National Museum of Singapore

HistoriaSG

2019 Lecture 2
18 May 2019, 2pm – 3pm

A TALE OF THOMASES AND TAPIRS: EARLY NATURAL HISTORY IN SINGAPORE AND NEARBY LANDS

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Three Thomases – Hardwicke, Horsfield and Raffles – have arguably made the earliest contributions to natural history in Singapore. Directly or indirectly, they have been responsible for introducing the first mammals, birds, plants, reptiles and fishes from Singapore to the West. But beyond just "collecting" species and specimens, how did these three men, and others like them, contribute to the larger understanding of nature and natural history in Singapore and beyond?

The story of the Malayan Tapir offers a "cheat sheet" to the development of this rich natural history that began long before any of the Thomases stepped ashore in Singapore. This riveting tale involves an emperor, eunuchs, a fleet of treasure ships, four Frenchmen, a Dutchman with a Chinese name, an English civil servant, and of course, several tapirs.

TIME (MIN)	TRANSCRIPT
0:06 [Speaker: Moderator, Vidya Murthy]	Welcome to the National Museum of Singapore. Today we have a very interesting talk. This is our second talk for the HistoriaSG series this year. For those of you who have been visiting the museum, and have been attending these talks, you'll realise that these talks have been really carefully put together to connect to the National Museum's old collections, as well as the collections that are on view in the galleries. Today we have a very interesting speaker and he has a very snappy title, very alliterative, "A Tale of Thomases and Tapirs". Martyn Low is a Research Associate at the Lee Kong Chian Natural History Museum. His research interests encompass a range of topics related to natural history and voyages of scientific discovery and zoological nomenclature and bibliography. So he's got a lot of interest in the natural history and the world of natural history. He is a researcher and a writer for the upcoming bicentennial exhibition at the Lee Kong Chian Natural History Museum, which I understand will open in June. Thanks Martyn very much for coming down even though he is very busy. We just have a couple of house rules. Please do not switch on your mobiles, as a mark of respect to Martyn as well who has taken time to put together a very nice speech. The floor will be open for questions and answers after the talk, so we will give you about 10 minutes. And then there are some feedback forms which you could fill out and

	let us know your opinions, it will help us to improve ourselves. Thank you very much, and I will let Martyn start. (Invites Martyn on stage)
1:57 (Speaker: Martyn Low)	Thank you. Hello, good afternoon. Thank you Vidya. Thank you Stephanie. I would like to extend the thanks to Daniel as well. He is not here today, for the invitation to speak today. The title is "A Tale of Thomases and Tapirs". And like my friend pointed out yesterday, it is a tale. And I like stories, so I hope you enjoy stories too, because there are going to be a lot of them. The first story that I am going to tell you is actually what happened 10 years ago today, to the day. On the International Museum Day (IMD) 10 years ago, the Raffles Museum of Biodiversity Research had a IMD event. It was an open house. It was absolutely inundated with people, and we were not prepared for it, and it actually sparked off the entire fundraising and new museum projects that has led to the Lee Kong Chian Natural History Museum. So it is very interesting, the coincidences that happen in our lives. So, I'll get into the talk. I am going to talk about some of the earliest natural history that has taken place in Singapore. The tale of this natural history revolves around three Thomases. By coincidence, the first three natural historians in Singapore were Thomases.
3:36 (Speaker Martyn Low) Slide no: 2	It starts on a day, the date is unrecorded, in June 1819.
3:44 (Speaker Martyn Low) Slide no: 3	And this is what Raffles said of that day. "The dugong afforded no less interest under the knife than satisfaction on the table, as the flesh proved to be most excellent beef. Our entertainment was truly marine; for we had on the same day discovered those Neptunian sponges which served us as goblets". So apparently they used those little sponges to toast. I can tell you that sponges are not suitable for that; they have lots of spines. We don't know if Raffles was making this up but this is published by Raffles. The Neptunian sponges that Raffles refers to are a type of marine sponge.
4:27 (Speaker Martyn Low) Slide no: 4	And Thomas Hardwicke – this is the very first Thomas – he described them. So zoologists and natural historians make a distinction between description, which is to talk about something for the first time, and naming something, which is to give it a scientific name. So Thomas Hardwicke actually described and named the Neptune's Cup as *Cliona patera*. He did this at a meeting on the 13th of November 1819. This is just a few months after the founding of modern Singapore.
5:02	So that's what the sponge looks like. This is a specimen that will go on display

