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A Troublesome Letter Signed "yrs Ch. Darwin"

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In 1985 when the editors of the *Correspondence of Charles Darwin* were assembling letters for volume 2 (1837–1843), the letter to be described below came to their attention. The editors decided to omit it from the edition because, despite the "Ch. Darwin" signature, it was not considered an authentic Darwin letter. Some scholars have questioned this decision, among themProfessor Phillip R. Sloan, who thinks that it may be a Darwin letter, or that at least it should be included as a letter of uncertain authorship. Accordingly, the editors have decided to review the decision and to consider whether any new evidence has come to light since 1985.

The letter was found in the Darwin Archive of the Cambridge University Library in one of a series of boxes (DAR143–54) described in the Library's *Handlist of Darwin Papers* as "containing copies of letters and notes by CD to various correspondents."[1] The letter in question is catalogued as DAR 147: 231; it is addressed to Richard Owen, the leading British comparative anatomist of the day, and bears the signature "Ch. Darwin" (fig. 1.3).

Most of the Darwin letters in these boxes of the collection were sent to Francis Darwin in answer to his call for letters to be used in editing the biography of his father *(Life and Letters of Charles Darwin).*[2] Francis had the letters copied and then returned the originals to the correspondents. Some original letters in the boxes were presumably gifts from the correspondents or their descendants. However, most of the letters to Owen in DAR 147 are typed copies made, not by Francis, but by the sender, C. Davies Sherborn, who was responsible for the Owen correspondence and papers at the British Museum (Natural History).[3] The letter under consideration is not a typed copy, although it bears the same stamp of the BM(NH) collection of letters to Owen as the typed transcripts. Why this letter, presumably an original Darwin letter to Owen, is the only one sent from the BM(NH) collection that is not a typed transcription is only one of the many questions raised by the letter in question.

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The collection of Owen correspondence was deposited in the BM(NH) by Owen's grandson and literary executor, Richard Startin Owen. Richard Owen died in 1892, five years after *Life and Letters* was published. Owen's grandson, with the help of Sherborn, sorted out the enormous collection of correspondence and other manuscripts that Owen had preserved, and began to write the *Life of Richard Owen.*[4] The years following publication were devoted to distributing the letters and manuscripts to various learned societies and individuals. Most of Owen's scientific correspondence went to the BM(NH).

The letter under discussion may have been sent to Francis when he and Albert Charles Seward were collecting Darwin letters for their edition of *More Letters of Charles Darwin.*[5] It is not known when the letter was sent, but it is not included in that work. It is possible that Francis, who was well acquainted with his father's handwriting and signature, did not include it because he did not recognize it as genuine, but if it was sent with the typed copies, it is also possible that the letter was not received in time to be included. A note on one of the typed copies of letters to Owen reads, "Received | Sep 10.02| too late for book." No Darwin letter to Owen from BM(NH) was published in *Life and Letters* or *More Letters.*

Description

The letter is written on two sheets of stationery 271 x 220mm in size. The paper is whitish-gray, and the second leaf has a clear watermark, J. Whatman | Turkey Mill | 1840. There is no address for the sender and no date. At the upper left corner of the first sheet there is a very faint stamp that reads "Ex Litt | Ricardi Owen | Don. R. S. Owen" (fig. 1.4). The fourth line, upside down and in reverse order, reads, "Coll. Sherborn." On typed copies of other Darwin letters to Owen sent from the BM (NH) collection, "Coll. Sherborn" appears on the first line, right way up, as part of a single stamp of four lines. The three-line form may have been the original stamp used for the Owen correspondence collection before Sherborn took charge of it. The circular stamp at the top of the first leaf (fig. 1.1) is that of the Cambridge University Library.

As noted, the editors of the *Correspondence* decided that the letter was not an authentic Darwin letter. That deci-

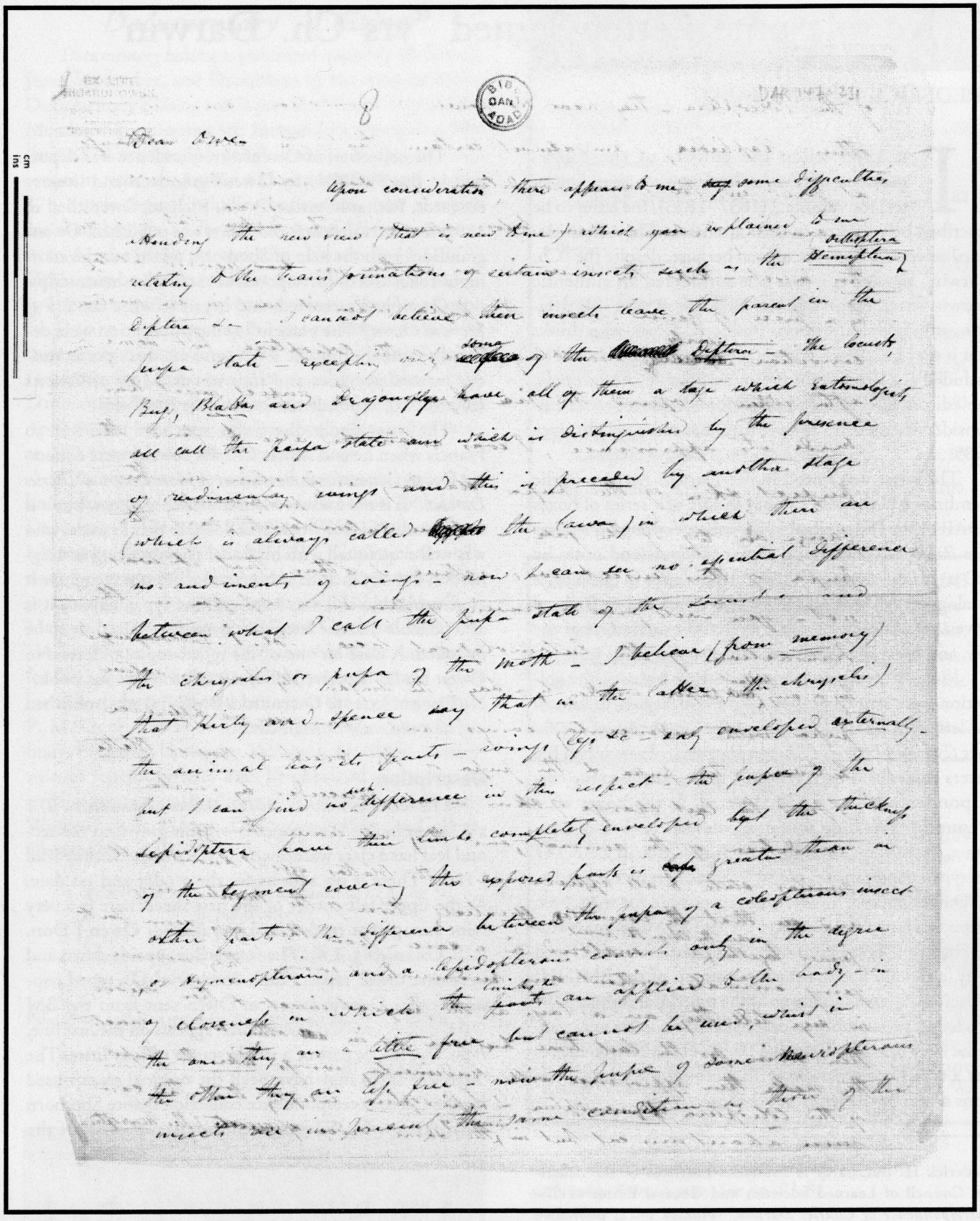

Figure 1.1

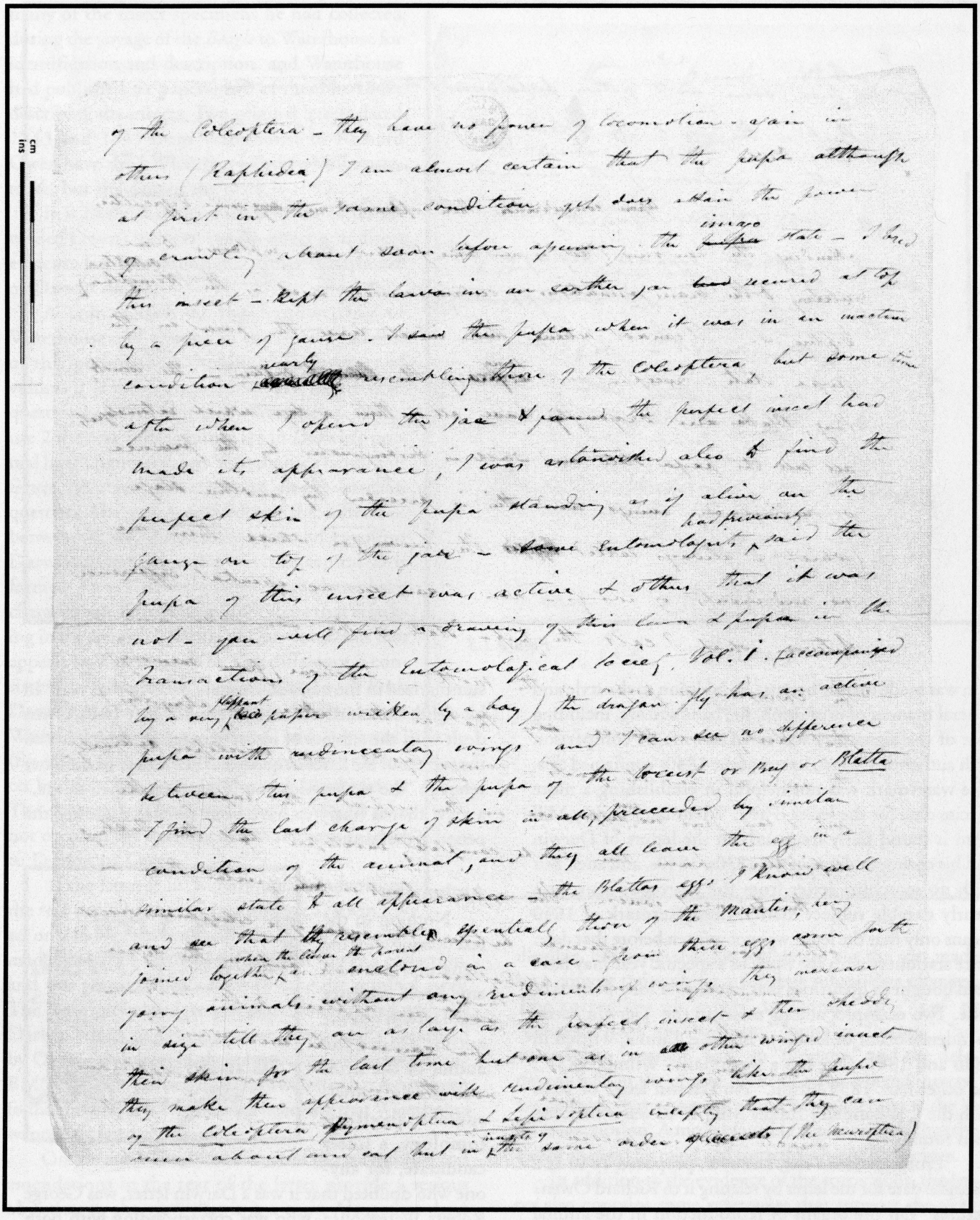

Figure 1.2

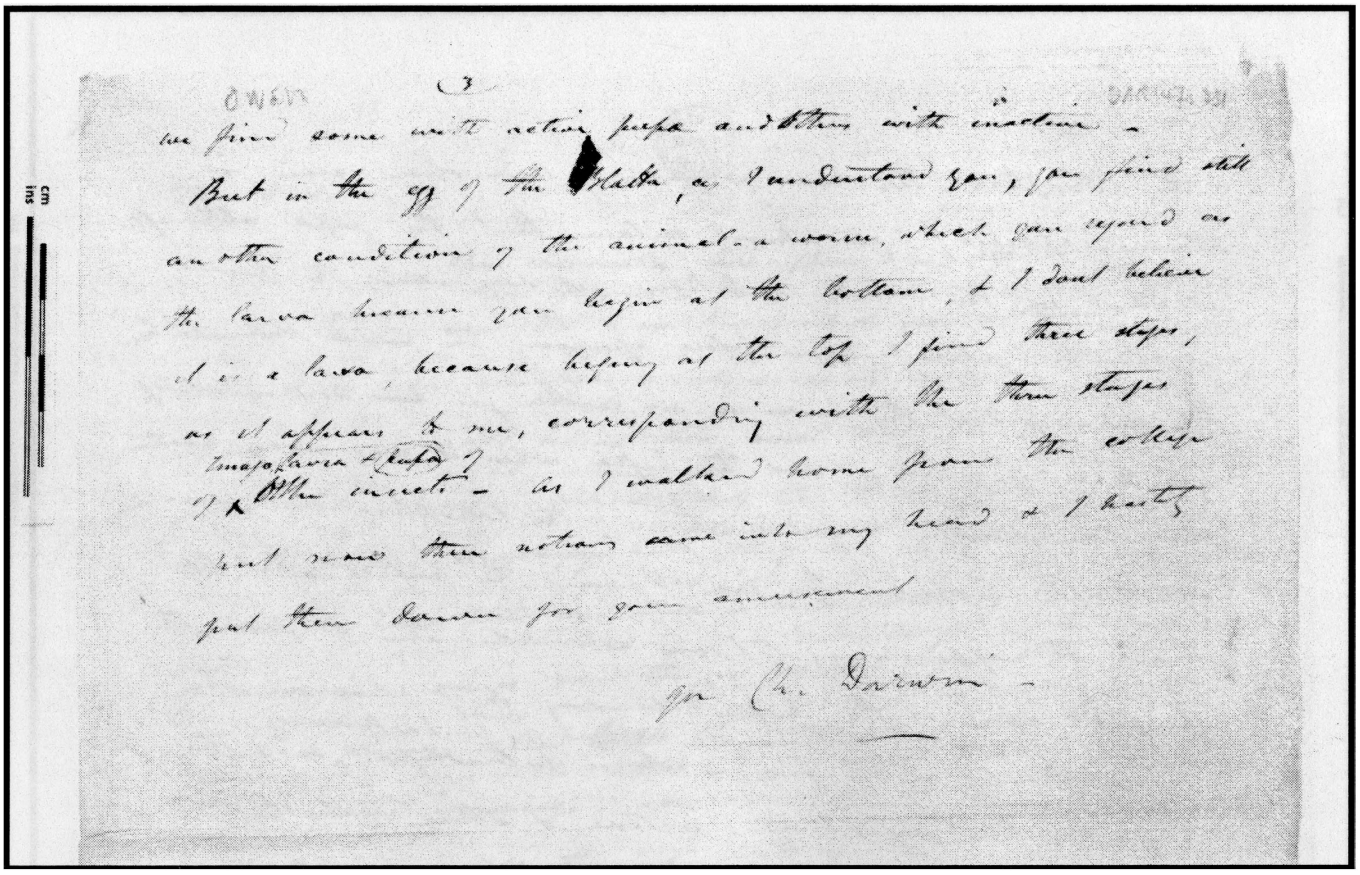

Figure 1.3

sion was made mainly because, in addition to the style and general manner of expression, the handwriting, including that of the signature, was not Darwin's. A comparison with authentic Darwin letters of the 1840s confirmed this. The watermark was not helpful in establishing a more precise date for the letter. The J. Whatman | Turkey Mill form is found fairly frequently in the letters of Darwin and his correspondents in the 1830s, 1840s, and later. But with no matching letter from the correspondent, or a clearly datable subject matter, the watermark of 1840 means only that the letter was not written before that date, since stationery with the mark of a specific year may have been bought in quantities that lasted over long periods of time. Two examples among many in the Darwin correspondence occur in letters to his wife, Emma, written in 1840 and 1841. One has a watermark "Wilmot 1837"; the other has "1839 Fitton." No Darwin letter of 1840 with the J. Whatman | Turkey Mill| 1840 watermark has been found.

