



COMMENT

A new theory to explain the receipt of Wallace's Ternate Essay by Darwin in 1858

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In early 1858, when he was in the Moluccas, Wallace drafted an essay to explain evolution by natural selection and posted it to Darwin. For many years it was believed that the Ternate essay left the island in March on the monthly mail steamer, and arrived at Down House on 18 June 1858. Darwin immediately wrote to Lyell, as requested by Wallace, forwarding the essay. This sequence was cast in doubt after the discovery of a letter written by Wallace to Bates leaving on the same steamer with postmarks showing its arrival in Leicester on 3 June 1858. Darwin has been accused of keeping the essay secret for a fortnight, thereby enabling him to revise elements of his theory of evolution. We intend to show that Wallace in fact sent the Ternate essay on the mail steamer of April 1858, for which the postal connections actually indicate the letter to have arrived precisely on 18 June. Darwin is thus vindicated from accusations of deceit. Wallace's Ternate essay and extracts from Darwin's theoretical manuscripts were read at a meeting of the Linnean Society of London on 1 July 1858, which is now recognized as a milestone in the history of science. © 2011 The Linnean Society of London, *Biological Journal of the Linnean Society*, 2012, **105**, 249–252.

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INTRODUCTION

On 18 June 1858, Charles Darwin wrote a short note (dated only '18') to Charles Lyell saying that Alfred Russel Wallace 'has to day sent me the enclosed & asked me to forward it to you. It seems to me well worth reading. Your words have come true with a vengeance that I sh^d. be forestalled' (Burkhardt & Smith, 1991). Darwin referred to a draft essay containing a strikingly similar theory of evolution to his own, which has become known as the Ternate essay. Lyell and Joseph Dalton Hooker advised Darwin to allow them to present extracts from his evolutionary manuscripts together with Wallace's essay at a meeting of the Linnean Society of London. The papers

were read on 1 July 1858, and constitute the first public announcement of the theory of evolution by natural selection (Darwin & Wallace, 1858).

Burkhardt and Smith (1991), editors of Darwin's correspondence, have convincingly demonstrated that contextual evidence confirms the receipt of Wallace's letter and essay on 18 June 1858 after its arrival in London with the East Indies mail on 17 June. On the other hand, McKinney (1972), Brackman (1980), Brooks (1984), and Davies (2008) use the survival of a letter from Wallace to Frederick Bates sent from Ternate in March 1858 to suggest that Darwin did not receive Wallace's letter on 18 June 1858, as he claimed. The most extreme conspiracy theorist is Davies (2008), who claimed that 'ideas contained in Wallace's Ternate Law paper were plagiarised by Charles Darwin'. This author claims to have uncovered 'a deliberate and iniquitous case of intellectual theft, deceit and lies perpetrated by Charles Darwin'. We offer a solution to this 40-year-old mystery.

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TERNATE 1858

Because the original manuscripts of Wallace's letter and essay do not survive, other evidence has been used to reconstruct this famous event. Wallace travelled in the Malay Archipelago, collecting natural history specimens from 1854 to 1862. Sometime in February 1858 he had the idea for natural selection to explain evolutionary change, and wrote up a 4200-word essay. The printed version of the article is signed: 'Ternate, February, 1858'. Recent writers on Wallace now discount that the essay was actually written on Ternate, because his field journal appears to show that he was on the neighbouring island of Gilolo (Halmahera) throughout February (Pearson, 2005). However, the field journal is retrospective, and contradicts other contemporary documents by Wallace. Furthermore, Wallace's practice throughout his stay in the Malay Archipelago was to sign letters and articles from his actual location, no matter how obscure, including those without a post office. In later recollections, the closest being 11 years after the event (letter to A.B. Meyer, 22 November 1869), Wallace described sending the essay to Darwin 'by the next post' (Meyer, 1895). One of us (JvW) will address the subject of the Ternate essay more extensively elsewhere.

Taken alone, these two details point to the mail steamer that called at Ternate on 9 March 1858. The surviving letter to Bates was definitely sent on this steamer, and its postmarks reveal its arrival as 'Singapore Apr 21 58', 'London Ju 3 58', and 'Leicester Ju 3 58' (McKinney, 1972). Hence, starting from the assumption that Wallace also sent the letter to Darwin on 9 March, many writers have asked how the letter to Darwin, travelling on the same mail service, could have arrived 2 weeks later, on 18 rather than 3 June?

We offer two new pieces of evidence to solve this riddle. One of the few details known about Wallace's lost letter to Darwin is that it was a reply to Darwin's 22 December 1857 letter (Burkhardt & Smith, 1990). We know it was a reply because, as Wallace (1905) recalled: 'I asked [Darwin], if he thought [the Ternate essay] sufficiently important, to show it to Sir Charles Lyell, who had thought so highly of my former paper [Wallace, 1855]'. Wallace only learned of Lyell's interest from Darwin's letter. Raby (2001) assumed that Darwin's letter arrived in February, but Davies (2008) reconstructed the route and timings of this letter, which shows that it must have arrived on the mail steamer of early March 1858. An arrival of 1 month earlier was not possible. We have conducted the first analysis of all surviving Wallace correspondence sent and received during his travels in the East Indies, and arrived at the identical result. Therefore, it is

certain that Darwin's letter arrived in Ternate on the 9 March 1858 steamer, 77 days after dispatch.

We have also found from Wallace's surviving correspondence from Ternate that he never replied to a letter by the same mail boat on which it arrived. The exact circumstances of the turnaround and closure of the mail bag leaving Ternate are not known, but it was apparently not possible for Wallace to respond via the same steamer, which may have remained for as little as 1 hour. This would mean that Wallace could only have replied to Darwin via the following mail steamer in early April 1858. Wallace never claimed to have sent the letter in March, merely referring to 'the next post'. Recent writers agree on discounting his recollection of composing the essay on Ternate, but there has been no similar scepticism towards Wallace's recollection about when he sent it. Although there is some, albeit contradictory, evidence to doubt that Wallace was on Ternate during February 1858, there is no contemporary evidence at all to corroborate his 'next post' recollection. Hence, the assumption of earlier writers that Wallace sent the essay as early as February or March can be discounted. Furthermore, as we demonstrate below, the April post date actually connected, in an unbroken series of mail transfers, with the arrival of Wallace's letter at Darwin's Down House on 18 June 1858.

THE ROUTE OF WALLACE'S LETTER

The mail service to the eastern part of Java and the outlying islands of the Dutch East Indies from 1850 was contracted to the W.F.K. Cores de Vries company, which maintained four screw steamers to operate this route, as well as another one from Jakarta to Padang. The mail to Singapore from 1840 was carried by the *Koningin der Nederlanden* owned by the 'Nederlandsch-Indische Stoomboot Maatschappij' (Dutch East-Indies Steamboat Company). In 1854, the government entered into a contract with Cores de Vries to operate an additional service from Jakarta to Singapore, hoping that competition would reduce prices (Anonymous, 1858; Campo, 2002: 38–42).

In the 1850s, the steamers of Cores de Vries operated a monthly anticlockwise route through the Moluccas, leaving from Surabaya (Java) and calling at Makassar, Timor, Banda, Ambon, Ternate, Manado, and Makassar (Anonymous, 1858). On its return to Surabaya, it connected with a service to Jakarta. The newspapers published in Jakarta recorded arrivals and departures in Surabaya and Makassar, but those for Ternate were not included. However, in the late 1850s, the mail steamer usually arrived at Ternate between the 5th and 10th of each month (Brackman, 1980).

The route taken by Wallace's letter and essay sent to Darwin from Ternate can be reconstructed confidently, assuming that it was deposited at the Ternate post office before 25 March, when Wallace left the island for a collecting trip to New Guinea. The mail service from Ternate (April) to Down House (June) in 75 days can be described in ten stages.

1. DEPARTURE FROM TERNATE: c. 5 APRIL 1858

The mail steamer *Makasser* left Surabaya on 19 March 1858 (*Javasche Courant* 31 March 1858: 'Vertrokken vanuit Soerabaija op 19 Maart 1858 Nederlands stoomschip *Makasser* F.H. Schmidt naar de Molukken over Makasser en Timor' [Departed from Soerabaija on 19 March 1858, the Dutch steamer *Makasser* (captain F.H. Schmidt) to the Moluccas via Makasser and Timor]). The usual transit time from Surabaya to Ternate was about 16 days (Boom, 1863; Brooks, 1984), hence the steamer called at Ternate around 5 April 1858.

2. ARRIVAL IN SURABAYA: 20 APRIL 1858

The transit time from Ternate (via Manado and Makassar) back to Surabaya was about 14 days (Brooks, 1984). The *Makasser* passed Makassar on 17 April before arriving back in Surabaya on Tuesday 20 April 1858, as recorded in the *Javasche Courant* (1 May 1858): 'Aangekomen in Soerabaija op 20 April 1858 Nederlands Stoomschip *Makasser* T.H. Schmidt van de Molukken (van 17 April)' [Arrived in Soerabaija on 20 April 1858, the Dutch steamer *Makasser* (Captain T.H. Schmidt) from the Moluccas, 17 April]. The difference in the initials of the captain must be a misprint.

