

# A SHORT JOURNEY TO EXPLORE THE EAST: ELTIO ALEGONDAS FORSTEN

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## ABSTRACT

Tropical area is widely concerned for its biodiversity. In the past, European expansion made it possible for naturalists to explore around the world since most countries in equatorial regions were European colonies. Through the projects of natural history European imperialism tried to exploit the nature for their interests. In 1820 the Dutch government launched the establishment of *Natuurkundige Kommisje voor Netherlands Indië* (Natural Science Commission for Netherlands Indies). Among the few members of *Natuurkundige Kommisje for Netherlands Indies* was E.A Forsten who conducted his scientific research in North Celebes and Moluccan Islands in early 19th century. By mostly using Forsten's diary and letters as the main sources this article attempts to narrate Forsten's scientific expedition and its contribution to the natural science.

**Keywords:** Biodiversity, E.A Forsten, natural history

## ABSTRAK

Wilayah tropis terkenal akan keanekaragaman hayati yang melimpah. Pada era kolonialisme, ekspansi Eropa memungkinkan bagi para naturalis Barat untuk menjelajahi kawasan equator mengingat sebagian besar negara di wilayah khatulistiwa merupakan jajahan negara-negara Eropa. Melalui proyek-proyek mempelajari alam dan penduduk di koloni-koloninya imperialisme Eropa mendanai riset terutama bagi kepentingan mereka. Pada tahun 1820 pemerintah Belanda membentuk *Natuurkundige Kommisje voor Netherlands Indië* (Komisi Ilmu Pengetahuan Alam untuk Hindia Belanda). Di antara beberapa anggota *Natuurkundige Kommisje* ialah EA Forsten yang melakukan penelitian ilmiah di Sulawesi Utara dan Kepulauan Maluku pada awal abad ke-19. Dengan sebagian besar menggunakan buku harian dan surat-surat Forsten sebagai sumber utama, artikel ini mencoba untuk menarasikan ekspedisi ilmiah Forsten beserta kontribusinya terhadap ilmu pengetahuan.

**Kata kunci:** keanekaragaman hayati, E.A. Forsten, sejarah alam

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## INTRODUCTION

Early Eighteenth century saw the rise of study about the natural history which placed an important part in European imperialism. It was common for high class society people in Europe to have their own collection of natural objects as part of their life style. They believed that the content of their cabinet – a special cupboard to keep their collections in – reflected their wealth, taste and level of refinement (Farber, 2000: 2).

For example, Jacob Temminck, a treasurer in Dutch East India Company had his plentiful collections, mostly birds and mammals, due to his relation with some explorers. His bird collections then were studied by his son, C.J Temminck, who was recognizable as a famous ornithologist by publishing two important monographs about pigeon. Later, he became a prominent figure of *Natuurkundige Kommisje* in addition to his position as the Director of the *Rijksmuseum van Natuurlijke Histoire* in Leiden (Miracle,

2008: 677:716).

Tropical area is widely concerned for its biodiversity. European expansion made it possible for naturalists to explore around the world since most countries in equatorial regions were European colonies. Pushed by enthusiasm and spirit of learning in the wild nature, lots of naturalists simply neglected the danger of their expedition. It did not discourage them, these young scientists, to fulfil their curiosity about nature. High budget were prepared to finance the expeditions because European power as a matter of fact stimulated natural history exploration for the reason of discovering commercial value in their colonies. They aimed political control to get economic benefits. Through the projects of natural history European imperialism tried to exploit the nature for their interests.

In 1793 French founded *Muséum national d'Histoire naturelle* in which this action was a reflection of its power. As the competitor of French colonial power in 1820 the Dutch government launched the establishment of *Natuurkundige Commissie voor Nederlands Indië* (Natural Science Commission for Netherlands Indies) based on a recommendation of C.J Temminck (1778-1858) and Van Swinderen (1784-1851), a Professor of natural history in Groningen. The principal purpose of the commission was to develop scientific knowledge of the natural resources in the Netherlands Indies. Another reason was to increase collection of *Rijksmuseum* in Leiden as the symbol of colonial sovereignty. Thus, the commission delegated several expeditions lasted approximately three to six years for each expedition to conduct scientific research in Netherlands Indies. They were sent to Java, Sumatra, Borneo, Celebes, the Moluccas, and West Guinea.

J.C Van Hasselt and H.Kühl were the first two members of the commis-

sion who were sent to the Indies. They had been educated to study collections of the British Museum in London and *Muséum national d'Histoire naturelle* in Paris. But travelling to the tropical climate was an unfortunate for these scholars – and later for many members of the commission. They died due to serious illness, a common death reason for European who lived in the Indies. These two naturalists were buried in Bogor Botanical Garden.

Among the few members of *Natuurkundige Commissie* for Netherlands Indies was E.A Forsten who conducted his scientific research in North Celebes. In the beginning of nineteenth century, Dutch tended to put their intentions either in the north or in the south Celebes. For natural scientists, the more alien territory, the more exhilarating it could be. The fact that Celebes was a remote area, in particular about its southern part, for instance, made Wallace more challenged to visit the island (Sirks in Dijk, 1991: 172). Little is known about E.A Forsten since he did not have any opportunities to publish either his scientific discoveries or a travel account of his expedition. Therefore, this article attempts to narrate scientific expedition done by E.A Forsten during his exploration in North Celebes and some part of Molluccan islands.

## RESEARCH METHOD

In order to know the experiences of Forsten during his scientific exploration I very much depend on his daily journal stored in Naturalis Museum Leiden as primary sources. It is actually not the original journal written by Forsten itself, but a reproduction journal rewritten by an anonymous person. I mostly read Forsten's journal (*reisverhaal*) from Batavia to Manado

1840-1842. From time to time of his departure from Batavia until middle 1842, Forsten kept diary of his activities. The final entry of his journal (July 1842) reported the health situation of his hunters. His assistant, Von Gaffron shifted him to write the journal. As for secondary sources, I read Veth's *Overzicht van hetgeen, in het bijzonder door Nederland, gedaan is voor de kennis der fauna van Nederlandsch Indië* and Wallace's *The Malay Archipelago*.

Natural history has not been discussed much in Indonesian historiography. However, there are some references concerned to the publication of travel accounts in North Celebes that help in writing this article. Notwithstanding, few mentioned about Forsten's expedition. Caspar Georg Carl Reinwardt (1773-1854), the founder of Bogor Botanical Garden published the account of his journey in Eastern Archipelago (Reinwardt, 1858). He visited North Celebes for few months in 1821. In 1893-1892 the Sarasin cousins came from Switzerland to make an excursion in North Celebes and authored detail information of the region. They involved both natural history and ethnography. Some of the Sarasin's collections are stored in the Museum at Basel and Dresden Museum (Sarasin and Sarasin, 1905).

Rosenberg (1817-1888), spent his one year in North and Central Celebes (1863-1864) to describe his journey in his book *Reistogten in de Afdeeling Gorontalo, gedaan op last der Nederlandsch Indische Regering*. Alfred Russel Wallace, an English naturalist, was the most famous naturalist who explored Eastern part of Netherlands Indies to shortly visit North Celebes in June to September 1859. His masterpiece *The Malay Archipelago* gained a lot of attention for his partition of archipelago islands based on its fauna diversity. Wallace line is the

imaginary boundary lies between Bali and Lombok named after him since he was the one who acknowledged the division of Asian fauna and Australian fauna. For botanist, the line is less apparent for Celebes' plants appear to be closely related to those in the Archipelago. Another English naturalist who conducted scientific expedition in North Celebes was Sydney John Hickson in 1885 to 1886 who visited Sangir and Talaud and published his account in 1889.