Professor Sloan has, however, proposed 1840 as a plausible date for the letter by relating it to Richard Owen's lectures "On the organs of reproduction in the animal kingdom," given at the Royal College of Surgeons and summarized in the medical journal *Lancet* in that year.[6] In his eighth and ninth lectures, delivered in May 1840, Owen dealt with the subject of insect generation, which is also the subject of the letter in question. The author of the letter refers to "the view which you [Owen] explained to me," a view that is likely to have been discussed during the period of the lectures.

Authorship

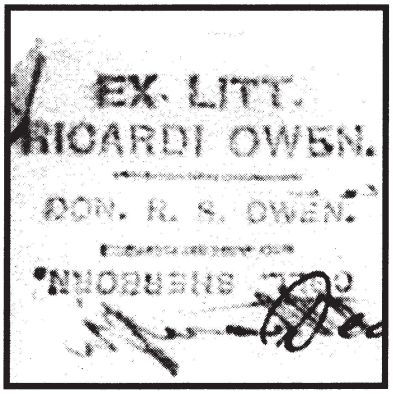

Figure 1.4

Nothing in the text (leaving aside the signature) provides any direct evidence that Darwin was the author. Since the author of the letter was clearly knowledgeable about entomology, a likely candidate, for anyone who doubted that it was a Darwin letter, was George Robert Waterhouse, who was corresponding with both Darwin and Owen in 1840.[7] Darwin had turned over

many of the insect specimens he had collected during the voyage of the *Beagle* to Waterhouse for identification and description, and Waterhouse had published six papers, two of them in 1840, describing the insects. Two original letters dated 1843 and 1845 from Waterhouse to Richard Owen have the J.Whatman | Turkey Mill watermark, but the date of the mark is 1842.

It is likely that the author of the letter attended Owen's lectures, but no direct or indirect evidence has been found that either Waterhouse or Darwin did so.

A comparison of the handwriting of Waterhouse and Darwin in the correspondence of this period soon convinced the editors of volume 2 of the *Correspondence* that the letter in question had been written by Waterhouse. In figure 2 the text and signature are in Darwin's normal hand; figure 3 shows Waterhouse's hand, and figure 1.3 shows the signature on the letter in question. The most readily identifiable difference between the signature on the letter and a genuine Darwin signature is the way the capital *D* is formed: The *D* in the signature on the letter has a characteristic little "bump" in its base that is lacking in the smooth upswing of Darwin's *D* but that appears in Waterhouse's *D*. This difference is consistent in both earlier and later letters of both Darwin and Waterhouse. Other differences are Waterhouse's final *d* in "pleased" and "expected" (fig.3, line 3), an ending that also occurs in the letter but does not occur in Darwin's handwriting. The characteristic "tail" on Darwin's *r* (fig. 2) does not occur in the letter, nor in Waterhouse's letter to Darwin or Owen.

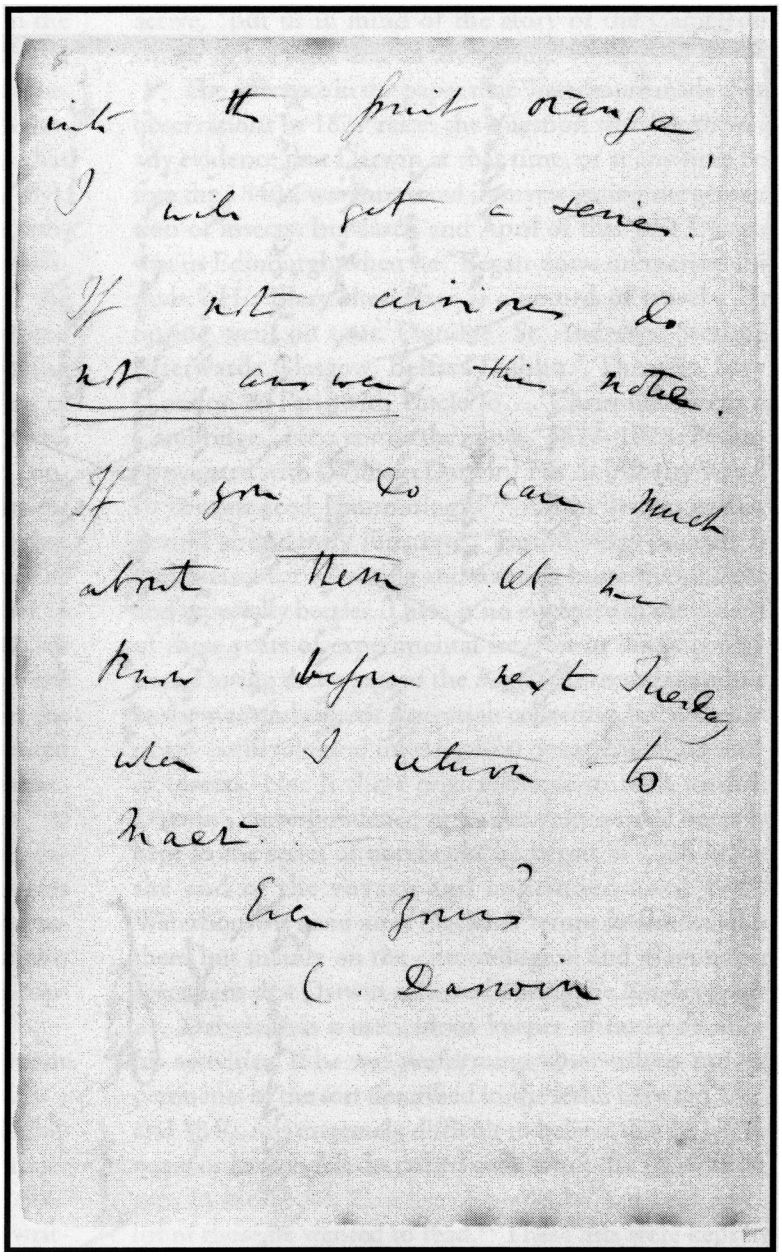

Figure 2

If the letter is in Waterhouse's handwriting, the text could be that of an authentic Darwin letter only if, for some unknown reason, Waterhouse made a copy of the original letter in Owen's collection, and was permitted by Owen to take the original away. The copy, left behind, would then have survived with the Darwin letters to Owen that were eventually deposited by Owen's grandson in the manuscript collections of the BM(NH). But the original Darwin letter has never been found, nor has any evidence for believing that Waterhouse wanted or needed a copy.

On the other hand, the nature of the corrections and emendations in the text of the letter provide a serious objection to the view that it is a copy. Altogether there are eighteen corrections or insertions; some of them are illegible, but seven that are legible are not the sort made by a copyist transcribing a text but substantive changes. The correction of "a few" to "some," of "less" to "greater," "parts" to "limbs etc," "pupa" to "imago," "accurately" to "nearly," "bad" to "flippant," and the deletion of "all" in the phrase "as in all other winged insects" are changes that a copyist would be unlikely to make in his transcription. A more plausible explanation is that the author changed his mind and corrected what he had written.

