HORACE LAMB AND THE CIRCUMSTANCES OF HIS APPOINTMENT AT OWENS COLLEGE

by

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This paper examines a succession of incidents at a critical juncture in the life of Professor Horace Lamb FRS, a highly regarded classical fluid mechanicist, who, over a period of some 35 years at Manchester, made notable contributions in research, in education and in wise administration at both national and university levels. Drawing on archived documents from the universities of Manchester and Adelaide, the article presents the unusual sequence of events that led to his removing from Adelaide, South Australia, where he had served for nine years as the Elder Professor of Mathematics, to Manchester. In 1885 he was initially appointed to the vacant Chair of Pure Mathematics at Owens College and then, in 1888, as an outcome of his proposal for rearranging professorial responsibilities, to the Beyer Professorship of Pure and Applied Mathematics.

Keywords: Horace Lamb; Owens College; University of Adelaide; Henry Taylor

INTRODUCTION

In September 1885 Horace Lamb FRS took up his appointment to the Chair of Pure Mathematics at Owens College, Manchester, where he was to remain until he entered his eighth decade, 35 years later. Over the course of this residency he brought great distinction to himself, to the college and to its successor, the Victoria University of Manchester. This distinction included not just his research but also his exceptional administrative talents and, perhaps especially, his teaching skills, exemplified through his textbook *Hydrodynamics*, which remains in print today, some 130 years after the appearance of the first edition.

This extensive Manchester period of Lamb’s life has been summarized in several biographies and obituaries.1–4 But how did it come to pass that there was a ‘Manchester period’ in Lamb’s career in the first place? To place this question into context, immediately before Lamb accepted the position at Manchester he had held the Elder Chair of Pure and Applied Mathematics at the University of Adelaide, South Australia.

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Although by then the Suez Canal had been opened, newspapers and personal mail still took six weeks to make the journey between England and Australia. Thus, the time lapse between a newspaper or printed notice containing news of the vacancy being dispatched to Australia and an application in response being received is unlikely to have been much less than three months. However, then as now, advertisements for academic appointments sought responses within a month or so of the announcement appearing. Moreover, Owens College already had professors of both pure and applied mathematics in post, both many years from normal retirement age and with no ambition to seek academic appointments elsewhere. The size of the college and the notion that appointees would uniquely ‘profess’ a distinct subject would thus have made it virtually impossible for a further chair in mathematics to have been created at that time.

This paper attempts to answer the above questions, drawing especially on reference documents contained in the archives at the University of Manchester and the University of Adelaide; this forms the principal, newly revealed information of this contribution. It will be seen later that the emerging technology of the telegraph had a vital role in the above events. First, however, some brief account of Lamb’s earlier life is needed as background, both before and including the decade he spent in Adelaide, topics that are addressed in the next section. It is from this period that the four persons who were collectively crucial, first to his removal to Australia and thereafter to his appointment to a chair in Manchester, make their first appearance and, in some cases, play their decisive roles.

**FORMATION, EMIGRATION, INTEGRATION … AND FRUSTRATION**

Horace Lamb was born in Stockport on 29 November 1849, the son of Elizabeth (née Rangeley) and John Lamb, the latter a foreman in a cotton mill who had ‘gained some distinction by an invention for the improvement of spinning machines’.¹ His father died while Horace was still a child, however, and after his mother’s decision to remarry, young Lamb was brought up by a strict but loving maternal aunt, Mrs Holland. He was sent to Stockport Grammar School, where he had fruitful interactions with two of the teachers who were destined to have a significant influence in shaping his life’s course. One of these was a young classics graduate, Frederic Slaney Poole, who over the course of the year that he spent teaching Greek and Latin at the school (before leaving for South Australia) became good friends with Horace, who was then in his final year and, indeed, head boy.²,⁵ The other was the Rev. Charles Hamilton, headmaster of the school, who also taught Lamb classics and elementary mathematics. Lamb evidently responded to the tuition provided by Hamilton and Slaney Poole and was offered a classical scholarship at Queens’ College, Cambridge, in 1867.

Lamb’s inclination, however, was to pursue an engineering career, broadly following the path of his deceased father; he was thus advised (presumably by Hamilton) to decline the offer at Queens’ and went instead to Owens College, Manchester, for a year to develop his expertise in mathematics further. The Chair of Pure Mathematics at that time was held by Professor Thomas Barker, the third of the vital contributors to Lamb’s future, who had distinguished himself at Trinity College, Cambridge, and had graduated in 1862 as Senior Wrangler and 1st Smith’s prizeman. Barker had been appointed in 1865 to the Chair in Pure Mathematics at Owens College. He was acknowledged to be a lecturer of very high quality, although despite his exceptional flair in mathematics he was said by
Horace Lamb’s appointment at Owens College

J. J. Thomson⁶ never to have published a technical paper—at least not in that field. In any event, Lamb clearly prospered under Barker’s guidance, because he was elected to a minor scholarship at Trinity College, Cambridge, whence he graduated in 1872 as 2nd Wrangler in the Mathematical Tripos and 2nd Smith’s prizeman. He was immediately elected both a Fellow and a tutor in the college. Lamb’s own tutor at Trinity had been Henry Martyn Taylor, with whom he developed a lifelong friendship. Indeed, Taylor is the fourth of those identified as playing an essential role in Lamb’s destiny and, as will be seen later, was unquestionably the most important contributor.