(Speaker Martyn Low) Slide no: 5	during our exhibition. They do look like goblets. On your right is the very first drawing of this animal by Thomas Hardwicke.
5:17 (Speaker Martyn Low) Slide no: 6	Then of course, the next Thomas we have is Raffles. Sorry, the next Thomas we have is Raffles. As mentioned, he collected a dugong on that day in June 1819. It was dissected and he read an account of it at the Royal Society on 18 May 1820. This is the first report of any mammal from Singapore.
5:42 (Speaker Martyn Low) Slide no: 7	So that is the drawing of a dugong from a later paper. But it is based on Raffles' specimen. And on your right is a sample of dugong tissue from an animal that had died on Pulau Tekong on 2006. Unfortunately we couldn't bring the whole animal back, so we kept a piece of tissue and a skull.
6:03 (Speaker Martyn Low) Slide no: 8	The third Thomas is Thomas Horsfield. He wrote "Zoological Researches on Java". In "Zoological Researches on Java", he actually published a plate, a drawing of a bird, and that drawing was published in July 1822.
6:22 (Speaker Martyn Low) Slide no: 9	I count it as half Horsfield and half Raffles because Horsfield gave the genus name which is "Calyptomena", and Raffles gave the species name which is "viridis", which is "green" in Latin. So, half half.
6:37 (Speaker Martyn Low) Slide no: 10	That's the original painting from Horsfield.
6:44 (Speaker Martyn Low) Slide no: 11	Now we return to Thomas Hardwicke. And we now know that Thomas Hardwicke collected a lot of animals from Singapore. One of them was the first fish to be described. I have used "first" in inverted commas because these animals have always existed in Singapore, it is only that they were described for the first time. The first fish and the first snake were described by John Edward Gray in the *Illustrations of Indian Zoology*. The first fish is *Anacanthus barbatus*, and the painting on which it was described was printed on 6 January 1830.
7:21 (Speaker Martyn Low) Slide no: 12	This is the original painting. It is a real fish.
7:26 (Speaker Martyn Low) Slide no: 13	And it looks like that. This is from Singapore.

7:30 (Speaker Martyn Low) Slide no: 14	John Edward Gray also named the first snake. Which is now known as *Trimeresurus purpureomaculata*, or *maculatus* sorry. It is commonly known as a Shore Pit Viper. We also know that it was collected by Hardwicke. And this one was published on 14 April 1832, so this is all quite early in the history of Singapore.
7:52 (Speaker Martyn Low) Slide no: 15	That's the original painting, and that's the specimen.
7:58 (Speaker Martyn Low) Slide no: 16	They are not, the next two are not Thomases, but they are closely connected to Raffles and the other two Thomases. So Nathaniel Wallich was a Danish botanist/doctor who was in charge of the Calcutta Botanical Gardens. And he visited Singapore, and made many collections of Singapore plants which were sent back to England. And from amongst these, J.D. Hooker, I think, which is the man on the right, described the Singapore Fern as *Tectaria singaporiana* in 1827.
8:33 (Speaker Martyn Low) Slide no: 17	And that's the original painting and the specimen.
8:38 (Speaker Martyn Low) Slide no: 18	So, in addition to these five to six men, on June, on that day in June 1819, which we take as the first collecting event in Singapore, Raffles had with him two Frenchmen. We have [Pierre] Diard and [Alfred] Duvaucel. And he met these two Frenchmen in India, and they will be part of the story that comes next. It is a very interesting story. But on that day in June 1819, there were at least three of them in Singapore collecting.
9:12 (Speaker Martyn Low) Slide no: 19	We now know that Diard or Duvacel made a painting of an animal from Singapore and it is one of the earliest known paintings which has Singapore written on it together with an animal.
9:27 (Speaker Martyn Low) Slide no: 20	And that's… unfortunately I can't tell you what it is. It will be on display at one of the museums in Singapore later this year. I'm sorry, I haven't gotten the permission to reproduce it, so you can look out for that, it is something to look forward to. This would be the earliest labelled drawing of an animal from Singapore.
9:51 (Speaker Martyn Low) Slide no: 21	And just to summarise, because sometimes zoologists like to keep track of who has been describing how many species. So Raffles gets five and a half of the first animals, Hardwicke gets half, sorry Horsfield gets half, Hardwicke gets six. Okay? So that's the earliest bits of natural history in Singapore from what we call a Linnaean standpoint. So that means after Linnaeus, under the current

	framework of zoological or animal nomenclature.
10:29 (Speaker Martyn Low) Slide no: 22	And the next theme I want to explore is… what was unique about Raffles? What was special about him, was he special? And one of the things that I feel is an accurate representation of him is that he was a collector of collectors. And this was a fairly common thing at that time. During that time, they would hire local collectors or local people to hunt animals, to collect plants. This is very well known. Munshi Abdullah talks about what Raffles was doing while he was in Singapore, in Indonesia.
11:04 (Speaker Martyn Low) Slide no: 23	But what sets Raffles apart is that he actually collected non-native, non-local collectors. He managed to accumulate this group of Western collectors/explorers who came to the East under him or around him, and he would get them to collect for him. So amongst them would be people like [Joseph] Arnold. Arnold was a botanist who was there when the first Rafflesia was collected. So that's why the Rafflesia was named *Rafflesia arnoldii*. Half to Raffles, half to Arnold. There's of course Thomas Horsfield, the two Frenchmen Diard and Duvacel. Then there's also another famous botanist, [William] Jack, and Wallich. And through the two of them is of course William Farquhar. Well, Farquhar, who never really got along with Raffles. Almost all of these collectors who Raffles accumulated around him led very short lives. All the botanists died before Raffles. Only Horsfield had a very long and productive life. So now we know what Raffles' pattern of, you know, how he did his natural history business. But what were some of the influences or how did, what were some of the ideas about natural history that he had?
12:27 (Speaker Martyn Low) Slide no: 24	And I think one of the things that we can see, is that he was influenced by Joseph Banks, who was President of the Royal Society. Joseph Banks is in many ways a person who… you know the Charles Darwin ideal of a surgeon naturalist on a ship. Joseph Banks was kind of the first person who started that off when he travelled on the *Endeavour*, which was captained by James Cook, which sailed around the world. And of course Joseph Banks became a very famous person after he came back to England. And many books have been written about the *Endeavour* on Joseph Banks. But it is clear that Joseph Banks was in correspondence with Raffles, at least until Joseph Banks died, which was not very long after they started. But it is quite possible that Banks had an influence on Raffles. The picture on the left is a replica of the *Endeavour*.
13:29 (Speaker Martyn Low) Slide no: 25	So Joseph Banks comes into Raffles' network. Well, there is a pattern here in the accumulating of people around Raffles to help him with his natural history work. And in many ways, there is a mirror of this about a century earlier and this of course is [Carl] Linnaeus. And Linnaeus had his so-called apostles, he actually called them apostles. Because in his mind he was sending them out into the world, to bring back natural history. Linnaeus actually said that okay, I'm quoting. And these are some of his apostles, there were many more than these. Most of them or quite a number of them died of all kinds of infectious diseases while they were overseas. So there is a pattern. Raffles was in many ways consciously or subconsciously mimicking a pattern. And there is an intriguing link between

	Linnaeus and Raffles, and that link is Banks. Because Banks was directly in connection or communication with Linnaeus.
14:41 (Speaker Martyn Low) Slide no: 26	So, this gives you a very quick summary of what I think were some of the influences on Raffles and other naturalists and natural historians at the time.
14:54 (Speaker Martyn Low) Slide no: 27	And now we go to the part about the tale of the tapir.
15:02 (Speaker Martyn Low) Slide no: 28	So Farquhar and Raffles never got along. And one of the reasons for them not getting along was because of the competition to discover and describe new animals. And it actually got pretty ugly. So, Farquhar sent a paper on the Malayan Tapir to the *Asiatic Researches* in Calcutta. And it is dated 29 January 1816. Raffles heard about this. He rings his friend up, Wallich, who we heard about earlier. He asked Wallich to remove Farquhar's paper from the upcoming issue, and put his own in. We do not know if Wallich ever replied to Raffles, maybe Wallich felt that he was far away from Raffles enough that he didn't have to bother. But score one for Farquhar.
15:55 (Speaker Martyn Low) Slide no: 29	So Farquhar's paper comes out in 1820, five years after it was submitted. And he publishes a picture of a woodcut of the tapir and the skull. And this is the first description of the Malayan Tapir.
16:13 (Speaker Martyn Low) Slide no: 30	And of course, in the Farquhar gallery [Goh Seng Choo gallery at the National Museum of Singapore] there are the two tapirs, and it is very clear that there are similarities between them. So again, first description of the Malayan Tapir…
16:23 (Speaker Martyn Low) Slide no: 31	In English. Because George Cuvier published an account and a painting of the tapir in March 1819. So that's a year, about a year before Farquhar. So how did they scoop the English? How did the French scoop the English?
16:45 (Speaker Martyn Low) Slide no: 32	Diard and Duvacel were both closely connected to Cuvier. It was not very wise of Raffles to hire them as collectors, but which he did. And we know that Diard copied Farquhar's manuscript while he was sitting in India, and sent them to his former teacher. So that is where Cuvier got his information from.
17:12 (Speaker Martyn Low) Slide no: 33	And to make it worse, Frenchman number four, [Gaëtan] Desmarest, gave the tapir its scientific name. So he basically cites Cuvier's account, and he gave it a Latin name which I underlined, and that is recognised as the scientific name of the tapir today, and it's still the scientific name that is used. So okay, so the

	English lose. The French are in the lead. And then we have the eunuch which I promised you in the summary of the talk.
17: 42 (Speaker Martyn Low) Slide no: 34	So Zheng He was a eunuch, sailing as commander of Emperor Yong. Sorry, pardon my Chinese pronunciations, I'm really bad at Chinese. He was an admiral in Emperor Yongle's treasure ship fleet, which there is a replica of it at the Maritime Experiential Museum in Sentosa. So this is a modern rendition of what Zheng He is thought to look like. And these treasure ships were truly amazing, I mean, they are known to have been large enough to be able to transport giraffes back from East Africa, like the replica shows.
18:22 (Speaker Martyn Low) Slide no: 35	And we know they came to Southeast Asia. The accounts were written up mainly by Ma Huan.
18:29 (Speaker Martyn Low) Slide no: 36	Ma Huan was a translator for Zheng He. This was published in the "Yingya Shenglan".
18:42 (Speaker Martyn Low) Slide no: 37	And in one of these volumes, Ma Huan talks about the divine stag. He says "In the mountains of this country a supernatural animal is found, called the divine stag. It looks like a large pig and is about three feet high; the forepart of the body is black, the hind part white and the hair is sleek, short and very fine. The mouth is like that of a pig, but not flat in front; the hoofs have three grooves and it only eats plants." Of course to us today it is very obvious what is this. But it took a long time before anyone figured out what this animal was.
19:19 (Speaker Martyn Low) Slide no: 38	This animal, the divine stag, which is "shen lu" (神鹿), was identified by Qu Molin in 1879 in a book.
19:29 (Speaker Martyn Low) Slide no: 39	And this is Qu Molin. That was the Chinese name he gave himself. We know this is his Chinese name because he stamped it in two of his books. And he was a Dutch translator and linguist working in Indonesia, had an interest obviously in the travels of Zheng He and Ma Huan. And he first identified the divine stag as the Malayan Tapir. But that still leaves the question of how do you jump from divine stag to Malayan Tapir in terms of the nomenclature.
20:03 (Speaker Martyn Low) Slide no: 40	So we enter another Englishman, this one an administrator. His name is William George Maxwell. And he analysed the etymology of the name.

20:16 (Speaker Martyn Low) Slide no: 41	And he came to the conclusion that it is because Ma Huan spoke Hainanese. So as you can see from the page where he talks about identifying the divine stag, Maxwell could actually read and write several languages. You have Jawi at the top, because that was how Malay is rendered. And he writes about the "tenok". And then he writes in Chinese, and then he writes about Hainanese pronunciations. So Maxwell was quite a remarkable person. And he concluded that if you pronounce "tian lu" (神鹿) in Hainanese, you get "tenok" or "tinok", or some such similar pronunciation, and they were basically transliterating the local name that they heard for the tapir into Chinese characters that they could write. And that's how you get the divine stag.
20:18 (Speaker Martyn Low) Slide no: 42	And Maxwell of course provided another example to back up his hypothesis. And this is also from Ma Huan. Ma Huan uses these two characters, which in Chinese is pronounced as "yam-pa" or something similar. And he describes it as a mango-like fruit. And if you pronounce it in Hainanese, you'll get "jan-bu" or "jambu" which is guava in English. So, quite likely that was the case.
21:46 (Speaker Martyn Low) Slide no: 43	And basically we have four centuries of natural history of Singapore and the region. So you go from Zheng He to Farquhar. Farquhar's paper, his manuscript is dated 1816. The earliest known preface of the "Yingya Shenglan" is 1416, so it's 400 years.
22:09 (Speaker Martyn Low) Slide no: 44	So the final theme I would like to explore is what is natural history good for then? I mean I enjoy digging up old books, old references, finding old pictures. I just found one this morning which I will show you later.
22:30 (Speaker Martyn Low) Slide no: 45	But what is it good for? And I would like to suggest that apart from it being fun, personally, I think when we start looking at the different strands, different threads of stories that have taken place over the years, which is history, and we follow them backwards in time, we realise that they start to interconnect/interweave, and you never really know where you might end up but as you see the interconnections and how they interweave, you realise that they are part of a larger story. And of course, if you go far back enough, if you look from far back enough, what we call big picture history, you actually see big themes, big patterns taking place. But if you go back and you zoom in, you realise that these strands, these stories as they interweave, they actually make up a tapestry. They make up a painting or a picture. And I think, this is one of those things that is very hard to sell to people you want to ask for grant money, but you never know where you're going to get, or you never know where you might end up. But I think there is much fruitful research to be had by digging for older and older "firsts", as I have phrased it here.

23: 58 (Speaker Martyn Low) Slide no: 46	So I'll give you an example. I've known about this question for a while, but I only managed to find, to put one more piece into the puzzle today, this very morning actually. William Marsden wrote *The History of Sumatra*. So his first edition was from 1783. And he listed, just in words, the "kuda-ayer"; "kuda-ayer" is of course "water horse", and he translated that into hippopotamus, which is "river horse" in Greek. And when his book came out, Cuvier was of course puzzled by what Marsden said because as far as Cuvier knew, the hippopotamus was only found in Africa. So Cuvier wrote not very nice reviews about Marsden's work, saying Marsden is you know, making up stories, couldn't have possibly seen a hippopotamus. But some more recent researchers think that Marsden was actually talking about the tapir when he said "water horse". And Marsden says that his information came from a person called Walfeld who had a drawing of it, which I really would like to see if any of you know where it is. So, it's something I'm looking for, but Walfeld actually drew this animal from Sumatra when he was serving the coast of Sumatra, and this was where Marsden found the information. Marsden, in his third edition of 1811, gives a more extended description of the water horse, and it is fairly clear that it is the tapir.
25: 45 (Speaker Martyn Low) Slide no: 47	So, that would make in the European language, at least, Marsden's one of the oldest, or the oldest. At that time, Cuvier said of Marsden's work that he basically confused a hippopotamus, and strangely Cuvier said that he confused the hippopotamus with a creature known as the "succotyro" that was published in a book by Newhoff. And just this morning, I was digging around because I had some time, I managed to find Newhoff's book online, and I have a picture of the "succotyro".
26:23 (Speaker Martyn Low) Slide no: 48	And here it is. So Marsden, sorry, Newhoff says that the name came to him from the Chinese. So that's another strange puzzling question there. And this is my last slide, so I do not have an answer for you. It is something that I would like to find out, and maybe in the months to come, there will be an answer to it. I was just running by this name this morning because Newhoff said that it came from Chinese. So I was running it by my colleague who is quite good in Chinese matters. And the only thing that he could come up with was that possibly Newhoff could have asked a local Chinese what this animal was and his reply was… he basically said it was a very big cow, "shi hen da niu", and that somehow ended up as "succotyro". That is the only thing we could come up with at the moment. So I hope you have enjoyed this tale or these tales. Thank you.
27:46 (Speaker Martyn Low)	So I know it's a bit short, so you have more time to ask questions, I'm more than happy.
28: 13 (Audience)	You know in the William Marsden slide you showed that image. So where was that taken from?

28:19 (Speaker Martyn Low)	Sorry, yes, so this image is from, no this is a very recent 1900 book. A very recent 1900 book. But the name “kuda-ayer” was still used at that time for the tapir. Sorry I forgot to mention that. This was from J.G. Woods Natural History I think. 1900.
28:48 (Audience)	Can I ask, can we still see the Singapore Fern in Singapore today? Is it still found?
29:05 (Speaker Martyn Low)	Yes it is still found in Singapore, yes it is not particularly endangered or anything, sorry about that. But the Green Broadbill is extinct from Singapore, or extinct in Singapore. It is still found in other Southeast Asian countries, but it is extinct from Singapore. This one is still fairly common (refers to first fish slide), as is the snake. Yeah, just the broadbill. Even dugongs are still fairly abundant, in the sense that we see feeding trails in the seagrass meadows around Singapore. We don’t actually see the animals, but you see the what’s left after they feed.
29:55 (Audience)	Maxwell’s analysis of the origin of the word, in all the different languages, when was that?
30:01 (Speaker Martyn Low)	1909. I actually wanted to talk, or let me just show you this stamp, which I put in here… so the stamp on the right shows a little tapir, and by coincidence the British North Borneo issued the stamp in 1909. So it kind of like commemorates Maxwell’s paper. But the stamp itself is an enigma because the Malayan Tapir is not known from Borneo, in recent times, it is known as fossils but not as a living animal. So why they would have put that on their stamp is another interesting question.
30:49 (Audience)	How big is a dugong?
30:51 (Speaker Martyn Low)	The dugong is about this (gestures height) when I’m horizontal. Raffles actually said that his was eight feet. Yeah, eight feet. So, two more feet. We have one in the museum if you want to come and visit. I mean the skeleton. Sorry, the Lee Kong Chian Natural History Museum.
31: 14 (Audience)	You mentioned that Raffles collected collectors and most of his collectors were Europeans. So were there any other people?

31:22 (Speaker Martyn Low)	Oh no, what I was trying to say is Raffles was not unique in hiring local people to collect for him. Because almost everyone was doing that. They would pay locals to collect shells and animals, monkeys for pets, birds, that was a normal thing to do. What was abnormal about Raffles was that he would actually pay Europeans to collect for him. Because there were lots of explorers coming to this region during that time from Europe. But Raffles was unique in paying those explorers to collect for him.
32:07 (Audience)	Were there any other rivalries in terms of natural history between Raffles and Farquhar?
32:12 (Speaker Martyn Low)	I think there might, I'm not sure about that, besides the tapir, there might have been one or two others. I can't remember offhand, sorry.
32:26 (Audience)	This is the first time I'm learning that Raffles had such interest in natural history, because usually we would think of him as someone who came here for the economy, to develop Singapore. So what was his allocation of his work? Was this more of a sideline kind of thing or…?
32:49 (Speaker Martyn Low)	Let me give you two quotes. One is from Raffles. Raffles himself said towards the end when he kind of got sidelined in Singapore's politics that he has, I'm paraphrasing here, but he basically said he has enough of politics, he has enough of humans, but at least he has his animals. At least he has nature. I think that is very telling. I think the other quote is from Nigel Barley. The sword… Nigel Barley has a book from 1999 on Raffles, sorry *The Golden Sword* or something. And Nigel Barley actually says that the way to understand Raffles' collecting, not just of natural history but all his ethnographic cultural material, is through his natural history. So by looking at what Raffles collected in terms of natural history, it actually informs his way of thinking, what was going through his mind. To answer your question directly, as an administrator, I think they would have had some time but most of it would have been done by people he was paying to do. So Munshi Abdullah has an extensive account of that. And the recent book that was published by the ACM for their Revisiting Raffles exhibition, talks about a possible scene of what he, how his natural history activities were taking place.
34:28 (Audience)	It is interesting because it is almost like imagining someone like the PM writing a paper about the biological findings in Singapore. So it's quite…
34:39 (Speaker Martyn Low)	I think because of the world we live in now, we have a lot less time to devote to other things. But in the past, people always had other interests, people have been, have had a wider breadth of activities in their daily lives. The Emperor who recently abdicated, Akihito, he is a marine biologist, he has described several fish, some even from Singapore. So I think we have come to a point where we are so focused, or we believe that being focused on one thing is the