In addition to the evidence of the corrections, the letter also contains some references that support the view that the letter is not a copy but an original letter from

Figure 3

Waterhouse to Owen. The writer refers to a paper in the *Transactions of the Entomological Society*, vol.1 (1836) as a "very flippant paper written by a boy" (fig. 1.2). The author of the paper is Waterhouse.[8] The author of the letter describes an experiment and some observations that he made when he bred the insect *Raphidia* (snake-fly). When one compares the details in the letter with the published paper, the similarities are so striking that it is difficult not to think that the author of the letter is also the author of the paper. Both refer to *Raphidia* being bred by the writer, both refer to rearing the insect by keeping the larva in a jar with the top covered with gauze, and of finding the case (skin) of the pupa attached to the gauze, and both refer to this observation as leading to the conclusion that the experiment solved the problem of whether the pupa was active or quiescent by showing that the pupa had to be active, at least in the final stages of its development, to reach the gauze. The accounts differ in one detail: in the paper Waterhouse says he did not see the pupa, whereas in the letter, the author says he saw the pupa "when it was in an inactive condition." But in the paper Waterhouse went on to say that he had "lately reared more specimens" and found that the pupa became active "immediately before assuming the *imago* state." If Waterhouse was the author of the letter, both observations could have been conflated in his memory four years after the paper was published. The similarities in the accounts would seem to make it very difficult to maintain that Darwin is author of an original letter that was copied by Waterhouse.

As for the reference to the article as a "very flippant paper written by a boy," if the letter is by Darwin, it is a derisory judgment against the Waterhouse paper. It is highly unlike Darwin to say this about Waterhouse at any time. By the early 1840s it is clear that they had become close friends. During those years Waterhouse was at work writing his descriptions of Darwin's *Beagle* specimens for publication. Few letters between them survive, but one attests to their relationship. It is written by Darwin from his Gower Street address, and therefore before September 1842, when he moved to Down House; in it he thanks Waterhouse for the kindness and trouble he took to make up a collection of insects for his nephew.[9]

If Waterhouse wrote the letter, the "very flippant paper written by a boy" can be taken as a self-deprecatory remark, a characteristic Victorian way of expressing modesty. By calling the paper "very flippant" he may have meant that it was flippant to say that the differing views of entomologists about the stage of development of the pupa, some saying it was inactive, others saying it was active, "put us in mind of the story of the Cameleon, where all are right and all are wrong."

The reference in the paper that Waterhouse made these observations in 1827 raises the question whether there is any evidence that Darwin at that time, or at any time before the 1840s, was interested in investigating the generation of insects. In March and April of that year Darwin was in Edinburgh when he "Began notes on marine animals." His diary thereafter is a record of travels. "In Spring went on tour. Dundee St. Andrews. Sterling. Afterwards Glasgow. Belfast Dublin." Then (in May) "London & Paris with Uncle Jo.... Christmas. Went to Cambridge." Next comes the entry, "1827–1828. Became acquainted with [William Darwin] Fox & [Albert] Way & so commenced Entomology."[10] As the letters of that period abundantly illustrate, "Entomology" meant an enthusiasm for collecting and naming butterflies, moths, and especially beetles. There is no evidence in the records of these years of experimental interest in insect generation. During the voyage of the *Beagle* the records continue to show an enthusiastic interest in collecting, but no record of any embryological investigation or experimental study of insects. Nor is there any reference to such work in Darwin's correspondence or in the voluminous notes he kept in the series of notebooks he began in 1836 before the end of the voyage and continued until 1844. Waterhouse is cited after Darwin's return in almost all of them but mainly on the entomological and mammalian specimens that Darwin collected during the *Beagle* voyage.

Darwin was a meticulous keeper of notes on all of his activities. If he was performing observations and experiments of the sort described in the letter between 1827 and 1840, it is extremely difficult to believe that he left no notes or letters that described such work. In 1838 he began, in Notebook C, a list of books he had read and a list of those he wanted to read.[11] These lists were kept up in separate notebooks until 1860. (The lists are also in *Correspondence,* vol. 4, Appendix IV.) Some time before October 1838, he recorded in "Books read": "Trans. of the Entomological Soc. Vol.1 & Ist No.of Vol. 2." The Waterhouse paper appeared in volume 1, but there is no further comment in the notebook, nor have any notes on the volume been found.