It might be supposed that Lamb would, like Taylor, have remained many years at Cambridge. He had become thoroughly absorbed in his new role and, according to several accounts, prepared an innovative and much-appreciated set of lectures in hydrodynamics for third-year students. R. T. Glazebrook, for example, wrote of his time as a final-year student at Cambridge in 1874 that ‘his lectures were a revelation’ and that ‘Lamb, in his own inimitable manner unveiled the mysteries [of vortex rings] and made the properties of a liquid in rotational motion clear to us.’¹¹

The other decisive impact of the Rev. Charles Hamilton on Lamb’s future was that, through their association, Lamb met and became romantically entwined with Miss Elizabeth Foot, the young sister-in-law of his former headmaster. Trinity College still required its junior lecturing staff to be unmarried; thus, Lamb had to seek another position. He had evidently remained in touch with his former Greek teacher, Frederic Slaney Poole, who had by then become established as a cleric in Adelaide. On learning of the problem arising from his friend’s impending marriage, Slaney Poole enthusiastically wrote to Lamb⁵ that the newly founded University of Adelaide was establishing a Professorship in Pure and Applied Mathematics and proposed that he should apply—advice that Lamb duly followed. On 31 May 1875 he wrote to the Agent General to South Australia, Francis Dutton, enquiring about the position⁸ and then, having been lent a copy of the university’s constitution, confirmed his application for the chair by providing ten strong supporting references⁹ from his senior colleagues and former examiners; three of these were Fellows of the Royal Society, and the list also included Henry Taylor and Thomas Barker. The university relied on a selection committee that worked by correspondence: two distinguished mathematicians, I. Todhunter FRS and P. G. Tait, iteratively pruned some 20 initial applications down to their unanimously preferred candidate, and the former Governor of South Australia, Sir James Fergusson, then returned to London, oversaw and gave his blessing to their choice.⁹ Thereupon the agent cabled the Registrar that Lamb should be offered the appointment,⁹ a recommendation immediately acted on by the university. Some time later a further communication to Adelaide’s Registrar by Dutton announced: ‘Mr Lamb will embark in January [1876] before which time he will be engaged in the pleasing duty of taking unto himself a fair partner in life to embark with him.’⁹ Indeed, after a voyage around the Cape of Good Hope, Horace and Elizabeth Lamb arrived in Adelaide in March 1876 in time for the opening of the new university.

On first arriving, the couple stayed with Slaney Poole, whose letter had initiated their move, but in June that year they moved to a house just beyond the green belt to the north of the town in Robe Terrace, Medindie,⁵ that was to remain their home throughout their period in Australia and where six of their seven children were born.

Lamb very quickly became aware of the stark realities of teaching in Adelaide. In a letter to the Registrar of 20 March 1876 he wrote ‘there will be little choice in the matter of chalk
as Williams [a local stationer] has no such thing in his shops. Nevertheless, he eagerly plunged into his new responsibilities. As Samuel J. Way, the founder Vice-Chancellor of the university, later wrote:

His appointment with us was to the Professorship of pure and applied Mathematics; but he has also voluntarily and without any additional salary undertaken the subject of Experimental Physics. This is only one example of the ungrudging way in which his services have been placed at our disposal.

Besides the formal instruction to the student body, Lamb also arranged to deliver a series of evening lectures on popular scientific topics for the population at large. It was not simply in the lecture room that Lamb contributed to the new university’s development. As one of just four professors on the staff he was deeply involved in the academic, administrative and developmental activities of the university, serving as Dean from early 1878.

He also found time to pursue research. The first papers from his antipodean period were published in London-based journals in 1877, with a further one or two articles appearing in most years thereafter. Moreover, his lectures on fluid mechanics delivered orally in Cambridge in 1874 were formally shaped and expanded (to include more recent contributions) into a 258-page textbook published by Cambridge University Press. The quality and number of his publications were such that Lamb was recommended in November 1883 by seven Fellows, including Lord Rayleigh and Professor Cayley, for election to the Royal Society, a proposal that was accepted in the following June.

However, it was the lack of colleagues at Adelaide with whom to discuss ideas on mathematical issues that left Lamb most dissatisfied with his position. Indeed, as early as 1877, on learning that the University of Sydney would be replacing its retiring professor in mathematics, