

Charles Lyell to G. A. Mantell

[5 February 1837]

My dear Mantell

As soon as I received your letter I wrote to Sir John Herschell mentioning of course that I was not personally acquainted with Lieut Thomas but saying what you had said in favour of him & about him. His being an officer of Artillery is of itself a guarantee, at the same time then considering how many interruptions of the kind I know that Sir J. has, at the Cape, I told him fairly that there were very few for whom I would have done the service except for yourself, for I scarcely ever before ventured to introduce any one to any one, not being myself personally acquainted.¹ I sent the letter to the address you mentioned & begged for an acknowledgement but have received none so I hope there is no mistake. I put 54 Harley St^t & the M.P.'s name as directed, & had it miscarried I presume it would have been returned.

Mr [Host?]² brother-in-law of Murchison has I find been under your treatment & I was glad to hear that you had had much business at Brighton. He was afraid you were beginning to have the influenza yourself but I trust you escaped & have reaped the harvest which medical men are gathering in here. We have scarcely suffered but my clerk has been & is very ill.

I am finishing my Anniversary Address for the 17th. inst. & shall tell you what Darwin has done in S. America.

We have given 2 medals one to Capt. Cautley & the other to Dr Falconer for their joint discoveries & papers on the geology & extinct fossil quad^s. of the Sub-Himalayan mountains. If not aware of their merits you will

¹ In a letter to Lyell dated 12 June 1837, Herschel advised that Lieutenant H. J. Thomas R.A., had forwarded Lyell's letter of introduction to him and that he (Herschel) would be happy to make his acquaintance and 'shew' him any attention. Darwin-Lyell mss., APS.

² In a letter to Mantell dated 27 October 1836, Murchison introduced his brother-in-law as Mr Hall. Mantell mss, ATL-NZ, Folder 74.

see by what I shall mention how well they have earned them.

Have you any new saurians or other treasures or do they not crop the
downs. I hope Mrs Mantell & your family are well & believe me

ever faithfully yrs

ChaLyell

5. Feb^{y.} 1837

Lond^{n.}

[Addressed to: G. Mantell Esq. 20 Steyne, Brighton]

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Charles Lyell to G. A. Mantell

[11 April 1837]

My dear Mantell

I am happy to have a copy of my last years address for you
which I will send to the Geol. Socy. & hope it will go with Proceedings in
due time to Brighton. One was dedicated to you & sent last year of which I
have found the memorandum, but whether sent to G.S. or Mr Relfe I cannot
ascertain.

Your birds bone paper¹ was ordered to be printed, but you cannot
conceive the difficulty of doing anything about accelerating the Trans^{s.} which
are always in progress (Weaver's² paper³ being now in the press) but the
council will have each paper looked to as if they were responsible not the
author, & no doubt we should publish a mixture of trash like the
Geographical if we did otherwise. But I am half inclined to prefer that to

¹ G.A. Mantell, 'On the Bones of Birds discovered in the Strata of Tilgate Forest, in Sussex', [June 1835], *TGSL*, 1840, 5, series 2, pp. 175-177.

² Thomas Weaver (1773 - 1855). English geologist and mineralogist. Sarjeant, *G & H of G*, vol. 3, on p. 2389.

³ T. Weaver, 'On the Geological Relations of the South of Ireland', [August 1830 and November 1835], *TGSL*, 1840, 5(1), series 2, pp. 1-68.

such delay. But then the worst evil against which during my Presidentship I found it vain to contend, is the want of a paid Editor to go thro' the drudgery imposed on us by the present system. Lonsdale says it is one man's time & talent to superintend the Proceedings & Editing of Trans. As to amateur, gratuitous secretaries most of them cannot, none of them will do the work.

I have long doubted whether the balance of ill done by learned Soc^s did not far outweigh the good. Imagine how much time must be annihilated [sic] of such men as Lonsdale & others so long as such corporations exist! Suppose Herschell P.R.S. would all they do now make up for what we should lose by blotting his time & talents out of the scientific records of our time by official toils & reading "the minutes of the last meeting?"

Poor Lonsdale it is killing him, but when one tries to relieve him the answer is the secretaries used to do it & should now – they admit this but have other avocations or perhaps prior duties. They do it not. Lonsdale does it & when he is gone they will find some other victim whose term if not interfered with would outdo all their joint stock performances.

Pray do not ask me to cross town whenever you write as tho' it is very kind of you, it pains me to be always declining. My numerous friends & relations in the country have left off doing so, finding me fixed steadily during my stay in town where my engagements are far too many to leave me at liberty to set off, as of old en garcon to spend a few hours in the country.

We hope to hear before you give your lecture at the R.I. as we should like to hear it much.

With my kind remembrances to Mrs Mantell believe me
ever most faithfully yrs

ChaLyell

16 Hart S^t

1837

Ap^l. 11th.

P.S. Your notice on the coffin bone of horse in the Elephant bed at Brighton was given to me long ago to send to you as not ordered to be printed – excuse my keeping it so long. I have sent it to G.S. with my Address for you.

[Addressed to: G. Mantell Esq. 20 Steyne, Brighton]

Charles Lyell to G. A. Mantell

Sat^y [6 May 1837]

My dear Mantell

I hope you will be able to dine here on Friday next in which case I will ask Darwin to meet you who is going to your lecture¹ with us. Write & say if you can dine here at 6^{ock}. you may go away as soon as you like to prepare. If engaged, you may perhaps breakfast with us on the Sat^y. morning at ½ past 9^{ock}. instead.

There is a party at the D.of S.'s² on the Sat^y. as you mention. I have a card but don't think of going tho' I suppose one ought. I wish they had sent you a card instead of me. If I see Children³ I will ask whether a card could be sent to you & what are their rules but it would not be right for me to apply for it. I find that the post is just going at 11 excuse haste & believe me

yours truly ChaLyell

[Addressed to: G. Mantell Esq. Steyne, Brighton]

Charles Lyell to G. A. Mantell

¹ Mantell was invited to give a single, volunteer lecture at the Royal Institution, London, on 12 May on the Geology of the Weald. About 700 persons were present. *GAM -PJ*, entry 12 May 1837.

² Duke of Sussex. President of the Royal Society, 1830-39.

³ John George Children (1777 - 1852). Mineralogist. Secretary of the Royal Society 1826-27 and 1830-37. *DNB*.

[8 May 1837]

My dear Mantell

You are invited to the Duke of Sussex on Saturday. Mr Children referred to the list for me but believes the card if sent went to Mr Murchison's.

very truly yrs

ChaLyell

P.S. I suppose I shall hear from you whether you dine with us on Friday.

[Addressed to: G. Mantell Esq. Steyne, Brighton]

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Charles Lyell to G. A. Mantell

[21 December 1837]

My dear Mantell

I was much obliged to you for your note & the information was useful as I met Konig a few days afterwards at a sale & he asked me if there was any chance of the Mantellian collection being on the market so that the British Museum might have a chance of purchasing it. I simply told him that as I had every reason to expect that the people of Brighton would never give what it was worth, I certainly thought the Brit. Mus. ought to look out for it. He was as eager as became a curator but said he was sure the Trustees w^d never do it but that if the principal geologists represented the matter in its true light to the Chancellor of the Exchequer he would probably give the sum which you demand. I must say that though I cannot think without feelings of

regret & sorrow of the collection belonging to any one but yourself yet I would rather see it in the British Mus^m. with you residing in or near London than any where else in the world.

It is so seldom that we have engagements like that which prevented our meeting when you were last in town tho' I was vexed as I wished much to hear whether all was arranged at Clapham.¹

We, Dr Fitton & others are going to try & get a small pension for T. Webster who we learn from Scharf is starving. A small preliminary subscription will perhaps be required but he perhaps w^d. not accept it. We must proceed with much caution or he will take nothing.

What a fortune this animal magnetizer is making! A crowded audience every day 2^s. 6^d. each besides fees for courses. Col. Ashburnam,² Lord Inghestre³ & other fashionables publicly going thro' the operation day after day and thousands believing.

Is it not enough to make you wish to turn quack for a year or two, then shut up shop & geologise en prince for the rest of your days?

I too am going with a party each to pay our 2^s. 6 just as we go to a conjuror. I hope your daughter⁴ is better. Remember me kindly to Mrs Mantell & believe me my dear Mantell ever most truly yrs

ChaLyell

Dec. 21 1837

Londⁿ.

[Addressed to: G. Mantell Esq. Steyne, Brighton]

¹ In September 1837 Mantell announced that he was leaving Brighton and had purchased a medical practice at Clapham from Sir William Pearson. Spokes, *G.A. Mantell*, on p. 88, and *GAM-PJ*, entries 20 July and 1 April 1838.

² Probably General Thomas Ashburnham who died in 1871. *DUB*.

³ Viscount Ingestre (1803 - 1868). Eldest surviving son of the Earl of Talbot. Conservative M.P. for Hertford 1830-32. M. Stenton (ed.), *Who's Who of British Members of Parliament*, vol. 1, 1976.

⁴ Hannah Matilda Mantell, who was suffering at the time from a serious disease of her hip-joint.

[16 January 1838]

My dear Mantell

I received a letter from Lord Northampton saying that when the Chancellor of the Exchequer was with him he mentioned the desirability of adding your collection to the Brit. Mus. & received in answer some civil declaration that he was not disinclined if the Trustees recommended.

I have since learnt that the Treasury have very lately refused positively two requests of the Trustees most strongly recommended by the most competent scientific men in their department both in & out of the Museum, both under £1,000 & Mr Brown who is very anxious that your collection sh^{d.} be bought urged me not to advise you to have any motion made for 2 or 3 months till the Canada & other questions which make the Treasury very unwilling to disburse on any scientific grounds shall have been settled.

I am always asked what is your lowest price & can only say £5,000 at present. I will talk with Sir P. Egerton when he returns.

I have not heard a word from Mr Dixon⁵ about the S. Mortoni.

I hope you will see my Elements⁶ one vol 12^{mo.} out before summer.

I am curious to see your Geological Album of scraps.

believe me in haste ever most truly yrs

ChaLyell

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G. A. Mantell to Charles Lyell⁷

Spokes, *G.A. Mantell*, on p. 87.

⁵ Frederick Dixon (1799 - 1849). English stratigrapher and fossil collector. Sarjeant, *G & H of G*, vol. 2, p. 905.

⁶ C. Lyell, *Elements of Geology*, John Murray, London, published in July, 1838.

⁷ Transcribed from a xeroxed copy of the original letter at APS.

[22 January 1838]

My dear friend,

I am very much vexed that Mr Dixon did not immediately attend to your wishes – but I always find these pseudo-savans make mighty favours, of what they ought to be delighted they have the power of contributing.

I send you a sketch of my daughter's of a specimen I gave away some years ago – to a foreigner; when I did not attach any interest to it. I thought it a coral. It is as good as Hudsons – better than any I have – sufficiently characteristic – but not so good as Dixon's.

I thank you very much for your kindness respecting my answer. I am so unwell I can scarce do anything & the weather is dreadfully severe here.

Ever most sincerely yours

G. Mantell

Brighton - Friday

Jan^y 1838

Charles Lyell to G. A. Mantell

[7 February 1838]

My dear Mantell

Many thanks for the drawing of the Hippurite Mortoni to you & Miss Mantell. Mr Dixon brought his beautiful specimen which I have had drawn so shall not want any other.

I am truly concerned to hear of the inopportune publication¹ on what you are engaged, especially as you are unwell. When young Kean² whom I met the other day expatiated very warmly on his admiration of your Brighton lectures, I could not help for the evening wishing that your energies were devoted to lecturing in the country – head quarters in town, retaining the Museum & selling duplicates from time to time named scientifically to Brit. Mus. or sending them to auctions, or to individuals who would pay higher because coming from you, collecting as you travelled materials for sale for lectures & for publications. Your talents spent undividedly on own work & then your hobby & your family inheriting like the Sowerby museum, copyrights &c &c.

No friend could or ought to take upon himself the responsibility of advising such a cause, but nothing can be worse for health, fame or profit than balancing between two departments which the public whether scientific or unscientific are determined to regard as incompatible.

Applications have been made several times to the council to recommend the British Museum & other bodies to buy collections & the

¹ The first edition of Mantell's, *Wonders of Geology or a Familiar Exposition of Geological Phenomena*, Relfe and Fletcher, London, was published in February 1838.

² Probably Charles John Kean (1811? - 1868). Actor and second son of the actor Edmund Kean (1787 - 1833). *DNB*.

answer returned was that they could not interfere as Council of G.S. however much they might do individually.

Is it £200 or £100 which you say Mr Richardson³ would catch at? Our Curator is offered £125. I have mentioned Mr R. to one of the committee for choosing & he should apply if he wants it immediately.

I have a copy for you of my new paper on the Danish Chalk⁴ published in new vol. of Geol. Trans. – pray if you remember it ask me for it when you come to town.

Is not the *gaillanella distans* of Ehrenberg which you say occurs in chalk one of E.'s tertiary species?

believe me ever most truly yrs

ChaLyell

16 Hart St.

Londⁿ.

Feb 7. 1838.

P.S. I asked Sir W. Parish to write to you last week to say that Konig did not agree with R. Brown that the application to Brit. Mus. sh^d. be deferred.

P.S. I have been asked what is Mr Richardson's age? What languages does he understand? I believe that Sir W. Parish who is on the "Curator committee" will answer all this. Hawkins that strange jackall [sic] has got together another splendid collection of Saurian fossils finer than the first, now in town which I have not seen. I have just heard that he has got Buckland to see it & to go about recommending it as a fit thing for the Brit. Mus^m. to give £1,500 for. But this will appear to the Trustees I think too much of one branch of Palaeontology.

[Addressed to: Gideon Mantell Esq. Steyne, Brighton]

³ George Fleming Richardson (1796 - 1848). Curator of Mantell's Brighton Museum from 1835 until its sale in 1838 to the British Museum, where he subsequently worked until 1848. H. Torrens and J. Cooper, *Geological Curator*, 1986, 4(5), pp. 249-272.

⁴ C. Lyell, 'On the Cretaceous and Tertiary Strata of the Danish Islands of Seeland and Moen', *TGSL*, 1840, 5, series 2, pp. 243-257.

Charles Lyell to G. A. Mantell

[17 February 1838]

My dear Mantell

I am going to geologise in the Suffolk crag for a week or 10 days & return the inclosed.

Mr Horace & Mr Hallam both asked the Chancellor of the Exchequer the other day in his own house about the grant of money for your collection. He expressed himself most decidedly in favour but stated that with a deficit of two millions & $\frac{1}{2}$ as compared with last year the order of the day was to cut off every expense this year not absolutely necessary. He said this not as having decided anything but rather anticipating what his master, the House of Commons would say to him if he proposed the required grant just now.

believe me in great haste ever most truly yrs

ChaLyell

P.S. I return the inclosed which you lent me.

Tuesday 17
1838

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Charles Lyell to G. A. Mantell

[21 February 1838]

My dear Mantell

Sir P. Egerton gave me last night the enclosed sketch by

L^d. Northampton of a proposed memorial for certain of us at the G.S. to sign, saying that altho' it would not do, that it might suggest to me such a statement as L^d. N. Sir P.E. myself & many others would sign.

When I came to consider how I should reword it I found I wanted data. How many specimens? or into what principal divisions should it be classified in order to give an idea of its extent without being too diffuse or minute? Shall we lay most stress on the chalk fish or on the Wealden reptiles.

Of course we must insist on its being unique & on the impossibility of any but a good anatomist having cut out the fish & put together the reptiles of the Wealden.

Would you be so kind as to give me a statement with some particulars for my grand work at least. I shall tell Sir P. tomorrow that I will draw up the memorial as soon as I get the statistics from you. As I shall not show what you send me to any one do not form any reluctance to praise your labours & their grand results [or] omit to mention anything that can be urged in their favour or to enhance them in the eyes of the Trustees. I will put in first what I can conscientiously say as what I feel about them, so write what you have to say just as if it were for me instead of yourself. We must speak strongly about it & you will be glad to hear that the Chancellor of the Exchequer meeting Sir P. volunteered saying that he had been applied to in favour of your Museum. Sir P. did not let the occasion slip you may be sure of urging him, & he is full of hope of getting a good round soon. believe me

ever most truly yrs

ChaLyell

P.S. I wish I could find a copy of what I once said about your collection when speechifying about you & your medal at the dinner of the G.S. tho' perhaps it would not help me much.

[23 February 1838]

My dear Mantell

Many thanks for a sight of your proofs which read very tempting & popular & the wood cuts excellent.

The upright stem which I have taken from Lindley looks quite different from the *Lepidodendron* you have *L. Stembergii*.

I send this to L^{d.} Cole to ask him to frank it. I hope you got a frank from me yesterday. believe me

ever most truly yrs

ChaLyell

Friday

23^{d.} Feb.

Your wood cuts are well done.

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G. A. Mantell to Charles Lyell¹

[March 1838]²

114 Western road

Brighton

My dear friend

I have been so unwell since my return that I could not go to the Steyne today.

My spherulites exhibited had very obscure indication of the vertical

¹ Transcribed from a transcribed copy ex ATL. Original letter at APS.

² Mantell left Brighton on 12 March 1838. Spokes, *G.A. Mantell*, on p. 98. On 1 April 1838 Mantell recorded in his *Private Journal*, "I took up my abode at Clapham and succeeded to the practice of Sir W. Pearson".

ridge, so little traces indeed are there that I should be inclined to think Dixon's accidental or perhaps the ridge may become obliterated by age. My specimens appear to be older shells.

I send you Brongniart and d'Archiac³ and enclose a page relating to spiroolithes – I had only this rough proof, or would have sent you a better & more intelligible one. Please to return it early as I have no other to refer to. I hope to have done by the end of next week – but I have a good deal to do. Well might Job exclaim Oh! that mine adversary would write a book!

When I was at the Geol. Soc. I found you had Lindley & Hutton's flora fossil.⁴ I have had copies of two upright stems from that work – the lepidodendron & sigillaria which I mention that you may be aware of the circumstance if you select any for illustration. Viscount d'Archiac informed me that the plagiostoma was a true spondylus; the hinge being ligamentous or cartilaginous was generally absent in y^r fossils – but that he had specimens in which the triangular cavity was filled up by the true hinge.

Excuse my dear friend this almost unintelligible scrawl. I am still suffering so much from headache. I have told my bookseller Mr Relfe to send you the first copy of the work,⁵ so soon as the last sheet is printed before it is published. There is a great demand for it he tells me.

My best regards to Mrs L. & Miss L.

Ever yours

G. Mantell

March 1838

³ Etienne Jules Adolphe Dalmass de Simon, Vicomte d'Archiac (1802-1868). French stratigrapher and historian of geology. Sarjeant, *G & H of G*, vol. 2, on p. 437.

⁴ J. Lindley and W. Hutton, *Fossil Flora of Great Britain*, 3 vols, Ridgway, London, 1831-1837.

⁵ G.A. Mantell, *The Wonders of Geology or A Familiar Exposition of Geological Phenomena*, 2

[31 March 1838]

My dear Mantell

I have only had time to dip into your two elegant little volumes⁶ which appear to me beautifully got up without appearance of haste which you spoke of, & calculated to popularize the science & be a most agreeable memorial to yourself & your career as a teacher of Science during your residence at Brighton.

I am so slow a writer myself that this producing the two vols. in 3 months & writing so much of them is to me a prodigy & I could not have accomplished it had I been willing to bargain for many a headache. But as I have just had to write a long letter to Sedgwick on business excuse my writing you a short one, but when I have read your book I will say more. It cannot fail to succeed at least at the booksellers & hope eventually repay you something.

I have not been in the way of hearing of what the Treasury mean to say to the Trustees of the B.M.

I am sorry that you had not the first of the four most poetical lines of T. Moore which you have cited⁷ for the Temple of Serapis in speaking of which & on so many other places you have provided me so many compliments.

Wishing you success & hoping soon to hear better news of your daughter whose continued illness is really most distressing. believe me with Mrs Lyell's kind remembrances

ever most truly yrs

ChaLyell

vols., Relfe and Fletcher, London, 1838.

⁶ *Ibid.*

⁷ Moore's lines, which Mantell cited in his *Wonders of Geology*, were:

Where lonely columns stand sublime,
Flinging their shadows from on high,
Like dials, which the Wizard Time
Had raised to count his ages by !

Sat^y. 31 March

1838

[Addressed to: G. Mantell Esq. Clapham Common]

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Charles Lyell to G. A. Mantell

[5 June 1838]

My dear Mantell

I have not answered your letter till I was sure that other of your friends agree with me in thinking that to “bombard”, as Murchison calls it either the Trustees of the B.M. or the minister any more would merely bore them & prejudice them especially as the promise already given is thought by most persons a great thing & almost more than they expected.¹

As to the Chancellor of Ex. not agreeing himself to propose it when Buckland signed the last memorial it was under a full persuasion that he would persist in his resolution & Warburton's promise was given as I understand Buckland under the express expectation that nothing but an amendment would bring the matter before the Committee of the H. of Commons.

Now I should be afraid even to ask Warburton again as I know no-one less patient of being bored & the whole affair has been thoroughly explained to him. I am sorry it could not have been done at once but some of the Trustees will be out of humour as it is, that it sh^d. be preferred to £30,000 worth of other things which they wanted in addition.

¹ In July 1838 the Trustees of the British Museum agreed to purchase Mantell's geological collection, consisting of upwards of twenty thousand specimens, for £4,000, payment being made the following summer. It was also agreed that the collection would be packed and removed at the expense of the Trustees of the British Museum. *GAM-PJ*, entry August 1839 and *A Catalogue of the Mantellian Collection in the British Museum*, 1839, Mantell mss, ATL-NZ, reference no. 1293.

believe me

ever most truly yrs

ChaLyell

June 5. 1838.

I hope your daughter is going on well & pray remember me to Mrs Mantell.

16 Hart S^t.

June 5.

Bloomsbury.

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Charles Lyell to G. A. Mantell¹

[1838]

My dear Mantell

Can you breakfast with me at 10^{ck.} or ¼ before 10^{ck} tomorrow? We shall be very glad to see you & we shall have much to do tomorrow it will be well to talk & eat together & economize on time. I want to speak about the Museum. It is clear from what took place at the Council that the

¹This letter was undated and addressed to Mantell at Bretts Hotel, Furnivals Inn, Holborn. Mantell did not move into Crescent Lodge, Clapham Common, until 29 September 1838. *GAM-PJ*. The context of the letter indicates that Lyell wished to discuss the possible appointment of George Fleming Richardson, previously curator of Mantell's Brighton Museum, to the British Museum. Refer letter 154, dated 7 February 1838.

committee who are to select a curator out of 20 candidates who have offered
will not choose

[remainder of note-paper (2 pages) blank.]