	best outcome. But in the past, off the top of my head I can't think of any administrator or politicians who also indulged in natural history. I can think of a lot of diplomats. I think we have become more narrow in our lives, in our interests.
35:41 (Audience)	Regarding the hiring of the Europeans to do the collection for him, what was the main reason for him doing that as compared to him hiring a local? Does it have anything to do with cultural superiority?
35:59 (Speaker Martyn Low)	Maybe a bit of that. I don't know, I'm not, I can't answer that, I can't answer the cultural superiority part. But I think if you go up to the gallery where Farquhar's paintings are, and if you can get hold of several books that have been written on the collection, I think the most recent one was by John Bastin and EDM. They actually talk about the way that the paintings were made. And a lot of these paintings were done by Chinese artists and local artists. And you can tell that if you compare them to what we would consider to be zoological drawings, there is a big gap, like if we look at the drawing by, that is published in Cuvier, that is a fairly anatomically correct tapir, but if you compare it to this, you see that there is a difference. And I think it is not about cultural superiority but about the way the training took place, the way… the milieu they have been sitting in. Of course we cannot deny that the zoological framework that we are using even till today is a European concept. Linnaean taxonomy and nomenclature is a European concept. But because they were being trained in it, at the centre of it, the way they perceive the world is very different. I once asked my father this question. Why is it that before Da Vinci, people could draw humans, but they looked wrong. But when Da Vinci came along, suddenly you could have anatomically correct drawings, and it is not as simple as what you see, but also the way you think and you perceive, and of course with the enlightenment came things like you know people are dissecting cadavers and bodies. And once you start doing that, you realise that what you see on the skin has a deeper basis to it. So it's not as simple as you know, it is a very complex issue. But I think because Raffles hired Europeans to do this, things were different. I think because of that, the drawings that came out of that, not this one, the drawings that came out of it, the way collecting was done, the way the animals were preserved for example, there would have been differences. Does that answer your question?
38:41 (Audience)	Just wondering whether you know why Farquhar's paper took five years to be published?
38:45 (Speaker Martyn Low)	I don't know, I mean back in the day, they could have been waiting for more papers or to have enough papers so that they could publish it to make it economically worthwhile. So the sponge, Hardwicke's sponge paper was, from what I can remember, so I mentioned that it was read in November. So it was read before the Society in November 1819. It was sent to the same journal, *Asiatic Researches*, it came out in 1822. So it still took four years. So maybe *Asiatic Researches* was slow. So what happened actually was the description of the sponge, which was read at the meeting, was published in two other places a year later because these were like monthly newspaper-like-things. And they actually published the minutes of the meeting. So the first description of

	the sponge that was published actually dates to those two little publications, but the one with the painting and the full description only came out three years later. Even today, things can take a while to get published, I mean it does happen.
40:05 (Audience)	When they present their findings, do they usually make their observations in writing or do they bring the specimens to the meetings?
40:16 (Speaker Martyn Low)	That is a very interesting question. So, almost all old papers and a few of those, even today I think some of the more, what do we call them, some of the more traditional English societies would actually still, if you download their journal articles, it would actually still say who communicated the article. So they would still have meetings, they would still read aloud what their findings were, and later on they would be published in the journal. And yes, they would actually bring specimens to the meetings, talk about the specimens. So very often we do not know what took place during the meetings, so the only thing we know of is actually the published paper. So, all kinds of things could have happened during the meeting. On a more local note, there was a Singapore Natural History Society that was founded in 1921. The last known meeting was in 1930 so that's only about a decade. They would actually bring things to show at the meetings. For example, one of them was an orang utan nest. So there were captive orang utans in Singapore and orang utans build nests out of leaves to sleep in every night. So there's actually a picture in the *Singapore Naturalist*, and it actually shows a branch with a nest, and I think the photograph was taken right outside this very building. So they would actually do things like that at the meeting.
41:53 (Audience)	Is it common for other naturalists to steal naturalists' papers and put them as their own? Just the French?
41:56 (Speaker Martyn Low)	No, I'm trying to think of who else this has happened to. I cannot remember off the top of my head but this has, I have a feeling this has happened. Off the top, I'm sorry, but if you want examples you can contact me, I can dig them out. But I can tell you a… since we are telling stories today, I can tell you an interesting story about somebody who *thought* his research was stolen. So the world's expert on sharks was sitting on describing on, you know if you've heard of the Megamouth, so it's a species of shark. And he had specimens with him, but he was just so busy with all his administrative work and he just sat on describing it, he never published it. And he had two students under him. And they kind of got fed up asking him to describe it. So one day they made a fake article in Japanese so no one could understand it. So they basically took bits of articles from all over, and made a fake description of this shark and they showed it to their supervisor. And he of course, he blew his top, and he was really angry. But when he settled down, they told him that it was a prank, but that if he was not careful, it was going to happen. So he described it.
43:43 (Audience)	Was the identity of the "kuda-ayer", was that for sure not the Sumatran Rhinoceros?