A paper dealt with a traveller account in the nineteenth century has been penned by Mary Somers Heidhues. She explains Franz Epp's publications, a German who travelled around Archipelago during his service to Dutch Colonial Government. Being a non-Dutch, Epp outspokenly criticized the colonial affairs of Dutch Colonial Government in some aspects. Heidhues believes Epps 'scientific spirit' was the main factor of his critical attitude and furthermore to name him as a Multatuly of his time (Heidhues, 1995).

## RESULT AND DISCUSSION

### From Middelburg to Java

Eltio Alegondas Forsten was born in Middelburg, Zeeland July 2<sup>nd</sup>, 1811. It was unfortunately unknown about his background but he spent his collegial time in Leiden studying medicine and got graduated in the Winter 1836 with the title of dissertation 'De Cedrela Febrifuga' (Forsten, 1836). Written in Latin, it discusses the plant described by Blume, a prominent German-Dutch botanist. Many naturalists at that period came from medical background as the study of anatomy, physiology and medical botany that were taught in medical education were basic knowledge to study natural history (Farber, 2000: 7).

Shortly following his graduation, Forsten was appointed by C.J Temminck, one of the founding father of *Natuurkundige Kommissie*, to be a temporary member of the commission. Initially, before going to the Indies he had to stay several months in Leiden to study in the museum. A year later, in February 1838 after obtaining instructions of collecting and preparing for his scientific expedition, officially Forsten became a *Natuurkundige Kommissie* member with a particular duty to conduct excursion in North Celebes.

Later, he embarked to the Netherlands Indies on September 1838 to arrive in Batavia in the midnight of December 13rd, 1838. His arrival was learned by Governor General of Netherlands Indies, Dominique Jacques de Eerens, who invited Forsten in January to visit his palace in Buitenzorg –present day, Bogor. Forsten inhibited there for several weeks where he met Junghuhn for the first time. In the letter sent to Susanna, an administrator in *Rijksmuseum* in Leiden, he wrote “I also get acquainted with Junghuhn. He has been living there in a good house.”(NCB *Naturalis*, Letter to Susana, Weltevreden 17 January 1839) In the course of time, the circumstance within the commission was not good. Eventually Forsten was one of very few active members.

During his waiting time before departure to Celebes, Forsten did some expeditions in Java. He was climbing Mountain Pangrango along with Junghuhn in April and went to Sunda Strait thereafter. Being impressed by Forsten’s expertise, Junghuhn, one of the greatest naturalists in Netherlands Indies, described him as follow:

This zealous zoologist got hurt this afternoon by running after a tiger, be off the track and was unable to reach the mountain top. The night came down with its gray mists and fevers

down at him and a dangerous illness forced him in the morning of the next day to return to his home. (Junghun in Backer, 1936 : 220)

Back to Batavia Forsten became a member of *Bataviasche Genootschap van Kunsten en Wetenschappen* (Groot, 2009). In the city he was one of few people Franz Epp, a German doctor who served the medical corps military service in the Indies and the author of *Schilderungen aus Oostindies Archipel*. Later, Forsten filled the post of Director of the Natural History Museum at Batavia for a very short time (Heidhues, 1995: 43). Yet, he appeared to be unsatisfied with his new position. As for the museum, Forsten stated:

The purpose of the Society is to make a collection of all the products of the animal and valuable mineral of the island of Java and other islands in the Indian Archipelago to subject to the Board of the Netherlands [...] and to make a repository, which would enrich the Rijksmuseum in Leiden [...] This goal, --however useful for the physicist, who can compare his obtained specimen here, however pleasant for the foreigner who sees all natural products of the Indies Archipelago here together,-- will have problems because the administration of the Museum always consists of people, who are only temporary in Batavia and -being civil servants- are too busy dealing with other occupations, in order to seriously engage in it, with the result that one will reject and refuse something that was accomplished by his predecessor. Moreover the Society lacks funds in order to appoint experienced and capable men with a salary -highly proportioned to Indies standards- as directors or curators. The collection itself is of little importance: a few quadrupeds, a greater number of badly stuffed birds, a multitude of daily fluctuations of

horns and shells, some corals[...] The mineralogical or rather geologically part is better equipped and consists of several formations of Java, Sumatra, Borneo. (Veth, 1879: 96-97).

In October there was still no certainty of his passage to Celebes. Therefore, he requested to the Governor General to ask for his departure to Celebes. For another possibility, he actually had a plan to a trip all over Vorstenlanden in Central Java (*NCB Naturalis, E.A Forsten, Kort Verslag van December 1838 tot April 1840*). Finally, in 22 December the decision on the journey to Celebes came. Forsten's salary was also determined of f 500 a month, besides the usual allowances for expenses and travel and accommodation costs. His contract in Celebes was no longer until 1 February 1843 with main duty to collect zoological objects (*NCB Naturalis, Extract uit Het Register der Besluiten van den Gouverneur Generaal van Nederlandsch Indië 22 December 1939, Number 4*).

### Exploring Minahassa

By the end of January 1840, in the companion of H.Von Gaffron, as his assistant with special duty to draw the sketch of species, Forsten was on board of leaving for North Celebes by Ship 'Charles' along with other seven or six Javanese who would help him to hunt the specimens. The ship took the route along Java Sea, Lesser Sunda Islands and turned to the north via Moluccan Islands. After about fifty two days of sailing from Batavia they reached the final destination, Manado, in 22 March 1840.

Naturalists followed the same pattern in starting their activities in a region (Hickson, 1889: 205; Weber, 2009: 172). After having been ashore, Forsten was cordially welcomed by Resident of

Manado. His staffs helped Forsten and his company to get accommodation while he was expecting his stuffs unloaded from the ship. Then missionaries provided him an account of the local situation. Information about a region and its dwellers became important as an apparatus for colonial administration, while knowledge of the language and culture were needed by missionaries to spread Christianity (Dijk, 1991: 172). After that, Forsten was associated with the indigenous rulers in order to complete his information.

For about a month Forsten and his assistants resided in Manado, the capital of Manado Residency—which by the native was more common to be Minahassa—before established his base camp in Tondano. Tondano, a small town at an elevation of about 2,400 above the sea level feet located in the northern shores of Lake Tondano. The base camp was situated in the neighbourhood nearby Kampung Java, in which Kyai Madja, one of Diponegoro's Commander had been exiled. By authorization of the Resident he could make use of a government building in Tondano which he described as “the lodge is made of bamboo with *atap* roofed in and with canvas would provide against rain and sunshine.” (*NCB Naturalis, Reisverhaal Forsten*) He found the lodge was already furnished by bed, chairs and table. When moved from Manado to Tondano, Forsten employed 300 coolies to carry his lots of stuffs.

Dwelling in a tropical area which definitely has lots of heavy rain during the day was occasionally frustrating for people born in the subtropical climate. Not many European could well adapt to the climate in Netherlands Indies. It did also happen to Forsten who since in Java easily got sick especially with his digestive system. He usually suffered from intestinal disorder diseases, such as Di-

arrhea. Other than that, he felt dizzy most of time and could not sleep quite often. As for the weather, rain was the most word he used in his diary. From the tone, it seems like it was terrible to have such rainy days in his new environment because rain means few activities to collect specimens. Once in a while he used barometer and thermometer to measure atmospheric pressure and temperature.

Forsten did not search for specimens himself, instead he sent his animal and plant hunters throughout Minahasa although now and then he took a journey himself to get his collection gathered. He, too, received specimens from native people. It was not clear if he got them for free but sometimes he had to buy such as *babirusja* for f 4. His daily life was always busy with his scientific activities because a naturalist is not only discovering an object but also naming, describing, and classifying the objects.