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Charles Lyell to G. A. Mantell

[1838 - 1839]²

My dear Mantell

In case I should not meet you tonight or only for a moment in the hurry & bustle of a Geol.S. meeting, I write to say how glad I was to hear that you were so well satisfied with your professional success, which so early in the day is really a triumph not only for you but for all who think the public too jealous of the scientific hobbies of medical men. No doubt the bookseller has reaped some harvest tho' you have not from "The Wonders" but at the same time the price³ was so reasonable considering the number & excellence of the wood cuts which I know from experience are most costly, that I suppose the chief profit must be looked for in the 2^d. Edⁿ.

I have been very busy in the press & shall be for several months to come.

I did not write about the American affair seeing by Dr Silliman's letters that nothing can be done towards preventing transatlantic piracies & thinking I should perhaps meet you.

I hope you will soon have better news to tell me about your daughter. Mrs Lyell is well & writes in kind rememb^s.

² Letter undated. Lyell's reference to the success of the 1st edition of *The Wonders of Geology*, which was published in February 1838 and followed by a 2nd edition in that year, (3rd edition 1839), indicates that the letter was probably written during the period March - December 1838.

³ The price of the 1st edition of Mantell's, *The Wonders of Geology*, was 21 shillings.

[closing salutation not decipherable]

ChaLyell

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Charles Lyell to G. A. Mantell⁴

[2 November 1839]

My dear Mantell

Many thanks for your present⁵ which as you have dedicated it to me I will retain but in its place returning you a duplicate vol. which I received from the translator together with the 2^{d.} vol.

I beg your acceptance of a paper I have lately published & hope in a day or two to send you another on Mammalia lately found in London clay and Red Crag⁶ which will show you part of my late occupations & I hope soon to read a paper at the G.S. on the East coast of Norfolk at which I worked last summer. After attending the Birmingham meeting⁷ I went with my wife to pay visits and among other places we passed three days at Castle Ashby.

Since my arrival in town I have been [*]⁸ increasing & arranging my collection of tertiary shells, naming them with G. Sowerby's assistance and Mr Wood's,⁹ buying a new cabinet &c.[*]

The day before yesterday I presided at the Geol^{l.} Committee of the R.S. to which I presume you were summoned as you are a Member when Prof^{r.} Sedgwick & Dr Fitton agreed with me in recommending Murchison's Silurian

⁴ Entire letter written by Lyell's wife acting as an amanuensis.

⁵ Mantell's present appears to have been the German translation of his *The Wonders of Geology*, which was published in 1839. Spokes, *G.A. Mantell*, p. 101.

⁶ C. Lyell, 'On remains of Mammalia in the Crag and London Clay of Suffolk', *BAAS Report*, 1840, 9, pp. 69-70.

⁷ The 1839 annual meeting of BAAS was held at Birmingham during August.

⁸ Text between asterisks is quoted in Wilson, *Charles Lyell*, on p. 512.

⁹ Valentine Searles Wood (1798 - 1880). Suffolk palaeontologist who published a number of papers

System as worthy of the Copley Medal, many other committee's having also sent me their respective recommendations for the same medal.

Your son's¹⁰ New Zealand emigration must have been a cruel disappointment to your hopes & plans which appeared to me so reasonable if eventually transferring to him a good practice at Clapham but I trust that he will either become a great landed proprietor at the Antipodes or return in time to allow the transfer to take place. I am very sanguine myself about New Zealand & think it will outdo even Van Dieman's Land which in thirty years after its first colonization not only built Steam Vessels but sent off a colony to Port Phillip on the main land.

I am very glad you are able to send rather a more favourable an account of your daughter than when you last spoke of her to me.

[*]¹¹ Mrs Lyell writes with me in kind regards to yourself & Mrs Mantell & believe me

ever most truly yrs

ChaLyell

Nov.2

1839.

on the Norfolk Crag. Sarjeant, *G & H of G*, vol. 3, on p. 2454.

¹⁰ Walter Baldock Durrant Mantell, Mantell's eldest son, emigrated to New Zealand in September 1839.

¹¹ Remainder of letter was written in Lyell's hand.

Charles Lyell to G. A. Mantell¹

[1 May 1841]

Dear Mantell

I am much obliged to you for the Lewes paper. Hopkins² remarked to me that he believed you had not traced continuously any one of the longitudinal lines of fracture in the Wealden before Martin even for a mile east & west, or at least you had not published it. If you had be so good as to give me the page in the Geol. of Sussex as soon as you can as I am reprinting that part of my Elements in which I shall refer to it at some length.³

Could you tell me when Hopkins first came out with anything on the Wealden, for I rather suspect that part of his mathematical theory is anticipated by Thurmman in his work on the Jura.

I have still a third query. Can I refer to the Abstract of your paper read at the R.S.⁴ Is it out? Can you send it to me. I want to cite you for the number of individual iguanodons found by you, and other points in a sheet also just going to press⁵ believe me

dearest Mantell

ever most truly yrs

ChaLyell

16 Hart St.

May 1. 1841.

P.S. I had cited Baculites as occurring in Upper Green Sand in my Elements. Lonsdale asks me where it is found in that formation. Can you answer or is it a mistake?

See Elements p.317.⁶

¹ Letter written by an amanuensis apart from the closing salutation.

² William Hopkins (1793 - 1866). Cambridge geologist who carried out mathematical studies of earth movements. *DNB*.

³ In the 6th edition of his *Elements of Geology*, on p.363, Lyell refers to Martins and Hopkins work on the lines of fracture of the Weald, but there is no reference to Mantell.

⁴ G.A. Mantell, 'Memoir on a Portion of the Lower Jaw of the Iguanodon and on the Remains of the Hylaeosaurus and other Saurians', *Phil Trans*, 1841, 131, pp. 153-158.

⁵ Mantell is cited by Lyell in *Elements of Geology*, 6th ed., on p. 345 as having first discovered the Iguanodon and also for examining the teeth and bones of 75 distinct individuals.

⁶ *Baculites anceps* is stated as occurring in Green Sand: *Elements of Geology*, 6th ed., on p. 323.

Charles Lyell to G. A. Mantell¹

[11 May 1841]

My dear Mantell

The deputation from Lewes is indeed much flattering & satisfactory & I could fancy myself happier as proprietor of a new & splendid collection at Lewes than at Clapham but it is one of those points on which no man can judge for another especially the professional part.

I am working very hard having a paper on Touraine faluns² to write & a 2^{d.} vol. of 2^{d.} Ed. Elements to print before a tour in Canada & U. States in July so excuse a short note to thank you for the read of Dr. F's letter which I have read with pleasure.

The continuous anticlinals since discovered by others for the first time are well mentioned.

ever truly yrs

ChaLyell

May 11 16 Hart St. / 41

Charles Lyell to G. A. Mantell[28 June 1841]³

My dear Mantell

¹ Entire letter written by an amanuensis.² C.Lyell, 'On the Faluns of the Loire, and a comparison of their Fossils with those of the Newer Tertiary strata in the Cotentin, and on the relative age of the Faluns and Crag of Norfolk', *PGSL*, 1838-42, 3, pp. 437-444.³ Year of letter not stated but 1841 deduced from day and month of year and Lyell's visit to Wales in

I have just returned from Siluria & shall read a short paper on things I have seen there, on Wednesday next – when I hope to thank you for your very kind note & offer.

If disengaged on Monday even.^g next July 5 at 9^{ock}. we shall be happy to see you at a small party here & believe me

ever truly yrs

ChaLyell

Monday

June 28

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Charles Lyell to G. A. Mantell¹

[29 October 1841]

My dear Mantell

[*]² I was glad to hear of you from Dr Silliman who has probably told you of a visit which we paid to him & his very agreeable family at Newhaven.[*]

His son in particular is most promising as a scientific man following the same line as his father.

[*]³ After staying two days with them we went by New York & the Hudson to Albany where I began my explorings on the Silurian strata & from thence I examined the valley of the Mohawk in company with Mr James Hall⁴ who has been employed by the Government with four others to survey the State of New York, which is about the size of our island.

The falls of Niagara were as beautiful as I expected, perhaps scarcely so grand but in geological interest far beyond my most sanguine hopes. As I shall read a paper on the proofs of their recession to the G.S. I will not dwell on them now. After spending some time there I examined seriatim all the Silurian groups in the Old Red & Coal on the borders of Pennsylvania [*] over which I have already sent a notice through the G.S. to Dr Fitton.

[*]⁵ Returning to Albany I went South to Philadelphia [*] & saw your friends Dr & Mrs Morton who spoke to us of you. He showed me some of the fossils of the cretaceous rocks brought by Nicolet⁶ from the Missouri but I was still more struck with those in Conrad's⁷ collection from Alabama.

[*]⁸ I spent four days in collecting in the different divisions of the Green Sand in New Jersey having Conrad as my guide[*] and we found five species not known to Dr Morton.[*]⁹ The analogy of the genera & even of the

¹ Entire letter written by an amanuensis except the closing sentence.

² Text between asterisks is quoted in K. Lyell, *LLJ-CL*, vol. 2, on p. 58.

³ Text between asterisks is quoted in *ibid.*, on p. 58.

⁴ James Hall (1811 - 1898). Geologist, New York Geological Survey and first President of the Geological Society of America. Sarjeant, *G & H of G*, vol. 2, pp. 1182-1184.

⁵ Text between asterisks is quoted in K. Lyell, *LLJ-CL*, vol. 2, pp. 58-59.

⁶ Joseph Nicolas Nicollet (1786 - 1843). French astronomer and geologist who emigrated to U.S. in 1832 and mapped the upper Missouri region. Sarjeant, *G & H of G*, vol. 3, on p. 1790.

⁷ Timothy Abbott Conrad (1803 - 1877). Invertebrate palaeontologist, Geological Survey of New York 1837-42. Sarjeant, *G & H of G*, vol. 2, on p. 754.

⁸ Text between asterisks is quoted in K. Lyell, *LLJ-CL*, (vol. 2), on p. 59.

⁹ Text between asterisks is quoted in *ibid.*, on p. 59.

species to the European Chalk is most striking.

I went with Dr Harlan¹⁰ to see the great skeleton brought by a German, Koch,¹¹ from the Missouri, a very large Mastodon which he calls the Missouriium. He has turned the wonderfully huge tusks the wrong way, horizontally, has made the first pair of ribs into clavicles & has intercalated several spurious dorsal & caudal vertebrae & has placed the toe bones wrong to prove what he really believes that it was web-footed. I think he is a mixture of an enthusiast & an imposter, but more of the former & amusingly ignorant. His mode of advertising is a thousand dollars reward for anyone who will prove that the bones of his Missouriium are made of wood. He is soon to take them to London where you will have a great treat & see a larger femur than that of the Iguanodon.

Harlan is lost in admiration at the bones of this & other individuals all belonging to the old Ohio Mastodons of Cuvier from very young to very old individ^s. He has also other fossils.

Of my tour into the anthracite regions of Pennsylvania you will hear the results when the paper I sent Fitton on the Stigmaria clays¹² is read. I like the people here very much & have a most attentive class of about 2,000 both at my morning & evening lectures.¹³ [*]

I shall be very glad to hear any news you can send me of the movements of geologists during the last summer & any news.

[*]¹⁴ My lectures here will take me four weeks more & my plan is then to run away from the winter so far south as to enable me to keep the field examining especially the cretaceous & tertiary formations & not to return northwards till the spring has fairly opened this part of the country.¹⁵ [*] believe me

my dear Mantell ever most truly yrs

ChaLyell

¹⁰ Richard Harlan (1796 - 1843). American osteologist and vertebrate palaeontologist. *DAB*.

¹¹ Albert C. Koch, (d. 1867). This Mastodon skeleton was displayed in London in 1841-42 and the specimen was purchased by the British Museum in 1844. J.C. Thackray, *Archives of Natural History*, 1985, 12(2), on p. 190.

¹² C. Lyell, 'On some Carboniferous and Older Rocks of Pennsylvania and New York', *PGSL*, 1838-1842, 3, pp. 554-558.

¹³ Lyell delivered the Lowell lectures in Boston during October and November 1841. *DSB*.

¹⁴ Text between asterisks is quoted in K. Lyell, *LLJ-CL*, on p. 59.

¹⁵ In the above quoted extract in *LLJ-CL*, the word 'fine' has been substituted for the words 'part of the'.

Boston. 29th. Oct^r. 1841.

Per Steamship Columbia

[Addressed to: Dr. Mantell Clapham near London. England]

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Mary Elizabeth Lyell to G. A. Mantell

[3 Sept 1842?]¹⁶

My dear Sir

We landed the beginning of this week after a most pressing voyage across the Atlantic.

I send a small parcel for your daughter which Mrs Benjamin Silliman asked me to take charge of. If there is a letter enclosed it is probably of an old date as we spent a month in Nova Scotia after leaving Boston.

My husband is exceedingly busy & desires his kind regards. We are going to Scotland the week after next.

Should you be coming into town & could call in same day it would give us much pleasure to see you.

I hope you have quite recovered from the effects of your fall.

Believe me

Yours most sincerely

Mary E. Lyell

16 Hart St. Bloomsbury

Saturday 3^d Sept^r

¹⁶ Year not stated on letter but deduced from stated day of the week and month and that the Lyells

Mary Elizabeth Lyell to Miss Ellen Maria Mantell¹

[12 September 1842]²

My dear Miss Mantell

We were exceedingly sorry to find that your father was prevented by indisposition from coming to see us last Thursday. I hope he is now better and that we may find him recovered when we return from Scotland the latter end of next month as Mr Lyell will have much to tell him & hear from him.

We go off on Wednesday morning early, & my time has been so much filled up with unpacking & repacking that I have been prevented from writing to you sooner.

Pray thank Dr Mantell from me for the present of his little book. The copy for my sister goes to Scotland with us. With our united regards.

Believe me

dear Miss Mantell

Yours very sincerely

Mary E. Lyell

16 Hart St. Bloomsbury
Monday 12 th. Sept.

¹ Mantell's other daughter, Hannah, died on 12 March 1840. *GAM-PJ*.

² Year not stated on letter but deduced from stated day of week and month.

Charles Lyell to G. A. Mantell

Thursday 8. / 42

My dear Mantell

I wish much to speak on the Conn^t bird tracks having carefully examined all the localities & sent a short paper¹ read with 6 others on last day of last session & therefore still-born on the subject.

I have a notice of Redfields² on the same to enter for reading³ forthwith. But on Wed^y I have a paper which is so long that it was deferred till I could have an entire Evening, & it is only by reading myself & abridging very much that I can get it into one meeting. So pray let us have another set to at the tracks.

I regret exceedingly you were not at the genl. meeting[.] Ch^l.⁴ was heard in great length & W. remonstr^d. when at end of an hour the impatience of the meeting c^d. stand no more. I never heard such a break-down. You would cordially have joined in the unanimous vote proposed by one of his own requisitionists many of whom were present "that the explanation of the Council ought to be satisfactory to Mr C. & his friends." A written request from C. that his claims sh^{ld}. be entertained separately was read.

A council was held after the meeting in wh. 14 elected Forbes⁵ unanimously. On a division as to altering the bylaw about giving the Council power to choose candidates the numbers were for the council 108, for Bowerb^k.⁶ 3, viz. himself, Grant & C.

¹ C. Lyell, 'On the Fossil Footprints of Birds and Impressions of Rain-drops in the Valley of Connecticut', *PGSL*, 1838-1842, 3, pp. 793-796.

² William C. Redfield (1789 - 1857). U.S. meteorologist and vertebrate palaeontologist. Member GSL. Sarjeant, *G & H of G*, vol. 3, on p. 1958.

³ W.C. Redfield, 'On newly discovered Ichthyolites and Rain-prints in the New Red Sandstone of New Jersey', *PGSL*, 1843-1845, 4, on p. 23.

⁴ The name Charlesworth has been subsequently written in pencil beneath this abbreviation. Edward Charlesworth (1813 - 1893) was an English naturalist and palaeontologist. Sarjeant, *G & H of G*, vol. 2, on p. 716.

⁵ Charlesworth applied for the position of GSL Curator-Librarian following the retirement of Lonsdale and was advised by the Council that he was disqualified from holding office there. His friends requisitioned a special meeting to consider the matter but Edward Forbes was subsequently invited to apply for the position. Woodward, *History of the GSL*, on p. 148.

⁶ James Scott Bowerbank (1797 - 1877). Distiller and amateur geologist. Sarjeant, *G & H of G*, vol. 2, on p. 597.

ever truly yrs ChaLyell

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Charles Lyell to G. A. Mantell

[27 December 1842]

My dear Mantell

I am sorry that I did not see you to explain, that I should regret that the footsteps & Redfields paper (which was entered next to it, as relating to the same subject) should come on for discussion with my Niagara paper,¹ all the general views of which are yet to be stated & relate to 3 distinct branches, the denudation periods, the ice-question & the beaches or osars. For my own part I should be unable to enter on another & so dissimilar a subject on the same evening.

All the subjects now entered for reading might be cleared off in about 3 meetings, & probably the Pres^t will order some small ones of those not likely to call for discussion (of which there are one or two if I mistake not standing before your friends & Redfields letter to me me) to be read after mine otherwise I should have been glad of the whole Evening as I know I shall have objections enough. Owen entertains & has printed opinions about the foot-step which I am prepared to controvert.

If we could arrange to have your friends paper read the term after next it would be better tho' I am vexed to have to defer this if you have any reason for wishing it on at once.

Returning you our hearty wishes for a merry Xmas believe me

ever most truly yrs

¹ C. Lyell, 'A Memoir on the Recession of the Falls of Niagara', *PGSL*, 1838-1842, [19 January 1842], 3, pp. 595-602.

ChaLyell

27 Dec.

42

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Charles Lyell to G. A. Mantell¹

[25 March 1843]

My dear Mantell

I am glad to hear you have made such progress in your work & when I think how slowly I have been getting on with my own I may well wish with your doctor that for the sake of progress I could exchange my health for your spirits & energy.

I believe Owenia would be the best of the names you suggest. Valdornis like Valdorns or the Valley of the orno would mean the bird of the valley but perhaps you would say it is a valley as well as a Wold. It is a barbarous compound of latin & greek.

The French say "Veldienne" I think. You must be sure that no one has not already in some department made Owen's name into a genus.

Veldenia would I suppose be Wealden turned into a Roman word the w being converted.

I hope Miss Mantell² is well believe me very truly yrs

ChaLyell

Mrs Lyell desires her remembrances.

16 Hart St

25th March

¹ Letter written on mourning note-paper.

² Mantell's surviving daughter, Ellen Maria Mantell, b. 30 May 1818.

Charles Lyell to G. A. Mantell

[6 April 1843]

My dear Mantell

We missed you much when discussing the Weald yesterday & very kind mention was made of you & the cause of your absence both by Dr Fitton, Warburton, Murchison & others during the Evening's debate. I was surprised & concerned to hear so bad an account I hope & trust too unfavourable a one of your health¹ what from the good spirits you were in when we sat together at Warburton's dinner² & from your having been able to attend one of my lectures³ so lately I really thought was improving & will still hope so. You said some short time ago that you were never at home when I was asking when to call which I will now do as soon as I know that there is a good prospect of my finding you at your house & at leisure to receive a visitor.

Tomorrow, Professor Phillips⁴ in town for 2 days has appointed to call & see my American fossils.

Pray write if it does not fatigue you & tell me more cheering news than the version I heard, if you can & believe me

ever most truly yrs

ChaLyell

6 April 1843

16 Hart S.^t

¹ During the last quarter of 1842, in particular, Mantell made frequent references in his *Private Journal* to his suffering from neuralgia. *GAM-PJ*.

² Held at the Clarendon on 11 March with Warburton (GSL President), and members of the GSL Council. *GAM-PJ*.

³ Lyell lectured to a "popular audience" on Volcanoes and Coal at the Mary-le-bone Institution on 17 and 21 March. Mantell attended both lectures. *GAM-PJ*.

⁴ John Phillips (1800 - 1874). Nephew of William Smith. Professor of Geology, King's College

Charles Lyell to G. A. Mantell

[23 April 1843]

My dear Mantell

Would it suit you to allow Mrs Lyell & myself to call on you on Thursd^y. next at 2^{ock}. & stay an hour – if I do not hear I shall call¹ & tell you how my paper on Nova Scotia's erect trees² has gone off the Ev^g. before.

I should have written before had I not been so much engaged with my paper for the G.S. My sister has left us. Hoping to find you better believe me
ever most truly yrs

ChaLyell

Ap. 23 '43

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Charles Lyell to G. A. Mantell

Kinnordy
Kirriemuir
N.B.
Oct. 21 / 43

My dear Mantell

It was only the day before I examined your letter that I had had a long talk about you with Dr Fleming, at Aberdeen, who was enquiring about you & your present scientific occupations & was not aware that you had been a sufferer from ill health. I was reproaching myself when I recollected how long it was since I had received any direct news of you but my tours in Iceland & Scotland must plead my apology.

Your letter shows that your spirits & activity of mind have not failed in your severe trial & I can well imagine that the uncertainty as to what you should do professionally make no small part of the trial at present. I have

¹ Mantell's *Private Journal* records that the Lyells called on Mantell on 27 April and stayed for several hours.

² C. Lyell, 'On the Upright Fossil Trees Found at Different Levels in the Coal Strata of Cumberland, Nova Scotia', *PGSL*, 1842-45, 4, pp. 176-178.

little doubt that should it be prudent for you to retire at once & devote what you have still of energy & strength to a less laborious course, you will be happy in your favourite pursuit on a small income & that having once taken the decisive step you will feel a great weight off your mind & soon recover part of the strength which your anxiety about what step you should take must greatly impair. I need not say how much I shall feel gratified by the dedication.

I always look back to my early tours in the Wealden with delightful recollections. You know that I regretted not only moving from Lewes but even (my prejudices went so far) as to prefer the first inferior house there to the last because it was not the old & first admired Museum.

I expect to hear of your retreating into some nook in the Wealden, one not I trust so inaccessible a one as Lonsdale's. I fear from his last letter to me that he is recovering very slowly, if at all. He is kindly working at 70 species of Touraine corals of mine. I am now working at my N. American papers. With many thanks for your good intentions in inscribing your new work³ to me & with kind remembrances from my wife & me to your daughter & yourself believe me my dear Mantell ever most truly yrs

ChaLyell

We are here for nearly 3 weeks more.

[Addressed to: Dr Mantell, Clapham Common, London]

³ Mantell dedicated *The Medals of Creation or First Lessons in Geology*, 2 vols, Bohn, London,

Charles Lyell to G. A. Mantell

[20 November 1843]

My dear Mantell

I had fully expected to see Mr Babbage yesterd^y & to have learnt from him some information that might have been useful to your son¹ as B. is so intimate with Brunel² & has two of his sons in the same line, but I found he was gone to Brighton. When he returns I will not forget. We were sorry not to have you when the recent skeleton of the African giraffe was placed side by side the 2 Asiatic fossils, contemporaneous with an anoplotherium!

I have scarcely been out any where having been much taken up with the severe illness of my poor clerk Hall, whom you knew, & who died on Frid^y, after 4 days gasping for breath with scarcely any lungs left. Dr Chambers told me 7 years ago that he did not expect him to live 2 years. He had been 18 years with me & was a most amiable & excellent servant & quite a naturalist.