43:53 (Speaker Martyn Low)	I think from Marsden's 1811 description, it isn't. Because, so Marsden actually talks… I haven't been able to dig up on all the strands yet as you can see, I only managed to find it this morning. But Marsden in 1811 makes it quite clear. I don't know where this other author got his information from, but he quotes Walfeld, whom Marsden also quotes, as saying that it was a two-toned rhinoceros, so it is more than likely that it is not a rhinoceros. Marsden's account is actually quite interesting. I think one of the problems, in a way, that Singapore natural history will need to deal with is that all of this information is in things that do not have "Singapore" in the title. So history of Sumatra, zoological research in Java. Singaporean natural historians would actually need to widen their scope substantially, read through all these old books which are not always interesting or easy to get, and I think then we will have a good natural history. But it is still very much a work in progress.
45:14 (Audience)	I was just wondering in terms of searching for the first mentions of certain animals or plants or things like that, do you ever look at more, what we consider, mythological texts? For example, the Malay Annals where everything is written as a history of the genealogy of kings, where animals sort of have a token role in a larger story. Is that something that you also look at?
45:56 (Speaker Martyn Low)	Personally, the tapir is the first one I've come across. My interest has not so much been in finding these first mentions per se. My interest has been more oblique and then I have ended up at this point. But definitely, I think we need to expand the scope. I mean if you look at Ma Huan's description, he says "supernatural animal". And I think any person working in any of our universities today, the moment they see "supernatural", they are just going to drop it and move on right? I mean, what is your professor going to say? But I think it would definitely benefit natural history if people would take an interest in all these but also have the ability like Maxwell to be able to read several languages, and to start digging around. So to actually look at for example the Malay Annals, and to not go in with the pre-conceived notion that they were either making things up or they were not being very serious. Because I think Ma Huan is a very good example that they were being very serious, they were already talking, they really saw what they were talking about. I mean of course there is myth, but very often they saw what they were talking about and to not go in with the idea that we can discount all these things.
47: 36 (Audience)	Just curious, as a natural historian what do you actually do? Like on a day to day basis. Because you come up with all these stories but how do you actually get them…?
47:50 (Speaker Martyn Low)	So… to bring home the bacon, I do things like assemble species checklists with my boss. So basically you want to find out how many species of crab there are in the world. And we basically look for… he has a checklist of course but you have to look for all these old descriptions. Could this be another crab? What is the identity of this name and we work from there. I help him assemble the list. I help assemble the biblographies to go with the list. So that this list, because they are clean and validated, they can be used for other data-intensive research like biogeography. That's one thing I do. I also enjoy zoological nomenclature. So that is how animals are named. And it is actually surprising

	that… the number of animals that have been described twice by different people is actually quite common. When that happens, you end up with two names or more than two names for one species, which is a bad state of affairs. And you need to decide who published first in order to decide what name you should use. So I also enjoy figuring out which was published first. So, if you have two names, both published in the same year, which book came out first. I like doing things like that. So that's that. Most of this that you have heard about today, actually came about from research I'm doing for our upcoming Bicentennial exhibition. So I would invite you, or you know, just tell you that there will be an exhibition in June, and it will talk about the 200 years, or more than 200 years of natural history in Singapore. And that's where most of this came from.
49: 47 (Audience)	The big reveal that you couldn't reveal and the part with the picture, when should we be looking out for that?
49:58 (Speaker Martyn Low)	Later this year? This year, but later. I can't give you a date, otherwise it would be…
50:07 (Audience)	I have a question on the nomenclature, because the reasons look different… you have the *Rafflesia arnoldii* which are the two people, and you have the tapirs that make reference to the region, and you have Ma Huan with the divinity… was there no specified format for the Latin…?
50:34 (Speaker Martyn Low)	No, there still isn't. So the best rules for nomenclature are the least invasive. Because you do not want, people need to describe names in order to be able to apply them to species right? And you do not want to be intrusive because it makes, it gives everyone more work to do. So the current rules of nomenclature are actually quite simple. They basically tell you what you shouldn't do, like the whole idea that you can't name something after you by the way is not in the code. You are allowed to but it is bad form, so nobody does it. But they tell you basically how to form names, and that's about it. So, basically you can use any name you want for the genus and for a species within reason, they recommend you don't use names that are too long, or names that cause offence. And if you do use a name that causes offence, the commission that administers the quote can actually strike off your name. But generally it is not done. Because it makes life more tedious than it already is. But it also makes for a nice variety in names. So there is a fly with a really big abdomen named after Beyonce I think. Natural historians can have fun too.

About the speaker

Martyn E. Y. Low is research associate at the Lee Kong Chian Natural History Museum (which currently holds the zoological collection of the former Raffles Museum). His research interests encompass a range of topics related to natural history: voyages of scientific discovery, the discovery of species, zoological nomenclature and the bibliography of natural history. He is a researcher and

writer for the upcoming Bicentennial exhibition, *200: a natural history* at the Lee Kong Chian Natural History Museum.