Tondano was the center of Christian *zendeling* in Celebes. The spread of christianity in upland Minahasa started with the arrival of two German missionaries from the *Nederlandsch Zendeling Genootschap* – (Dutch Missionary Society), or NZG. They were Johan Riedel and Johannes Schwarz who arrived in Minahasa on 12 June 1831 (Watusake, 1968: 39-40). Riedel chose Tondano to run his activity while Schwarz settled in Kakas but then he moved to Langowan. Owing to their hardship of converting native people into christian, Minahasa gradually became christendom. The two native villages had a communal church and a school in which more than 440 students can be taught (NCB *Naturalis, Reisverhaal Forsten*). They developed an effective education system in Minahasa. The lesson used the Malay language to communicate. For that reason, according to David Henley, Minahasa had the most comprehensive school sys-

tem in the Dutch East Indies, and probably one of the best in Asia (Henley, 1996: 57). Forsten himself regarded christian mission in Minahasa was a good way to enlighten native for, according to him, “the old religion of Alfuros is quite in the dark.” (NCB *Naturalis, Reisverhaal Forsten, entry 17 June 1840*).

Forsten was inclined to be friendly with his European fellowman rather than native people. In his diary, Forsten mentioned a lot of European people, in contrast, he neither mentioned name of his Javanese hunters nor natives, except the local rulers. He enjoyed this relation due to their similarity of living away from home. Of few European people in Minahasa, Riedel, Schwarz and Mattern were whom Forsten was close to. One of his lovely times together with his fellow countryman stated as follow:

I stayed in the missionary Mattern and brought there, accompanied by his wife, a pleasant evening. Rotterdam, her birthplace, was still the subject of our discussions and the whole Dutch supper was prepared. I was in my imagination of my perfect places in Holland. Congenial dreams from the pasts helped to shorten my sleep of the night until in the dawning of the daybreak I was aroused completely awake by the Javanese face of my boy.” (NCB *Naturalis, Reisverhaal Forsten entry: 3 June 1840. Forsten mentioned “boy” to refer to his hunter*).

Forsten was probably a melancholic man who always had enthusiasm to remember for his life before sailing to the Indies. When van Dijk, his old friend from Holland came to Minahasa, these two people were in a very good mood to have a long talk about their fatherland. He also kept correspondences with a sister in Amsterdam and a friend in Middelburg.

Although had to struggle with his bad health and unsuitable climate in the Indies, Forsten traveled a lot throughout

Minahassa. Whenever his health did not allow him either to walk or to ride horse then he would be carried in the litter. He spent sometimes observing the village that he visited to write his brief description about the places and the customs. Once attending a native party, he observed the setting as follow:

After my first month of having been involved with arranging and checking the label of specimens which were collected in June, in this town I attended a party of Alfoer. Saturday, 6 July in the afternoon, from the boys that there would be a celebration and, in fact, I saw about 4 pm some *prauuw* (small boat) with several decent priest and colorful umbrellas sail the river. They were too far to discern their clothes, some time later a proah -with 6 singing women "oude wiven" who were paddling and went to pick up a priest- passed us, one hour later they came back with one priest who was recognizable due to a remarkable headgear, to wit [namely] some kind of black male-hat without an edge, on which decorations of coral made from gold and silver were hanging. The rain certainly made itself to an end for this day because I noticed nothing further." *NCB Naturalis, Reisverhaal Forsten* entry: 7 July 1840).

The entire island of Celebes topographically is mountainous with lots of valleys, in addition to large coastal area. During his one year exploration in Minahassa, which was the longest time of his expedition, Forsten was on a tour of both mountains and coastal areas. He reached the coastal area of Likoe pang, Belang and Kema to collect sea animals. During September-December 1840 he climbed to Klabat Mountain. Located directly to the east of Manado, with 6500 feet in high, it is the highest peak in Minahassa. Later he went to crater of the Batoe Angoes, Amoerang and Seputan. In Seputan, he measured the height of the volcano as had been done by his pre-

decessor, Reinwardt in 1821 and found that his measurement was different with what Reinwardt did. According to him, several eruptions happened in the mountain in time between his climbing and Reinwardt's made the difference (*NCB Naturalis, Reisverhaal Forsten* entry: 10 December 1840).