I hope to call on you soon & to bring you some information about Civil Engineers, an excellent profession I should think.

I was glad to hear from your son that Miss Mantell was well. believe me

ever most truly yrs

ChaLyell

Nov. 20

1843

¹ Reginald Neville Mantell, Mantell's second son, then 16 years of age.

² Isambard Kingdom Brunel (1806 - 1859). Civil engineer and son of Sir Marc Isambard Brunel (1769 - 1849). *DNB*.

[28 November 1843]

My dear Mantell

As I do not visit the Rennies tho' well enough acquainted to ask them anything when we meet, I have been waiting till Babbage returned from Brighton to ask him about his friend Brunel. But he could not give me any information. Two of Babbage's own sons were with young Brunel & they are both in Sardinia, the eldest having charge of the railway between Genoa & Turin which profitable post he got from having been under Brunel.

Brunel requires premium I believe, but Babbage says the Rennies take none he thinks.

Young Babbage talks of taking pupils as he has room for them in Sardinia.

The railway line is best because it includes bridges & tunnelling.

I hope you are going on well

ever truly yrs

ChaLyell

Nov. 28.

'43

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Charles Lyell to G. A. Mantell

[5 December 1843]

My dear Mantell

Should you be at home on Thursday the day after tomorrow at 3^{ock.}, as I should like to call & should be sorry to find you out. I shall be alone.

If I do not hear I shall take for granted that I shall find you.¹ believe me
ever most truly yrs
ChaLyell

Tuesday

5 Dec. 43

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Charles Lyell to G. A. Mantell

[26 December 1843]

My dear Mantell

I should have written but Stokes gave me no note about the graptolites having lost the corals, or rather a friend having mislaid the recent corals which proved the said graptolites to be of the family Sertularia & I believe are attached instead of a free polypifer. But you must write directly to him if you wish to say any thing on the subject.

Babbage told me he would communicate with you about Brunel.

My mother is much better but we are overwhelmed this morning by a most unexpected calamity – the death of my fourth sister Maria,² Mrs Heathcote in the first week after having being safely delivered of her first child. I am called into the county Cornwall by the funeral. I have now hope my mother will hardly comprehend it but fear she is much recovered.

I must conclude believe me my dear friend

ever truly yrs

ChaLyell

¹ In a letter to his sister Marianne, dated 7 December 1843, Lyell stated “I am going today to visit poor Mantell who is very ill” K. Lyell, *LLJ-CL*, vol. 2, on p. 79.

² Maria Lyell, born 22 November 1808.

Dec. 26

1843

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Charles Lyell to G. A. Mantell¹

Jan^y. 9 44

My dear Mantell

You will have heard probably when you were good enough to call during my absence that we had gone to Cornwall in consequence of the unexpected death of my sister Mrs Heathcote.

We were away ten days two of which I was able to pass with Mr Lonsdale who is at Falmonth & whom I found much in the same state as when he left us. It seemed a complicated case of consumptive disease in the heart & I suspect something in the nerves from over work. I found him entirely employed with corals & I asked him what you could say of the graptolites. He confirmed Mr Stokes' opinion but declined pronouncing positively. Nevertheless you may say that from the researches of Mr Stokes and Mr Lonsdale it appears that the graptolites are a family of corals including several genera having a nearer connection to the Sertularia and Plumularia than any others which we know in a living state. As the Sertularia has cells on both sides the plumularia on one only, so there are Graptolites of both kinds.

At all events that is considered a much greater approximation than the old pennatula theory which I suspect was Linnaeus's not Buck^s?

I trust you are going on better & believe me ever truly yrs .

ChaLyell

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¹ Letter written on mourning note-paper by Lyell's wife acting as amanuensis except for the last two sentences.

Charles Lyell to G. A. Mantell

[22 February 1844]

My dear Mantell

I had hoped we should have seen you at the Anniversary at least in the morning when you would have met Conybeare redivivus who perhaps was able to call on you, altho' the death of a friend prevented me from being able to see him in my house.

We have been anxious about my youngest sister² who after attending a sick nurse the one we lost had a fever from which she is now slowly recovering which is all I can say of my mother.

I hope you are still able to contend with your complaint & that your spirits keep up & that you hope to get the better of it. I am busy with my American work. The anniversary dinner was very well attended, & the affairs of the Soc^y are looking up tho' some complain that the attendance at the meetings is thinned by the dryness of the debates.

I hope Miss Mantell is well believe me with our joint rememb^s.

ever truly yrs

ChaLyell

Feb. 22

1844

[Addressed to: G. Mantell Esq]

² Sophie Georgina Lyell, born 10 September 1812.

[14 May 1844]⁴

My dear Mantell

The Trustees of the Brit. Mus. seeing that I have signed the recommendation for them to purchase Koch's collection of Mastodontal remains & because I have lately as I said in the Memorial seen other Collections in the U.S. wish to lay much stress on my opinion & to whether Koch's demand of £1,800 for the skeleton & £1,200 for the other remains be reasonable.

Now if I state the simple truth, viz. that having never purchased for myself or public bodies I know nothing of the money value of such remains, I fear I may stand in the way of what we all desire, at the same time that we are bound to protect the Museum from extravagant expenditure. I shall write to Owen & if you can give me an opinion (to be alluded to by name or not as you may desire) I shall be very much obliged. I am entirely ignorant on the subject & if the 25th was not so near when the sale takes place, I could declare off. Probably you have already been applied to.

Write a card or two as soon as you can & believe me
my dear Mantell ever most truly

ChaLyell

16 Hart St. Bloomsbury

Tuesday 14th May

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Charles Lyell to G. A. Mantell

³ Written on mourning note-paper by Lyell's wife acting as amanuensis.

⁴ Year not stated on original letter but deduced from stated day and month.

[May / June 1844?]¹

My dear Mantell

I have been so busy with the marriage of my sister-in-law & other affairs that I have been unable to write and say when I could see you.

We are in town until June 11th. & I am usually at home till 2^{ock} & if you will write to me will be at home at any hour except on Sat^y. (Faradays lecture) & be happy to see you. Dr Falconer gave a good lecture on Sat^y. last at the Asiatic Soc^y. on the Himalayan fossils. Ladies admitted for the first time – a great crowd.

I am surprised at the rate you get on with your work while I in full health am creeping on so slowly.

I hope to hear a better account of you when we meet – believe me ever
most sincerely yrs
ChaLyell

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Charles Lyell to G. A. Mantell

¹ May 184 – , has been transcribed on this letter. However the reference to the marriage of his sister-in-law in the first sentence ties in with the context of Lyell's letter, dated 6 July 1844, which refers to him botanising with his new brother-in-law, Charles Fox Bunbury (1809 - 1886). On 31 May 1844, Bunbury married Frances Joanna Horner, the second daughter of Leonard Horner and a younger sister of Lyell's wife, Mary Elizabeth. *PGSL*, 1889, 46, p. xiv. and *Alumni Cantabrigiensis, Part II*.

[5 June 1844]¹

Wed.^y

My dear Mantell

I hope you will give me the pleasure of your company at dinner on Friday at ½ past 6 o'clock precisely & then you can go afterwards to hear Faraday.² We shall be quite alone and am engaged out in the Evening and cannot accompany you to Faraday.

ever most truly yrs

ChaLyell

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Charles Lyell to G. A. Mantell

[6 July 1844]

My dear Mantell

I have been intending every day to write to you to say how much pleased & instructed we have been (for my wife has had more leisure to study it than myself) with your "medals of creation",³ which is just the book to accompany us on future fossilizing tours. I have only as yet read part of it & admired the beauty of the wood cuts. I am astonished at the rapidity with which you got it out considering the wide range of subjects which it embraces.

Have you seen Darwin's new book on volcanic islands?⁴ What I have read of it is very good but it is too little known. I was glad to see by the

¹ Year not stated on letter but deduced from day and month of year and the reference to dinner with Lyell and Faraday's lecture in *GAM-PJ*, entry 7 June 1844.

² Faraday's lecture at the Royal Institution was on the recently discovered method of silvering glass. *GAM-PJ*, entry 7 June 1844.

³ G.A.Mantell, *The Medals of Creation or First Lessons in Geology*, 2 vols, Bohn, London, 1844.

⁴ Charles Darwin, *Geological Observations on the Volcanic Islands visited during the Voyage of H.M.S. Beagle*, Smith, Elder, London, 1844.

papers that you were at Sir R. Peel's⁵ party to meet the King of Saxony, at least I hope you were there for the papers are only authority to show that you were invited,⁶ as my name appeared also in the list tho' I was here. I was to start 2 days after getting the invitation & it would have put me out, otherwise I should have liked much to have seen the German naturalists & the whole party of which you will give me an account when I return, I hope.

I have been botanizing with my new brother-in-law, Mr Bunbury,⁷ & learning more of plants than I ever knew before, also getting on with my American book.

I hope your son & the new suspension bridge are prospering.

With many thanks again for your book & dedication & with my wishes kind remembrances believe me

ever most truly yrs

ChaLyell

Kinnordy, Kirriemuir N.B.

July 6 - 44

186

Charles Lyell to G. A. Mantell

20th. Aug^r. [1844?]⁸

London

My dear Mantell

Your letter announcing the discovery of the *Unio* in the bed of the old river where we used only to find paludinae & smaller freshwater fry was really most welcome. It went to Scotland & then followed me to town where we are to be for a short time, previously to going to

⁵ Sir Robert Peel (1788 - 1850). English Statesman. Premier 1834-35; 1841-45; 1845-46. *DNB*.

⁶ Mantell described Sir Robert Peel's evening party, held on Saturday 15 June, in considerable detail in *GAM-PJ*, entry 15 June 1844.

⁷ See letter 183, note 1.

⁸ Year not stated in the letter but was deduced from its context.

Suffolk, Keswick, York (for the meeting)⁹ & elsewhere.

I do not understand what caused so much delay in the coming out of your book. Dr Silliman from whom I have just heard asks about it. I dare say he has told you that his daughter has married Dana¹⁰ of the Antarctic U.S. expedition & I believe a man of talent.

I hope some geological excursions may yet restore your health. I always think that a good days entomologizing (my first love) in which I have indulged several times lately in Scotland does me more good when I am tired of work than any other pastime. I have been rearranging my shells or rather my wife has been placing together in separate sets the fossils from the Crag, Faluns, Paris basin, London, Mayence, Bordeaux, Vienna, Loess of the Rhine, Sicily, Asti, Superga &c to compare with my American Eocene & Miocene collections & I mean in future to keep them in this geological classification & retain my recent shells only & a few fossils in the zoological arrangement. believe me ever most truly yrs

ChaLyell

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Charles Lyell to G. A. Mantell

[29 March 1845]

My dear Mantell

The best way to send a parcel to Dr Fleming at moderate expense & speedily is by the Aberdeen Steam packet. I know not where the wharf is but you will find offices in London (Regent Circus?).

I have nothing to send Dr Silliman but my regards.

We were engaged too deep the evening you were good enough to ask us to join your exhibition of your microscope.

With many thanks believe me ever truly yrs

⁹ The annual BAAS Meeting was held at York in 1844.

¹⁰ James Dwight Dana (1813 - 1895). U.S. mineralogist and geologist. Accompanied the U.S.

ChaLyell

March 29 1845.

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Charles Lyell to G. A. Mantell

[29 May 1845?]¹

My dear Mantell

Professor Kingsley² of Yale Coll. New Haven. Conn^t. has brought a letter to me & you from our friend Dr Silliman, and he asked me for your address.

I invited him to dine with me on Wed^y next June 4th. & told him I would try & engage you to meet him & go together afterwards to the Geological Society a meeting of which he is desirous of attending. Can you join our party at ¼ before 6^{ock}. punctually.

The Prof^r. is I believe going to Oxford first.

believe me ever most truly yrs

ChaLyell

May 29th.

16 Hart St.

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Charles Lyell to G. A. Mantell

19 Chester Squ. Sund.^y ³

20 Sept^r. [1846]⁴

My dear Mantell

I thought I should find you at home today, & tell you viva voce that I have just got into my new house No.11 Harley S^t. the looking out for which, with all the arrangements for changing, have occupied me every spare hour since my return from America, except the 7 weeks I spent at my father's

¹ The year of this letter is not stated but the reference to the day and date of the dinner invitation for Prof. Kingsley indicates 1845. *GAM-PJ*, entry 4 June 1845.

² Charles Luce Kingsley (1778 - 1852). Latin scholar. Professor at Yale 1805-51. *DAB*.

³ Lyell evidently wrote this letter at Mantell's residence at 19 Chester Square, Pimlico to which Mantell had moved to on 23 September 1844. *GAM-PJ*, entry 23 Sept. 1844.

⁴ Year not stated on letter but determined by the day and month and the context of the letter.

in Scotland.

I mention this because I was really sorry to meet you at Southampton without having returned your two calls, which as an invalid you were much less able to make than I, but except foreign savans you are the first I have been to see since my return. That you are well enough to be from home all this afternoon augers well, tho' I know how you fight against the enemy. When I say we are in our new house I ought to add that for a day or two it will be in no small confusion, but I shall be always happy to see you.

I do not think a scientific book ought to be hurried even a week for such a meeting as that of Southton⁵ (good tho' it was) but when I saw the poor affair put forth for the members on the I. of Wight I could not help regretting yours had not seen the day.

I went yesterd^y week with E.Forbes, Agassiz, Owen, Middendorf⁶ & Sir P. Egerton in a yacht dredging while my wife went for the first time with her sister round the island in which she thinks she learnt more geology than ever in one day before.

It is certainly the gem of the sea for men of our craft & Englefield sells secondhand in Southton for £ [illegible figure – possibly £200] when ever one by chance comes into the market.⁷

You would have enjoyed the dredging. I never saw so many marine animals alive, fish (the Conceolate &c), medusa, opheured, dentalium, all kinds of mollusca, crustacea, goophy (alcyonidium among others), star-fish, nereis &c. Agassiz was brought to admit that some of the shells were quite identical with those of the oldest crag in which the great preponderance of species are extinct & some corallines also.

ever most truly yrs

ChaLyell

⁵ The BAAS annual meeting was held at Southampton during September 1846.

⁶ Alexander Theodore von Middendorf (1815 - 1894). Traveller and naturalist. *DUB*.

⁷ This comment presumably relates to H.C. Englefield's, *A Description of the Picturesque Beauties*,

Charles Lyell to G. A. Mantell

[29 September 1846]

My dear Mantell

I have been looking over with great pleasure & the recollection of very agreeable days spent of old at Lewes, the little volume¹ you sent me for which many thanks.

As to gentlemen calling on one in London, they never do [any more?]. Their wives may once in a way leave their cards, but in no other way for whole twelve months do they even make their existence known to us even with some whom I consider myself intimate. So I do not think Dr F.'s negligence on this head should be thought of. He would give all of us reason to complain if he went so far as to your house to call & left us out.

We are still in the midst of upholsterers, carpenters, &c²
ever most truly yours

ChaLyell

11 Harley St.

29 Sept.

1846.

¹ G.A.Mantell, *A Days Ramble in and about the Ancient Town of Lewes*. This book is a small octavo volume of 150 pages published by M. Bohn in 1846, following a 2 day visit by Mantell to his native town.

² At this stage the Lyell's were in the process of moving from 16 Hart Street to 11 Harley Street, London.

G. A. Mantell to Charles Lyell¹

Chester Square
November 10th. 1846

My dear Friend

I have no doubt the allusion which I made in my letter to the Azoics of the Autocrat of all the Silurians had a reference to the suppression of the last paragraph in my paper on the fossil remains of the soft parts of the foraminifera² for at that time (I mean when I wrote to you) I intended to remonstrate. The passage struck out was the following and referred to the previous paragraph which contained a remark on the importance of the discovery as bearing on certain geological speculations as to the presence or absence of organic life &c.

“And if in the limestone which compose the hills of the S.E. of England and in the flints of which our roads are constructed we can now demonstrate the presence of delicate & infinitesimal structures that have previously escaped detection and which can only be made manifest by a peculiar mode of manipulation & by the aid of the most powerful microscope, it is not unphilosophical to assume the probability of being able hereafter to obtain evidence of the presence of animal organisms in deposits, to which from the supposition of their having been formed antecedently to the existence of animals & vegetables on our planet. The term Azoic has (as I conceive without due consideration) been applied. I therefore submit that in the present state of our knowledge of the earth's physical history, as derived from palaeontological evidence, the period when organic creation commenced, must still be regarded one of those hidden mysteries of nature from which science has not yet withdrawn the veil”.

There may have been some verbal difference in the M.S. sent to the Royal Society, but it was essentially if not literally the same.

I do think that every unprejudiced person will see nothing in the above remarks that would warrant their suppression. Yet the Geological Committee

¹ Transcribed from a transcribed copy ex ATL. Original letter at APS.

² G.A. Mantell, ‘On the Fossil Remains of the Soft Parts of Foraminifera’, *Phil. Trans.*, 1846, 136 pp. 465-472.

recommended their omission & the Council of the Royal Society in their wisdom resolved that the paper should not be published unless the Author consented to withdraw this objectionable preoration!

For myself I care not one straw about it: but I do regret having been compelled to sanction a precedent which may hereafter be productive of serious impediment to the freedom of expression on disputed points not only in geology, but also in other sciences.

I trouble you with this note merely because the subject is fresh in my mind, & I wish it to pass away on its eccentric revolution to torment some other being, & return to me no more.

I had so many things to show & tell you – but it is in vain to expect leisure in this “wicked world” as the evangelicals call our marvellous planet.

I would torment you for half a dozen seconds with a splendid quotation of American poetry.

When death shall give the encumber'd spirit wings
Its range shall be extended – &c -

but in charity I forbear - I am
paying the penalty of the
gratification I enjoyed last evening
but not seriously. With best respects
to the ladies.

Yours my dear Sir Charles³
most faithfully
G.A. Mantell

1846.

³ Lyell was not knighted until 1848.

G. A. Mantell to Charles Lyell

[November 1846]¹

Monday Evening

My dear Friend

<p>It occurs to me that the Guadalupe human skeleton² would be very appropriate; and if treated artistically the bent specimen with the jaw & would form vignette and your page. the human Brit.Mus Jardin des there is a in Cuvier's Terre – & a in my Wonders, 1 p .</p>	<p>part of the skull a very spirited not too large for I do not mean skeleton in the but that in the plantes of which bad engraving Theorie de la worse wood cut last edition Vol.</p>
---	--

M. Dinkel might make a spirited thing of it, but care should be taken the lower jaw & part of the skull are drawn really human & not as they are

¹ Transcribed from a xeroxed copy of original held by APS. Letter undated but November 1846 has been written on envelope. The ATL copy of this letter has been dated 24 November 1846.

² The Guadalupe human skeleton, imbedded in limestone, was discovered ca. 1811 and is described in Mantell's, *Petrifactions and their Teachings*, Bohn, London, 1851, pp. 483-484.

(if I recollect right) in Cuvier. If you should adopt this I would beg to suggest that the surface of the stone should be kept of a dark tint, so as to make the white bones more distinctly in relief. I had thought of a group of the Dodo's skull & foot & the Moa's, or some characteristic bones, which might be made a picturesque group of & the subject as illustrative of the recent extinction of genera would be appropriate but I vote for "Man in a fossil state" and a motto from old Scheuchzer³ – homo diluvii testis!!!

Excuse haste & headache & believe me ever my dear friend

yours most faithfully

G.A.Mantell

If my kind Irish friend⁴ should be displeased with my Isle of Wight⁵ when it comes out, I will publish the sections & descriptions of the strata beneath the chalk from your letters to me in 1821 1822 & 1823 from the Island!

Nov^{ber.} 1846.

P.S.⁶ If I could use my pencil as an artist I would attempt a sketch of some of the submerged ruins in the Bay of Naples for a vignette. Stonesfield would make a beautiful & understandable sketch of such a subject; or of the subject sung by Moore –

On Lough Neagh's bank, as the fisherman strays,

³ Johann Jakob Scheuchzer (1672 - 1733). Swiss mathematician and geologist who misinterpreted an amphibian skeleton as a fossil man drowned in the Noachian flood and described it as "homo diluvii testis". Sarjeant, *G & H of G*, vol. 2, p. 2058.

⁴ An ironic reference to Dr Fitton, who called on Mantell on 15 October and reproached him for his "illiberal conduct in science", *GAM-PJ*, entry 16 October 1846.

⁵ G.A. Mantell, *Geological Excursions round the Isle of Wight and along the Adjacent Coast of Dorsetshire illustrative of the most interesting Geological Phenomena and Organic Remains*, Henry G. Bohn, London, 1846.

⁶ This P.S. was not transcribed on the ATL copy of this letter.

When the clear cold eve's declining,
He sees the round towers of other days
In the wave beneath him shining;⁷

[Addressed to: Charles Lyell Esq. 11 Harley Street, Cavendish Square]

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Charles Lyell to G. A. Mantell

11 Harley Street

9th. March 1847

My dear Mantell

⁷ Thomas Moore, 'Let Erin Remember the days of Old', in: *The Poetical Works of Thomas Moore*, Longmans, Green, Reader, and Dyer, London, 1867, p. 148.

I have been reading with great pleasure your beautiful work on the I. of Wight¹ & should have written sooner had I not been very much occupied in getting Sir P. Egerton to name my fish & Dr Percy² to analyse my specimens of coal which are to be mentioned in a paper³ which I promised to the Society a fortnight hence (24th.March) on an American (liassic or Massic?) coal field.

Your numerous citations of my labours make me perhaps hardly an impartial judge of the volume which I cannot help anticipating will have great success & do much good in popularizing the science while there is so much popular work in it both in the fossils & section as to set them thinking as well as observing & collecting if they have any turn that way.

The way in which you have for the first time recorded my earliest work to all others hitherto unknown at p.135 gives me a kind of mixed pleasure which I cannot easily describe or define. At that time I would have willingly devoted myself vigorously & exclusively to the science & tho' 8 years of law reading which followed against my natural bias would not have been lost to geology had I been able to see as a young man now can the rank which in spite of all untoward circumstances our studies have forced their return into in this country.

Your allusion to our joint work in the Wealden recalls some very happy early days in the field. believe with my thanks ever truly yours

ChaLyell

De la Beche is to be out of town & I have promised him to take the Chair tomorrow – C.L.

¹ G.A. Mantell, *Geological Excursions round the Isle of Wight and along the Adjacent Coast of Dorsetshire illustrative of the most Interesting Geological Phenomena and Organic Remains*, H.G. Bohn, London, 1846.

² John Percy (1817 - 1889). English chemist and metallurgist who carried out analyses of coals and anthracites. Sarjeant, *G & H of G*, vol. 3, p. 1873.

³ C. Lyell, 'On the Structure and Probable Age of the Coal-field of the James River near Richmond, Virginia', [April 1847], *QJGSL*, 1847, 3, pp. 261-280.

