge for knowledge's sake" of Humboldtian science on the one hand, and "utilitarian" science on the other, connects to a debate particular to the Dutch nineteenth century context. Traditionally, it has been held that Dutch science entered something of a "Dark Age" between 1750 and 1850: little novel research was performed in the Netherlands, and what was done was of little note. The end of this period has been described as coming about because of the creation of two laws (The 1863 *Secondary Education Act*, and the 1876 *Higher Education Act*) which created the *Hogere Burger School* (HBS) as preparatory education for university and which added research to the official duties of

⁶⁶ Idem, 176-177.

⁶⁷ Idem, 180-181.

⁶⁸ Idem, 182-183.

professors.⁶⁹ Ad Maas has disputed this, stating that the natural sciences in this period flourished outside of the universities. Civil scientific societies printed books and pamphlets, gave public lectures and discussed their findings.⁷⁰ While this was not done professionally in the sense of the 21st-century scientist, this should not be disregarded. For the Dutch scientists, good science was useful science; it served the community in some shape or form. Even the “professionals”, professors at universities, had close contact with the civil scientific societies, and often held lectures at their meetings.⁷¹ Scientific knowledge was disseminated throughout society, and became a matter of social standing. Given this, combined with the fact that an officer like Modera would have been trained in hydrography and meteorology, it is not surprising that both he and Van Delden spent some time in their report and journal to discuss geographical and ethnological features of New Guinea; this would have been a cultural expectation of them.

Another explanation Maas adds for the lack of original research in the period after 1815, is the dominance of the Biedermeyer culture, in which flamboyance and exceptionality were looked down upon: “A cult of simplicity took hold of the Dutch culture, in which alleged ‘national’ values such as honesty, modesty, diligence, solidity, piety, moderation, perseverance, common sense and dispassionately were cultivated.”⁷² This servile attitude, with its focus on the common good and usefulness, might explain the disposition of the committee members on the *Triton* expedition. Interestingly enough, however, Maas notes that the state hardly played a role in the life of the “civil scientist”; a remark which obviously does not hold for the members of the Natural History Committee, a state-financed organisation.

Ad Maas separates “useful science” from “pure science”, but it is debatable to what extent the early nineteenth century Dutch scientist would have made this distinction. Bert Theunissen has argued that what might be considered “pure” science in the 21st century, might have meant something else entirely in the nineteenth.⁷³ As has already been touched upon above, dissemination of scientific knowledge - useful science - was considered an integral part of the duty of a learned man in the early nineteenth century. Theunissen argues that Dutch scientists rarely mastered a single domain and rather worked “encyclopedically”, partly for cultural (utility) reasons, partly because of the meagre financial position of the universities in the early nineteenth century.⁷⁴ It is not surprising, then, that Humboldtian science found firm ground among Dutch scientists, with its emphasis on the importance of

⁶⁹ Ad Maas, ‘Civil Scientists’, 75-77.

⁷⁰ Idem, 81-82.

⁷¹ Idem, 85.

⁷² Idem, 88.

⁷³ Theunissen, *Nut en nog eens nut*, 8.

⁷⁴ More to be said on this in the next chapter.

systematic relations between disciplines in natural knowledge - yet retaining a highly utilitarian character.⁷⁵

The Natural History Committee

In 1820, two related developments occurred in the Netherlands: the founding of the 'Natuurkundige Commissie voor Nederlandsch-Indië' (*The Natural History Committee for the Dutch East Indies*⁷⁶), and the founding of the 'Rijksmuseum van Natuurlijke Historie' (*The National Museum for Natural History*) in Leiden. Both of these developments had the Dutch natural historian Coenraad Jacob Temminck (1778-1858) at their center. Temminck was to be the first director of the museum, giving his personal natural history and ornithological collection to the new institute in the process. Temminck had also pushed for the founding of the *Natuurkundige Commissie* as a means of increasing the international prestige of Dutch natural history research.⁷⁷

The researchers of the *Natuurkundige Commissie* were funded by the Crown and were ordered to not only research the botany and zoology of the East Indies, but also its minerals and other means of exploitation.⁷⁸ The committee was supposed to publish the findings of their various activities, but this took longer than expected. In the end, the king ordered the publications to commence in 1839 and gave the committee the required funding.⁷⁹ Evidently, then, the activities of the *Natuurkundige Commissie* were funded top-down by necessity if not by design. This fits into Goss' narrative of the *floracrats*, the committee being an early example of this development: not only Humboldtian measurement and description for science's sake, but utilitarian analyses of human and natural resources for effective management of the colonies were required. Maarten Manse cites the employment of members of the committee by the colonial government in the monitoring of the Cultivation System's (*Cultuurstelsel*) effectiveness as a prime example of this.⁸⁰ The committee thus indeed engaged not only in *colonial science*, but in *scientific imperialism* as well, by helping carry out and improve new colonial policy.

The expedition to New Guinea was one of many journeys to the Dutch colonies by members of the committee, and five members of the committee took part in it: J.C. Macklot (president of the *Natuurkundige Commissie*, mineralogist and

⁷⁵ Theunissen, *Nut en nog eens nut*, 40-42.

⁷⁶ While 'Natuurkundige' would translate to 'Physical' in contemporary Dutch, the word had not yet acquired that specific meaning in the early 1800s, instead being a catch-all term for the natural sciences.

⁷⁷ Mörzer-Bruyns, *Met de Triton en de Iris naar Nieuw-Guinea* (2018) 91-92; Weber, 'Collecting Colonial Nature', 76-77.

⁷⁸ Mörzer-Bruyns, *Met de Triton en de Iris naar Nieuw-Guinea* (2018) 92-93.

⁷⁹ Mörzer-Bruyns, *Met de Triton en de Iris naar Nieuw-Guinea* (2018) 93.

⁸⁰ Maarten Manse, 'Kennis is macht: de veelzijdige expedities van botanicus Pieter Willem Korthals (1807-1892)', *Studium* Vol. 6, no. 1 (2013) 47-48.

medical doctor), S. Müller (anatomist), P. van Oort (draftsman), G. van Raalten (secretary of the committee, assistant-draftsman) and A. Zippelius (herbalist).⁸¹ During the expedition, Macklot kept in contact with Temminck during the expedition and later wrote a report to the commissioner-general for the Dutch East Indies, which was published in 1830.⁸² Each of these members carried out their respective trades during the 1828 expedition. For example, the ornithological collection of the expedition, which Müller oversaw, numbered some 119 bird species, and Zippelius gathered a collection of 429 botanical specimens.⁸³ Although it was not part of the expedition's formal tasks, Macklot and Müller also provided ethnographic descriptions of New Guinea's inhabitants, as evident from their report to the commissioner-general of the Dutch East-Indies.⁸⁴

An expedition of the committee, echoing Pyenson's description of scientific hierarchy mirroring the military, would have involved a sizable entourage, sometimes more than 150 people, mostly Indonesian porters, soldiers, cooks, guides and assistants.⁸⁵ Calculating the expenses of such a diverse set of people, many of whom (Indonesians and Chinese) would likely not have appeared on the payroll, would complicate the matters of this study. It is somewhat striking, then, that this entourage does not seem to have joined on the *Triton* expedition - Neither Modera nor Van Delden mention anyone other than the members of the committee, likely due to the already extremely limited space aboard the vessels, as the future garrison and occupants of the fort had to be shipped on the *Triton* as well.

Andreas Weber has shown that the makeup of the committee lays bare the entanglement of the Dutch East Indies with the continental European scientific community. Its seventeen members were dominated, not unlike the Dutch colonial military, by a large number of Germans.⁸⁶ Andreas Weber notes that German scholars, lacking a clear career path, saw the Netherlands and the Dutch East Indies as an opportunity to further their ambitions. Natural scientists who had no family ties or significant wealth were often unable to build substantial careers in conservative states such as Prussia, and thus sought their fortune elsewhere.⁸⁷ For example, Weber describes how Müller, the anatomist of the expedition, was born in Heidelberg as the son of a saddler and never received an academic degree. Specialising in the preparation of specimens, he joined the Natural History

⁸¹ Modera, *Verhaal van eene reize naar de Zuid-Westkust van Nieuw-Guinea*, 2.

⁸² See: H. Macklot, *Verslag van het Land, de Bewoners en Voortbrengselen van eenige plaatsen op de kust van Nieuw-Guinea, welke in den loop van het jaar 1828, door de Natuurkundige Commissie in Oost-Indië, aan boord van Z. M. korvet Triton, zijn bezocht, alsmede van de voorwerpen van Natuurlijke Historie, welke gedurende de reis, van den 20 Mei tot den 50 Augustus, op en langs die kust, door gemelde kommissie zijn verzameld*. (1830).

⁸³ Mörzer-Bruyns, *Met de Triton en de Iris naar Nieuw-Guinea* (2018) 98-99.

⁸⁴ Ibidem.

⁸⁵ Weber, 'Collecting Colonial Nature', 83.

⁸⁶ Idem, 74.

⁸⁷ Idem, 77.

Committee in 1825.⁸⁸ That is not to say all committee members had this background; Macklot hailed from an affluent background and held a degree from the university of Heidelberg.⁸⁹ Pieter Willem Korthals (1807-1892), who would arrive in the East Indies in 1831, was a Dutchman who was officially employed by the *Rijksherbarium* in Leiden (formerly in Brussels and hastily moved north after the Belgian revolt).⁹⁰ Pierre-Médard Diard (1794-1863) was a Frenchman from Toulouse employed in the late 1820s.⁹¹

Given the above, it is clear that the Natural History Committee is something of an exception to some of the assumptions generally held about early nineteenth century Dutch science. The organisation was state-funded, consisted of a true 'knowledge network' due to its activities in the Indies as well as in Europe. It had a strong dependence on the Dutch colonial military and navy for its transportation and protection, thus engaging in true *imperial science*, as well as in *scientific imperialism* by helping the Dutch state map and exploit the East Indies, such as with the cultivation system.