His scientific research got a lot of support from colonial government. When the Governor of the Moluccan islands had an inspection to Minahassa, he took the opportunity to take a look at Forsten's collection in his base camp. The arrival of a high rank official always became an unusual happening for inhabitants. He wrote in his journal about the situation "[...] In consequence the whole Minahassa was in an uproar situation. People were busy of preparing the area to hail the Governor. They cleaned and improved the roads and [...]" (*NCB Naturalis, Reisverhaal Forsten*, entry: 5 July 1840).

In the residency of Manado and the most part of Northern Celebes, many gold mines were found and run since Dutch East Indies period. In his journal, Forsten noted seven gold mines of Kotta Boena belong to the Rajah of Mohondo (*NCB Naturalis, Reisverhaal Forsten*, entry: 4 November 1840). Furthermore he stated that "The Dutch Government had a treaty with Raja to exploit and to employ 750 people to work in these mines a year." Also interested in collecting minerals, Forsten sometimes went to the river for observing and collecting rocks.

When a ship "Bonjol" on its duty to load coffee (Henley, 1996: 38) to be transported to Rotterdam docked in Manado, Forsten made a deal with the Resident and agent of *Netherlands Handels Maatschappij* to deliver his collections consisted of six barrels and six boxes. He addressed his consignment to the Minister of Colony in the Hague (*NCB Natu-*

*ralis, Reisverhaal Forsten, entry: 29 March 1840).*

### **Ternate: An Unintended Venture**

In a trip to Gorontalo as the destination place by hiring a ship "Virgo" for f 450, Fosten was imposed by unfavorable wind to land on Ternate in 19 June 1841 to find "Ternate itself has been once a beautiful little place [...]" (*NCB Naturalis, Reisverhaal Forsten, entry: 19 June 1841*). Ternate is a small but a trade center island where Dutch East Indies had long history with the island. In Ternate people traded bird of paradise, sea cucumber, bird nests, sago, nutmeg and so on. Thus, Forsten could also purchase his some collections from people outside the island.

The Dutch officials in the island highly praised him with generous hospitality and kindness. He often visited the *societeit de Speijk* where European took pleasure in where he could play billiard that he was really much fond of. For the association to the Resident of Ternate and Von Gaffron, he paid a visit to the Sultan of Ternate who was so friendly to accept them at the top of the gallery and let them sit next to him (*NCB Naturalis, Reisverhaal Forsten, entry: 20 June 1841*).

Here he was so sick for some months that he wanted the health officer to investigate his urine for filtration. The investigation came as no surprise since his urine was abnormal. It contained a quantity of gritstone. As treatment he got *Carbones magnesiae* to cure his illness. In the meantime he sent his hunters to surrounding area such as in Halmahera, the biggest island in Moluccan islands, to get any kind species for his collection. From Sultan Ternate he got a *prauuw* (boat) by which his hunters sailed to Gilolo to get specimens. It is like a blessing

in disguise that he made use of the unintended situation to increase his scientific collections. While recovering his improving health he kept busy on investigating some mammals and birds (*NCB Naturalis, Reisverhaal Forsten, entry: 12 July 1841*).

His big concern of learning came to the idea of depicting a brief ethnography about Ternate. Compare to his other brief ethnography observations, the account of Ternate was the most complete one. He observed rather thoroughly of geography, climate, origin name of Ternate, administration, population, industry, clothes, volcano, history of Ternate, as well as feeding.

The clothes of people in Ternate generally consists of a long shirt under which a pair of trousers, from European cotton usually with eccentric green color which they obtain through the cotton with indigo, blue first, and then with turmeric [...] Some women dressed like Javanese with bareheaded with sarong and Kabaya [...] For food, people in Ternate ate sago and fish. Price of rice was expensive, twice of the price in Manado [...] (*NCB Naturalis, Reisverhaal Forsten, entry: 9 September 1841*)

In the island, Forsten got along with Maarten Dirk van Renesse van Duivenbode, who was also interested in the natural research. From him, Forsten got some specimens. Duivenbode later appears in Wallace's "The Malay Archipelago" to accommodate this English naturalist during his stay in Ternate. Wallace depicts van Duivenbode as "[...] a rich man, owned half the town, possessed many ships, and above a hundred slaves [...] He was generally known as the king of Ternate, from his large property and great influence with the native Rajahs and their subject." (Wallace, 2000: 243).