Charles Lyell to G. A. Mantell

[5 April 1847]

My dear Mantell

A friend of mine is desirous of bringing up his son as a civil Engineer (a boy between 13 & 14). Could you tell me what sum you paid per annum as for a term of apprenticeship to Mr Brunel for your son & how would you recommend a boy of 13 to proceed. Should he go very soon to some civil Engineer? He is a clever lad. Anything you can tell me will be useful. I think Brunel does not wish to take any more? & I believe your son was not attended to in his office! If you had to do it over again should you pursue the same plan.

Excuse so many queries. I read my paper on the Virginia coal of oolitic age¹ on Wed^y. 14th. inst. & on the 30th. Frid^y. at R. Instit. on age of Auvergne volc^{s.2} as determined by fossil mammalia.

ever most truly yrs

ChaLyell

11 Harley St. April 5, 1847.

¹ C. Lyell, 'On the Structure and probable Age of the Coal-field of the James River near Richmond, Virginia', *QJGSL*, 1847, 3, pp. 261-280.

² Mantell attended this lecture which "disappointed" him. *GAM-PJ*, entry 30 April 1847.

Charles Lyell to G. A. Mantell

11 Harley St.

June 16th.

Sunday – 1847

My dear Mantell

I was very sorry not to see you here the other evening & if I had not had my house full of friends today who are staying with us, I should have called to enquire whether you were well.

I had also hoped to have seen your son, whom I should not have failed to have asked with yourself had I had any idea that he was in town, although when you proposed to me to bring him I alluded when accepting the offer to our party being already very full. So much was this the case, that I had come to the Royal Soc^y with the resolution not to be tempted to add to our party fearing that our rooms would be too hot & crowded, & my first, though momentary, impulse was to decline the offer which you very naturally made to bring your son¹ with you, himself a geologist & one who would have found here a large number of scientific men. Perhaps however I am wholly out in imagining why we had not the pleasure of seeing one as both of you. I will now therefore tell you a curious affair.

If you were at the last meeting of the G.S. you heard Sir R.M. say that Agassiz in a letter to him had said that his (A.'s) friend Desor² had discerned that Lyell was wary in supposing "the Nummilite limest. of the Southern States to be Eocene".

Now I proved it to be high up in the Eocene series by many clear sections & Conrad who once led Morton to suppose it to be cretaceous gave in to my views. All my evidence is not published in our journal but quite

¹ Reginald Neville Mantell. Mantell's other son, Walter Baldock Durrant Mantell, was in New Zealand.

² Pierre Jean Desor (1811 - 1882). Swiss stratigrapher and invertebrate palaeontologist, University of Neuchatel. Sarjeant, *G & H of G*, vol. 2, p. 894.

enough – vol. 2, p. 409.³

Well, Desor has got the french notion that nummulites from the deposit to be intermediate between Cretaceous & Tertiary. Seeing a peculiar structure in my specimens of Nummulites Mantelli I submitted them to E. Forbes who said it was not a nummulite at all! I have sent some off to Lonsdale as they seem to be corals. The nummulite lovigata of London Basin (Bracklesham beds) is a true nummulite.

I have still specimens here of the American nummulite (so called) to show you. E. Forbes on Frid.^y Ev^g reported that Searles Wood agreed with him that Nummulite Mantelli accord.^g to my specimen could not belong to the foraminifera.

I shall send a note to Silliman reiterating my proof of the true position of the “rotten limest. of Alabama” with its money shaped disks, be they what they may.

ever yrs most truly

ChaLyell

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Charles Lyell to G. A. Mantell

11 Harley St.

³ C. Lyell, ‘On the Newer Deposits of the Southern States of North America’, *QJGSL*, 1846, 2, pp. 405-410.

Sunday Oct. 17 [1847]¹

My dear Mantell

Most unfortunately I am engaged to dinner at the other end of the town tomorrow & next morning Tuesday I go off by railway for 8 days to Bunbury's in Suffolk.

It was very kind of you to send me those beautiful fossils which I have not yet looked through having just returned from a walk.

My wife desires me to thank you for the fruit.

I hope to see you on our return & believe me

ever most truly yrs

ChaLyell

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Charles Lyell to G. A. Mantell

[23 December 1847]

My dear Mantell

We are keeping Xmas in the country or I should have immediately have availed myself of your kind invitation, for I doubt not the sight is wonderful & must have gratified Owen much.

Murchison has written to me from Rome, he has been doing good work in Italy & was to visit Sicily if the political revolution now coming off there will allow.

We return the beginning of next month to town.

believe me

most truly

¹ Year not stated on letter but deduced from day and month.

ChaLyell

Dec. 23^{rd.} 1847

Rivermede

Hampton Wick¹

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Charles Lyell to G. A. Mantell

[4 January 1848]

My dear Mantell

I have promised the R.I. to give them a Friday Evening lecture on Feb^{ry.} 4th on the footprints of my carboniferous Cheirotherium of Pennsylvania & was thinking of taking the heavy specimen & the casts of others of the same locality to Owen who only took a cursory glance at them. But before I convey them to Lincoln's Inn I much wish you to do me the favour to call & take a look at them before I have a drawing made. I am always at home till near 2^{ock.} & a note would ensure my being here at any other hour in daylight.

Owen's agreement with you as to the dermal impressions (ostrich like) of the Connecticut valley tracks was interesting. Could you call tomorrow Wed^{y.} or Thursd^{y.} or Frid^{y.}.

I should like to see you have the next 3 years of the Fullerian Chair of the R.I. at present vacant, in physiology.

most truly yours

ChaLyell

Jan. 4. 1848

11 Harley St.

¹ In 1847 Lyell's father-in-law, Leonard Horner, rented a house at this address which is about a mile east of Hampton Court Palace.

G. A. Mantell to Sir Charles Lyell²

Ryde Isle of Wight

Saturday

[23 Sept. 1848]³

My dear Sir Charles

I must be one of the first to offer my warmest congratulations on the honour which I see by the paper that has just arrived in the "Beautiful Island," Her Majesty has conferred upon you; may you and your Lady long live to enjoy a distinction so justly won by your own genius, talents, & indefatigable exertions.

I have been here five days – a long holiday for me – & have given three lectures, in the hope of keeping alive the spirit of geological research which I sensed last year, and I have every reason to be gratified with the enthusiastic feeling which has been excited. Col V. Harcourt⁴ presided, and his charming wife, Lady Catherine, was deeply interested in the subject on which I presented "The Geological Phenomena of the Isle of Wight". The packet bell is ringing & I am now off for the murky metropolis.

I sent you a copy of my paper on the New Zealand Birds,⁵ by post, and [indecipherable four words]. I hope you received it. It occurred to me you might like to give it to some friend in Scotland.

The Belemnites, Belemnoteuthis & Iguanodon Jaw are capitally lithographed from the Philos. Trans.

² Transcribed from a xeroxed copy of the original letter at Kinnordy, Kirriemuir.

³ The date of this letter was deduced from an entry in *GAM-PJ*, Monday 18 September 1848, when Mantell gave the first of his three lectures on the Isle of Wight.

⁴ Colonel Francis Vernon Harcourt (1801 - 1880). Ninth son of the Archbishop of York. Married Lady Catherine Julia, eldest daughter of the Earl of Liverpool. Appointed Deputy-Lieut. of the Isle of Wight 1852. M. Stenton (ed.), *Who's Who of British Members of Parliament*, vol. 1, 1976.

⁵ G.A. Mantell, 'On the Fossil Remains of Birds Collected in Various Parts of New Zealand by Mr

Present my warmest congratulations to Lady Lyell and believe me my dear friend,

Yours most faithfully

GAMantell

P.S.

While strolling along the shore this morning, some workmen had just found the lower jaw of *Paleotherium magnum* but it was in too brittle a state to bring away. About four feet of the shaft of the thigh bone of an *Iguanodon* measuring 26 inches in circumference – a portion of the corresponding femur – & of two tibia equally gigantic – probably all belonging to the same reptile, are among my gatherings from Brook Point this week. These are larger bones than any previously found. – only think of the shaft of a reptilian femur above 2 feet in circumference.

[Addressed to: Sir Charles Lyell. Kinnordy, Kirriemuir, Forfarshire]

Sir Charles Lyell to G. A. Mantell

Kinnordy

Kirriemuir N.B.

September 25 / 48

My dear Mantell

[*]¹ Although at the southern extremity of the Island, you are the first person excepting a member of my own family who has addressed a letter to me under my new denomination & I thank you sincerely for your congratulations. The manner in which the honour was conferred both on the part of the Minister & the Queen² has been such as every scientific friend would approve of & I had a most agreeable geological exploring on the banks of the Dee into which Prince Albert³ entered with much spirit.

I am sure your lectures on the Isle of Wight will have sown some good seed, for the Milmans to whom I lent your book have been profiting by it in their examinations of Purbeck & speak of it most approvingly. I am glad to hear of the new discoveries, & that the two papers⁴ for the R.S. are getting ready.

By staying in town I & a few others flatter ourselves we have put at the end of the Session the printing & referring of papers on a better footing for the future tho' we still have much to do. The R.S. council work is no sinecure to those who have a reforming spirit. I have hitherto missed no meeting since I was elected.⁵

believe me with my wife's kind remembrances I am ever my dear Mantell [*]

yours ever truly

ChaLyell

¹ Text between asterisks is quoted in K. Lyell, *LLJ-CL*, vol. 2, pp. 148-149.

² Queen Victoria (1819 - 1901). Succeeded to the throne 20 June 1837. *DNB*.

³ Prince Albert (1819 - 1861). Prince Consort of England. Married Queen Victoria in 1840. *DNB*.

⁴ G.A. Mantell, 'Observations on some Belemnites and other Fossil Remains of Cephalopoda, discovered by Mr Reginald Neville Mantell, C.E. in the Oxford Clay near Troubridge, in Wiltshire', *Phil. Trans.*, 1848, *138*(2), pp. 171-182 and 'On the Structure of the Jaws and Teeth of the Iguanodon', *Phil. Trans.*, 1848, *138*(2), pp. 183-202.

⁵ Lyell was elected to the Council of the Royal Society on 30 November 1847.

Sir Charles Lyell to G. A. Mantell

[17 November 1848]

My dear Mantell

Had I not hoped to be able to call on you I should have written before but I am imprisoned to day by fear of a return of tooth ache if I expose my cheek to the air. I am sorry to hear you have been unwell.

I suppose you have heard of the cross list at the Royal Soc^y. On the pretext of standing up for Natural History it is in fact a reaction against the recent movement for reform which requires a council such as we have with difficulty carried to work it out. I cannot say more in a note but do not believe the stories they are circulating about Grove.¹ When we meet you will be convinced that the opposition would in reality be adverse to the good cause.

Come on the 30 th. if you can. They begin at 4^{ock}.

believe me

ever most truly yrs

ChaLyell

11 Harley St.

Nov. 11 1848.

Sir Charles Lyell to G. A. Mantell

24 Nov.

1848

¹ William Robert Grove (1811 - 1890). English lawyer, judge and scientist. Grove evidently circulated a letter addressed by him to Lyell on the subject of Groves' opinions on the desirableness of the physiologists of the R.S. forming a Society for themselves. L.G. Wilson (ed.), *Sir Charles Lyell's Scientific Journals on the Species Question*, 1970, p. 306.

My dear Mantell

I am truly sorry to hear of your new attack & yet you have not been idle. I return the Lancet & you will I hope get a letter tomorrow which I have been persuaded to print finding that the story of Grove having spoken disrespectfully of physiology & which is most unfounded has been industriously circulated. Mr Lowe² whose name is printed in their committee says as does Dr Travers,³ that he has been deceived. I have seen Lowe's letter to that effect. We have many recruits – they are working hard.

By a regulation of the R.S. in 1846? the abstracts of papers are all made by the authors themselves.

Letters canvassing for Bell⁴ on the avowed anti-reform tactics⁵ have brought us some adherents.

I told R. Brown today that his resignation only 2 hours before the final nomination of the new council was the real cause of our not having a botanist.

Had he given one days notice assuredly this w^{d.} not have happened & I told him I must explain this to the R.S. on the 30th. You will see some good answers to Bell's committee in the Athenaeum.

ever sincerely yrs.

ChaLyell

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Sir Charles Lyell to G. A. Mantell

[1848]⁶

² Probably George Lowe. F.R.S. 1834.

³ Benjamin Travers (1783 - 1858). Surgeon to Queen Victoria. President of the Royal Society of London 1847 and 1856. *DNB*.

⁴ Thomas Bell (1792 - 1880). Dental surgeon and Professor of Zoology, King's College, London 1836. Secretary, Royal Society of London 1848-53. *DNB*.

⁵ Mantell made the following entry in his *Private Journal* on 1 December 1848: "Learnt that Mr Grove lost the appointment of Secretary ! – to the eternal disgrace of those who opposed him by such a man as Prof. Bell".

⁶ No date given other than the year.

My dear Mantell

We have just returned from a visit to Wiltshire where among other persons I saw Lonsdale & went with him over some of his [illegible word]. I hope to see Stutchbury's⁷ slab tomorrow. Many thanks for your book & I should have had mine ready had I not been away & am unwilling to send it without the correction of the map.

most truly yours

ChaLyell

11 Harley St. 1848.

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⁷ Samuel Stutchbury (1798 - 1859). Curator, Bristol Philosophical Museum 1831-50. He was then appointed Geological Surveyor, New South Wales. D.F. Branagan, *Archives of Natural History*, 1993, 20 (1), pp. 69-91.

Sir Charles Lyell to Reginald Neville Mantell¹

11 Harley S^t.

May 4th.

1849

My dear Sir

If you are not too busy could you call at my house between 1 & 2^{ock.} on Sunday next to luncheon that I may talk a little with you on your intended time in the U.S. & may perhaps give you some hints.

ever truly

ChaLyell

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Sir Charles Lyell to G. A. Mantell

[26 May 1849]

My dear Mantell

You may have seen perhaps that my lecture on the Mississippi is put off till Frid^{y.} June 8th at R.I. I suppose I need not offer you a ticket tho' I shall be glad to be useful should you be disengaged in so busy a season & not have admission already.

ever most truly yrs

ChaLyell

26 May / 49

11 Harley S^t.

¹ The youngest son of G.A. Mantell.

Sir Charles Lyell to G. A. Mantell

Royal Society
Somerset House
June 21 1849

My dear Mantell

I have just arrived from the country (Winchester) from an engagement made long before I knew of the Geol. Committee which was to meet today & I find that you are just gone away having been the only committee man present. This was very unfortunate & as Pres^t of G.S.¹ I for one feel bound to plead guilty of non attendance tho' I calculated my time according to railway book so that I expected to cut in before you broke up. But where were all the others. It is clear that now we have established a rotation in the committee many of this years delinquents must be struck off. Warburton² who never comes ought to be one.

in haste & going to the council soon or to talk over before council our new Treasurership of R.S. believe me ever most truly yrs

ChaLyell

¹ Lyell was elected President of the GSL in February 1849, whilst Mantell was one of four Vice-Presidents from 1848-50. *QJGSL*, 1848-50, 4-6.

² Henry Warburton was not a member of the GSL Council in 1849, having left the council in February 1847. *QJGSL*, 1846-49, 2-5.

G. A. Mantell to Sir Charles Lyell¹

19 Chester Square
Pimlico
July 10. 1849

My dear Sir Charles,

I beg Lady Lyell's inscription of a copy of the new edition of "The Pebble"² which I transmit this day by post.

In regard to "The Medals" I would beg of you to refer to the 6th Edition of the Wonders in which many additions & errata of the former work are supplied & corrected.

Page 925 (Vol.II of Wonders) gives corrected references for the present edition of the Wonders.

In your account of the Wealden (Elements, Chap. XVIII) let me beg you to confirm the account of the discovery of its freshwater character with the extracts I have given from Fitton & Phillips in the 6th Edit. of Wonders page 366.

With kindest regards to all your family who have any recollection of me, & with best wishes for your health and happiness, I am my dear friend,

Ever most faithfully

yours

GAMantell.

[Addressed to: Sir Charles Lyell. 11 Harley St. London]

¹ Transcribed from a xeroxed copy of the original letter at APS.

² G.A.Mantell, *Thoughts on a Pebble or A First Lesson in Geology*, 8th. ed., Reeve, London, 1849. The first edition of this small, popular book was published in 1836.

Mary Elizabeth Lyell to G. A. Mantell

13 July 1849

Dear Dr Mantell

I received your "Pebble" yesterday quite safely, & am very much obliged to you for it, and it will afford pleasure here to others as well as myself. My husband will look to the additions you have made. He is busy now reading up geology, as while he was writing he had so little leisure to read. We are enjoying the most delightful weather here for the last few days, for they have had no summer before. There is never any danger of too much heat. I hope you continue to have good reports from your son in America.

Ever believe me

sincerely yours

Mary E. Lyell

Kinnordy, Kirriemuir, N.B.

July 13th.

[P.S.]

Sir Charles desires me to say that he has brought with him your 6th edition of Wonders and will attend to the references you have kindly mentioned. He would be glad to know whether you agree with M. Ehrenberg as to the living species of Infusoria having been found even in the chalk. Alcide d'Orbigny¹ in his work on the foraminifera of the Basin of Vienna has shown how

¹ Alcide Dessalines d'Orbigny (1802 - 1857). Professor of Palaeontology, Museum of Natural

different are the tertiary foraminifera from the cretaceous species on the one hand & the living ones on the other. As the foraminifera are according to Dujardin² less developed than the mollusca they do not seem to sanction a wider range in time for less perfect beings. Did not Lonsdale dispute Ehrenberg's cretaceous identifications of infusoria?

History, Paris 1836-53. Sarjeant, *G & H of G*, vol. 3, p. 1821-23.

² Felix Dujardin (1801 - 1860). French micro-palaeontologist. Sarjeant, *G & H of G*, vol. 2, p. 929.

G. A. Mantell to Sir Charles Lyell¹

19 Chester Square

Pimlico

July 27 1849

My dear Sir Charles

I trouble you with this note in consequence of an enquiry in Lady Lyell's letter respecting the foraminifera of the chalk. Ever since the last edition of the "Wonders"² many new facts have come to light respecting the fossil microscopic bodies in the chalk & flint and it would require a letter to explain them of such a length, as in these days of penny postage & note paper, would I fear be unacceptable; and as great a wonder as the reappearance of some extinct species of saurian.

I will therefore confine my remarks to very few important facts. In the first place the so called Xanthidia of Ehrenberg (see Medals, Pebbles, Wonders &c) found so abundantly in flint & chalk, have no relation whatever to the recent bodies known under the name of Xanthidia; Ehrenb. thought the fossils identical with the recent: but the latter as you know are vegetables – fresh water desmidiæ – the shields or sporules being silicious as is the case with numerous other vegetable bodies of this class. But the fossils are not silicious – but flexible (membranous?) bodies of decidedly animal origin and are most probably the gemmules of zoophytes – either of the Spongiadae or (more probably) of the bodies I have called 'Ventriculites', so abundant in the chalk. At all events the gemmules of recent sponges, & above all of flustra and other polypifera are very analogous to the so called Xanthidia of our chalk. I shall give them some generic name, that the blunder of their identity with the recent vegetable Xanthidia may not be perpetuated. The true foraminifer of the chalk – especially the two most common genera, the rotalia & Textularia, are certainly generically the same as the equally common recent forms: & some of the species appear to be the same; at least none of those observers on whom I can rely, have detected any difference: but as you well know, the shell of the mollusks may be alike, & yet the animals be

¹ Transcribed from a transcribed copy ex ATL; original letter at APS.

² G.A. Mantell, *The Wonders of Geology or A Familiar Exposition of Geological Phenomena*, 2 vols., H.G. Bohn, London, 6th. ed., 1849.

entirely distinct. To my mind, however, it appears most probable that many of these minute organisms of such simple structures, are of very high antiquity: & there is no more reason that terebratulæ should be found through all the secondary formations, & swarming in our present seas, than that not only genera but species of polythalamium should have endured through the same geological periods. The animal itself, deprived of its shell, is so identical in the flint & chalk rotalia, with the recent, that I can detect no differences in form though I think the number of sacs (or cells in the shell) is greater in the fossil forms. At all events you may safely sweep away all Ehrenberg's assumed identity of recent & fossil forms so far as the latter are from the secondary strata. I would beg to remind you, that our best observers now consider that all the Bacillaria of Ehrenb. – including Gallionella navicula, Synhedra &c &c – are vegetable not animal organisms! (see notes to my Thoughts on Animalcules.)

Another splendid belemnite from the Oxford Clay has been lately found, & I have secured it for the British Museum. In it the two long processes from the top of the phragmocone are beautifully shown so that even Mr Grey³ (who has just published a catalogue of the Cephalopoda in the Brit. Mus. in which he denies the correctness of my interpretation of these processes) now admits my view to be the right one. As to the distinct generic characters of Belemnite & Belemnoteuthis, no one now (except the great O)⁴ disputes it.

Prof Cha^s Shepard⁵ & his wife have been staying in London & are now in Edinburgh: Lady L knew Mrs S in America.

The extreme heat of the weather & the prevalence of Cholera in common have sadly retarded my son's⁶ progress but his last letters were written in high spirits from Harper's Ferry where he had been staying to inspect some engineering works. He had met with a reptilian vertebra of the concave-convex type – i.e. the recent crocodilian type, occur in the Wealden, though O. asserts now such are formed below the chalk.

³ John Edward Grey (1800 - 1875). Naturalist and physician. Keeper of the Zoological Dept., British Museum, since 1840. *DNB*.

⁴ Richard Owen.

⁵ Charles Upham Shepard (1804 - 1886). U.S. Mineralogist. *DAB*.

⁶ Reginald Neville Mantell.

[copy of letter terminates]

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Sir Charles Lyell to G. A. Mantell

Tuesd^y. September 25

1849

11 Harley S^t.

My dear Mantell

If you are disengaged will you give us the pleasure of your company at dinner tomorrow at 6^{ock} Wedn^y. Sept^r. 26th to meet Prof. W. B. Rogers¹ of the U.S. Please to let me hear by post.

ever truly yrs

ChaLyell

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Sir Charles Lyell to G. A. Mantell

11 Harley S^t.

12 Oct. Frid^y.

1849

My dear Mantell

¹ William Barton Rogers (1804 - 1882). Professor of Natural Philosophy and Chemistry, University of Virginia. Sarjeant, *G & H of G*, vol. 3, p. 1994.

I was sorry not to be at home when you called & left your memoir which I have been reading with great pleasure. What progress has not the science made since the old Lewes days. I much want to talk over the candidates for Assist. Sect. Mr Tomlinson² (Sir W.S.Harris's³ friend) called here yesterday. What did you think of him? A son of Bakewell⁴ & Mr Rupert Jones⁵ are the two others who have most pretensions.

Could you receive my wife & me on Sunday Even^g. at 8^{ock}? If you can let me hear.⁶ We leave town next day for a visit to C. Darwin.

As I may forget to ask you the question tell me when you write whether you think the didelphine quadrupeds (Stonesfield) assuming them to belong to the same class as Australian marsupials, are as high in organisation as Cetacea. I believe some cetacea the herbiverous are complicated in anatomical structure, but according to Hugh Miller⁷ the non development of extremities or imperfect development is a great mark of degredation.

By the way he surely in his footprints⁸ carries this view of degredation too far & the venom of the snake is dwelt upon as lowering it in the reptilian scale too much as if he took the curse of the serpent in the garden of Eden as his groundwork. He might as well say the stench of the skunk degraded him in the mammiferous scale.

ever most truly yrs

ChaLyell

Sir Charles Lyell to G. A. Mantell

² Charles Tomlinson (1806 - 1897). English physicist and naturalist. *DNB*.

³ Sir William Snow Harris (1791 - 1867). Electrician. Copley Medallist 1835. Knighted for developing an improved lightning conductor. *DNB*.

⁴ Frederick Collier Bakewell (d.1869). Geological and scientific writer. Son of Robert Bakewell (1768 - 1843). Sarjeant, *G & H of G*, vol. 2, p. 467.

⁵ Thomas Rupert Jones (1819 - 1911). Palaeontologist. Assistant - Secretary, Librarian and Curator, GSL, 1850-62. Woodward, *History of the GSL*, p. 309.

⁶ Mantell's *Private Journal* records that the Lyells called on him on Sunday 14 October. *GAM-PJ*.

⁷ Hugh Miller (1802 - 1856). Popular Scottish writer and self-educated geologist. *DNB*.

Sund^y. 28 Oct.

1849

11 Harley S^t.

My dear Mantell

I am not aware that Gassiot⁹ made any objection when Wheatstone¹⁰ proposed on the part of the (Physical) committee to send around the circular as they feared as we do a very thin attendance of members on an important question.

As we both agreed to adopt the same I mentioned this and then it was found on consulting the statutes that we had exceeded our powers in as much as no names can be included in the list of persons summoned except those already on some one of the numerous standing committees. This however only caused the striking off of about three of the long list we drew up.

Imperfect as the new method may be, it seems to me a shade or two better than such miserable committees as we get, & if it be left to the council it is also a great chance whether a given subject is fairly considered.

I do not see how one committee could select work for the Copley. What right have they to prescribe to the subsequent meeting of the same committee. To mention what papers bear on Geol^y is another thing but the subsequent committee may exclude papers such as Forbes' on the ground you mention.

I do not see why you sh^d. not remain Sec^y. Geol. Com. When persons are interested they are requested to retire at the moment. But you have your duties for the Copley to perform.

My father has been so ill of influenza that at his age 81 we have been seriously alarmed & I was nearly setting off last Monday for Scotland. He has rallied but is so weak that we are left in some anxiety & I may be compelled any day to leave town.

Believe me ever truly yrs

ChaLyell

⁸ H. Miller, *Footprints of the Creator*, Johnstone, Edinburgh, 1849.

⁹ John Peter Gassiot (1797 - 1877).Scientific writer and electrical experimenter. *DNB*.

¹⁰ Charles Wheatstone (1802 - 1875). Professor of Experimental Physics, King's College, London.

P.S. It was stated that say we might write a letter to a F.R.S. asking his opinion & then show the answer to the committee, by way of getting advice from the best person. At all events, as John Phillips is one of the council I quite agree with you that he ought to be applied to & surely we may send him one. It is really a great puzzle. C.L.

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Sir Charles Lyell to G. A. Mantell

[31 October 1849]

My dear Mantell

I am summoned most unexpectedly to Scotland by a very unfavourable turn in my father's illness. The report yesterday having been extremely good & setting me at ease.

This morning Greenough called & I told him I sh^{d.} propose yr palaeontological papers¹ for the Royal and Murchison's Russi² for Copley which I have just sent him in writing & as he is Pres^{t.} of Committee I engaged him to be there. He will be punctual at the hour (2^{ock}) for in half an hour he must leave.

I told him you w^{d.} attend.

In great haste

yrs ever truly

ChaLyell

11 Harley S^{t.}

Oct. 31. 1849.

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Mary Elizabeth Lyell to G. A. Mantell

Kinnordy, Kirriemuir

7th Nov.^r 1849

Dear Dr Mantell

Many thanks for your kind enquiries. Your servant probably learnt at our house that I accompanied my husband to Scotland. We started on Wednesday evening last & were in this house in 23 hours. We had the comfort of finding Mr Lyell still alive & his mind perfectly clear & his sight & hearing quite acute. He was much pleased to see us and has expressed it frequently. He grows weaker every hour but it is dreadful sometimes to witness his sufferings & we trust they may not be prolonged. All his eight children are here besides my sister & myself.

We are very sorry to hear that you have had a fresh attack of neuralgia. The weather here is bitterly cold, & snow covers the ground. Sir

¹ G.A. Mantell, 'On the Structure of the Jaws and Teeth of the Iguanodon', *Phil. Trans.*, 1848, 138, pp. 183-202.

² R.I. Murchison, *The Geology of Russia in Europe and the Ural Mountains*, 2 vols, Murray, London, 1846.

Charles desires me to give you his kindest regards & believe me
very sincerely yours
Mary E. Lyell

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Sir Charles Lyell to G. A. Mantell¹

[29 November 1849]

My dear Mantell

A brief note from you sent to Roy¹. Soc. Somerset H. would reach me in time before I address the Council tomorrow at 2^{ock.} on the subject of the medal.²

Send me any sentence of Cuvier or Conybeare or Buckland in print complimentary of you or still better if you can find any one from Owen's former Reports of Brit. Assocⁿ. Or as I wish you to be very brief tell me in what works the above authorities have praised or cited you.

I am not anxious as I feel sure the Pres^t. will go with our committee.

ever truly yrs

ChaLyell

Rivermede

Hampton Wick³

Nov.29. 1849.

¹ Letter written on mourning paper. Charles Lyell Senior died at Kinnordy on 8 November 1849. *DNB*.

² On 29 November 1849, Mantell recorded the following in his *Private Journal*: "Received a letter from Sir C. Lyell respecting the meeting of the Royal Society tomorrow, he being on the Council and desirous of being prepared with notes &c should Prof. Owen renew his malevolent opposition". *GAM-PJ*.

Sir Charles Lyell to G. A. Mantell

30 November 1849

My dear Mantell

³ The rented residence of Lyell's father-in-law, Leonard Horner.

The medal has been just decided in your favour¹ after a full discussion.

yrs ever truly

ChaLyell

Somerset H.

30 Nov 1849.

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Mary Elizabeth Lyell to G. A. Mantell²

[11 December 1849]

Dear Dr Mantell

My husband is quite shocked to find that he forgot his engagement with you, which he never told me of as perhaps I should have reminded him. But he has been overwhelmed with a multitude of family affairs in addition to which we have been under great anxiety about his mother & of his sisters. We are a little relieved today but not entirely free from apprehension. He will write to you himself today or tomorrow to say when he can call but I feel pretty sure it cannot be before Thursday.

He hopes you will excuse him.

Believe me ever most truly yours

Mary E.Lyell

11 Harley St.

Tuesday 11th. Dec.

¹ Mantell was awarded the Royal Medal in the department of Geology, Royal Society of London, “for his paper on ‘On the Iguanodon’, published in the *Phil. Trans.* for 1848, being a continuation of a series of papers by him on the same fossil animal, by which he has rendered eminent services to geology”. *Phil. Trans.*, 1849, 139(2). In his *Private Journal* Mantell recorded: “At four went to Somerset House; met Sir C. Lyell at the Geological, who informed me that after a long discussion, the Medal had at that moment been awarded me; Owen and one other only voting against me”. *GAM-PJ*, entry 30 November 1849.

² Letter written on mourning note-paper.

Sir Charles Lyell to G. A. Mantell¹

14 December 1849

My dear Mantell

My wife has apologised to you so I shall merely say I will call at 3^{ock} on Sat^y next at your house.

believe me ever most truly yrs

ChaLyell

Rather better news of my mother who I fear is sinking gradually.

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Sir Charles Lyell to G. A. Mantell²

[19 December 1849]

My dear Mantell

In my 7th. Edⁿ. of the Principles I have cited Ehrenberg for his discovery of the siliceous cases of microscopic infusoria of freshwater origin in the pumice enveloping Pompeii, also in the tuff or trap of the Rhine volcanoes, 94 distinct species. (Principles 7th. ed. p.371.)

You warned me that many of his Infusoria have turned out to be of vegetable origin. By what expression can I guard myself so as still to be able to talk of these same organic bodies. I suppose Gallionella and Bacillaria are among them? and perhaps some real Infusoria.

sincerely yrs

ChaLyell

11 Harley St.

19 Dec. 1849.

¹ Letter written on mourning note-paper.

² Written by Mary E. Lyell, acting as amanuensis, on mourning paper.

Sir Charles Lyell to G. A. Mantell¹

11 Harley St.

Feb^y. 7 1850

My dear Mantell

I see no objection to your exhibiting the gigantic bone at Somerset House on the Anniversary day & much instruction to the meeting. I am very glad of your son's return² & professional zeal.

I was equally struck with the squalid look of the natives at Liverpool after 9 months in a country where the masses are in so much more advanced a stage of civilisation.

ever yrs truly

ChaLyell

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Sir Charles Lyell to G. A. Mantell³

[3 March 1850]

My dear Mantell

I have no doubt that your sentence with the word 'organic' expresses your opinion & theory faithfully.

I have endeavoured as you know in many chapters of the Principles & in my works generally to explain why I take a different view. I believe that the last pair of Dodos was as capable if let alone by Man or the last Auroch so long as the Czar chose to protect them to repeople the globe as were the first pair & I believe it was the same with every other last pair from the beginning whether an uncongenial climate, or submergence of land by an earthquake, or conversion of sea into land, or the coming of a new species or

¹ Letter written on mourning note-paper.

² Reginald Neville Mantell had returned from a visit to the United States.

³ Letter written on mourning note-paper.

any other cause organic or inorganic, mechanical or chemical, put a finishing stroke to the existence of a species. Your theory is Brochi's⁴ theory, Principles 7th. Edn. p. 641. which I have treated of – the physiological dying out of every species.

The red man has an allotted time for his race dying out & it may be that the Small pox or some other epidemic may put the last finish to what the white man's persecution has begun but the last pair of Indians will be naturally as fecund if unmolested as were Adam and Eve.

I hope you will come if you can to the election of our Assist. Secy. on the 15th. March.

ever sincerely yrs

ChaLyell

11 Harley Street

March 3rd. 1850.

222

Sir Charles Lyell to G. A. Mantell⁵

11 Harley St.

15 July 1850

My dear Mantell

I enclose a letter to the American Minister which you wished to have. It may I think be useful though you may well suppose he is overwhelmed with applications.

I received back from your son the papers containing the calculations respecting the sediment of the Mississippi but no letter from him on the

⁴ Giovanni Battista Brochi (1772 - 1826). Italian mining engineer and invertebrate palaeontologist. Sarjeant, *G & H of G*, vol. 2, p. 621.

⁵ Written by an amanuensis, Mary E. Lyell, on mourning note-paper.

subject.

I hope you are better as you complained when I saw you last. believe
me

ever most truly yrs
ChaLyell

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Charles Lyell to G. A. Mantell¹

11 Harley S^t.

20th. July / 50

My dear Mantell

I am sorry you were not able to come to the G.S. as E. Forbes
& I were alone there & not a quorum. You must pass a note of indemnity for
all I mean to do without the aid of the Council before Nov^{r.2}

The enclosed note contains an important practical hint & if you can
get the letter from Brunel it would do much no doubt, for no-one knows
better than Abbot Laurence³ what would best tell in the U.S.

believe me

ever truly yrs
ChaLyell

I go out of town to the other side of Windsor Mond^y. Tuesd^y. & Wed^y. & on
Sat^y. morning leave for Germany.

¹ Letter written on mourning note-paper.

² Lyell served his second term as GSL President from 1849-51.

³ Abbott Laurence (1792 - 1855). Boston merchant, diplomat, statesman and philanthropist. *DAB*.

Mary Elizabeth Lyell to G. A. Mantell¹

[Sept. 1850]²

Dear Dr Mantell

We returned to town on Saturday evening & I enclose the list of your works which Dr Dunker³ of Cassel wrote out at my request, & which he possesses.

He was very much pleased to have your memoir & also one of the plates of the birds. The other plate Sir Charles gave to Mr Herman von Meyer at Frankfurt. We have had a very interesting tour in N. Germany. I hope you have heard of your son's safe arrival in the United States.

Ever believe me

truly yours

Mary Lyell

11 Harley St

Tuesday Evn^g.

Mary Elizabeth Lyell to G. A. Mantell⁴

[23 September 1850]⁵

Dear Dr Mantell

¹ Letter written on mourning note-paper.

² Date of September 1850 deduced from context of the next two letters from Mary Lyell to Mantell.

³ Wilhelm Bernard Rudolph Hadrian Dunker (1809 - 1885). German palaeontologist from Hesse Cassel. Sarjeant, *G & H of G*, vol. 2, p. 931.

⁴ Letter written on mourning note-paper.

I shall be most happy to translate the passage in Dunker for you but you will be surprised to hear we have not the book. While at Cassel Sir Charles tried in vain to get it, & found there as in many other German towns, that it was by no means [where?] the author lived, that it was easy to procure their works. I believe however most books may be had at Leipsic. If however you could send me the book with a mark in it, I shall have great pleasure in making a literal translation.

Thank you for Dr Wheelers address. My husband says he would like very much to look over your notes.

Ever very truly yours

Mary E. Lyell

11 Harley St.

Monday 23 d. Septemb^r.

⁵ Year not stated in letter but deduced from day of week and month.

Mary Elizabeth Lyell to G. A. Mantell¹

[25 September 1850]²

Dear Dr Mantell

I have made the translation as literally as I could & hope it may be useful.

Sir Charles says he thinks the leaves he saw in the coal seemed a good deal like that [three illegible words] figured which you alluded to. He thanks you for lending him the Pictorial Atlas³ which he looked over yesterday evening. He will send the books down to you this evening, & at the same time I believe he will send the cast of a fossil which he has received this morning from Manchester & which he wants your opinion of.

Ever very truly yours

Mary E. Lyell

11 Harley St.

25 Sept^r Wednesday

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¹ Letter written on mourning note-paper.

² Year not stated in letter but deduced from day of week and month.

³ G.A. Mantell, *A Pictorial Atlas of Fossil Remains consisting of coloured Illustrations selected from Parkinson's 'Organic Remains of a Former World' and Artis's 'Antediluvian Phytology' with descriptions*, H.G. Bohn, London, 1850.

Sir Charles Lyell to G. A. Mantell¹

11 Harley S^t

3 October 1850

My dear Mantell

A. d'Orbigny has divided the Lower Cretaceous (or our Lower Green Sand) into Aptian & Neocomian giving as Aptian fossils many species only found according to Forbes & Ibbetson² at the very bottom of the Neocomian or Atherfield Section.

It seems therefore that d'Orbigny's attempt is a mere guess & a failure. But is it not true that the Farringdon beds contain some peculiar specimens so that there may be an upper division of the Lower Cretaceous. I ask you because I think you claim to have been the discoverer of the Farringdon beds. If so please to tell me where & when. I have your books.

When did you first print your opinion that the Wealden was a freshwater formation.

I am just sending my chapters on these subjects to the press. believe me
ever truly yrs

ChaLyell

228

Sir Charles Lyell to G. A. Mantell³

[5 October 1850]

My dear Mantell

I cited you Elements 2^d. Ed. v.1. p. 420 as having computed the size of largest Iguanodon as one having a femur 24 inches in

¹ Letter written on mourning note-paper.

² Levett Landen Boscowen Ibbetson (died 1869). English soldier and amateur geologist. Sarjeant, *G & H of G*, vol. 2, p. 1367.

³ Letter written on mourning note-paper.

circumference.

What may we now affirm? Has Owen made out more than one species of Iguanodon in the Wealden?

After every deduction conceded to Owen how long may the creature have been?

In which of the 3 divisions of the Wealden — W. clay, Hastings, or Purbeck did you find the great Unio?

What genera of freshw^r shells occur in the Weald clay proper?

Forbes tells me there is a marine bed in the Hastings but none in the Weald clay. Are not the Saurians in the Hastings Sands?

From whence came the Pterodactyle?

I shall only put in your claim to priority as to freshwater character of Wealden.

Excuse so many queries & believe me

ever truly yrs

ChaLyell

Oct 5. 1850

11 Harley St.

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G. A. Mantell to Sir Charles Lyell¹

Monday October 7

1850

My dear Sir Charles

I will send you my summary of the Wealden fossils up to the end of 1848.

Femur of Iguanodon – largest –

Total length 4 feet 8 inches.

Circumference of the lower shaft 25 inches

¹ Transcribed from a transcribed copy at ATL.

and round the condyles 42 inches.

Owen has not made out any other species that I am aware of, but as you know, for some years he has carefully concealed from me every discovery in the Wealden that has come to his knowledge & has forbid his correspondent, Holmes² at Horsham, to allow me the use of any he may find.

In the report on British reptiles the only new fact in the osteology of the Iguanodon, stated by Owen is the construction of the sacrum which is peculiar O. supposes to Iguanodon, Megalosaurus, & Hylaeosaurus. O. showed the Ig. sacrum consisted of 5 anchylosed vertebrae from a specimen in Saull's³ collection: I since examined the same fossil & found the sacrum to consist of six vertebrae: I have figured it in Phil. Trans. Part II. 1849 pl.XXVI.

I am now certain there were other contemporaneous genera with the sacrum composed of several anchylosed vertebrae: you are aware, that after all there is nothing wonderful in this: the common crocodile &c has a sacrum formed of two anchylosed vertebrae.

Length of Iguanodon. See last edit. of Wonders p. 435. Owen states the total length at 28 feet: & the Megalosaurus a few feet longer; but I think he calculated upon uncertain data. If the tail were very much abbreviated – as is possible – then between 30 40 feet would be within bounds, but if the tail were long as in most saurians, 50 or 60 feet.

The size of the lower jaw found by Capt. Brickenden far exceeds O.'s prediction in rep: Brit. reptiles, as I have emphatically remarked in my paper on the Lower Jaw.

The saurian remains occur throughout the Wealden deposits: their apparent abundance in one bed is I believe solely dependent on local circumstances being more or less favourable for their discovery. My grand specimens of this year are from the clay & sand below the mould clay: if it be possible to assign a clear line of demarcation in the cliffs of the Isle of Wight. One thing is worthy of remark between Brixton & Atherfield a layer of ferruginous sandstone, full of casts of small paludine cyclades &c like that of Groombridge & Langton Green (years ago described by me), has lately been exposed. I send you a slab of it. This bed may perhaps hereafter

² George Bax Holmes (1803 - 1887). A Horsham based, Quaker, vertebrate fossil collector. J.A. Cooper, 'The Life and Work of George Bax Holmes', *Archives of Natural History*, 1992, 19(3), pp. 379-400.

help to determine the relative position of these I. of W. deposits. This is a late discovery.

I sent a large slab to Prof. Forbes but have had no notice of it. But I believe this is a repetition in the Wealden series, of clay, sands and sandstones, of similar lithological and palaeontological character. Thus at resting Oak Hill at Cookbridge near Lewes, there are beds of ironstone in the sand and clays of the Weald Clay, full of similar shells. The Isle of Wight bed therefore may belong to a higher place in the system than that of Groombridge or Langton Green.

My large *Unio Valdensis* is from the sands & clays at Brook Bay, above Dr F.'s mottled clays, which are the lowest Wealden beds exposed in the Isle of Wight. These shells are imbedded in vegetable matter (foliage of conifer &c) and with the Ig. bones.

In the mottled clay I discovered many vertebra & other bones of a large aquatic reptile. Owen's *Cetiosaurus* - no other bones had been observed in these beds.

In the Weald Clay, strictly so called no additions have been made to the list of *Paludina*, *Cyclas*, *Cyrenes*, *Unio*: of the good old times.

I am not aware of the marine bed in the Hastings beds. Pterodactyle remains have been found chiefly in the Hastings sands.

Do pray mention that the analogy between many of the fossils of the Wealden & of Stonesfield was pointed out by you & me in my *Fossils of the South Downs*, in 1822, p. 59.

Owen got up at Edinburgh and claimed the wonderful discovery of the Oolitic character of the reptilians of the Wealden! This is to me very absurd. The *Iguanodon*, *Pterodactyles* & *Plesiosaurs* & *Clathraria* & *Lonchopterus* &c of the Wealden, have all been found in the chalk formation. I believe the terrestrial fauna & flora, from the Lias to the chalk inclusive, were of the same character: the molluscs &c of the seas changed, but not the animals of the land; even the *Physa*, &c of the Purbeck seems identical? with living forms.

I have written you a long note in great hurry: but this very day (Oct.7) in 1821, we rode together to the tip of Ditchling Beacon and parted on Plumpton plain, you departing for the [⁴] of Essex! Alas! how unprofitably

³ William Devonshire Saull (1784 - 1855). English geologist. *DNB*.

⁴ This space left blank in transcribed copy.

has the long period of 29 years sped with me!

Ever yours my dear Sir Charles

most faithfully

G.A.Mantell

P.S. I see that [⁵] in his Palaeontographica – in a paper on Molassi bei Gunzberg unter Ulm

– tab xxiii

figures leaves like those of Bournemouth; and the Planorbis enomphalus – the largest species of the Isle of Wight as P Mantelli: he says it is distinct from Sowerby's Enomphalus.

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⁵ This space left blank in transcribed copy.

Charles Lyell to G. A. Mantell¹

[7 October 1850]

My dear Mantell

I am very much obliged to you for your useful letter. How the Physa &c can be the same as a living one I do not see especially if the corresponding genera are represented by new & distinct freshw^r species in each of the 3 Purbecks in the mollusca cyprides, fish &c & all different from the Brora & Skye so-called Wealdens.

I cannot imagine the liassic & upper cretaceous floras will agree except generically. believe me

ever truly yrs

ChaLyell

7 Oct. 1850

11 Harley Street

E. Forbes is one who unites many species of other conchologists into one & does not in general split hares [sic].

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G. A. Mantell to Sir Charles Lyell²

[October 1850?]³

“As the marine lizards called Plesiosaurus & Polyptychodon are supposed to have frequented estuaries or to have swum near the shore, and as the

¹ Letter written on mourning note-paper.

² Transcribed from a xeroxed copy of the original letter at APS.

³ Letter not dated. ATL copy states ‘Postmark Oc.185 (obliterated).’ The reference to Owen’s ‘Albatross’ bones and Lyell’s comments in his letter dated 5 February 1851, indicate a greater

Pterodactyles cannot be supposed to have flown far out to sea, the discovery of their remains in the chalk indicates the proximity of that formation to the land: and it may be remembered that the Iguanodon has been discovered in one division of the cretaceous group.”

Owen in Dixon⁴ book⁵.

Wednesday

My dear Sir Charles

I wish to draw your attention to the above: the italics are mine to arrest your notice more especially to the conclusion of the author.