Conclusion

The historiography of science, imperialism and the Natural History Committee hands us a complex picture of the situation surrounding the 1828 *Triton* expedition. Scientific expeditions in the early nineteenth century have been shown to be integral to the military and imperialist strategy of seafaring powers. Focusing on these expeditions is fruitful in the case of the Netherlands, as universities were not quite the same 'places of knowledge' they are in the 21st century, focusing on education instead of original research. Furthermore, the Dutch colonial authorities used natural scientists to further the development of the Dutch East Indies throughout the nineteenth century. Scientists themselves were motivated to travel to the 'periphery' of Europe through the ideals of Humboldtian science, which may have caused tension with the utilitarian motives of imperialist authorities. In the case of the Netherlands, however, this tension was not as strong as it might initially seem due to the focus on utility in scientific work. As a result of this "centrality of the periphery", Humboldtian science may have created the impetus for the inclusion of scientists on naval expeditions, thus becoming agents of empire. The Natural History Committee is an example of these developments: founded by the Dutch authorities to expand knowledge on the Dutch East Indies, the committee undertook a number of expeditions in the 1820s and 1830s, among which was the *Triton* expedition. Taking these developments in mind, we can now turn to the expedition itself - does

⁸⁸ Idem, 78.

⁸⁹ Ibidem.

⁹⁰ Manse, 'Kennis is macht', 42-43.

⁹¹ Weber, 'Collecting Colonial Nature', 79.

the description of nineteenth-century scientific expeditions as given by the authors above hold for the *Triton* expedition?

II. The *Triton* expedition

We have established how nineteenth century imperialism and science relate to each other. We can now devote ourselves to analysing the *Triton* expedition through this lense. This chapter will answer the question whether the expedition should be construed as a “tool of empire” in Dutch colonial activities in the 1820s. In doing so, I will recontextualise the source material used by Jeroen Overweel and Willem F. J. Mörzer-Bruyns by connecting them to debates on science and imperialism. I will first detail the political background to the Dutch East Indies of the 1820s. Then, I will analyse the preparations of the expedition and the expedition itself, in that order. I will use the context gained from this analysis to establish the scientists of the Natural History Committee (as well as the naval officers that engaged in scientific activities) as both Imperialist and Humboldtian scientists.

The Dutch East Indies in the 1820s

After the return of the East Indies into Dutch hands as part of the end of the Napoleonic Wars, the Dutch government tried what it could to build up its possessions in the Dutch East Indies. Part of this effort involved sending ships around the archipelago in order to retain or reestablish contact with local rulers and to explore the natural resources of the colony. The VOC hegemony consisted of dominating trade routes and balancing diplomatic relations with local rulers, a system the Dutch government now tried to reinstate.⁹² The Dutch colonial government faced a large-scale uprising on Java, the heart of the Dutch East Indies, from 1825 onward. This war required the full attention of the colonial military and would ultimately prove to be a massive financial exertion.⁹³

To demarcate the spheres of influence of the British and Dutch colonies, the two naval powers signed the Treaty of London in 1824, which aimed to resolve disputes that had arisen as a result of the Convention of London of 1814. The 1824 convention set, among other terms, the border between the Dutch East Indies and British Malaya and Australia, as well as establishing that neither colony would be allowed to expand its borders without explicit permission from its metropolitan government in either London or The Hague. This included New Guinea, which had been explicitly marked as neutral territory.⁹⁴

In the introduction to his publication of the journals of Modera and Van Delden, Mörzer Bruyns describes the events leading up directly to the expedition. In

⁹² Mörzer Bruyns, *Met de Triton en Iris naar Nieuw-Guinea*, 20.

⁹³ Overweel, 1-2.

⁹⁴ Overweel, ‘Keep them out’, 1.

1822, following earlier expeditions, the governor of the department of the Moluccas, Pieter Merkus, tasked the colonial brig *Dourga* to sail around the southernmost islands of the Moluccas. The intent of this mission was to reestablish relations that were lost after the decline of the VOC, as well as subjugate as of yet unknown “tribes” to Dutch rule. Furthermore, the *Dourga* was to collect hydrographic and cartographic data along its path.⁹⁵ Near the end of this journey, the *Dourga*’s crew heard of the recent shipwrecking of a British smuggling vessel on one of the islands, its crew having been attacked and killed (bar two young men) by the islanders.⁹⁶ The *Dourga*’s mission in and of itself could be construed as a form of imperialism: the Dutch went beyond the previous sphere-of-influence of the VOC, thus engaging in a form of *preemption*. Furthermore, the fact that this was set in motion by a *local* governor rather than a decision by the central government in The Hague fits the definition of *frontier imperialism* and is in line with the analysis of Locher-Scholten and Fasseur.

Upon hearing this news, and keeping in mind recent British endeavours to build forts on the straits between Australia and New Guinea, Merkus feared English incursion into the latter.⁹⁷ He therefore sent out the *Dourga* a second time, towards New Guinea. While the *Dourga* did not find any evidence of British settlement, Merkus thought it only a matter of time. As such, he began devising plans to send an expedition to New Guinea in order to establish a settlement and cut off British ambitions.⁹⁸ Again, the parallel with *frontier imperialism* is easily made.

Preparing the expedition

Considering the above, the expedition that grew out of these events would not seem to be all that scientific in character. For that, we need to turn to the organisation of the expedition proper. The studies by Mörzer Bruyns and Overweel have already provided a general image of the events, but have neglected to mention a number of details regarding the funding of the project.

In 1826, Merkus drew up plans for a settlement on New Guinea, which included plans for laying claim to and annexing the entire island, which he sent to the two most senior officials of the Dutch East Indies: the commissioner-general Leonard Du Bus de Gisignies and the lieutenant-governor-general Hendrick Merkus

⁹⁵ NL-HaNA, Koloniën, 1814-1849, 2.10.01, 606.

⁹⁶ Ibidem.

⁹⁷ Mörzer Bruyns, *Met de Triton en de Iris naar Nieuw-Guinea*, 26-27.

⁹⁸ Idem, 29-30.

De Kock.⁹⁹ These men forwarded the proposal to the Minister of the Colonies and Navy¹⁰⁰ Elout in The Hague, who discussed the plans with King William I in 1827.¹⁰¹

Both Overweel and Mörzer Bruyns, the latter citing the former, summarise the government's decision-making regarding the expedition in the Hague as mainly being politically and economically driven.¹⁰² Indeed, much of the correspondence between the King, the minister of colonies, and the two officials in the East Indies concerned these topics. For example, Elout and the king disliked the idea of a large-scale settlement and annexation of New Guinea, as they expected such a project to draw the attention of the English - while they did not even know whether that attention had been drawn at all yet. A smaller, low-profile trade settlement had their preference, not least because of the lower costs involved.¹⁰³

Merkus had also proposed to use the jurisdiction of the Sultanate of Tidore, whose presence on the northwestern coast of New Guinea had been recognised by both the British and the Dutch as per the treaty of 1824. Merkus had suggested that the sultan of Tidore could cede this territory to the Dutch, allowing them to build a fort in that area.¹⁰⁴ The king considered the authority of the sultanate over the New-Guinean territory to be precarious at best, and he reasoned that such an action would certainly be considered an act of aggression by the British.¹⁰⁵ According to Overweel and Mörzer Bruyns, the Dutch officials decided the best option would be to establish a small-scale trading settlement that could be largely self-sufficient so as to not aggravate the British.

Furthermore, both studies argue that the scientific goals, which were added to the proposal by the king and the minister of colonies, were mainly introduced to cover up the true intentions of the expedition.¹⁰⁶ However, this neglects a part of the source material. The considerations mentioned in the previous paragraphs were indeed present in the correspondence between the national government in the

⁹⁹ Unrelated to Pieter Merkus. Under regular circumstances, the most senior official in the Dutch East Indies would have been the governor-general. After the discharge of governor-general Van der Capellen in 1826, however, no new governor-general would be appointed until Johannes van den Bosch in 1830. In the years in between, these responsibilities were shared by the commissioner-general and the lieutenant governor-general.

¹⁰⁰ The responsibility for the colonies shifted ministries and departments a number of times during the nineteenth century. At the time of the 1828 expedition, there was one unified ministry for colonies and the navy.

¹⁰¹ NL-HaNA, Koloniën, 1814-1849, 2.10.01, 4206.

¹⁰² Mörzer Bruyns, *Met de Triton en de Iris naar Nieuw-Guinea*, 30; Overweel, 'Keep them out!', 4-5.

¹⁰³ NL-HaNA, Koloniën, 1814-1849, 2.10.01, 4206, November 23 1827.

¹⁰⁴ Ibidem; NL-HaNA, Koloniën, 1814-1849, 2.10.01, 4195, March 31 1827.

¹⁰⁵ Ibidem.

¹⁰⁶ Mörzer Bruyns, *Met de Triton en de Iris naar Nieuw-Guinea*, 29-30; Overweel, 'Keep them out!', 5.

Netherlands and the colonial officials in the East Indies. Even so, none of these factors was deciding in approving the endeavour.

Considering the dangers of attracting the attention of the British and the expenses a large-scale settlement would bring, Elout advised the king in a letter on the 31st of March 1827 to instead opt for a small trading post. This post could then be used for other useful affairs. These affairs were the hydrographic measuring of New Guinea's coastline for use in the navy and the merchant marine, the mapping of New Guinea's natural resources, and the ethnographic study of its peoples. To accomplish this, Elout suggested sending a scientific committee along with a draftsman in order to visualise this matter.¹⁰⁷ Only with these additions did Elout feel it advisable to send the expedition. In other words, this observation shows us that science was not merely a cover-up for the political ends of Dutch colonial policy, but the ultimate *enabler* of the expedition. This is a reversal of Pyenson's *embedded scientists*: the scientists in this case were not joining a pre-existing military project, but rather enabled the launching of the combined military-scientific expedition.

This is not to say that the colonial officials had the same priority as their superiors in the motherland. Elout had suggested that the scientific additions to the expedition had the side-effect of providing a cover for the political concerns leading up to it. Du Bus de Gisignies emphasises this point in his correspondence with De Kock:

“Concerning the instructions that are to be given to the responsible bureaucrats: I concur with the proposition given to us by our government concerning the topic; that the public attention and interest is to be drawn to the scientific goals of the expedition, in order for it to be drawn away from the political goals.”¹⁰⁸

This quote can be read in multiple ways. Overweel and Mörzer Bruyns have taken it to mean that the scientific goals of the expedition were mostly rhetoric meant to hide their true intentions. Considering the quote in combination with Elout's considerations, I take it to mean that the scientific opportunities the expedition created were sincere motivations for the eventual launching of the expedition from Elout's point of view, and that they were considered *useful* at the very least by Du Bus de Gisignies and De Kock.

This discrepancy is further supported by the events that transpired after permission for the expedition was given by Elout and the king. The government in The Hague left the details and organisation of the expedition to the colonial government rather than making it a national effort, as part of their strategy to avoid

¹⁰⁷ NL-HaNA, Koloniën, 1814-1849, 2.10.01, 4195, March 31 1827.

¹⁰⁸ NL-HaNA, Koloniën, 1814-1849, 2.10.01, 4206, December 29 1827.

piquing the interest of the British. Du Bus de Gisignies, in his turn decided to defer the practical matters to Merkus:

“Taking into consideration the distance and the lesser knowledge we have here [in Batavia, Java] of the local circumstances, I have, without any reservations, left the practical execution to the Governor of the Moluccas, in whose policy I trust completely after having met him personally last year.”¹⁰⁹

It should be noted that this decision was entirely in line with Dutch colonial policy. In his reforms of the colonial administrative structures, Du Bus de Gisignies’ predecessor, Godert van der Capellen, had decided that the department of the Moluccas included those islands as well as everything east up to and including New Guinea, which “falls under the sovereignty of the sultanate of Tidore”.¹¹⁰

Merkus used this opportunity to, indeed, prioritise his own goals. The study by Overweel had described Merkus’ actions and reasoning in more detail: Merkus opted for a settlement that was larger than a simple trading post, arguing that the British had never taken land without building a fort and stationing a garrison. Ever humble, Merkus decided the settlement was to be called ‘Merkusoord’, and announced the project publicly -- contrary to the wishes of the king and Elout.¹¹¹

To summarise, the events leading up to the 1828 expedition were as follows: first, local colonial officials proposed the idea of an expedition to New Guinea to military, political and economical ends. Metropolitan policy makers then decided on toning down the political goals for economic and pragmatic reasons, and instead approved the expedition only on the condition that scientific elements were to be added. These orders were then taken by the local colonial officials, who used the leeway given to them to again add overtly political elements by building a fort rather than a trading post.

A number of conclusions can be drawn from these events. Overweel has already pointed out the similarities between later imperialism and the causes of this expedition. Overweel points to Robinson and Gallagher’s *imperialism of free trade*, arguing that the main reason the Dutch wanted to build a trading post on New-Guinea was to secure the Moluccan spice trade by preventing the British from incurring on it.¹¹²

While I do not dispute that this was certainly *one* of the causes - it is mentioned explicitly in the correspondence between Elout and William I - I dispute its monocausal nature. Equally justified is Fasseur’s *frontier imperialism*: after all, it was Merkus who unilaterally came up with the idea of building a settlement on the coast of New-Guinea. The *colonial paradox* is evident, as the Dutch central

¹⁰⁹ NL-HaNA, Koloniën, 1814-1849, 2.10.01, 4206, May 14 1828.

¹¹⁰ NL-HaNA, Koloniën, 1814-1849, 2.10.01, 4195.

¹¹¹ Overweel, ‘Keep Them Out!’, 8-9.

¹¹² Overweel, ‘Keep them Out’, 9-10.

government seems to have had no intention of expanding in the Indies as long as the Java War continued. As such, Merkus' initiative was as peripheral as it was a case of reluctant imperialism. This aligns fully with Fasseur's model of Dutch imperialism, and even expands on it, as the *Triton* expedition is slightly outside the timeframe Fasseur uses. Joseph Hodge has stated that the navy often served as the conduit for expeditionary scientific activity in the nineteenth century, but here, too, the roles are reversed: science became a conduit for a naval expedition in the case of the *Triton*.¹¹³ Science, in this case, was thus a *bona fide* "tool of empire" for officials such as Merkus and Elout; it was apparently one of the main factors in deciding whether to engage in imperialist policy.

However, this does not solve the issue of the role of science; as we've seen, this role is larger than has been held by Mörzer-Bruyns or Overweel. The expedition's nature was unmistakably imperialist, which means that its main enabler, the opportunity to gather scientific knowledge, contributed to this. This brings us to MacLeod and Pyenson. We've already established that the latter's concept of *embedded scientists* relates to the *Triton* expedition in an odd way. Where Pyenson speaks of scientists accompanying a military expedition, the *Triton* expedition could be seen as a military contingent joining a scientific expedition. Or perhaps neither is quite the case, and the relations between scientists and military men on the *Triton* expedition were indeed intertwined as per MacLeod's argument. To establish just what this relation was, however, one needs to look to the proceedings of the expedition after the initial planning phase. As discussed in chapter I, MacLeod points towards Humboldtian science with its focus on "pure" knowledge and its emphasis on locality as a prime reason for scientists to join expeditions, and this would thus be expected to be visible in the actions of the scientists aboard the *Triton* expedition. What was the relationship between the naval officers, civil servants and scientists aboard the *Triton*? How was the chain of command structured? What were the primary goals and motivations of the scientists and did these conflict with the goals of the military/civil components?

The Expedition Proper

The *Triton* and *Iris* left the bay of Amboina on the 21st of April 1828.¹¹⁴ Their objectives were to found a small fort on the south-west coast of New Guinea, to take hydrographic and coastal measurements along the way and to support the scientific activities of the Natuurkundige Commissie in any way possible.¹¹⁵ After a short stop

¹¹³ Hodge, 'Science and Empire', 5-6.

¹¹⁴ A. van Delden, *Journal 1828* (unpublished, 1828) 1-2, copy of: NL-NaHa, collectie losse aanwinsten, Y27003, 36A.

¹¹⁵ J. Modera, *Verhaal van eene reize naar de Zuid-Westkust van Nieuw-Guinea*, 16-17. Copy of: Scheepvaartmuseum, 264 'Verzameling-Mensing in het Scheepvaartmuseum', inv. No, S.0187 Mm-0605.

at the Banda islands, where the two vessels took on provisions of rice, the expedition set course for New Guinea on the 29th.¹¹⁶ The coast of New Guinea was spotted from the deck of the Triton on the 20th of May; the sloop mentioned in the first paragraph of this paper's introduction was launched the next day to look for sources of freshwater at the mouth of the Dourga river.¹¹⁷ During the next days, multiple such sorties with armed sloops were undertaken, which at one point led to an encounter with New Guinean tribesmen. Though initially amiable, the situation escalated into a conflict during which two crewmen were hit by arrows while escaping by sloop and a number of New Guineans ostensibly shot dead by musket volleys during the retreat.¹¹⁸ The committee members spent some time surveying the land and gathering ecological and zoological specimens, but as freshwater had not been found, the expedition decided to sail up the river on the 24th of May.¹¹⁹

Modera writes that it was at this point that the expedition concluded that the Dourga river was actually a strait, as there was no sign of the river's water turning to freshwater, even several miles inland, and due to the lay of the land surrounding the 'river'.¹²⁰ Because of this, and because of the unfamiliarity of the Moluccan interpreters with the local language, the expedition decided to sail back to the mouth of the river/strait and turn north, to find a suitable area to settle, taking more hydrographic measurements along the way.¹²¹

After encountering a river which an interpreter had thought to be the Oetanata river, but finding it filled with sandbanks and reefs, the expedition continued northwestward. On the 10th of June, the expedition had another encounter with a large number of New Guineans in canoes and prawns. These New Guineans were familiar with the Seramese language of the Moluccan interpreters, and as such were able to provide the expedition with information on the surroundings and left five guides aboard the Triton.¹²²

Finally, after a number of similar events, the expeditionary vessels found a suitable place for settling in a sizable bay at the foot of the Lamantchirie mountain, on the 30th of June.¹²³ Construction of the fort, named Du Bus after the commissioner-general for the East Indies, started on the 6th of July.¹²⁴ On the 11th,

¹¹⁶ Idem, 17.

¹¹⁷ Idem, 20. The Dourga river, so named because of an earlier Dutch expedition by the colonial vessel *Dourga*, was actually the present-day Muli Strait, which the 1828 expedition would later find out;

Van Delden, *Journaal 1828*, 9-10.

¹¹⁸ Modera, *Verhaal van eene reize*, 23-28.

¹¹⁹ Idem 34-36;

Van Delden, *Journaal 1828*, 13-14.

¹²⁰ Modera, *Verhaal van eene reize*, 38-39.

¹²¹ Idem, 41; Van Delden, *Journaal 1828*, 28-29.

¹²² Modera, *Verhaal van eene reize*, 65-70.

¹²³ Idem, 93-95.

¹²⁴ Idem, 96;

Van Delden, *Journaal 1828*, 134-135.

the *Iris* was sent back to Amboina to report back to the governor of the Moluccas.¹²⁵ In the following month, the bay and its surroundings were mapped and measured. Many crewmen, both European and Indonesian, fell ill with fever.¹²⁶

On the 18th of August, the colonial brig *Siwa* arrived with provisions, having been ordered to bring these from Amboina after the *Iris* had arrived there. Soon after, the *Iris* returned with the same cargo and with two sixpounder and two threepounder guns. On the 24th of August, the birthday of King William I, Fort Du Bus was officially taken into service and Dutch flag was hoisted, together with the reading of a proclamation claiming New Guinea for the Netherlands. The *Iris* and *Siwa* soon returned to the Moluccas, leaving the *Triton*. On the 11st of September, the *Triton* left for Amboina as well.¹²⁷ Its initial orders had been to continue along the coast and map it, but the sickness of the crew and the shortage of provisions left it in no state to do so.

While much of this study's focus is on the price of knowledge in monetary sense, the price of human lives cannot be ignored. During the stay in the *Triton* bay, 14 out of 17 officers of the corvette fell ill with fever. Eight crewmen were unable to be transported and had to be left in Fort Du Bus, three dying in the months after.¹²⁸ Of a total of 170 crewmen, 64 were found to be ill after leaving for Amboina. 62 were hospitalised upon arrival.¹²⁹ A number of them, among whom commander Steenboom, would die in the following weeks.

To what extent this concerns the Indonesian personnel of the *Triton*, is difficult to assess. Modera does make mention of 20 Javanese porters who were seemingly unaffected by the illness, but otherwise mainly makes mention of European crewmen. No matter the monetary expenses of this and similar expeditions, it should never be forgotten that these activities had real, often extremely painful and terrible consequences for those involved, rather than just being figures on a spreadsheet.

The Imperial Scientist

How are we to evaluate the place of science in this expedition, then? We have already established that while Overweel and Mörzer Bruyns are correct in their assessment that economic and political considerations played a large part in the

¹²⁵ Modera, *Verhaal van eene reize*, 97; Van Delden, *Journaal 1828*, 138.

¹²⁶ Modera, *Verhaal van eene reize*, 133. Modera recounts that Macklot and the vessels' surgeons blamed the poisonous miasma that hung over the bay and that had been allowed to come down over the fort and the ships by the cutting of trees for the building of Fort Du Bus.

¹²⁷ Idem, 136, 138-139, 143.

¹²⁸ Idem, 136-37.

¹²⁹ Idem, 145-147; Van Delden, *Journaal 1828*, 157-189.

organisation of the expedition, the scientific considerations were nevertheless substantial. Put more bluntly: had Elout and the king not approved the expedition by insisting on scientific purposes, Merkus would never have been able to build his fort. While all officials involved agreed on cutting as much costs as possible, they still considered the potential for gaining natural scientific and ethnographic knowledge to be large enough to send two navy vessels for a prolonged period.

This resonates with the description of other early nineteenth century expeditions as given by MacLeod. Scientific and military goals were entirely interdependent on the *Triton* expedition. While the *Triton* and *Iris* were not quite the floating laboratories of Cuvier, there were some instruments on board, both for the committee and for the hydrographic measurements of lieutenant Boers.¹³⁰ The *Triton* thus became a “place of knowledge” itself: not only was the ship used as a platform to launch the occasional sloop towards the shoreline, it was also used in Modera’s, Van Delden’s and Macklot’s description of the New Guinean coastline.

Another point where the *Triton* expedition touches upon MacLeod’s analysis of early nineteenth century expeditions, is the role the expedition played in the expansion of the Dutch colonial empire. The Dutch claim on New Guinea had of course already been formalised by the treaty of 1824, the Dutch nevertheless made their claim reality by sending the *Triton* and the *Iris* - which, tangentially, lines up with the notion of *contiguity* in the imperialism-debate. Science was instrumental in this expansion, both in the rhetoric of the expedition’s participants as in their actions.

For example, Van Delden, when describing one of his conflicts with commander Steenboom, laments the fact that this expedition was commanded by such a man, and that it was a shame for the good of the nation and for the good of scientific knowledge.¹³¹ Modera notes that the sixteenth point of Van Delden’s missive, which was also directed to Steenboom, from Merkus stated that “He [van Delden, and by extensions, Steenboom] will ask the Natural History Committee’s members for their advice and will keep daily notes on the committee’s findings, activities and gained knowledge, after which a report shall be made and presented to the government of the Indies”.¹³² It seems that both Van Delden and Steenboom took this missive seriously: in both Modera’s report and in Van Delden’s diary, Macklot was consistently involved in the decision-making of the expedition; both the civil servants and the military officers seem to have held Macklot’s opinion in great esteem. For example, when the expedition failed to find freshwater at the mouth of the Dourga “river”, Macklot, Steenboom and Van Delden held conclave and decided the next course of action among the three of them.¹³³ Van Delden was

¹³⁰ Modera, Van Delden, Bruyns.

¹³¹ Van Delden, *Journaal 1828*, 49-51.

¹³² Modera, *Verhaal van eene reize*, 11.

¹³³ Van Delden, *Journaal 1828*, 13-14.

technically the leader of the expedition and his inclusion is not surprising as such, but it is nevertheless telling that it was Macklot (and not, for example, the commanding officer of the *Iris*) who Steenboom considered to be more or less equal.

More importantly, while Van Delden and Steenboom came into conflict a number of times due to the ambiguity of Van Delden's hierarchical relation to Steenboom, Macklot never seems to have had these issues -- the scientist and the military officer, it seems, were equals, where Van Delden as a civilian was not. It is not quite clear to what extent the hierarchy among the members of the committee was rigid and to what extent it might have mirrored the military chain of command - although Macklot was definitely considered the most important member.

Another point that supports the equality of science and the military on the *Triton* expedition, is the committee's activity when away from the *Triton*. In nearly every sortie, Macklot and a varying number of committee members were present. When the *Triton* sent an officer to search for freshwater at the mouth of the Dourga on the 22nd of May, Müller accompanied him.¹³⁴ The armed sloop that was sent out later that day, carried a number of European soldiers as well as Macklot, Van Raalte (members of the committee), Hugenholtz, Boers and Modera (three officers of the *Triton*). In the ensuing conflict with the local Papuans, the members of the committee participated in the firefight.¹³⁵

It can thus be said that the scientists' position during the expedition seems to have been truly equal to the position of the various naval officers and perhaps even slightly better than the position of Van Delden. While there is no real way of knowing what the scientists themselves may have thought of this, we can still figure out some of their convictions by looking at what knowledge they were gathering; were they busy creating a Humboldtian *plant geography* or were they simply describing a Linnaean taxonomy, for example?

The Humboldtian Scientist

Macklot's report to the government of the Indies gives us some insights. It should first be noted that the report is fairly textual and includes little in the way of tables or numbers. While this may not seem particularly Humboldtian (with its emphasis on precise and meticulous measurement), that does not mean that the Natural History Committee were not Humboldtian scientists. For one, much of the botanic and zoologic descriptions in Macklot's report rest on the geographical and geological function of certain types of flora and fauna within the ecosystem of New Guinea, rather than their taxological properties. Macklot felt this was important, as "the most dominant species of vegetation in any particular area form such a large

¹³⁴ Modera, *Verhaal van eene reize*, 13.

¹³⁵ Idem, 14-16.

part of the characteristics of a region.”¹³⁶ For example, he noted that the majority of the trees on the coastline between the Dourga river and *Lokaia* are of the genera *Rhizophora* and *Brugiera*, but that vegetation further up in the foothills, free of regular flooding, were of the genus *Casuarina equisetifolia*. Further up, in the mountains, where no roots could take hold, the vegetation consisted of palm trees: *Area communis* and *Pandanus Latissimus et pendulinus*.¹³⁷ This is similar to Alexander von Humboldt’s model of the vertically zoned distribution of vegetation on the mountainsides of the Andes.¹³⁸ These descriptions are preceded by paragraphs of geological information, such as the composition of the soil and rock in various regions of New Guinea:

“The Triton-bay, where the settlement was founded (called Lobo by the locals) is the only flat land in the area, at the foot of the *Lamentsieri* mountain. In this place, the soil consists of chalk mixed with clay and a little quartz. The soil is of a light colour and soft to the touch, with about 1 foot of fertile planting soil. We have dug about 8 foot deep, without hitting rock. The smaller flatlands between the cliffs of the mountains and rocks, created by erosion from the sea, which one finds all around the Triton-bay, mainly consist of quartz or chalk, or of white and red coral.”¹³⁹

Afterwards, Macklot goes into detail on the New Guinean climate, describing the weather from May to August, and in particular detail the temperature:

“As for the temperature, this was average during the day and cool at night, even cold at times. The heat was only a concern when the skies were clear and the sun was high. At the Oetanata-river, the thermometer was at 25°C, at 29°C in the afternoon and at 26°C to 26.7°C in the evening; 30 observations, taken with the same thermometer at Lobo, give an average in the early afternoon of 27.4°C, 28.1°C in the late afternoon and 26.6°C in the evenings after 18:00. The highest and lowest indication of the thermometer I have been able to observe were on the 14th of August at 13:00 for a value of 31°C, and on the third of August at 12:00 for a value of 25.0°C.”¹⁴⁰

This weaving-together of geology and meteorology with botany is typical of the Humboldtian plant geography, which according to Nicolson “should be the collective, holistic phenomena of vegetation.”¹⁴¹ This, naturally, included geology and meteorology. And while the measurements of the thermometer may not have been as neatly tabulated as Alexander von Humboldt himself might have done, it is

¹³⁶ Macklot, *Verslag van het land*, 149

¹³⁷ Ibidem.

¹³⁸ N. A. Rupke, ‘Humboldtian Medicine’, *Medical History*, No. 40 (1996) 299-300.

¹³⁹ Idem, 146-147.

¹⁴⁰ Idem, 151.

¹⁴¹ Malcom Nicolson, ‘Humboldtian Plant Geography after Humboldt’, 290.

nevertheless unmistakable that Macklot had been particularly meticulous in measuring the temperature during the expedition. This is, then, indeed the “bringing together of all forms of knowledge which deal with modifications of matter”, as presented in the first part of this paper.

Contributing further to the image of the Natural History Committee’s Humboldtian attitude is a field that came to be especially important during the latter parts of the expedition: medicine. When the crew and the settlers started becoming ill over the course of July, Macklot was consulted as to the possible causes. Modera recounts that “according to the judgement of the gentlemen Macklot, Ovink and Van Dura [the two ships’ surgeons/doctors], the cutting down of the forest and the clearing of the ground surrounding the fort was the cause of this disease, as the fumes that were previously contained by the dense vegetation were now able to rise and spread. This hypothesis was strengthened by the fact that the illness did not subside even when the rainy weather went away, but rather that the illness increased in severity after those days.”¹⁴² This miasmatic explanation of the disease that had struck the expedition aligns with the wider miasmatic movement of the nineteenth century.