For about three months he stayed in Ternate before deciding to go back to



his primary intention of making excursion in Gorontalo. Some farewell parties were held by European to bid his return to Celebes.

### **Back to Celebes: Gorontalo and Manado**

In mid September he sailed back from Ternate to North Celebes again. Gorontalo is situated at the eastern end of Lake Limboto at the spot where the lake and three rivers drain to the Gulf of Tomini. By the Dutch local administration Forsten was housed in a house in Kotta Radja. The house given to him to live in was belonged to the mother of Raja Bamoele and this explained why it was one of the best house in Gorontalo. To feel it like home, Forsten waved the Dutch flag on a very tall bamboo and put it in front of his house. To his surprise, later one of local king in Gorontalo delivered table, chairs, lamp crown, and silver glassware.

In his view, the animal diversity in Minahassa and Gorontalo was quite similar. But, Forsten found that Gorontalo was more interesting for its mineral and ethnography. He was in his effort to pen a dictionary in which he compiled a complete list of plants from Gorontalo to their native names and gave any explanation of them. He asked for Gaffron to go to Simulate in order to investigate the condition of the soil, the rock types in which the gold was found. There were several goldmines throughout the region in which he collected different type of minerals including gold.

From Gorontalo Forsten returned to Manado before heading for Ambon. In late December 1841, the ship *de Hoop* came to load the coffee to Batavia in which he decided to once again send his collections to Europa.

### **Last Journey: Ambon**

Forsten arrived in Ambon April 1841 to make a trip in several islands around afterwards. Before leaving for Ceram, Forsten wrote a letter which was probably the last letter to Susanna. He was telling his plan to send his mammal collections (Dugong and Babi Rusa) to Leiden. Moreover he conveyed that he was grateful that the medicine of which he was taking during the time was efficacious. He no longer experienced abdominal pains, had a normal sleep and regained his appetite. He repeated his hope to return to Leiden by saying "as I don't get renewal (of his contract) from Governor General, I hope after a year to come back to Java in order to embark me to Holland and therefore in June or July in the following year I will be in Leiden." (*NCB Naturalis, Letter to Susanna, Kema 22 January 1842*). In addition, he reported to Susanna as well that Von Gaffron despite his bustle of drawing sketches had successfully completed maps of Minahassa, Ternate and Gorontalo and was still in the process of mapping Ambon (*NCB Naturalis, Letter to Susanna, Amboyna 17 July 1842*).

His hunters collected specimens from Laha, Banda islands and Ceram. On a tour of inspection with governor of Moluccas to Ceram in the end of August 1842, Forsten fell sick again. He was so terminally ill that had to be transferred to Ambon in order to access better treatment for his health. But, he died on 3 January 1843 and never come back to Holland as he wished in the letter to Susanna.

### **Forsten's collections**

Forsten sent to Leiden a large collection of specimens from North Celebes and Moluccas even though some of

them were not in the good shape when they reached Museum in Leiden. In a letter to Susanna, Forsten blamed himself for his carelessness as he packed those stuffs. These important collections together with papers were kept by Temminck (Veth, 1879: 116). De Haan, Schlegel, Müller and Temminck himself later managed to take care of the collections and published the scientific name of specimens. It does not clear how many collections Forsten had during his scientific expeditions since he arrived in Netherlands Indies. But it does clear that his collections consist of mammals, reptiles, birds, sea animals, fishes, insects, plants and minerals. Wallace (2000) counted that his Eastern collections were 125,660 specimens of Natural History. They consisted of Mammals (310 specimens); Reptiles (100 specimens); Birds (8,050 specimens); Shells (7,500 specimens); Lepidoptera (13,100 specimens); Coleoptera (83,200 specimens); other Insects (13,400) specimens.

Of his reptile collections, Forsten's Tortoise (*Indotestudo forstenii*) discovered in Gilolo, perhaps is the most well-known commercial specimen, at least in Indonesia, as people keep it as a pet despite the fact that it is a kind of endangered species. *Indotestudo forstenii* prefers to grow in the darkish light so that it is usually found in the humid forests in Celebes and Halmahera, the endemic area of the tortoise. This tortoise has unusual peculiar yellow and black color of its scutes (Temminck, 1839-1844; Senneke & Tabaka, 2003). As for plants, one of his collections is *Semicarpus forstenii* of which this wood occasionally is used to make canoes by native people in Molucan Islands (*Nationaalherbarium Online*, 2011). Some stuffs from his mineral collections are Basalt (from Batu Anguis), Trachyte from volcanos in Manado and Bacan islands, Graniet and Gold from Gorontalo. Among the mineral collec-

tions, most of them perhaps were originated from Gorontalo.

### Forsten as an Ornithologist

Among bird lovers, Celebes is famous for its dazzling specimens in which Alfred Wallace described it as follow:

On the whole, therefore, though disappointed as to the number and variety of species, I cannot but consider the island of Celebes to be one of the most interesting in the world to the philosophical ornithologist, and well worth the time I have bestowed upon it. (Wallace, 2000: 234)

In spite of his abundant collections of nature, Forsten is internationally honored as an ornithologist. His reputation was admitted by Wallace as he reported in his book that from 140 birds of Celebes he had acquainted with and there are ten found by Forsten (van den Hoek Ostende, Dekker & Keijl, 1941). Some of them are *Carpophaga forsteni*, *Meropogon forsteni*, *Ducula forsteni*, *Pitta forsteni*, *Megapodius forsteni*, *Todiramphus forsteni*.

*Carpophaga forsteni* is the largest Pigeon in Celebes Island. In his account, Wallace mentioned this bird as: " [...] the best thing he shot was the large and rare fruit-pigeon peculiar to Northern Celebes (*Carpophaga forsteni*), which I had long been seeking." (Wallace, 2000: 200). *Duculla forsteni* (white-bellied Imperial Pigeon) is usually seen at middle elevations. This is an impressive bird with a green breast sharps demarcated from the white belly, a white head, and white band in the tail which is endemic to Sulawesi and the Sula island (Holmes, 1996: 2). Another isolated bird is *Meropogon forsteni* (Purple-bearded Bee Eater), a rather uncommon bird of the forests, and confined to the north, central and south Sulawesi (Holmes, 1996: 45). What

makes this bird special is that it combines the characters of African and Indian Bee-eaters, and which only associated with, *Meropogon breweri*, discovered by M. Du Chaillu in West Africa (Wallace, 2000: 209).

## CONCLUSION

The rise of scientific research in the eighteenth century was one side effect of colonialism. This is clearly because basically the research was not done on behalf of purely scientific purpose. Having of a lot of facilities from Dutch colonial power—and local ruler connections in North Celebes and Moluccan islands—for his scientific exploration Forsten, as a member of *Natuurkundige Kommisise*, collected important natural objects, including gold and other minerals, to be sent to *Rijksmuseum* in Leiden, the museum representing the glory of Dutch colonial empire.

This promising naturalist, Forsten, was just thirty one years old when a disease claimed his life. Therefore he did not have opportunity to publish his works as other naturalists did. Nevertheless, the aforementioned paragraphs above show the nature of totality in his work. Poor health condition did not impede him of being a devoted naturalist who dedicated his life for the sciences. During his three years expedition he explored Minahassa, Gorontalo, Ternate, Ambon as well as other small islands in Moluccan islands and extended his interests from both zoology and botany to geology and mineralogy and also ethnography. More widely known as an ornithologist, Forsten's important discoveries of particular bird specimens which mostly are endemic in Celebes area contributed to support the idea of Wallace that the birds and mammals of Borneo and Celebes are notably differ-

ent although the two islands are not separated by any significant physical barrier.

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