A few detached bones of Plesiosaurus only are known in chalk. A friend has lent me Dixon's book: poor fellow! it is sad he did not live to see it: he promised to send me the first copy he had as an acknowledgment of my having given him a taste for collecting.

Bell describes my old *Astacus Sussexiensis* under new names – without the slightest reference to my figures & descriptions: I dare say he knew nothing of them. But Owen's entire silence of my previous discovery of *Ichthyos* & *Megalosaurus* in the Sussex chalk &c is intentional. Charlesworth's beautiful figures & good description of the chalk species – Mos. stenodon in his *Palaeont. Journal* is also passed by in silence; & new names – not only generic but specific are given to the fragmentary specimens of these reptiles. You will remember that in O.'s belemnite paper,⁶ he did not mention Channing Pearce's⁷ previous account of the soft parts of *Belemnoteuthis*: anyone reading the paper in the *Philos. Trans.* would suppose the fact was previously unknown. This conduct is very reprehensible, & must be most injurious to the progress of science. If I were

likelihood of this letter being written in 1850 than 1851.

⁴ Frederick Dixon (1799 - 1849). English stratigrapher and fossil collector based at Worthing. Sarjeant, *G & H of G*, vol. 2, p. 905.

⁵ F. Dixon, *The Geology and Fossils of the Tertiary and Cretaceous Formations of Sussex*, Longman, London, 1850.

⁶ R. Owen, 'A Description of certain Belemnites preserved with a great proportion of their soft parts in the Oxford Clay at Christian Malford, Wilts', *Phil. Trans.*, 1844, *134(1)*, pp. 65-85.

⁷ Joseph Channing Pearce (1811 - 1847). English physician and vertebrate palaeontologist. Sarjeant,

to follow this example, & in my new edit. of the Isle of Wight, give new names to the mammalian relics from Ryde to Hordwell, already described by Owen, and also omit all reference to his memoirs on them, as he has done to Searle Wood's acct, what would be said of me? He finds that his so called "albatross bones" from the chalk are birds & gives poor Bowerbank's grand Pterodactyle, another specific name, on the plea that B. did not accurately define it, & that the species is not the largest: as well might he expunge Megalosaurus, because larger saurians have since been discovered.

Ever yours my dear Sir Charles

G.A. Mantell

[Postmark: Oc. 185(obliterated)]

Sir Charles Lyell to G. A. Mantell¹

11 Harley St.

Nov 22 [1850?]²

My dear Mantell

I think the letter very much improved & I do not see how it could be shortened if it is to be printed & as to that point I did not consider it an open question on which to advise, but one on which you had made up your mind. Murchison may be right, as one of you must have the last word & we shall hear I suppose a rejoinder, but I understand your wish to deny a statement of fact which is incorrect.

ever truly yrs

ChaLyell

[Addressed to: G. Mantell Esq]

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Sir Charles Lyell to G. A. Mantell

11 Harley St.

January 12 1851

¹ Letter written on mourning note-paper.

² Original date of letter has been altered from 1850 or 1852 to 1851. However, 1850 appears to be the correct year because of the letter's context. Moreover, mourning note-paper was not used by Lyell during 1851.

My dear Mantell

We were in the country for a fortnight or more at C. Bunbury's at Christmas & now I have to exert myself for my Anniversary Address which I am just beginning. I hope to call on you soon. We had a good meeting on Wed^y.

Could you tell me what was the order of discovery in the British Eocene of the different classes of fossils. Did not Brande describe shells & fishes teeth – then Sheppey chelonians were known, then the I. of Wight paliotherium tooth (found by Allan), then the Kyson macacus, & lastly the Sheppey birds.

It seems to me that in general a collector w^d find (e.g. in oolite) first shells & corals, then fish then reptiles, then, if ever mammalia & lastly if ever, birds? I wish to apply this to the absence of reptiles in Silurians & of birds &c.

What think you of the absence of fir cones in the Coal when there were so many conifera? Is it not as surprising as the non-discovery of an iguanodon's jaw for 30 years? Ought we not to find a cart load of fir cones in the Coal before one mammifer or bird? The Arancarian pines had large cones.

Did you ever with your own eyes & hands find a Wealden fossil fir-cone?

When my book¹ is out in about a week I shall send you a copy.

believe me

ever truly yr

ChaLyell

[Addressed to: G. Mantell Esq.]

¹ C. Lyell, *A Manual of Elementary Geology*, Murray, London, 1851.

Sir Charles Lyell to G. A. Mantell

11 Harley St.

5 Feb^y 1851

My dear Mantell

As Owen has now fairly given up the Albatross of the Chalk to which I shall have to allude in my Anniversary Address I wish to know whether the only case of a probable fossil bird (that of Glarus being now tertiary or nummulitic). Is not your tibia? of a wader from the Wealden?

Are you now the discoverer of the only evidence of the ornithic creation older than the Eocene period on this side of the Atlantic? & in spite of the temptation thus held out to distinction have you [any?] serious misgivings as to this bone having belonged to a feathered biped. If you will send me a sentence about it I should like to insert it¹ as my theme is the question of successive development in time of more & more perfect animals & the doubtful nature of the negative evidence at present relied upon in support of this theory.

believe me

ever truly yrs

ChaLyell

¹ In his GSL Anniversary Address Lyell commented that Dr Mantell was still of the opinion that he had in his collection from the Wealden a portion of the ulna of a bird on which there was a distinct row of slight eminences for the attachment of large wing-feathers. *QJGSL*, 1851, 7, pp. lxiii.

Sir Charles Lyell to G. A. Mantell1851 [27 March - 3 April]¹

My dear Mantell

I was glad you were able to bring the Sillimans to the G.S. & hope you have not been doing too much in your desire to serve them. We hope to see them on their return & if you see them first say that my wife wishes to renew acquaintance with Mrs B. Silliman.

I hope you will not forget my lectures of April 4th. Frid. Ev^g. at the R.I. and perhaps the Sillimans will attend to hear about American rain of triassic and carboniferous date.²

believe me ever most truly yrs,

C.L.

Sir Charles Lyell to G. A. Mantell

11 Harley St.

Ap. 9 1851

My dear Mantell

I am very glad that one whose opinions on such a question is valuable & of authority should think so favourably of my Address. I cannot help hoping that it will lead to a sanguine search after things which so many

¹ Month and day not given in letter. However, the Sillimans attended the GSL Meeting on 26 March 1851, indicating that this letter was written between 27 March and 3 April. *GAM-PJ*, entry 26 March 1851.

² The title of Lyell's lecture at the Royal Institution was: 'On Impressions of Rain-drops in Ancient and Modern Strata'. K. Lyell, *LLJ-CL*, Appendix E, p. 481.

had despaired of finding, a temper of mind in which our nerve finds anything.

I shall be very glad if you will send to your son Reginald the eight copies of my address which I have inscribed to him & to Dr Yandell³ & others in the Ohio.

I have also sent three spare copies, besides one to your son Walter to whom I have also addressed one of my last years (1850) speeches. believe me

ever most truly yrs
ChaLyell

There surely must be hail & rain prints in the Wealden tho' I never saw any.

237

G. A. Mantell to Sir Charles Lyell⁴

May 18 1851

My dear Sir

In a letter received from my son Reginald this morning were enclosed for you the two sketches of recent quadrupedal footprints (made by the musk rat) which Reginald fancies closely resemble those he has seen in America from the Old red. According to his wish I send them to you, though I do not exactly see their value: except as being drawn with the mathematical correctness of an Engineer. He was going to Cincinnati to attend the Meeting of the American Association of Science.

I wish you would bring Lady Lyell by daylight to see my birds; and Mr Bunbury to examine my new Wealden fruits &c: but I despair of ever seeing you here again. The Exhibition &c – engrosses all philosophers⁵. How can you & Owen & Murchison work, & yet enter into all the festivities &

³ Lansford Pitts Yandell (1805 - 1878). Physician and palaeontologist. A pioneer in medical education in the Ohio valley. *DAB*.

⁴ Transcribed from a transcribed copy at ATL. Location of the original letter unknown.

⁵ Lyell was one of the Royal Commissioners for the Great Exhibition of 1851. *DNB*.

gaities of the Court! It is a mystery to me.

Ever yours

G.A.Mantell

P.S. Sir R. is going to renew the attack on the Wealden Denudation so you must be prepared.

May 18. 1851.

238

Sir Charles Lyell to G. A. Mantell

11 Harley St.

May 22 1851

My dear Mantell

I am very much obliged to you for the drawings. All sent are of value. I have specimens of the musk rat in the [indecipherable word] of the Bay of [indecipherable word]. In haste believe me ever truly yrs

ChaLyell

239

Sir Charles Lyell to G. A. Mantell

11 Harley St

July 9 1851

My dear Mantell

I was sorry to receive your letter at Ipswich where Owen in his lecture on the differences between Animals & Plants & in the section

distinguished himself more than on any former occasion.

The passage you allude to when read by a person who knows nothing of the parties concerned is calculated to make an unfavourable impression against the writer. If you reply to it in some popular work such as your "Guide to Brit. Mus^m." which circulates more widely than Owen's you should do so in a straightforward way & not as if he had been able to annoy you. You might say that Prof. Owen had implied by what he says &c that he doubts my priority of discovery in regard to the Maidstone Iguanodon but had he made himself master of the facts he would have known better &c.

Such swipes as you might naturally be tempted to indulge in do no good & the public lay blame on both parties & most on the one they think least of, in a moral point of view.

Your best revenge is to go on in the great line of discovery you are pursuing & if any jealousy is betrayed by such strictures as those you complain of it shows you are somebody in the eyes of the great osteologist of the Coll. of Surg^s.

We leave for Belgium tomorrow.

ever truly yrs

ChaLyell

240

Mary Elizabeth Lyell to G. A. Mantell

[24 September 1851]

Dear Dr Mantell

We have returned from Belgium a short time since & hope you have been feeling well.

Can you come on Friday evening next here. We expect Captain LeHon¹

¹ Captain Henri Sebastian Le Hon (1809 - 1872). Belgian palaeontologist. Sarjeant, *G & H of G*, vol.

of Brussels who has a good collection himself and is anxious to make your acquaintance.

We drink tea really at 8 o'clock & shall be happy to see you at that time or as soon after as you can come to us.

Believe me

sincerely yours

Mary E. Lyell

11 Harley St.

Wednesday 24th.

241

Sir Charles Lyell to G. A. Mantell

[25 September 1851]

My dear Mantell

I believe my wife mentioned to you that Captain & Mrs Le Hon of Brussels both of whom are good palaeontologists & have a splendid collection are to be here tomorrow Ev^g. to meet several naturalists.

Le Hon has been travelling on the I. of Wight with your book which I have given him & he wished to make your acquaintance & to see some of your huge saurian remains. If you could bring any of the more portable wonders with you tomorrow ev^g. they might furnish our visitors with instruction & amusement but then just as you feel inclined. How I wish your

guide book had been out for Brit. Mus. in 1851. Le Hon bought a 30th Ed. of a Mus^m. catalogue which he says is useless.

ever truly yrs

ChaLyell

Thursday 25 Sep^r.

1851

11 Harley St.

P.S.

I have just got your note & regret to find you are driven by the printers for I know what that is. We shall only expect if you come & you can be here should you change your mind for as short a time as you like.

I shall try & call same day after 2^{ock} with Le Hon & will write to let you know. I shall be very glad if all your osteological speculations turn out true in regard to Iguanodon &c. C.L.

242

Sir Charles Lyell to G. A. Mantell

[29 September 1851]

My dear Mantell

I shall call with Capt. Le Hon tomorrow between 2 and 3^{ock} p.m. in the hope of finding you at home for ½ an hour.

You will find him worthy of seeing your treasures. Madame Le Hon who is a good collector of specimens begs to come too.

ever truly yrs

ChaLyell

Monday 29 Sept.
1851.

243

Sir Charles Lyell to G. A. Mantell

11 Harley St. London
October 28 1851

My dear Mantell

Will you be so kind as to read the enclosed¹ which I sent to the reviewer about 3 days after the Article came out & received no answer but the letter was not returned.

I am writing a postscript to the new Edⁿ of the Manual² (4th. Ed. 2,500 copies) in which I shall announce among other novelties the Lower Silurian tortoise, the triassic mammifer of which there can be no doubt as the figure of the teeth proves [indecipherable] but shall leave all controversial matter to the magazines & reviewers & take no notice of the Q.R.

I was very glad of your remarks on the Eocene Sheppey birds of Owen's book as compared to the Stonesfield proofs of a mammif^s: fauna.

I hope you will give some more hints after reading my inclosed letter.

I have to thank you for your beautiful vol. on the fossils of Brit. Mus.³ & shall see if I can cite it a propos to New Zealand's birds.

Look at p. 46-47 of my Anniv^y: Address & you will see why John Quekett was impaled in the Q.R. having been selected by the P.G.S. to make an enquiry for him, instead of his chief.

¹ Richard Owen criticized Lyell's GSL Anniversary Address in the *Quarterly Review* and the reference to the 'enclosed' relates to Lyell's proposed letter of reply. *GAM-PJ*, entry 28 October 1851.

² C. Lyell, *Elements of Geology*, 4th ed., Murray, London, January 1852.

³ G.A. Mantell, *Petrifactions and their Teachings, or a Handbook to the Gallery of Organic Remains of the British Museum*, H.G. Bohn, London, 1851.

Pomel⁴ saw the bones & pronounced them to be birds I am told.

Please to return the letter when you have read it, & as soon as you can sending me any comments at your leisure.

I wish your birds bone of the Wealden (p. 47 Address) was forthcoming. believe me

ever truly yrs

ChaLyell

244

G. A. Mantell to Sir Charles Lyell⁵

[No date]⁶

My dear Sir Charles

I return your letter with many thanks. I think you should publish it – either for private circulation among your friends – or publically as “The Reviewer reviewed”.

The attack is so dishonest & so jesuitical, that it will do much mischief if not rebutted. I have been several times today twitted by my patients at Clapham on the complete set down of my friend Sir C.L. in the Quarterly, & the high eulogium passed on Prof. O. What a world this is! I am quite of honest Falstaff’s opinion that honour & fame are mere baubles!

In Mr Broderip’s Zoological recreations,⁷ you will find in the Chapter on reptiles a most sublime review on the murky atmosphere of the half-finished planet!

What a strange medley is this rhapsody of the Infallible. “The most perfect animals depart the most from their vertebrate archetype”. What utter

⁴ Nicolas Auguste Pomel (1821 - 1898). French stratigrapher and palaeontologist. Sarjeant, *G & H of G*, vol. 3, p. 1906.

⁵ Transcribed from a xeroxed copy of the original letter at APS.

⁶ The context of this letter indicates Mantell wrote it between 29 October and early November 1851.

humbug this archetypal transcendentalism is when carried to the extreme which Oken⁸ & Owen (for the latter is but the sinumbra of ye former) carry it. [Cuviers?] was intelligible.

There was a capital epigram in the Lancet the week after O.'s lecture on limbs. Beginning –

Twixt Oken & Owen what difference I pray ?
Oh ! one spells with w, tother with k .
But which is most mystical? No-one can say,
for their myths & conundrums all tend the same way,
Transcendentally leading the judgment astray.

&c.

Ever Yours my dear Sir Charles with great regard

G.A.Mantell

245

Sir Charles Lyell to G. A. Mantell

11 Harley Street

Oct. 31 1851

My dear Mantell

Mr Quekett is very desirous to help me to illustrate in the best possible manner the birds bones of the Stonesfield slate. He asks me to procure for him an undoubted pterodactyl bone from the lias or other hard stratum that he might have some transverse sections taken from it, for he says that specimens from the chalk are far too brittle. Mr Q. will bring the whole subject before the Geological Soc^y: but in the meantime I must get out

⁷ W.J. Broderip, *Zoological Recreations*, Colburn, 1847.

⁸ Lorenz Oken (1779 - 1851). German naturalist and philosopher. Professor of Natural History at the Universities of Jena and Munich. Sarjeant, *G & H of G*, vol. 3, p. 1816.

an illustrated statement in my new Edⁿ. on the authority of a competent observer in the "Royal Coll. of Surgeons".

Could you help me to a pterodactyle bone in a hard enough matrix.

Do you think Mr Bowerbank has any good Stonesfield bones. Mr Quekett says that Mr Owen has got lately some bones from Stonesfield far more ornithic in outward form than any in the G.S. Museum.

If you could lend me a pterodactyl bone I would send for it but it would be still better sent by parcel delivery to John Quekett, 32 Blandford Square.

Ever truly yrs

ChaLyell

246

Sir Charles Lyell to G. A. Mantell

2 Nov 1851

11 Harley St

My dear Mantell

Last night I saw Mr Quekett's beautiful collection of drawings of microscopic structure of Mammals bones, & those of Birds reptiles & fish.

He was very glad of your promptness in sending your specimens. All seemed very clear as he put it & some of the Stonesfield bones appear to be reptilian others ornithic. He has offered me drawings of each for my new Edⁿ which I shall probably accept. But I am rather made cautious by his extreme confidence on characters & tests on which Owen expresses such doubts. I also am struck with what you say at p. 91 of your new book¹ for you seem quite to give up fig. 6 Plate 13 Geol. Trans. Vol. 5. in which Wealden bone Bowerbank found ornithic structure.

I am also rather alarmed at Mr Quekett telling me that some fragments

¹ G.A.Mantell, *Petrifactions and their Teachings or A Hand-book to the Gallery of Organic Remains of the British Museum*, H.G. Bohn, London, 1851.

of bone which Owen gave him as decidedly pterodactyl prove on microscopic examination to be birds. Now Owen may have taken them from an entire skeleton? he seems never to communicate with Quekett more than he can help when he gets him to examine for him.

Before I figure any bones could you not call with me at Mr Quekett's on Tuesday Ev^g at 8^{ock}. You would be more competent to fathom his proof than I am, & by that time he will have looked at one of your bones from Stonesfield sent lately & will show you another which he recommends me to figure as ornithic from Stonesfield to show external form.

I shall of course be very cautious. What think you of the Stonesfield vertebra believed by Quekett & Bowerbank to be mammalian & fig.^d in Geol. Quart^y Journal vol. 4 Pl. II fig.6. Is it dorsal? I will get Morris² to lend me the original & figure it again.

I shall at all events go to Mr Quekett at 8^{ock} on Tuesday Ev^g punctually for I can only be there an hour as I have friends just arriving on a visit. Let me hear from you.

The German triassic teeth are certainly mammiform & Quekett suspects vespertilio but is going to compare the figures with bats teeth. A Linnean might come down upon them with Order Primates for bats – but I am satisfied with the Class. I have written to Jaeger³ & von Meyer.

A reply to Owen by a friend of Queketts came out yesterday in the (Medical Journal?) I am not sure of the name of the weekly paper. Q. says the Article was very severe but the Editor was afraid & emasculated it somewhat.

believe me ever truly yrs

ChaLyell

² John Morris (1810 - 1886). Professor of Geology, University College, London from 1854 -77. *DNB*.

³ Georg Friedrich von Jaeger (1785 - 1866). German palaeontologist. Sarjeant, *G & H of G*, vol. 2, p. 1378.

11 Harley St.

Nov 2 1851

My dear Mantell

I have put one letter to you into the post & must now send this to say that Mr Quekett who had told me he should be at home any evening, says now that I have fixed on the only one (Tuesd^y) when he shall not be home in time.

So as time presses for my postscript & as Wed^y is G.S. night & Thursday I am engaged I have written to name tomorrow Monday instead saying I will try & get you to come.

If possible pray do for when I reflect that the Hunterian Prof^r had the benefit of Quekett's microscope & his own & did not communicate to Q. what he himself learnt I feel that great caution is required.

Try & be here at ½ past 7^{ock}. or 20 mins. before 8^{ock}. that we may go together & test Q.'s case which he is determin^d. to bring before the G.S. with a degree of confidence calculated to inspire faith, if experienced osteologists like yourself can see no more flaws in the proof than I do.

Let me hear by post if you cannot come.

believe me ever truly yrs

ChaLyell

248

G. A. Mantell to Sir Charles Lyell¹

[4 Nov. 1851]²

11 o'clock

Monday

My dear Sir Charles

I have but this moment received both your notes. Unfortunately

¹ Transcribed from a xeroxed copy of the original at APS.

I am engaged this evening to deliver the introductory lecture at the Clapham Athenaeum. I am not prepared to admit that microscopical structure alone (in the present state of our knowledge) is evidence sufficient to decide upon the ornithic or reptilian character of a fragment of bone: [peruse?] the paragraph in my p. 192. to which you refer. Even in dentinal structures this test is not always to be relied on.

The teeth of the Labyrinthodon present a structure analogous to that of many fishes; for Owens figures & interpretations are altogether wrong: there are no [inflections?] of cement at all! – See Tomes on Teeth, Philos. Trans. 1850 p. 532 – note.

I believe Mr Tomes to be the highest authority in these matters, and I am certain he would (if disengaged) cheerfully accompany you to Mr Quekett's, or at all events he would give you the results of his investigations; I know he coincides with me in the opinions expressed in p. 192.

Has it never struck you that the greatest departure from the Quarterly Reviewer's axiom – to reason only upon the fossils actually obtained – is to be found in presumed figures and footmarks of the so called Labyrinthodon; an animal of which jaws & teeth, and part of the pelvis &c – but no bones of the feet have been discovered? and yet the Hunterian Professor regarded the presumptive evidence sufficient to justify the inference that the Cheirotherium footmarks were made by these reptilians.

Pray look at the note to my page 152: the Prof. actually made a Testudo from mere imprints: & gave a generic & specific name.

Mr Tomes (as you probably are aware) is a dentist, and lives near you in Cavendish Square, the corner house near Prince's Street, Oxford St., the S.E. corner of the Square.

If Mr Quekett & Tomes would come to me on Saturday evening, I should be delighted to see them & look over their sections & my own, & you could then see the evidence which microscopic structure really affords. I would strongly advise you not to rely upon the microscopic test alone: but adopt with the reservation I have done.

One point more is worthy [of] your consideration. It appears not at all impossible to me, that the bones & the jaws found in the Stonesfield slate may be connected. I mean the presumed pterodactylian bones, & mammalian jaws. This idea has haunted me (but I have not published it) ever since I

² No date on letter. APS index gives date of 4 November 1851, as does the transcribed copy at ATL.

found the close approach to the Mammalian character in the jaws &c of the Iguanodon: and the mammalian structure of the two large teeth in the Cape Dicynodon – the fossil reptile with turtle-jaws, & two enormous tusks of dentine as dense as in the Hyena.

I would have called had my engagements permitted. Excuse great haste & believe me my dear Sir Charles

Ever Yours

G.A.Mantell

I send a Stonesfield vertebra for Mr Q.'s inspection.

249

Sir Charles Lyell to G. A. Mantell

Nov. 4 1851

11 Harley St.

My dear Mantell

Mr Tomes went with me to Mr Quekett's & after looking at his specimens & microscope & asking innumerable questions came away well satisfied that he has reason for his faith & that much which has been said by Bowerbank & others about the characters of Pterodactyle bones &c were never put forward by Q. as definitions.