Unsurprisingly, a miasmatic perspective took into account the surrounding geography and environmental factors, as Macklot did here. The relation to Humboldtian Science is easy to see. In fact, Humboldtian Medicine has been described, in the words of Nicolaas Rupke, as something of an analogy to Humboldtian plant geography: “A way of defining Humboldtian medicine, other than by stating that it made use of physical geography, is to say that its practitioners expanded the scope of the Humboldtian programme to include a systematic study of the global variable of human diseases, making use of the concepts, terminology and representational forms of the new plant geography.”¹⁴³ Like plants, diseases too were products of their geographical and meteorological environment. In the case of the disease that struck the *Triton* expedition, the disease was a direct consequence of the altering of the surrounding soil and vegetation. Macklot held that the region *in essence* was not unhealthy: “Now that the land has been cleared of vegetation, and has been opened up to the air and sunlight, , no further harmful fumes can concentrate, and as such no more diseases will appear.”¹⁴⁴

Consequently, it can be held that the scientists of the committee, if we consider Macklot to be their representative, had a decidedly Humboldtian view on their work. Interestingly enough, however, there seems to have been no conflict on another particularly Humboldtian characteristic: the purity of scientific knowledge. Macklot’s report is of course of no use in assessing this, as it was targeted

¹⁴² Modera, *Verhaal van eene reize*, 134.

¹⁴³ Rupke, ‘Humboldtian Medicine’, 297.

¹⁴⁴ Macklot, *Verslag van het land*, 153.

specifically at the Dutch colonial government and as such should probably not be taken as representing the personal motivations of the committee's scientists. What is of note, however, is that at no point the scientists complained to either Van Delden or Steenboom about wanting to do "pure" science as opposed to doing science for the glory of the nation and the king. That is to say, the committee members seem to have been at ease with producing scientific knowledge for utilitarian purposes. This is of course somewhat at odds with archetypical Humboldtian science. Perhaps the committee members were wise to keep these thoughts to themselves; or perhaps there is another explanation.

As seen in the previous chapter, this might be explained by the fact that Dutch scientific culture placed great importance on the utility of scientific work. Relating this to the work of the Natural History Committee on the *Triton* expedition, then, we must conclude that the dichotomy between "pure" and "utilitarian" science *simply did not exist for the Dutch scientist*. "Good" science, as far as it concerned them, was both useful and pure. When viewed from this angle, the fact that these scientists were considered equals to the officers aboard the *Triton* is much less surprising: the scientist's work was inherently useful. As Van Delden and Modera's interest in geography and ethnology show, scientific knowledge was something of a demarcation of the higher/middle classes, which united the civil servant, the officers and the scientists aboard the *Triton*. The divide between the imperialist activities and the purely scientific activities of *embedded scientists* as described by Pyenson thus simply does not hold for the Dutch expeditionary scientist of the 1820s. In the latter's mindset, military/imperialist application of science and the production of natural knowledge were not separate activities, but the same thing.

Concludingly, we have now seen that the promise of scientific knowledge *enabled* the *Triton* expedition. In this case, science became the conduit and catalyst for imperialist expansion. As the reasoning of Elout and King William I was based on the ability to map, control and exploit the resources of New-Guinea, this makes the science done aboard the *Triton* a true "tool of empire". We have also considered the actions and dispositions of the various expedition members. The scientists of the natural history committee engaged in what we would consider typical "military" activities, such as taking part in armed sorties. Furthermore, the hierarchical division between scientists and officers was decidedly blurred during the expedition. When framing this in terms of Humboldtian science, we have seen that the Natural History Committee can be seen in terms of typically Dutch "useful science", in which no real divide should be made between pure and utilitarian science. By engaging in Humboldtian Science, the scientists of the committee tried to map every aspect of the New-Guinean island: its coast, its flora and fauna and its geology. In the end, this was to fulfill their mission towards the Dutch government: to map the colonies and its resources. As such, the committee's scientists did not

just collect colonial nature separate from the imperialist activities (the construction of the fort) of the navy, but rather played a key role in this process. In fact, their activities did not differ much from, for example, those of Lieutenant Boers, who carried out hydrographic measurements. Military science and “civil” science aboard the *Triton* were not factually different: both served the goal of producing natural knowledge for the good of the colonial state. The committee’s activities were thus truly *imperial* science and not simply *colonial* science, in MacLeod’s terms.

III. The Price of Knowledge

The conclusions of the previous chapter leave open the question posed in the introduction: just how much did this cost? What was this scientific knowledge worth to the state? Even if we have now established that the expedition's logic was imperialist and that the scientific activities of the natural history committee supported this imperialism, this still does not tell us just how significant this expedition was in the grander scheme of Dutch colonial government at the time. This chapter will answer the question just how significant the military funding for the *Triton* expedition was. By doing so, we can find out whether this expedition was simply a small-scale anomaly or rather indicative of the state's willingness to pour large amounts of funds into scientific-military - imperialist - expeditions.

In order to do so, I will first detail the state of the Dutch kingdom's finances in the early years of the nineteenth century. This will show the dire state of the treasury and will explain some of the state's colonial policy, most notably its decentralised and local character. After that, I will analyse the *Triton* expedition's funding by looking at the budgeting and ledgers of the Dutch Ministry of the Navy and the Colonies in 1828-1829. Finally, I will compare this to state funding of other scientific institutions at the time, such as universities and the Dutch Royal Academy of Sciences.

Dutch State Finances in 1828

In order to understand the decision-making regarding the funding of the *Triton* expedition, the finances of the Dutch state in the early nineteenth century need to be understood. The previous chapter has already shown the highly personal degree to which the Dutch king was involved with decisions regarding the East Indies. This was no coincidence.

Financially, the situation of the newly-formed United Kingdom of the Netherlands might have looked positive in 1815: by combining the old Dutch Republic with the Southern Netherlands, the tax base of the state was doubled while its interested burden was down to a third of its pre-Napoleonic value due to Napoleon's fiscal policy.¹⁴⁵ This was, however, an asymmetric balance: while the debt in the north, the former republic, was about 600 million guilders, the debt of the south was a mere 26 million guilders. This created a cash flow from the south to

¹⁴⁵ W. Fritschy and R. van der Voort, 'From fragmentation to unification: public finance, 1700-1914', in: M. het Hart, J. Jonker and J. L. van Zanden (eds.), *A Financial History of the Netherlands* (1997) 64-65.

the north - which contributed to the south's disgruntlement and played a role in its eventual secession in 1830.¹⁴⁶

King William I had particular ideas about running the economy, and tried everything he could to prevent parliament from interfering. While the young kingdom's constitution officially included a clause that allowed parliament to audit the state's budget, this resulted in practice in a cycle of 10-year budgets. In other words, parliament had one chance per decade to audit state finances, after which it was effectively invisible to them. Even when parliament decided to reject the budget, as it did in 1819, there was nothing to prevent the king from simply proposing the same budget again until parliament accepted - which it did. Ministers were accountable primarily to the King, rather than parliament.¹⁴⁷ This created a situation in which William was free to spend as he liked in the intermediary periods between the 10-year budgets, and to William, this meant spending lavishly: on the military, on infrastructure and on the monarchy.¹⁴⁸

By 1840, public debt was at 200% of GDP. To further obfuscate the true state of the budget, William constructed a number of semi-public institutions that would manage public funding while bypassing parliamentary inquiry.¹⁴⁹ The *Amortisatiesyndicaat*, founded in 1822, had the task of managing public debt, but was increasingly used to fund all kinds of expenditures, including the Java War.¹⁵⁰ The *Nederlandsche Handels Maatschappij* (NHM), having the king as its largest shareholder, was tasked with stimulating trade with the East Indies. It subsidized shipbuilding and chartered vessels between the continental Netherlands and the East Indies, next to granting loans to the Dutch government - or rather, to William I.¹⁵¹ As for the governance of the colonies themselves: this, too, was completely in the hands of the king. The constitution left this matter entirely to the King and his ministers; thus, the budgets of the colonies appear under the 'secret' sections of the Dutch state archives, rather than under the public sections. In 1828, the responsibility for the East Indies fell under the minister of 'Colonies and the Navy', showing just how integrated these two institutions were considered to be. In the early years of the kingdom, the colonies constituted a net loss for the Kingdom; only after the *Cultuurstelsel* (Cultivation System) was instituted on Java by Johannes van den Bosch after 1830 did the colonies reach a *batig slot*.¹⁵²

¹⁴⁶ Idem, 74-75.

¹⁴⁷ Friso Wielinga, *Geschiedenis van Nederland. Van de opstand tot heden* (2013) 218.

¹⁴⁸ M. Dincecco, *Political Transformations and Public Finances. Europe, 1650-1913* (2011) 24-25.

¹⁴⁹ Idem, 25;

Fritschy and Van der Voort, 'From fragmentation to unification', 75-76.

¹⁵⁰ Fritschy and Van der Voort, 'From fragmentation to unification', 76-77.

¹⁵¹ Idem, 77.

¹⁵² Ibidem.

Given the above, it is unsurprising that William I and the minister had such a large say in colonial policy without having to consult parliament. More importantly, the above contextualises the financial and economic situation of the colonies in 1828: the king had to contend with an ever-growing deficit and the *Amortisatiesyndicaat* bore the burden of the Java War. As such, we would expect that there were relatively little financial means of funding large-scale military-scientific projects in the East Indies outside of Java. This also explains the initiative had by local governors such as Pieter Merkus: the government in the Netherlands did not have funds to initiate large-scale colonial projects, meaning that it was up to people like Merkus to provide the impetus to do so.

Funding the Expedition

Both Overweel and Mörzer Bruyns mention the budget that was allocated for the expedition, namely *f* 20 000.¹⁵³ It should be noted, however, that this only included the costs of building the fort, and not the cost of transport, i.e. this sum does not include the maintenance of the *Triton* and *Iris* and their crews. As a result of this, this sum does not give us the complete picture of the costs of the expedition.