3. ARRIVAL IN JAKARTA: 23 APRIL 1858

The mail steamer *Banda* left Surabaya on 20 April and arrived in Jakarta on 23 April 1858, according to the *Javasche Courant* (28 April 1858): 'Op 23 April is aangekomen het Nederlands stoomschip "*Banda*" A.G. Bosch, vertrokken uit Soerabaija den 20sten April' [On 23 April the steamer *Banda* (captain A.G. Bosch) arrived in Batavia, having left Surabaya on 20 April].

4. ARRIVAL IN SINGAPORE: 30 APRIL 1858

The mail steamer *Banda* continued its journey from Jakarta on 26 April, and arrived in Singapore on Friday 30 April 1858, as noted in the *Singapore Free Press* (6 May 1858): 'The Dutch mail steamer *Banda*, Captain Bosch, arrived here on the 30th ultimo [April

1858], from Batavia, the 26th. She returned to Batavia on the 1st current, with the Europe mails of the 26th of March'.

5. DEPARTURE FROM SINGAPORE: 1 MAY 1858

The steamship *Pekin* of the Peninsular & Oriental Company (P&O) left Singapore on 1 May 1858 bound for Bombay, via Galle (Sri Lanka), as listed in the *Singapore Free Press* (6 May 1858): 'The P. & O. Co's steamship *Pekin*, Captain Burns, arrived here on the 30th ultimo [April 1858], from Hong Kong, the 23rd. She left for Pinang and Bombay on the 1st current'.

6. TRANSIT IN GALLE: 14 MAY 1858

The *Pekin* arrived at Galle harbour on 10 May, recorded in the *Sydney Morning Herald* (9 June 1858): [Arrival at Galle] 'May 10. – Pekin (P. and O. Co.), 1200 tons, Captain Burne, from Hong Kong'. As the *Pekin* was bound for Bombay, the European mail was transferred to another P&O steamer, the *Nemesis*, which left Galle on 14 May 1858, following the *Sydney Morning Herald* (9 June 1858): [departure from Galle] 'May 14. – Nemesis (P. and O. Co.), 2017 tons, Captain Paterson for Suez'.

7. ARRIVAL IN SUEZ

The usual transit time between Galle to Suez was about 14 days. The records of the post office reproduced by Brooks (1984: 254) show that the *Nemesis* arrived in Suez on 3 June 1858 at 00:30 h. The arrival in Suez was also mentioned in *The Times* (9 June 1858: 12).

8. TRANSIT IN EGYPT

Mail was transported overland through Egypt from Suez to Alexandria on camels and boats, which took about 2 days (Sidebottom, 1948). The mail from the *Nemesis* arrived in Alexandria on 4 June at 11:30 h (Brooks, 1984). It was loaded at 17:15 h on the P&O steamship *Colombo* (captain Field), which departed the next day, 5 June 1858, at 05:00 h (*The Times*, 17 June 1858: 8).

9. ARRIVAL IN SOUTHAMPTON: 16 JUNE 1858

The *Colombo* stopped at Malta on 8 June and Gibraltar on 12 June before arriving in Southampton on Wednesday 16 June 1858 at 21:00 h (Brooks, 1984). The arrival was noted in *The Times* (17 June 1858: 8): 'The Calcutta and China Mails. – Southampton, Wednesday night. – (By Electric and International Telegraph.) – The Peninsular and Oriental Company's steamship Colombo, Captain Field, has arrived in the

river with these mails, in charge of Lieutenant Payne, R.N. Her dates are – Alexandria, June 5; Malta, 8; and Gibraltar, 12. [details of cargo] Fine weather, with generally light winds, throughout the voyage’.

10. ARRIVAL AT DOWN: 18 JUNE 1858

From Southampton, the mail was transported by train to the general post office in London on 17 June, arriving at 05:35 h (Brooks, 1984). Wallace’s letter was delivered to Down House on Friday 18 June 1858.

DISCUSSION

The transit of Wallace’s letter from Ternate to Down House took the normal period of 75 days. If Darwin told the truth, then the arrival of Wallace’s letter on 18 June should actually have a fully connecting service route all the way back to Ternate in the Dutch East Indies – something that Darwin could not have known. We have now shown this to be the case.

Therefore, contrary to the frequent assertions of conspiracy theorists, Darwin did not lie about the receipt of Wallace’s Ternate essay, and in fact sent it on to Lyell the very same day. Hence, we should restore the story of the joint announcement of the theory of evolution by natural selection from the recent version of dishonesty and conspiracy to one of those inspiring cases of cooperation in the history of science.

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