Mr Tomes is to go into the subject separately before I figure any bones from Stonesfield.

He & Mr Quekett & I hope next Thursday week to be with you in the Ev^g if we all live so long. It was the first possible day after Mr Tomes returns from the country.

I cannot doubt the strictly mammif^s. character of the 9 Stonesfield jaws. As to the birds bones of Quekett they are 3 times or more as large as would fit the little jaws if these were those of Vampyres. But I saw in Coll. of Surg^s. this morn^g. a radius & ulna with medullary cavity not at all larger than are ordinary mammiform bones which Quekett believes to be mammalian & will test microscopically. It is of a size that might I think suit the jaws.

Quekett has compared the large bones which he considers birds bones from Stonesfield with those of bats &c & they are as unlike as they are to Pterodactyls.

All his comparisons are made from sections of corresponding parts of the bones contrasted.

I have a letter from Hermann V. Meyer with a drawing by himself of the German triassic mammalian molar.

I hope your lecture went off well.

believe me

ever truly yrs

ChaLyell

250

Sir Charles Lyell to G. A. Mantell

[13 November 1851]

My dear Mantell

I shall be with you at 8^{ock}. & leave at half past 9^{ock} having to go with my wife to a friends.

Had not Mr Tomes written to you yesterday I sh^d. have written.

I asked Morris to take his Stonesfield vertebra of mammalian pretensions to your house to see if we can make out all the world to have been pterodactyl as Bowerbank once threatened to make "all the world a sponge".

I asked Mr Barlow¹ if they had invited you to lecture at R.I. & was

¹ Probably Peter Barlow (1776 - 1862). Mathematician, physicist and optician. *DNB*.

glad to hear they had done so unprompted.

very truly yrs

ChaLyell

Nov. 13. 1851

11 Harley St.

251

G. A. Mantell to Sir Charles Lyell²

15 Nov. 1851

My dear Sir Charles

I have been to the British Museum and seen the bone whose structure appeared to be ornithic. The external form, unfortunately, affords

no conclusive characters in my opinion; but approaches nearer to that of reptiles than of birds. I also saw the specimen from the Geological Society, which when cleaned will be the most instructive of any of the long bones in Mr Waterhouse's³ possession: but that I think will prove to be Pterodactylian. Unfortunately there are no materials for instituting a rigid comparison: for there is not one undoubted Pterodactylian bone in the Museum, except the bones in the Lyme Regis specimens, and they are too much compressed & mutilated to serve as authority. At present therefore, any long thin-walled bone from the Wealden or Oolite, that does not correspond with a known bone of a bird, is termed Pterodactylian.

My own opinion, after all we saw last night, & I have seen today, remains as stated in p. 192 of Petrifications: I would not commit myself beyond that: the data are insufficient.

² Transcribed from a transcribed copy ex ATL.

³ George Robert Waterhouse (1810 - 1888). Naturalist. Keeper of the Mineralogical and Geological branch, British Museum, 1851-57. *DNB*.

Excuse a very hasty note. With great regard.

Ever most faithfully

G.A.Mantell

P.S. A letter from my eldest son received today (New Zealand July 21) announces the establishment of a Scientific Society at Wellington, headed by the Governor & of which Walter is honorary Secretary, for investigating the Natural History of the Islands. Walter sailed in August for the South of the Middle Island, & after exploring it was to return, & visit Iongarus – the volcanic fount of silicious thermal steam – & then he proposes coming to England to see me.

Nov. 15. 1851.

252

Sir Charles Lyell to G. A. Mantell

11 Harley S^t. Nov^r. 27

1851

My dear Mantell

I should like to put in a note “Dr Mantell has communicated to me while this sheet is passing through the press the news of the discovery

by Capt? Brickenden of the trail of a tortoise & the entire skeleton of a small lizard 7 inches long in the Old Red Sandstone of _____ in Scotland.”¹ Or something of that kind but we must be very guarded as to the age of the rock, do beg for information by return of post. If the Dipterus was found in the same rock as the lizard that is enough but then the Dipterus of which fragments only are known must have been identified by competent authority.

believe me ever truly yours

ChaLyell

H.D. Rogers² has 5 foot-prints of reptiles believed to be saurians in shale between Coal and Old Red, below level of my cheirotherium of Pennsylvania (alias Dr Konig’s) fig^d. by me.

This makes 4 skeletons of reptiles in European coal & in U.S. one trail of batrachian?,

3 of Saurians?

& 1 Chelonia base of Low^r Silurⁿ.

plus those you showed me last night? which would make 10 Palaeozoic or infra-permian reptiles in 4 years!

253

Sir Charles Lyell to G. A. Mantell

11 Harley S^t. Londⁿ.

¹ Mantell recorded the following in his *Private Journal* on 25 November 1851: “In the evening to Sir C. Lyell’s: took with me drawings of a reptile and foot-prints of a quadruped from the Devonian of Elgin, Morayshire, sent me by Capt. Lambart Brickenden. L. was greatly pleased with this discovery”.

² H.D. Rogers (1808 - 1866). U.S. Geologist. Successively Director of the Geological Survey of New

Nov. 28 1851

My dear Mantell

Capt. Brickenden's paper is most satisfactory & I know the yellow sandstone of the Upper Devonian in Fife. Besides it is clear that Hugh Miller who has been at Elgin had decided the point.

It was very good of you to send on the paper. As B.'s friend you do him the best service by giving a much greater publicity to his discovery than our Journal could do & nothing I can say will shut out his notice with the illustrations & I hope some account by you of the lizard, from our Journal

What a splendid fact. His tortoise had twice the stride of the Canada Lower Silurian one. Its hind foot exactly the same size. The Old Red or Elgin beast was narrower.

You should refer to H. von Meyer's account of *Apaten pedestris* or salamander of the Coal Period – qy. published where? – see Manual p. 336.

Pray send me word whether the drawing of said lizard or salamander ? is not clearly terrestrial? Could it be aquatic like a Newt – or is it an Eft or land lizard. Its feet may tell this?

I have just got a convincing letter from Plieninger³ as to the double fanged triassic teeth & he has sent me as I asked him casts in gutta percha – which you shall see.

ever truly yrs

ChaLyell

Jersey and Pennsylvania. Sarjeant, *G & H of G*, vol. 3, pp. 1993-1994.

³ William Heinrich Theodor von Plieninger (1795 - 1879). German theologian and vertebrate palaeontologist. Sarjeant, *G & H of G*, vol. 3, p. 1901.

Sir Charles Lyell to G. A. Mantell

11 Harley S^t.

Nov 29 1851

My dear Mantell

I should like to cite you for the name of the Elgin reptile which I take for granted you will describe. Devoniosaurus would look too much perhaps as if it had been found in Devon. Elginosaurus would I think be a good name, for tho' there may possibly be some latin name for Elgin no one can complain of latinizing so euphonious a name, especially now that such barbarous Dutch surnames are getting into Natural History.

I ought to go to press but must wait for a sentence giving your opinion on the saurian. I feel sure it is a genuine product of the Old Red. Ask Cap^t Brickenden if the Lock of Spynie rock is decidedly lower than the yellow sandstone of Cumingstone with the chelonian? trail.

Also, whether any fish & what have been found in the sandstone in which the fossil lizard was found. This should be in the paper.

A letter from Plieninger sending the casts of a tooth of Microtestes is very satisfactory as to double-fangs, cusps &c. He says the cusps are quite smooth & polished except in their lower half where there are some striae but quite different from those "folded-striae" of the teeth of reptiles & fish. Now ought there to be any striae in a mammiform tooth. I have but few at hand. I see none in the pig but some in ruminants teeth. In the crown of mammals have some of the cusps "striae wide apart" as he describes.

ever most truly yrs

ChaLyell

Sir Charles Lyell to G. A. Mantell

5^{ock} Mond^y.

[1 December 1851?]¹

My dear Mantell

I met Owen today who told me had got a promise from Dr Duff² that he Dr D. should bring the Elgin reptile to their Coll. of Surg^s tomorrow about noon.

So I came here to Dr Duff who tells me that if you will call before 11^{ock} tomorrow morning (from ½ past 9^{ock} to 11) he wishes you to see it first – pray come so that I may cite you.

ever yrs

ChaLyell

256

Sir Charles Lyell to G. A. Mantell

3^d Dec. 1851

Londⁿ

My dear Mantell

For fear any thing should prevent you coming to the Geol.S. I write to say that at my request Dr Duff brought back the specimen which I hope Dinkel will draw tomorrow in my house. I shall have the specimen today.

¹ Letter not dated. Query date of 1 December 1851 has been ascribed to this letter since this date best accords with the described events and with Mantell's entries in his *Private Journal*.

² Dr George Duff. London Doctor and cousin of Patrick Duff, Town Clerk – Elgin, Scotland, who obtained the Elgin fossil from the nearby Spynie quarry. M.J. Benton, 'Progressionism in the 1850's: Lyell, Owen, Mantell and the Elgin fossil reptile *Leptopleuron* (Telerpetom)', *Archives of Natural History*, 1972, 11, pp. 123-136.

Owen pronounced it batrachian says Dr Duff.

Many thanks for putting my wood-cuts in hand, I have received the
block from Lee.

most truly yrs
ChaLyell

257

Sir Charles Lyell to G. A. Mantell

[4 December 1851]

My dear Mantell

I forgot to tell you that I was an hour this morning in labour with the euphonious name you require, a non-committal denomination for the newt which laid the eggs among the freshwater? or marine? plants of the old red slates of Forfarshire which I shall leave with this.

At last with Charles Bunbury's help we have hatched not the batrachian eggs but a germane appellation for the beast –

Telerpeton Elginense

from $\tau\epsilon\lambda\epsilon$ procul & $\eta\rho\pi\epsilon\tau\omicron\upsilon$ reptilis. The far-off reptile.

Tell me if I may publish the name saying it is yours & about to be described by you. Telerpeton! Mantell!

Very euphonious indeed far better than Archegosaurus.

Should you identify the eggs with a frogs you may suggest a sentence introducing them. Does the common newt of our ponds lay such eggs.

ever truly yrs

ChaLyell

I am writing about a bone Logan¹ is said to have found in the lowest Silurian

¹ William Edmond Logan (1798 - 1875). First head of the Geological Survey of Canada, 1842-69.

with the Canada tortoise.

4 Dec. 1851.

258

Sir Charles Lyell to G. A. Mantell

[4 Dec 1851?]¹

My dear Mantell

Mr C. Bunbury says that there is no reason why such grass like leaves should not be Potomageton – at all counts of the class “Fluviales”.

In the slab I now send you will see in one part some honey combed markings, the impressions of eggs.

In another part are four large round disks – qy. eggs of a huge Telerpeton as big as a cheirotherium.

C.B. reminds me it is erpeton not erpitan.

ever yours

ChaLyell

On Monday I must really go to press.

259

Sir Charles Lyell to G. A. Mantell

11 Harley S^t.

Dec 5 1851

Saturday morn^g.

My dear Mantell

I got off Dinkel's drawing to Lee's yesterday before 4^{ock} P.M. & hope he is at work at it, for my publisher wishes to be out as all is printed off except this post-script. I am in hopes Dr Duff will not object to our keeping the stone. I have given him my last Address & shall send the wood-cut impression to him to forward to his cousin.

You may of course have lithographic drawings made of the eggs but remember that they came from a decidedly lower member of the Old Red & therefore could not have been made by the same Telerpeton – for the fish of

¹ Letter dated query 4 December 1851 on the basis of its context.

the lower & upper old red differ specifically. The eggs run thro' a certain zone in Kinkardinshire, Forfarshire & Fifeshire & are positively so numerous as to have served me as a useful fossil in working out the geology. They occur some 150 to 200 miles from the Elgin locality.

Let me have your latest on Monday morn^g as to how much I may say. "A reptile of the batrachian order probably aquatic perhaps allied to Triton (or the newt ?) &c".

I must learn positively from Dr Duff that you are to describe the beast before I publish "Telerpeton elginense, Mantell" – & say a description will shortly be laid before the G.S. by Dr M.

Let me have your latest on Monday morn^g or even^g as to skeleton & eggs.

Have the newts no osseous sternum – ought we to see no indications of any breast bone?

ever truly yrs

ChaLyell

E. Forbes thinks the entire absence of all shells in the beds containing the eggs decisive against marine origin of those beds, but said that the egg bearing shales are as far in age from the newt-bearing rock of Elgin as Purbeck is from Weald clay in position.

C.L.

260

Sir Charles Lyell to G. A. Mantell

5 Dec. 1851

Londⁿ.

My dear Mantell

When you see Newport¹ & others about the Batrachian eggs ask if any of that class are other than freshwater. The labyrinthodon tribe are air breathers. Do any go down to sea like alligators.

Dinkel is at work – I should like you to see his drawing before engraved if you can look in. Fancy these Scotch counties having a somewhat inferior member of the Old Red universally characterised by batrachian remains!

Are there not extensive ranges of the Wealden with plants, cypris, fish, & reptiles & without shells or with very very few shells – if so it is like the egg bearing shales of the Forfar Old Red where not a shell was ever seen – but crustacea, fish & plants.

ever yrs

ChaLyell

261

Sir Charles Lyell to G. A. Mantell

11 Harley St.
8th. Dec. 1851

My dear Mantell

Your news is very gratifying. I must beg one favour more, a small wood cut of the larger eggs on a leaf for as I only refer to the other cuts this will be the only one which will be seen with the letter press. In return for this I will when I have once got off my M.S. to the printer search for other specimens of eggs which I still hope to find for I must have others. I will leave a small blank space for one pair at the face just to

¹ George Newport (1803 - 1854). Naturalist and surgeon. *DNB*.

show the size of the big eggs. Could you have the drawing made & send it to Lee for me.

ever truly yrs

ChaLyell

262

Sir Charles Lyell to G. A. Mantell

9th. Dec. 1851

11 Harley St.

My dear Mantell

Many thanks for your letter just in time for the insertion of the matter which we have sent in the M.S. & orders for space for the new wood cuts – please to put the bag of recent frogs eggs on a separate small block as I allude first to your having shown them to me some years ago.

Then try to arrange the other fossil illustrations in one row so as to go across my page – the width of which I have drawn on the other page.

I found they will not fit in & you must make two rows in which case I will put title opposite one at its side.

I do not quite understand

whether you mean to have 2

diagrams of recent frogs eggs.

I would rather if not indispensable not have two.

As half my new Ed^{n.2} 1,250 copies

is sold in advance 800 to our

booksellers & the rest dog-cheap

to the U.S. your name affixed to

Telerpeton will soon be widely

circulated.

² C. Lyell, *Elements of Geology*, 4th ed., Murray, London, January 1852.

ever truly yrs
ChaLyell

The only batrachian known exclusive of Labyrinthodon & Cheirotherium are tertiary.

If therefore this Telerpeton be an undoubted batrachian we have the first of that order in a primary fossilif^s rock & no secondary one is yet known.

C.L.

I am very glad you found the conical teeth. How well Captain Brickenden observed.

Look at my figs. 397 & 398 p. 344 Manual & don't let me [go?] over again the same thing. If any locality is affixed to any specimen you get Dinkel to draw please send me a note of it.

263

G. A. Mantell to Sir Charles Lyell¹

[16 December 1851?]²

My dear Sir Charles

The large white figure is the appearance of the common rotalia

¹ Transcribed from a xeroxed copy of the original letter at Edinburgh University Library.

² No date on letter. 16 December 1851 has been written on the envelope which is the presumed date of receipt of Mantell's letter.

of the chalk seen as an opaque object: the brown figure is the body of the animal from a chalk specimen, the chalk & shell having been dissolved by acid, & the fossil mummy exposed. If you have five minutes to spare, do look through 6th Edit. Wonders Vol. 1 p. 298 & 302. 322.³

Ever yours

G.A. Mantell

Chester Sq^{re}.

Sunday

a cubic inch of chalk contains a
million of rotalia.

Our white chalk is the deposit of a very deep sea – far from shores – no sand, pebbles &c.

The rocks forming on the shores of Bermuda &c are detrital: our white chalk is almost wholly organic: in the depths of the ocean around the Bermudas white calcareous deposit like our chalk may be forming: but I cannot admit that the shore detritus is similar, except in colour & chemical characters. Its microscopic X^{rs}. are altogether different.

[Addressed to: Sir Charles Lyell, 11 Harley Street, Cavendish Square]

³ Page 298 concerns the Chalk Downs; p. 302, animalcules, and p. 322 chalk rotaliae.

G. A. Mantell to Sir Charles Lyell¹

[25 December 1851]²

My dear Sir Charles

You have evidently forgotten that I told you Sir Roderick had no doubt of the Spynie rock belonging to the Old Red; he saw the specimens, both *Stagonolepis* & *Telerpeton*; was convinced of the identity of the two beds; said he knew the country well; in fact had not the slightest scepticism as to the age of the fossils. Besides – where have you such a rock in the Lias or Oolite?

The *Stagonolepis* was not seen by Agassiz; he named, and described it from a drawing sent him by Robertson.³

Mr Duff's specimen (now at the Geological) is the only one known. For the reasons I stated when you first showed the fossil to me – namely the apposition of the plates, their not overlapping so much as in all the ganoid fishes, I think them dermal bones. There is another character which I fancy may be distinctive, and which I will work out before the next meeting.

Unfortunately not a fragment of the osseous substance remains to help us; my friend Williamson⁴ would ascertain whether these bodies were scales or dermal bones.

My friend Capt. B. is in the same dilemma as to his discoveries, I was with my first, mammalian-looking bones from Tilgate forest. All I can say at present as to the *Stagonolepis* is, that the character of the specimens are unquestionably more allied to reptilian than to ichthyic structure.

Ever yours my dear Sir Charles

G.A.Mantell

Sir R. saw Capt. B.'s section & description & said they were quite right – Xmas Day.

¹ Transcribed from a transcribed copy at A.T.L.

² Letter post-marked 25 December 1851.

³ Possibly David Robertson (1806 - 1896). Scottish merchant and amateur palaeontologist. Sarjeant, *G & H of G*, vol. 3, p. 1988.

⁴ William Crawford Williamson (1816 - 1895). English stratigrapher and invertebrate palaeontologist.

[Addressed to: Sir Charles Lyell, 11 Harley Street, Cavendish Square]

265

G. A. Mantell to Sir Charles Lyell¹

[27 Dec. 1851]²

Saturday

My dear Sir Charles

Williamson tells me that in the absence of the osseous substance no form or apparent union of the scales or scutes, is of value as a distinctive character. We had better therefore leave the *Stagonolepis* without remark.

Capt. B. is much vexed with O.'s conduct: Mr P. Duff expressly declared the fossil was to be delivered to me to figure, describe & name: his object was not to oblige me, but his friend Capt. B. to whose paper mine was to be an appendant. My course is clear: to take no notice whatever of the published letter;³ and if after my paper is read, O. disputes my priority, then to refer him to Capt. B. & Mr P. Duff, who sent me the specimen for the express purpose of laying it before the Geological Society; & by whose desire it is still in my possession.

The German naturalists term all new generic & specific descriptions, without figures, still-born: the offspring of the illicit intercourse of the Professor with the Devonian reptile, is therefore nil, – and cannot disturb the claims of my legitimate offspring! I shall treat the matter with perfect indifference. Thank Heaven the British Museum is free!

With the good old English wishes for you & yours, believe me my dear friend, most faithfully yours

G.A.Mantell

P.S. I have not seen your revise.

[Addressed to: Sir Charles Lyell, 11 Harley Street, Cavendish Square]

¹ Transcribed from a transcribed copy at ATL.

² Postal date was 27 December 1851, which was a Saturday.

³ Owen obtained a view of the specimen and on 20 December published his own description of the

G. A. Mantell to Sir Charles Lyell¹

[Dec^{ber} 29 1851]²

My dear Sir Charles

I return all your documents; to me the evidence of the Devonian age of the reptile appears most conclusive, surely it is very difficult to conceive that either the rock or the fossils are liassic; and then the utter absence of all the ordinary liassic shells &c.

When I showed Sir R. M. Capt [Brickendens] sections & memoir he was quite satisfied that the rock was true Old Red. Well may Sir Roderick, who has not yet had personal experience of O.'s jesuitry, be surprised at the letter in the Gazette; however, I am determined Mr Duff shall not be unjustly blamed: nothing could be fairer than his conduct. His letter to Dr Duff expressly stated that if Dr D. had not promised the first use of the reptile to anyone, then he Mr D. wished me to have it, that my account might appear with Capt. B.'s paper. Dr Duff in his note (that accompanied the fossil) says, "as I had not promised it to any one, I have great pleasure in compliance with my cousin's direction, in sending it to you".

Today Dr Andrew Smith³ (Inspector General of Army Med^l Dpt.) late of the Cape & celebrated as an Erpetologist, saw the fossil: & he has no doubt it was an aquatic salamander, from its general proportions. The account in the Literary Gazette is meagre & erroneous and could not stand, even if mine had not the priority. I think the Infallible has committed himself most completely. Capt. B. is very wroth: but I tell him, doubtless Prof. O. means, as he insinuates, a different reptile, to that which forms the subject of our memoir!

¹ Transcribed from a transcribed copy at ATL.

² Letter post-marked 29 December 1851.

³ Andrew Smith (1797 - 1872). Director General of Army Medical Dept. Ornithologist and African traveller. *DNB*.

Ever yours my dear Sir Charles,
G.A.Mantell

267

G. A. Mantell to Sir Charles Lyell¹

[2 January 1852?]²

Friday night

My dear Sir Charles

I intend to call tomorrow and will leave your book and another cast of the *Stegonolepis*. I have taken a cast from the cast, so as to show the original form of the scales with the markings in intaglio; and their appearance is more fish-like, several of the scales being imbricated; so that I am now inclined to adopt Agassiz's opinion. I put more confidence in Williamson's judgment on this point than in Hugh Miller's.

Ever yours my dear Sir Charles

G.A.Mantell

P.S. There is a model of *Mystriosaurus* in the British Museum – see my “Petrifications & their Teachings” p. 183, & footnote to p.178: we could compare the casts with the model.

¹ Transcribed from a xeroxed copy of the original letter at APS.

² Letter undated. Indicated date of 2 January 1852 is suggested by the context and that of the following letters. Moreover, Mantell did call on Lyell on the following day as proposed in this letter. *GAM-PJ*, entry 3 January 1852.

Sir Charles Lyell to G. A. Mantell

Highgate

January 5th. 1851¹

My dear Mantell

I corrected the press for the Lecture abstract which Mr Lovell Reeve² begged me to draw up for the Literary Gazette & neither in the original M.S. nor in the abstract as corrected by me were there the papers you allude to of Prof^r. Owen having asserted the Elgin fossil to be lacustrine.

I could not of course have said it in Ipswich.

I have written to Mr Lovell Reeve this Ev^g.

yrs [tly?]

ChaLyell

G. A. Mantell to Sir Charles Lyell³

[5 January 1852]⁴

Monday 5 o'clock

My dear Sir Charles

I called in Harley Street just now, & finding you are at

¹ Lyell dated this letter January 5th 1851 but the context indicates that he made a mistake and that the correct year was 1852.

² Lovell Reeve (1814 - 1865). English conchologist who worked on fossil Quaternary molluscs. Sarjeant, *G & H of G*, vol. 3, p. 1961.

³ Transcribed from a copy of original letter at APS.

⁴ Letter not dated but 5 January confirmed through Mantell's reference to his visit to the British Museum, as well as the date of the post-mark. *GAM-PJ*, entry 5 January 1852.

Highgate, trouble you with this note, as it may interest you to know that I have been to the British Museum, and compared the Stegonolepis with the specimens of dermal bones in the Mystriosaurus and many other saurians, and with scales of ganoid fishes, and I have convinced myself that Agassiz was right in inscribing the Elgin fossil to a fish, but mistaken in supposing a pseudomorphism to be an imprint. The scales are I believe, represented by a replacement of the rock in the cavities left by the decomposition of the original: in like manner as is the case in part of the spinal column of the Telerpeton.

This interpretation removes all doubts; & we have in these scales simply a more elegant and well defined ornament on the surface than in *Holoptychius*, *Asterolepis* &c.

I cannot now enter into particulars, nor explain how I have arrived at this conclusion: when we meet I am convinced you will concur with me in this being the true solution of the problem.

I have carefully examined a few grains of the rock in which the Telerpeton is imbedded, under the microscope, but can find no traces of oolitic structure, nor of shells, corals, or other organisms.

Have you seen the scurrilous attack upon the Archbishop for appointing the "entomologist". Really O. must be mad to suppose his conduct will not sooner or later be brought to light.

Gray tells me the story about the Valet & Dr Brown is altogether false!

My best respects to Mr Horner

Ever most faithfully

G.A.Mantell

[Addressed to: Sir Charles Lyell, Leonard Horner Esq., Highgate]

¹ Transcribed from a copy of the original letter at APS.

[Wednesday 7 January 1852]²

My dear Sir Charles

Whilst the subject is still fresh on your mind, I would beg your consideration of the following facts & arguments respecting the supposed ova of Forfarshire, which I think Professor Forbes has not duly weighed; and I am anxious you should place before him.

1st. The strict resemblance in form, substance, and arrangement, between the fossil bodies & the carbonized spawn of the frog. This surely will not be disputed after Mr Newport's careful examination & comparison of the objects. Even should carbonized ova of mollusks be found that also resemble the fossils, that alone would not prove that the latter are not reptilian: it would only lessen the probability.

2^{dly}. The absence of remains of frogs in the strata – or rather their non discovery is not surprising, because the bodies of these reptiles when found fossil are for the most part mere carbonaceous stains in the clays & shales in which they occur: the skeleton is not commonly preserved: & the preservation of the spawn may have resulted from its association with the floating foliage (whether the latter be of freshwater, brackish, or marine plants) and subsequent imbedding under circumstances favourable to its carbonization.

3^{dly}. The entire absence not only of shells, but of their casts & impressions.

4^{thly}. The abundance of the spawn: a fact more in accordance with the batrachian hypothesis than with the gastropodon.

5^{thly}. The fact, which in the hurry of this evening's discussion I omitted to dwell upon in reply to Prof. F.'s objections, but which I think is very important: namely, the entire absence of fossil ova of mollusca in the thousands of deposits consisting of shells imbedded under circumstances most favourable for their preservation as for example in strata in which the ligament of bivalves & the epidermis of univalves – nay even the soft parts of the animals in the state of molluskite are preserved & yet not a cluster of ova (that I am aware of) has been discovered. When I first made out the nature of the then called pseudo-coprolites, & termed them molluskite, I hunted carefully for ova without success.

² Letter not dated. Wednesday night has been written at its end. 9 January 1852 has been written on the envelope, probably indicating the letter's date of receipt. The context of the letter also generally ties in with Mantel's entry in *GAM-PJ*, dated 7 January 1852.

Is it then more probable that ova abounding through a great extent of country, in strata that not only do not abound in shells, but in which neither shells, nor evidence of their existence, have been discovered, should belong to mollusca, than that they should be the eggs of animals which they so entirely resemble, as not to be distinguishable in appearance & structure?

The only misgiving I had – (& have) was the possibility that these bodies might after all be of vegetable & not of animal origin: & that doubt I have expressed in my paper: but if their animal nature be certain, then to my mind the batrachian hypothesis is the true one.

Ever yours my dear Sir Charles

G.A.Mantell

Wednesday night

[Addressed to: Sir Charles Lyell, 11 Harley Street, Cavendish Square.]

271

G. A. Mantell to Sir Charles Lyell¹

[9 January 1852?]²

My dear Sir Charles

Williamson of Manchester to whom I sent casts of the Stegonolepis that he might form a more accurate opinion than he could do from drawings, has just written to tell me that he has no doubt whatever that

¹ Transcribed from a xeroxed copy of the original letter at APS.

² Letter not dated. The copy ex ATL has an indicated date of 9 January 1852 at the end of the transcription.

the impressions are those of fish-scales & not of dermal scutes: I had not mentioned to him my idea that the originals were probably tuberculated not pitted: so that he has arrived at this conviction unbiassed by my conundrums.

Pray ponder well on the fact that ova have not been found in the myriads of strata formed of shells: & that shells have not been found in the forfarshire shales that swarm with ova!

[Copy of letter ceases at this point]

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G. A. Mantell to Sir Charles Lyell¹

[28 January 1852?]²

My dear Sir Charles

As I have been unable to attend any meetings, & therefore had no chance of seeing you, I trouble you with this note (though I have had no reply to my last) to mention that there is in the British Museum a true Old red fish, with sculptured scales, & so clearly allied to *Stegonolepis* as to leave not a doubt of the latter being a genuine Old red fish. M^r. S. Davies³ & Woodward⁴ pointed out this fact to me. The scales are not more than 1/6 the size of those *Stegonolepis*; the fish is named Glyptopomus: it is in wall-case B near the Holoptych Macroform &c – see

¹ Transcribed from a xeroxed copy of the original letter at APS.

² Letter not dated, but 28 January 1852 was written on the envelope.

³ William Davies (1814 - 1891). Vertebrate palaeontologist at the British Museum 1843-87. *DNB*.

⁴ Samuel Pickworth Woodward (1821 - 1865). Assistant in Dept. of Geology and Mineralogy, British Museum, 1848-65. *DNB*.

my Brit. Mus. page 432 – for its place in the case.

Agassiz is therefore right: the fossil is a cast, not as I supposed a pseudomorphism: the Glyptopomus is however the only other Old red fish with sculpturings of this nature.

Yours my dear Sir Charles most faithfully

G.A.Mantell

P.S. Sections of stems of Charae appear in some slices of the Purbeck marble, very like yours of y^r forfarshire recent lacustrine deposits.

Have you seen the paragraph in the Atheneum.

"By the way we are informed by Prof. Owen that he was not a candidate for the office in the British Museum to which, as we last week announced Mr Waterhouse⁵ had been elected. "I transmitted to the elective body" says the Professor, "a testimonial" not "a withdrawal" in "Mr Waterhouse's favour" – Can Jesuitism go farther?

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⁵ George Robert Waterhouse was appointed to the position of Keeper of the Mineralogical and Geological branches of the Department of Natural History in the British Museum in 1851. *DNB*.

G. A. Mantell to Sir Charles Lyell¹

[April 1852]

My dear Sir Charles

I enclose a report of my lectures: if you have a copy already, perhaps you will be so kind as to present it to Sir John Herschel; from a conversation I had with him at the Duke of Northumberland's² I think he may like to see it.

I was much disappointed that you did (not) make some comment on the obvious difficulty of O.'s interpretations of the enigmatical markings. If, for example, the series which he says indicate the footmarks of seven pairs of feet – the anterior pair of which converge towards the medium groove – how is it possible that the animal could have removed from its first position, to the second (& consecutive) position, and yet left no traces of its progress over the intervening space? It must have been lifted up (or floated) and then put down just in advance of the first set of imprints!!

If these supposed trails have been made by crustaceans, they must have been formed by a floating body, & it is possible the locomotive organs of the Trilobites – which may have essentially differed from those of the fresh water brachypods, or terrestrial *Limulus*, to which existing types the carapace bears most analogy. Forbes was wrong – I had previously seen Salter³ & talked over the matter, neither do I admit that the Trilobites with eyes were inhabitants of very deep seas: their lenses are as highly developed as in our littoral crustaceans. After all, they may be referable to fishes.

With great regard my dear Sir Charles,

G.A.Mantell

P.S. Desor who called on me the next day, had made a sketch of the imprints to show how impossible it was that O.'s explanation could be correct, before D. knew of my objection.

Friday. Ap. 1852.

¹ Transcribed from a transcribed copy at ATL.

² Percy Algernon, 4th. Duke of Northumberland (1792 - 1865). *DNB*.

³ John William Salter (1820 - 1869). Palaeontologist who did notable work on trilobites and

Sir Charles Lyell to G. A. Mantell

11 Harley St^t. Londⁿ.

22 May 1852

My dear Mantell

I am almost sure that Morris has my *Mystriosaurus* paper & I am sorry to say I never possessed the *Archegosaurus* memoir but borrowed it from the Hunterian Professor. I am very much obliged for the copies already sent of the *Telerpeton* paper¹ which I shall be in no hurry to dispose of keeping one for myself. If you have one or two left I shall be quite sure to use them as some very good claimant German &c or American will appear.

What you said of the localities of some of Sowerby's fossils especially in early numbers enlightened me & some others who have sought in vain to understand or verify them & what you said of A. d'Orbigny was not too severe judging by what I find he has done in regard to certain – Tertiaries –
ever truly yrs

ChaLyell

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Sir Charles Lyell to Reginald Neville Mantell

Oct. 18 1852

Boston Mass.

My dear Sir,

I have been travelling in Nova Scotia & New Brunswick & since that in Vermont, N.Y., New England, New Jersey & Pa. on various geological errands & have seen in the Newspapers that I intended & according

to some had actually proceeded, to the Southern States & to the Far West. I am now to stay here for 6 weeks & then sail for England hoping to reach it before the middle of Dec^r.

I am glad to hear you have entered into a railway engagement & wish you success.

¹ G.A. Mantell, 'Description of the *Telerpeton* Elginense, a Fossil Reptile recently discovered in the Old Red Sandstone of Moray; with observations on supposed Fossil Ova of Batrachians in the Lower Devonian Strata of Forfarshire', *QJGSL*, 1852, 8, pp. 100-108.

I saw your father shortly before I left looking I thought rather well.

Believe me

ever truly yrs

ChaLyell

R. Mantell Esq.

UNDATED CORRESPONDENCE

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Charles Lyell to G. A. Mantell

[no date: probably 1830-1840]

My dear Mantell

Murchison has just offered to enclose a small note in a frank for you. So I will just say that I have been afraid lest you should be ill having not heard from you. Not that I wonder that you find no time to write now but that as you have been so often ailing of late.

to Mrs Mantell

remembrances

yours ever truly

C.L.

[Addressed to: G. Mantell Esq.]

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Charles Lyell to G. A. Mantell

[no date: probably 1840's]

My dear Mantell

I have just read your letter & do not wonder that you felt the omission of your services in [*]¹ the Wealden. I had a headache & so bolted when Dr [Sharp?] began and was really astonished to hear the day after that Buckland did not allude to your work which I took for granted that he would as he rarely errs in that way & it was merely an accident, & when I enquired at dinner the next day on this point, when Sedgwick, Murchison, Bunbury & other geologists were present, they all expressed themselves so strongly on the injustice that you gained by the reaction & I was glad to mention what Owen had told me of your anatomical tact & skill as displayed in fossils of the same region.

I told Hopkins before the meeting that at Guildford where the carpet ought to be nailed down I knew the beds to be extremely fractured.

The dullness of the lecture was unprecedented & showed the danger of such disorderly proceedings. Twenty minutes reading of his own paper w^d. have conveyed more knowledge. After all what do H.'s omissions show but ignorance of what had been done.

believe me ever faithfully yrs

ChaLyell

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Charles Lyell to G. A. Mantell

[Probably 1840 - 1850]

My dear Mantell

I shall be happy to dine with you on Wed^y. next & to

¹ Remainder of letter written by Mary E. Lyell acting as amanuensis.

discuss the “[word indecipherable] paper”, but must resolve not to look either at Mr Read’s² microscope nor any objects of natural history by candlelight as a months work at shells has much weakened my eyes which you know were always feeble.

ever truly yrs.

ChaLyell

Nov. 8

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Charles Lyell to G. A. Mantell

[no date]

My dear Mantell

This is the most unlucky day for the purpose, for Henslow is just coming to breakfast & I have some friends from Hampstead whom you do not know to an early dinner & shall not have a moment before bed time.

I never dined at the Royal Soc^y club in my life – its at Freemason's tavern !

If you could come here at ½ past 4^{ock} today precisely I will be at home at any rate & see you & talk for a short time.

yours ever hastily

ChaLyell

[Addressed to : G. Mantell Esq.]

² Mantell’s *Private Journal* records that a Mr Reade stayed the night on 16 October 1846 “with the microscope”. The Revd. Joseph Bancroft Reade (1801 - 1870) was an amateur microscopist and friend of Mantell. *GAM-PJI* and *DNB*.

GLOSSARY OF GEOLOGICAL AND PALAEOLOGICAL TERMS

A glossary of the lesser known geological and palaeontological terms that are mentioned in the letters is set down below, based on the following contemporary or near contemporary references.

- (1) Charles Lyell, *Principles of Geology*, vol. III, (facsimile edition), University of Chicago Press, Chicago, 1991, Appendix, pp. 61-83.
- (2) David Page, *Handbook of Geological Terms and Geology*, William Blackwood and Sons, London, 1859.

The numbers in parentheses indicate the respective source used in each instance.

A

Album Graecum – The whitish hardened excrement of wolves, hyaenas, and other carnivora that feed on bones and which consists of earth-of-bones in combination with phosphoric acid. (2)

Alcyonia – Spongiferous fossils commonly found in the Chalk formation and which frequently form the organic nucleus round which flints have collected. (2)

Ammonite – An extinct and numerous genus of the order of Cephalopoda, allied to the modern genus Nautilus. (1)

Anoplotherium – A fossil extinct quadruped belonging to the order Pachydermata, resembling a pig. (1)

Anthracotherium – A name given to an extinct quadruped, supposed to belong to the Pachydermata, the bones of which were found in lignite and coal of the Tertiary strata. (1)

Azoic – Without life; a term applied to the lowest strata in the crust of the globe which have yet yielded no fossils or traces of life. (2)

B

Bacillaria – A group of Diatoms, consisting of simple, siliceous frustules of a prismatic shape and forming a brilliant chain. (2)

Baculite – A straight, chambered, conical shell of the chalk epoch. (2)

Balistes – The ‘file-fish’, so-called from its jagged and dart-like fin-spines. (2)

Batrachian – A subdivision of the Reptilia, comprising the frog, toad and salamander. (2)

Belemnite – An extinct genus of the order of the molluscous animals called Cephalopoda. (1)

C

Calcaire Grossier – (French). Coarse limestone. A series of strata belonging to the Eocene tertiary period, originally found in the Paris Basin. (1)

Cetacea – An order of vertebrated mammiferous animals inhabiting the sea, such as the whale and dolphin. (1)

Cetiosaurius – A genus of marine saurians whose bones occur in the Wealden. (2)

Chara – A genus of fresh-water plants whose fossil seed-vessels are termed gyrogonites. (1)

Cheirotherium – A term applied to an unknown quadruped, the hand-like impressions of whose feet are common on the slabs of the Trias. Professor Owen supposed it to be the same as the frog-like Labyrinthodon. (2)

Clathraria – A genus of fossil stems first discovered by Dr. Mantell in the Wealden of Sussex. (2)

Cornbrash – A rubbly stone extensively cultivated in Wiltshire for growth of corn. (1) A coarse shelly limestone of the Upper Oolite. (2).

Craie – (French). Chalk.

Cyclas – A genus of fresh-water bivalves, having oval, transverse, equivalved shells. (2)

Cypris – A genus and family of minute crustaceans, having two enveloping crusts and united by a dorsal fold without hinge. (2)

D

Dicotyledonous – A grand division of the vegetable kingdom, founded on the plant having two seed-lobes. (1)

Dicynodon – A provisional genus of reptile between the lizards and turtles. (2)

Didelphys – The opossum family. (2)

Diluvium – Accumulations of gravel and loose materials which, by some geologists, are said to have been produced by the action of a diluvian wave or deluge sweeping over the surrounding surface of the earth. (1)

Diptera – An order of insects, comprising those that have only two wings. (1)

E

Elytra – The wing-sheaths, or upper crustaceous membranes, which form the superior wings in the tribe of beetles. (1)

Equisetum – An extensive order of marsh or boggy flowerless plants, represented by the common ‘horse-tail’. (2)

F

Faluns – A provincial name for some tertiary strata abounding in shells of Touraine, which resemble in lithological characters the ‘crag’ of Norfolk. (1)

Firestone – Any stone which stands heat without injury; generally applied to certain oolitic sandstones used in the construction of glass furnaces. (2)

G

Gault – A provincial term in the East of England for a series of beds of clay and marl between the upper and lower green-sand. (1)

Greensand – Beds of sand, sandstone, and limestone belonging to the Cretaceous period and which often contain an abundance of green earth or chlorite through them. (1)

Gres – (French). Sandstone.

Gyrogonites – Bodies found in fresh-water deposits, originally supposed to be microscopic shells, but subsequently discovered to be the seed-vessel of fresh-water plants of the genus ‘chara’. (1)

Gryphite – A sub-genus of the oyster family, abounding in the Lias, Oolite and Chalk Formations. (2)

H

Hippurites – A genus of coal-measure plants. (2)

Hylaeosaurus – A gigantic terrestrial reptile whose remains were first discovered by Dr Mantell (1832) in the Wealden strata of Tilgate Forest. (1)

I

Ichthyolite – A term for any portion of a fossil fish. (2)

Ichthyosaurus – A gigantic fossil marine reptile, intermediate between a crocodile and a fish. (1)

Iguanodon – A colossal lizard-like reptile found in the Wealden strata. (2)

Indusial limestone – A fresh-water limestone comprised from the cases or ‘indusiae’ of caddis worms. (2)

Juli – Tortuously shaped coprolites, previously supposed to have been fossil fir-cones, but conjectured by Mantell to be derived from fish of the shark family.

K

Kentish Rag – A provincial term for a member of the Lower Greensand consisting of a fossiliferous grey, cherty or arenaceous limestone, used for building in Kent and Sussex. (2)

L

Labyrinthodon – A name given by Professor Owen to a batrachian reptile of the New Red Sandstone. (2)

Limnaea – A genus of fresh-water molluscs characterised by their pointed spire and delicate thin shell. (2)

London Clay – One of the members of the Eocene beds of the London Basin. (2)

Lonchopteris – A fossil fern-like frond occurring in the coal measures. (2)

M

Madrepore – An extensive genus of coral bearing polypes. (2)

Malm rock – A local term for a calcareous sandstone which forms portions of the Upper Greensand in Surrey and Sussex. (2)

Marl – A soft admixture of clay and lime. (2)

Megatherium – A huge edentate mammal whose remains occur in the upper Tertiary of South America. (2)

Molluskite – A dark-brown carbonaceous substance occurring in shelly marbles and originating from the mineral transmutation of the soft bodies of the mollusca. (2)

Monocotyledonous – A grand division of the vegetable kingdom founded on the plant having only one seed lobe. (1)

Mosaesaurus – A gigantic marine reptile of the Upper Chalk, apparently between the monitors and iguanas. (2)

Mountain Limestone – A series of limestone strata, whose geological position is immediately below the coal measures. (1)

N

Nummulites – An extinct genus of the Cephalopoda, of a thin lenticular shape, internally divided into small chambers. (1)

O

Oolite – A limestone, forming a characteristic feature of a group of the secondary strata. It is so named, because it is composed of rounded particles, like the eggs of a fish. (1)

Orthocerata – An extinct genus of the Cephalopoda that inhabited a long chambered, conical shell, like a straight horn. (1)

P

Paleotherium – A fossil extinct quadruped, belonging to the order pachydermata, resembling a pig or tapir, but of great size. (1)

Paludina – The ‘marsh or river snail’; the Sussex or Petworth marble being almost entirely composed of its shells. (2)

Pecopteris – An extensive genus of fossil ferns occurring in the Coal-measures. (2)

Pentacrites – A genus of encrinites abounding in the Lias and Chalk of England and termed from the five-sided shape of its supporting column. (2)

Pholadidae – The family of boring bivalves which perforate all substances softer than their own valves. (2)

Plagiostoma – A generic term applied to certain compressed, obliquely oval bivalves of the oyster family. (2)

Planorbis – A genus of fresh water shells distinguished by their discoidal form. (2)

Plastic Clay – One of the beds of the Eocene Tertiary period, so called because of its use in pottery. (1)

Plesiosaurus – A fossil extinct amphibious animal resembling the saurian tribe. (1)

Portland Limestone – A series of limestone strata belonging to the upper part of the Oolite group. (1)

Pterodactyle – A genus of flying reptiles, several species of which have been discovered in the Lias, Oolite, Wealden and Chalk formations of Europe. (2)

Purbeck Limestone – Limestone strata belonging to the Wealden group. (1)

S

Septaria – Flattened balls of stone, generally iron-stone which, on being split, are seen to be separated in their interior into irregular masses. (1)

Sertularia – A genus of hydroid polypes, so called from their cells being arranged on the opposite sides of a fleshy axis, this giving to their stems a wreath-like appearance. (2)

Silex – The name of one of the pure earths, being the Latin name for ‘flint’, which is wholly composed of that earth. (1)

Sivatherium The generic term applied by Dr Falconer to the skull and bones of a gigantic mammal found in the Sivalic territories. (2)

Sphaerulites – A genus of thick sub-conical chalk shells, externally striated and belonging to the Hippurite family. (2)

Spironilite – A genus of minute, many chambered foraminiferous organism occurring in the chalk. (2)

Stonesfield Slate – A member of the lower Oolites and celebrated for its being the rock in which English geologists first detected mammalian remains. (2)

T

Terebratula – A genus of brachiopod bivalves. (2)

Teredina – An extinct genus of boring mollusc. (2)

Testacea – Molluscous animals, having a shelly covering. (1)

Trionyx – A fossil tortoise occurring in tertiary strata. (2)

Turrilite – An extinct genus of chambered shell belonging to the Ammonite

family. (2)

U

Unio – The family of river mussels. (2)

W

Wealden Group – That series of strata which occurs between the uppermost beds of the Oolite and the lower ones of the chalk formation. (2)

Whin – A term applied by miners and quarrymen to any hard resisting rock. (2)

X

Xanthidium – A genus of diatoms whose microscopic case or frustule consists of a hollow siliceous globe. (2)

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