In 1839, the first volume of a work that Darwin surely knew about, and one in which one would expect him to have great interest, was published: John Obadiah Westwood's *An Introduction to the Modern Classification of Insects.*[12] The second volume appeared in 1840. In it, Westwood discussed Waterhouse's paper on the "Raphidia Ophiopsis," but Westwood's book is not listed in "Books

to be read" or "Books read" in either of those years. Not until 25 September 1854 is it listed in "Books read." The book is in Darwin's Library and has copious annotations (see *Charles Darwin's Marginalia*: 1: 861–6).[13] A tantalizing note in volume 2, p. 15, reads, "doubts about pupae walking" but it refers to termites and nothing more is made of it. There are no marginalia between pages 44 and 67, in which Westwood discusses Waterhouse's paper. Even though these notes are written sixteen years later than the letter of 1840, it is not credible that Darwin would fail to indicate an interest in Waterhouse's paper had he ever conducted experiments on *Raphidia.*

In about 1839 Darwin started the notebook he called "Questions and Experiments."[14] It contains no questions or experiments concerned with entomological investigations. The subjects in which he appears to be most interested between that year and 1856 were animal and plant breeding. During those years and later, Darwin abstracted many articles from his copies of the transactions of learned societies to which he belonged or subscribed, but no abstracts of any of the papers in his volumes of the *Transactions of the Entomological Society of London* have been found.

Thus, besides the handwriting, the evidence presents an array of converging circumstantial reasons pointing to Waterhouse as the author of the letter: it is on stationery with a watermark that does not occur in Darwin's extant correspondence of 1840; the corrections in the letter are substantive, not of a kind that a copyist would make; and the letter is concerned with a subject on which Waterhouse had published observations. Four years after the observations were published, the experiment is described in the letter in terms nearly identical to those in the paper. Finally, it counts heavily against an attribution of the letter to Darwin that he, a meticulous keeper of notes of his reading and work, makes no mention whatever of any experiments or observations on insect generation in the voluminous wide-ranging notes and correspondence in the Darwin Archive.

The case for Darwin authorship of the letter, on the other hand, rests solely on the "Ch. Darwin" signature in Waterhouse's hand.

Although there is still no explanation of why Waterhouse wrote "yrs Ch. Darwin" at the end of the letter, the nature and the amount of circumstantial evidence provide a high probability that it is an original letter that Waterhouse wrote to Richard Owen and that the editors were justified in excluding it from the *Correspondence.*

Transcription of the Letter

Dear Owen

Upon consideration, there appears to me some difficulties attending the new view (that is new to me) which you explained to me relating to the transformations of certain insects such as the Hemiptera Orthoptera Diptera &c- I cannot believe these insects leave the parent in the pupa state—excepting only some of the Diptera—The locusts, Bugs, Blattas and Dragonflys have all of them a stage which Entomologists all call the pupa state and which is distinguished by the presence of rudimentary wings and this is preceded by another stage (which is always called the larva) in which there are no rudiments of wings—now I can see no essential difference between what I call the pupa state of the Locust &c— and the chrysalis or pupa of the moth— I believe, (from *memory*) that Kirby and Spence[15] say that in the latter (the chrysalis) the animal has its parts—wings legs &c— only enveloped externally—but I can find no such difference in this respect—the pupæ of the Lepidoptera have their limbs completely enveloped but the thickness of the tegment covering the exposed parts is greater than in other parts. The difference between the pupa of a coleopterous insect, or Hymenopterous, and a lepidopterous consists only in the degree of closeness in which the limbs &c are applied to the body—in the one they are a little free, but cannot be used, whilst in the other they are less free—now the pupæ of some Neuropterous insects are in precisely the same condition as those of the Coleoptera—they have no power of locomotion—again in others (Raphidia) I am almost certain that the pupa although at first in the same condition yet does attain the power of crawling about soon before assuming the imago state—I bred this insect—kept the larva in an earthen jar secured at top by a piece of gauze. I saw the pupa when it was in an inactive condition nearly resembling those of the Coleoptera, but some time after when I opened the jar I found the perfect insect had made is appearance, I was astonished also to find the perfect skin of the pupa standing as if alive on the gauze on top of the jar—some Entomologists had previously said the pupa of this insect was active & others that it was not—you will find a drawing of this larva & pupa in the Transactions of the Entomological Society, Vol. 1. (accompanied by a very flippant paper written by a boy) the dragon-fly has an active pupa with rudimentary wings, and I can see no difference between this pupa & the pupa of the locust or Bug or Blatta[.] I find the last change of skin in all, preceeded by similar condition of the animal, and they

all leave the egg in a similar state to all appearance—the Blattas eggs, I know well and see that they resemble essentially those of the Mantis, being joined together when the[y] leave the parent and enclosed in a case—from these eggs come forth young animals without any rudiments of wings they increase in size till they are as large as the perfect insect & then shedding their skin for the last time but one as in other winged insects they make their appearance with rudimentary wings like the pupæ of the Coleoptera, Hymenoptera & Lepidoptera excepting that they can run about and eat but in insects of the same order (the Neuroptera) we find some with active pupæ and others with inactive—

But in the egg of the Blatta, as I understand you, you find still another condition of the animal—a worm, which you regard as the larva because you begin at the bottom, & I dont believe it is a larva, because beginning at the top I find three stages, as it appears to me, corresponding with the three stages of Imago, pupa & larva of other insects—As I walked home from the college just now these notions came into my head & I hastily put them down for your amusement

yrs Ch. Darwin—

Corrections

*Corrections cited in the text as substantive changes made in the original by the author of the letter.