One of the main concerns in preparing the expedition was finding a suitable vessel. The ministry of colonies and the navy was on a tight budget in the late 1820s: in his report to Du Bus de Gisignies of September 30 1827, the commander-director of the colonial navy A.W. de Man discusses the options to cut the costs of the colonial navy to a maximum of *f* 1 million, for which he advises the sale of a number of vessels.¹⁵⁴ The colonial navy, however, was unable to afford any losses, as the war on Java required its support.¹⁵⁵ Because of this, the High Council of the East Indies¹⁵⁶ had advised to balance out this loss by lending six ships from the Dutch Royal Navy, the largest of which were corvettes (including the *Triton*), as well as a newly-commissioned steamer that was to arrive from the motherland.¹⁵⁷ Due to these measures, Du Bus de Gisignies and De Kock decided to send the *Triton* to New Guinea. This vessel happened to be underway to Ambon, the administrative center of the department of the Moluccas, at the time of the expedition's preparations.¹⁵⁸ The schooner *Iris* was one of two patrol vessels stationed in the Moluccas.

How did the Dutch colonial navy account for the expedition's expenses in its budget? Every colonial department was required to pay for the military and naval expenses stationed during every financial year. Thus, the *Triton* and *Iris* appear on

¹⁵³ Idem, 8; Mörzer Bruyns, *Met de Triton en Iris naar Nieuw-Guinea*, 30.

¹⁵⁴ NL-HaNA, Koloniën, 1814-1849, 2.10.01, 2987, Bundle B, September 30 1827.

¹⁵⁵ NL-HaNA, Koloniën, 1814-1849, 2.10.01, 4206, November 23 1827.

¹⁵⁶ The advisory body to the (lieutenant) governor-general and commissioner-general that included senior officials such as the governors of the departments like Pieter Merkus.

¹⁵⁷ NL-HaNA, Koloniën, 1814-1849, 2.10.01, 2987, Bundle A.

¹⁵⁸ NL-HaNA, Koloniën, 1814-1849, 2.10.01, 4206, November 23 1827.

the budget of the department of the Moluccas during the timeframe of the expedition (**figure 1**). Note that this concerns *expected* costs; i.e. this was the amount of money the colonial government expected to be spending on the expedition.

The expenses of the Dutch Royal Navy (separate from the colonial navy) in this table are wholly due to the presence of the *Triton*. The *Triton* arrived at Ambon on the 29th of March 1828, and remained there until the 21st of April, after which both the *Triton* and *Iris* set sail for Banda, where they anchored to receive provisions of rice. On the 29th of April, the ships left for New Guinea.¹⁵⁹

The colonial navy expected the expedition to take six months, as becomes evident from the budget: the *Triton*'s expenses are framed for a period of six months, for which the total costs add up to f 55863.44. The costs of the *Iris* are slightly harder to gauge accurately, as its costs are shared with the remaining colonial vessel in the Moluccas. If we divide the yearly sum of f 12766.56 evenly by two, we get a sum of f 6383.28 of total costs of the *Iris* for 12 months. Comparing these costs to those of a departement with just one schooner during the same period gives us a comparable figure, when taking the average of the five-year budget (**figure 2**). If we then decide to use the same six-month span as the budget did for the *Triton*, the *Iris* was expected to cost f 3191.64 while on expedition.

Of note are the large sums under the headers 'Various goods' and 'Objects to be received from the Military Department', both of which are much larger on the budget in **figure 1** than in **figure 2**. This discrepancy is likely due the extra number of people, weaponry, material and provisions loaded onto the *Triton* for the expedition. While the colonial clerks did not describe this in any detail, these matters are likely to be summed under the headers 'Various goods' and 'Objects to be received from the Military Department'. In his journal, Modera describes the loading of this cargo in Ambon:

"Here we dropped anchor until the 21st of April, working every day to load various boxes containing the required tools etc. to build a fortification on New Guinea. Crates and barrels of provisions for the personnel that would garrison the fort, as well as various boxes of small gifts and trinkets to trade with and especially gain the trust of the New Guineans, were loaded onto our ship".¹⁶⁰

As for the garrison that would come to inhabit *Merkusoord*, Modera lists it as consisting of 1 lieutenant, 1 surgeon, 11 European soldiers, 20 Indonesian¹⁶¹ soldiers, 10 Javanese exiles, 1 European woman, 22 Indonesian women and 21

¹⁵⁹ Modera, *Verhaal van eene reize*, 6-7, 16-17.

¹⁶⁰ Idem, 6-7.

¹⁶¹ The Dutch term used to refer to Indonesian, most often Javanese, subjects from the Dutch East Indies was *Inlander*.

Indonesian children.¹⁶² The wages for this garrison were naturally not included in the budget of the colonial navy. We do get an idea of the wages of the Moluccan interpreters through Van Delden's journal. The Ceramese interpreter from Ambon sent by Merkus, named Abdul Kadir, received a daily allowance of *f* 1. Van Delden encountered a native of Pulau Geser in Ambon by the name of Pattybarombang who was said to be familiar in certain regions of New Guinea, alongside another Ceramese man by the name of Palukan, who regularly traded on coastal regions of New Guinea. Van Delden promised the former *f* 25 a month and the latter *f* 35 a month in return for their assistance.¹⁶³

The wages of the naval personnel, however, *can* be found. The officer corps aboard the *Triton* consisted of commander Steenboom, 1 senior lieutenant, 3 seconds lieutenants (among whom was Modera himself), 1 surgeon, 1 quartermaster and 6 midshipmen.¹⁶⁴ Though there is no listing of the ship's crew, it is likely the total number would number somewhere around 150, given Modera's description of the crowding on deck due to the 88 extra people on board and crews of comparable British sixth-rate ships.¹⁶⁵ A more detailed overview of the costs of the *Triton* appears in a separate overview of the colonial navy budget (**figure 3**).

The total wages of the crew amounted to *f* 4414.50 for the latter half of 1828. This table shows us that a significant portion of the crew would have been Indonesians, most of whom would be Javanese with a number of Moluccan servants and guides. The *tafelgelden*, the money paid to crew members in order to pay for extra foodstuffs on top of the regular rations, were divided into a European and an *Inlander* header. The former would only cost *f* 1800, whereas the latter cost *f* 11760. When the sums of *f* 400 for medical provisions and *f* 18573.19 are added to these sums, we get a total cost of *f* 36947.69 for *Triton*'s crew between April and December 1828.

The material costs for the upkeep of the *Triton* made up the rest of its costs. The largest of these sums was the *f* 9535.34 for the maintenance of the ship's 28 guns. *f* 6881.40 was reserved for carpentry (e.g. hull repair), and *f* 2499 for various extra expenses, bringing the total to the aforementioned *f* 55863.44.

For 1829, the same analysis can be made. The expeditionary vessels, which had left for New Guinea by the 29th of April, returned to Ambon on the 5th of September 1828. 62 crewmen were immediately admitted to the hospital, including commander Steenboom, who would die in October. The *Triton* then dropped off the scientists of the *Natuurkundige Commissie* on Timor and was finally able to take on its next orders - returning to The Netherlands - in Batavia in January 1829.¹⁶⁶

¹⁶² Idem, 7.

¹⁶³ Van Delden, *Journaal 1828*, 2-3.

¹⁶⁴ Modera, *Verhaal van eene reize*, 2.

¹⁶⁵ Idem, 6.

¹⁶⁶ Mörzer Bruyns, *Met de Triton en de Iris naar Nieuw-Guinea*, 53-54.

Because of this delay, budgeting for the *Triton* extended for two more months on the 1829 navy budget of the Moluccas (**figure 4** and **figure 5**). These expected costs amount to *f*17864.22 for the *Triton*.

Andreas Weber provides us with some information on the wages of the members of the Natural History Committee. In the mid 1830s, sometime after the expedition, the committee had a total annual cost of *f* 40000. Macklot received a monthly salary of *f* 500, equal to his colleague Boie (not present on the expedition). Van Oort, as a draftsman rather than a naturalist, received a monthly wage of *f* 200.¹⁶⁷ Estimating the salaries of Müller and Zipelius to be similar to that of Macklot on account of their status as naturalists, and the salary of Van Raalten as being closer to that of Van Oort, the total cost of the salaries of the committee members on the *Triton* would have been *f* 11400 for a six-month period.

Summing this with the *f*55863.44 for the *Triton* and the *f*3191.64 for the *Iris* during 1828, this brings the (rough) total costs of the 1828 expedition to *f* 88319.3, almost 90 thousand guilders. This does not include the *f* 20000 reserved for the construction of the settlement and fort, as that goal was explicitly *not* the intention of William I and Elout, and thus not related to the scientific elements of the expedition.

The Price of Knowledge

This is a substantial sum, but just how substantial? We have already noted that the colonial navy was in the midst of budget cuts. If we take one million guilders to be the targeted spending of the colonial navy at this time, this sum would amount to 7.6% of its 1828 budget. The actual expenses of the colonial navy that year were almost *f* 1.2 million, which makes the expedition account for 6.46% of its expenses. For a project that, all things considered, had for a large part come to exist for scientific reasons, this is quite a substantial sum indeed.

However, when we consider these expenses in the grand scheme of things in the Dutch East Indies, we can also see that the expedition to New Guinea was a sideshow at best. I have already alluded to the cost of the war on Java during this period. In 1828, the total expenses of the Dutch East Indies government were slightly upward of *f* 28 million. The expenses of the Dutch expeditionary army on Java accounted for about *f* 11 million, a whopping 41% of the total expenses. Compared to this, the expedition to New Guinea only made up 0.26% of the total

¹⁶⁷ These numbers were in *colonial* guilders, though the exchange rate seems to have fluctuated around par and differed depending on the goods/services one wanted to buy, see: J.L. van Zanden, 'Rich and poor before the Industrial Revolution: a comparison between Java and the Netherlands at the beginning of the 19th century', *Explorations in Economic History*, Vol 40, No. 1 (2003) 1-23.

expenses of the Dutch East Indies around 1828.¹⁶⁸ This situation was, of course, abnormal; it does not represent any desire by the state - i.e., William I - to spend this much on the military. It was simply a necessity. Nevertheless, it does show the extent to which the Dutch East Indies as a polity were a *warfare state*.

What does the funding of the 1828 expedition to New Guinea tell us about the relationship between science, colonialism and the military in the early nineteenth century Dutch East Indies? Overweel has stated that the expedition was an early example of decentralised European imperialism, which would only come to full fruition in the late nineteenth century.¹⁶⁹ In a recent article on the *Natuurkundige Commissie*, Andreas Weber has argued that the committee was more than just a tool of the empire.¹⁷⁰ The funding of the Triton expedition supports this thesis. In fact, the direct run-up to the expedition and the choices made by the Minister for the Colonies and Navy and the Dutch king, shows the extent to which natural science and empire were intertwined: it was apparently completely acceptable for the government to fund an expedition for primarily scientific reasons and still include political and economic goals in its execution as much as the reverse.

Now that we know just how large (or small) the share of scientific funding was in colonial and navy policy, we are left with the question how this relates to the funding of “regular” scientific activities during the same period. For this, we need to turn to the Dutch national budget.

Looking at the ten year budget for 1830-1835, presented in parliament in 1829, it becomes apparent just how little money went to research at the Dutch universities, let alone natural scientific research. The University at Louvaine, for example, was considered to cost around *f* 68000 a year. *f* 42800 of this figure went to the salaries of the various professors, who received an annual salary of *f* 2200. It is of note that of the 23 professors at Louvaine, only 4 were professors in the natural sciences and mathematics. The vast majority of the time of these professors, regardless of their discipline, would have gone to teaching. This is also apparent in the rest of the budget: a meagre *f* 6540 a year went to chemical laboratories, natural history cabinets, botanical gardens and astronomical and biological/anatomic instruments.¹⁷¹

Other universities present similar figures. Leiden University was projected to cost the state about *f* 100000 a year, of which *f* 68450 went to professors’ salaries. Groningen University had a budget of only *f* 58321 a year, the vast majority of which (*f* 43827,40) went to the salaries of the professors. Leiden had 4 professors in the

¹⁶⁸ This of course includes the first two months of 1829 for the expedition, meaning that the actual percentage for 1828 is even lower.

¹⁶⁹ Overweel, ‘Keep Them Out!’.

¹⁷⁰ Weber, ‘Collecting Colonial Nature’, 94-95.

¹⁷¹ Verhandelingen Tweede Kamer Staten-Generaal, Kamerstuk VIII, ‘Staatsbegroting voor 1829, en tienjarige aanvangende met 1830’.

natural sciences and 4 in the medical sciences, percentually more than the university in Louvaine. Groningen had the same numbers as Leiden but far less professors in the humanities and law. Leiden had allocated *f* 9825 to the various collections, instruments and laboratories, whereas Groningen only spent *f* 4605. It should be noted that for all of these, the actual spendings between 1830-1840 might have been higher, as a royal decree of 2 August 1815 held that each year, the curators of all universities would request incidental funding from the King.¹⁷²

These figures show us that the *Triton* expedition roughly falls in the average sum of the annual budget of a Dutch university around the same time. Even moreso, if one disregards the teaching activities of these universities, comprising the majority of their spending, and compares the expedition only to spendings on scientific research, the expedition dwarfs these figures. The meagre financial situation of the universities, which was mentioned in passing in the previous chapter, now becomes painfully obvious: the Dutch king, due to the obfuscation of state finances through the *Amortisatiesyndicaat* and lack of accountability towards parliament, was able to spend large sums on scientific activities in the colonies from his personal coffers (taking into account that the Natural History Committee operated under royal decree and funding) while spending much less on universities.

Of course, as we've already seen, universities were not primarily research institutes. Education and the dissemination of existing scientific knowledge were considered as much part of science as original research was.¹⁷³ Perhaps a comparison to an institute that, in theory, *did* focus on research might be more fair. The Royal Institute of Science, Literature and Fine Arts (the predecessor to the modern-day *KNAW*), was founded in 1808 by king Louis-Napoleon Bonaparte. Bert Theunissen describes how its first director, Jean-Henri van Swinden (1746-1823), opposed the utilitarian function of the institute as formulated by the king. While Van Swinden did not separate "useful" from "useless" (i.e., fundamental) science, he did see a separation in the *production* and *dissemination* of scientific knowledge. The former was the task of the institute, the latter was the task of the civil societies:

"Here [the institute] nothing should be discussed that does not immediately serve the advancement of the Sciences, the Letters or the Fine Arts; *there* [the societies] the only goal is to turn the attention of the audience to useful subjects. *Here* nothing can be discussed that is not original in its entirety. *There* the people are better served if they concern themselves with discussing subjects that are already known. *Here*, members need to improve their own abilities. *There*, they will simply open the treasure of their knowledge."¹⁷⁴

¹⁷² Ibidem.

¹⁷³ Theunissen, *nut en nog eens nut*, 39-40.

¹⁷⁴ Idem, 28-29.

The institute, in Van Swinden's eyes, should thus have been a bona fide research institute, meant to produce natural knowledge. Unfortunately, this did not take form in practice. Klaas van Berkel, in his extensive study of the institute, argues that the institute under Louis-Napoleon was involved in an advisory role with a number of economic, cultural and educational state projects. While the Institute's purpose might have formally been to conduct fundamental research, in practice it often was not much more than an extension of the various ministries it advised.¹⁷⁵ After the fall of the Napoleonic Empire, the Restoration government of William I took note of the institute's use for government policy and instituted an annual subsidy of *f*10000 for the institute.¹⁷⁶ On a personal level, it seems William I did not care much for fundamental science: science for the king started and ended with its usefulness for national industry and trade.¹⁷⁷ Where Louis-Napoleon had sought to make the institute part of the state's bureaucracy, William I thus took a different course. The Institute, in his eyes, became the representation of the scientific élite towards the king and the state, and independent of either. According to Van Berkel, this meant that the Institute fundamentally changed its character in these years. Under Louis-Napoleon, it had been a means for the king to influence science and scientists in the kingdom. Under William I, the institute became an institution that mediated between science and the state.

This shift in the role of the institute naturally meant that the state was hardly inclined to fund research done at the institute itself. If we take the 10-year budget of 1829, we can indeed see just how lacking the funding was: the institute received *f*16280 a year.¹⁷⁸ Another institute that would do research was the Royal Observatory in Brussels, which was expected to cost *f*4000 a year.¹⁷⁹ These figures are small when put next to the amount of money that was being invested in the *Triton* expedition and the Natural History Committee at large. It becomes clear now, that the funding of the *Triton* expedition was at least equally as large as the funding of universities and much larger than the funding of the supposedly national research institute.

Conclusion

To conclude, we must combine these insights. This chapter aimed to answer the question just how significant military funding of the *Triton* expedition was. The

¹⁷⁵ Klaas van Berkel, *De stem van de wetenschap. Geschiedenis van de Koninklijke Nederlandse Akademie van Wetenschappen. Deel I: 1808-1914* (2008) 66-67.

¹⁷⁶ Idem, 94-95.

¹⁷⁷ Idem, 95-96.

¹⁷⁸ Verhandelingen Tweede Kamer Staten-Generaal, Kamerstuk VIII, 'Staatsbegroting voor 1829, en tienjarige aanvangende met 1830'.

¹⁷⁹ This never materialised, as the observatory would be lost to the Netherlands after the Belgian revolt of 1830.

comparison between the expedition, the universities and the Royal Institute leads us to the conclusion that state funding of scientific funding was for a large part concentrated in the Dutch East Indies. We should not forget that, regardless of the *Triton* expedition, the Natural History Committee cost the kingdom about f40000 a year. It is thus important that we do not disregard colonial science as just another “pet project” of William I, taking place outside of the “regular” scientific institutes; the sums of money involved are simply too great for that. This is remarkable: as we’ve seen, Dutch finances were already in a dire position in 1848 and funding such a large expedition would not have been a matter of course. One could chalk this up to William I’s financial incompetence, but that still leaves us with the simple fact that William was *willing* to spend this much on a military-scientific endeavour.

What has also become evident from this analysis, is the degree to which the colonies - and perhaps Dutch society as a whole - were militarised, seeing the military’s enormous budget part in the total expenses of the Dutch East Indies. Much of this should of course be attributed to the Java War, but even without these expenses the simple discrepancy between the total budget of the *Triton* expedition (a sideshow in the grand scheme of things) and universities “back home” should convince anyone that the military was simply the focus of much of the state’s funding. This contradicts Peter Boomgaard’s statement on the militarisation of the Dutch East Indies in comparison to British India. While it is hard to compare the degrees of militarisation between these entities, it is nevertheless undeniable that the Dutch East Indies, like British India, were *highly* militarised and that the Dutch East Indies were thus truly a *warfare state*. It is then only logical that the majority of the funding of a scientific expedition like this would come from the military. Consequently, The *Triton* expedition should be considered representative of the kinds of expeditions described by MacLeod and Hodge.

The funding of the *Triton* expedition shows us that science funding and military funding were heavily related. Indeed, we might consider them inseparable in the case of the expedition: science was the enabling factor for the military to send two warships and construct a fort. Scientific motives were apparently so important for the empire-building activities of William I, that he was willing to spend more than the annual budget of a university on the project and a multitude of the annual budget of other scientific institutes. The funding for the *Triton* and *Iris*, in turn, enabled the committee to conduct its research. As such, the funding of the military and the scientific components of the expedition is as inseparable as the scientists and officers themselves were. Not only were the Dutch East Indies a *warfare state*, Dutch colonial science was *military*, and ultimately *imperial science*.

IV. Conclusion

Summary

This study set out to shed light on the military funding of Dutch colonial science in 1828 by recontextualising the *Triton* expedition, placing it in the debate on Dutch colonial science and imperialism. In doing so, I have aimed to contribute both to existing historiography of the *Triton* expedition and the Natural History Committee, as well as to the debates on the relation between science, the military and Dutch imperialism. In the introduction I established that this required an analysis of both the funding of the expedition as well as a recontextualisation of its textual source material. A sizable portion of this study could then be construed as answering the question of just how significant military funding was in comparison to “regular” scientific funding of universities and research institutes. The answer to this question, as we have seen, should be “more than significant.” A comparison between the costs of the *Triton* expedition to universities and the Dutch Royal Institute of Sciences has shown us that colonial science, as represented by the *Triton* expedition, was a costly affair that dwarfed the latter institutes in terms of money spent. This simple comparison shows a willingness on the side of Dutch policy makers, especially King William I, to spend on scientific research in the Indies.

Insight into the funding of the expedition alone does not, of course, show us the extent to which the *Triton* expedition should be called “imperial science”. I have also shown that the motives for organising the expedition were not as clear-cut as the existing historiography would make one believe. Science was not merely used as a guise for political goals; it was one of the goals of the expedition on its own merit. In fact, had there not been any other use for the expedition apart from Pieter Merkus’ geopolitical reasoning, chances would have been that the government in the Hague had not allowed the expedition to be formed. As such, science played an instrumental role and enabled the military-political goal of constructing a fortification on New-Guinea. In Joseph Hodge’s terminology, science was the conduit for a naval expedition, rather than the other way around. This means that we should consider the *Triton* expedition to be one of the factors in the formation of *frontier imperialism*: colonial officials such as Merkus initiated an imperialist project that ultimately took form because of scientific (rather than political or economic) motives. As a consequence of this, we should perhaps rethink the role of science in early nineteenth century Dutch colonialism and take it seriously as a factor in imperialist activity.

Furthermore, we have seen that the relationship between the naval officers and the scientists of the committee during the expedition was remarkably equal. The

scientists, whose science was a form of Humboldtian science, engaged in various military activities and the officers, in turn, engaged in various scientific activities. I have argued that Dutch history of science shows us that this was not quite as strange as it sounds to a twenty first-century observer: Dutch attitudes towards science did not consider “practical” science to be opposed to “pure” science in any way.

The *Triton* expedition is a unique historical event. The factors that contributed to its existence, were unique to the 1820s and perhaps even to 1828. For one, while the expedition was in many ways exemplary of the type of expedition MacLeod describes in his paper on scientific expeditions, the *Triton* expedition is unique for the Netherlands as it is the first and arguably *only* expedition of this kind. The expedition would not have been possible any earlier: the Indies had been in the hands of the VOC, there being no actual state or military to organise scientific expeditions. What scientific activity there was, would have been carried out and funded completely by scientists themselves. The expedition could not have been possible any later: after 1830, all attention was directed to Java and the Cultivation System, if not the situation in Europe regarding Belgium’s independence or the ascension of William II, when funding would be audited ever more regularly by parliament - even more so after 1848. This does not make the *Triton*’s case any less representative, however: it does show us the extent to which the Dutch authorities, both national and colonial, were willing to allocate funds to scientific activity. Scholars like Ad Maas have posited that the state played little role in Dutch science during the “dark age” between 1750 and 1850, but the funding of the *Triton* expedition shows this to be false, at least for the 1820s.

Contextualising the Triton Expedition

The *Triton* expedition shows how Dutch colonial scientists and the state operated in this unique time-frame. Colonial science was bona fide *big science* and military science at that, enacted by military means. In this scientific-military continuum, scientists and officers were equal. As such, one key assumption made throughout this paper is perhaps to be problematised: the idea that scientists are to be separated from other historical actors. The equality of scientist and naval officer aboard the *Triton* meant that the scientist was as much imperialistic as his military counterpart; ethnography, geography, botany and zoology were all employed as a means of mapping and ultimately controlling new shores. The Dutch colonial scientist does not seem to have been bothered by this, as good science was useful science, and officers like Modera seem to have agreed. Because of this, and because of the financial interdependence, for the expedition of 1828, it might be said that “science” and “the military” (or “politics”, in the vocabulary of Mörzer-Bruyns and Overweel) *should not be considered as being separate*, but rather as elements in a

united process of knowledge construction. Scientist and naval officers formed a network in the periphery of the European state, a true “imperial knowledge network”. This should not be taken to imply that the scientist and the officer saw themselves as the same: As Achbari in *Rulers of the Winds* sketched the development of separation between the military and science over the course of the nineteenth century, the *Triton* expedition would be at the very beginning of that development. It should rather be taken as implying that historians of science should not try to construct an arbitrary divide between science and the military when the historical actors themselves did not do so themselves - such as Pyenson has tried to do. If anything, the 1828 expedition demonstrates that there are important exceptions to Pyenson’s analysis.

We should be careful to wrongfully generalise from this one case; as stated above, it gives us understanding of Dutch colonial science in the late 1820s, but the conclusion does not necessarily hold for earlier or later cases. In order to accurately gauge the development of military funding over the nineteenth century - and thus to expand on this paper’s claim that science and the military should not be separated *a priori* - more studies are needed. For the Netherlands, there remains much to be said about later periods, focussing on the various changing policies of the Netherlands regarding the East Indies. Especially the time frames between 1830 and 1848 and after 1848 come to mind: the former can help us see the impact of Belgian revolt and the Cultivation System in Dutch colonial (science) policy, while the latter aligns with historiography on the Dutch East Indies and is said to usher in a new period of Dutch state activity in the colonies. This also aligns with the period of *frontier imperialism* and will perhaps lay bare more such examples of militarily-funded scientific activity and expeditions.

Furthermore, a more international perspective is to be welcomed. A financial analysis of this kind is, to my knowledge, performed only rarely. This study’s findings illustrate that it might be fruitful to carry out such analysis even in cases that are considered to be well-described; it is evident that this analysis can nuance previous findings when those have not taken the financial factors into account.

The *Triton* expedition was unequivocally *imperialist*, its science truly *imperial science*. Focusing on scientists’ work ethic and ideals, such as Ad Maas has done, or simply focusing on what they produced, such as Mörzer-Bruyns or Peter Boomgaard have done, has led us to miss this key insight. A financial analysis embedded in relevant literature, however, has delivered it. This study is as much a case study as it is a call to avoid monocausal explanation and to *follow the money*: finding the price of knowledge allows us to assess what this knowledge was worth, and to whom.

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VI. Appendix

Figure 1 - Navy budget of the 'Buiten Etablissementen', department of the Moluccas, 1828. Monetary values are in 1828 Dutch guilders.

Source: NL-HaNA, Koloniën, 1814-1849, 2.10.01, 2987, Bundle E.

Specification	Colonial Navy				Royal Navy			
	Five Year Budget		Yearly Budget		Five Year Budget		Yearly Budget	
	Amount	Value	Amount	Value	Amount	Value	Amount	Value
1 colonial vessel, 1st charter								
1 colonial vessel, 2nd charter								
1 corvette for 6 months								
Money to be spent:		54,675.00		11,784.40				25,664.24
Rice	56,392.00	1,824.44	15,600.00	504.70			40,332.50	1,304.87
Coffee	2,886.00	692.74	15.00	3.60			2,636.00	632.64
Salt	2,730.00	54.60	467.00	9.36			189.50	37.83
Various goods		25,215.81		464.50				25,683.85
Objects to be received from the Military Department		4,400.00						2,540.01
Total costs:		86,862.59		12,766.56				55,863.44

Figure 2 - Navy budget of the 'Buiten Etablissementen', 1828. Monetary values are in 1828 Dutch guilders.

Source: NL-HaNA, Koloniën, 1814-1849, 2.10.01, 2987, Bundle E.

Specification	Colonial Navy				Royal Navy			
	Five Year Budget		Yearly Budget		Five Year Budget		Yearly Budget	
	Amount	Value	Amount	Value	Amount	Value	Amount	Value
1 colonial vessel, 3rd charter								
Money to be spent:		18,759.60						
Rice	16790	543.21						
Coffee	730	175.20						
Salt	780	15.60						
Various goods		7,563.18						
Objects to be received from the Military Department		1,600.00						
Total costs:		28,481.59		0.00		0.00		0.00

Figure 3 - Table of expected expenses of the Dutch colonial navy, departments of the Moluccas, Makassar and Banka, 1828.

Source: NL-HaNA, Koloniën, 1814-1849, 2.10.01, 2987, Bundle E.

Name of Department	Charter	1st Dep.	2nd Dep.	3rd Dep.	4th Dep.	5th Dep.	6th Dep.	7th Dep.	8th Dep.	9th Dep.	Total
		European tafelgeelden	Wages	Inlander tafelgeelden	Rations	Medical service	Carpentry	Deck artillery	Transport	Various goods	
Moluccas	1 corvette for 6 months	1800	4414.5	11760	18573.19	400	6881.4	9535.35	1300	1199	55863.44

Figure 4 - Table of expected expenses of the Dutch colonial navy, departments of the Moluccas, Makassar and Banka, 1829.

Source: NL-HaNA, Koloniën, 1814-1849, 2.10.01, 2987, Bundle E.

Name of Department	Charter	1st Dep.	2nd Dep.	3rd Dep.	4th Dep.	5th Dep.	6th Dep.	7th Dep.	8th Dep.	9th Dep.	Total
		European tafelgeelden	Wages	Inlander tafelgeelden	Rations	Medical service	Carpentry	Deck artillery	Transport	Various goods	
Moluccas	1 corvette for 2 months	800	1800	5180	7584.22	200	500	1100	400	300	17864.22

Figure 5 - Navy budget of the 'Buiten Etablissementen', department of the Moluccas, 1829. Monetary values are in 1828 Dutch guilders.

Source: NL-HaNA, Koloniën, 1814-1849, 2.10.01, 2987, Bundle E.

Specification	Colonial Navy				Royal Navy			
	Five Year Budget		Yearly Budget		Five Year Budget		Yearly Budget	
	Amount	Value	Amount	Value	Amount	Value	Amount	Value
1 colonial vessel, 1st charter								
1 colonial vessel, 2nd charter								
1 corvette for 2 months								
Money to be spent:		54,675.00						9,000.00
Rice	56392	1,824.56					1300	420.59
Coffee	2886	432.90					850	127.50
Salt	2730	67.49					630	16.13
Various goods		25,215.81						7,500.00
Objects to be received from the Military Department		3,000.00						800.00
Total costs:		85,215.76		0.00				17,864.22