1	some] after del 'dif'
4	Orthoptera] interl
*6	some] above 'a few'
7	Diptera] after illeg del
11	called] before illeg del
17	such] interl
*20	greater] after del 'less'
*24	limbs &c] above del 'parts'
*31	imago] above 'pupa'
33	secured] after illeg del
*34	nearly] above del 'accurately'
39	had previously] interl
*43	flippant] above del 'bad'
50	when they leave the parent] interl after 'together'
*55	other] after del 'all'
58	insects of] interl
58	order] before del 'of insects'
66	Imago, larva & pupa of] interl

Acknowledgments

The excerpts shown in figures 1.1–1.3 are the three pages of the original letter, located in DAR 147:231; figure 1.4 is a reconstruction of the stamp at the top lefthand corner of figure 1.1; figure 2, showing Darwin's handwriting, is an excerpt from a letter to J. S. Henslow, 3 July [1840] in DAR 93:A 6; figure 3 is an excerpt from a G. R. Waterhouse letter to Darwin, [1839–10 February 1840]. All are reproduced with the kind permission of the Syndics of the Cambridge University Library.

I am also grateful to the members of the Darwin Correspondence staff for their helpful comments, and especially to Samantha Evans for research assistance in the preparation of this article.

Notes

1. *Handlist of Darwin Papers at the University Library Cambridge* (Cambridge: Published for the University Library at the University Press, 1960).

2. Francis Darwin, ed., *The Life and Letters of Charles Darwin,* 3 vols. (London: John Murray, 1887).

3. Sherborn assisted in sorting and distributing the collection of papers left by Richard Owen, and most of the scientific letters were given to the BM(NH). Sherborn "was never officially a member of the Natural History Museum staff although he was long supported by the Trustees." William Stearn, *The Natural History Museum in South Kengsington, a History of the British Museum (Natural History) 1753–1980* (London: Heineman, 1981).

4. Richard [Startin] Owen, *The Life of Richard Owen by His Grandson The Rev. Richard Owen, M.A. with the Scientific Portions Revised by C. Davies Sherborn* (London: John Murray, 1894).

5. Francis Darwin and A. C. Seward, eds., *More Letters of Charles Darwin* (London: John Murray, 1903).

6. *Lancet* 2 (27 June 1840): 445–47.

7. George Robert Waterhouse (1810–88), entomologist, a founder of the Entomological Society of London, Curator of the London Zoological Society, 1836–43 *(Dictionary of National Biography).*

8. "Description of the Larva and Pupa of *Raphidia Ophiopsis,"* by G. R. Waterhouse, *Esq.,* Curator of the Entomological Society (read January 6, 1834), *Transactions of the Entomological Society* 1:23–7; Pl. III. fig. 1.

9. To G. R. Waterhouse [4 or 11 September 1842], *Correspondence,* vol. 2 (1837–43) (Cambridge: Cambridge University Press, 1986), 330–31.

10. Darwin's Journal entries (1827–28), *Correspondence,* vol. 1, Appendix I, Chronology.

11. Paul H. Barrett and others, eds., *Charles Darwin's Notebooks, 1836–44.* Notebook C [1838], ed. David Kohn, pp. 319–29. (London: British Museum [Natural History] and Ithaca, N.Y.: Cornell University Press, 1987). The lists are also published in *Correspondence of Charles Darwin,* vol. 4 (1847–50), Appendix IV.

12. J. O. Westwood, *An Introduction to the Modern Classification of Insects,* 2 vols. London: Longman, Orne, Brown, Green & Longman, 1839–40.

13. M. A. Di Gregorio, *Charles Darwin's Marginalia* (New York and London: Garland, 1990).

14. In Barrett, ed., *Charles Darwin's Notebooks,* 1836–44, Questions & Experiments, 487-516.

15. William Kirby and William Spence, *An Introduction to Entomoloy; or, Elements of the Natural History of Insects, 4 vols.* (London, 1815–26). Darwin cites the work in his *Beagle* zoological notes, but he probably had use of it from Capt. Robert FitzRoy's extensive library on board. The book is listed as "to be read" in his "Reading notebooks," with other works dated 1840, and as "read" on May 3, 1843.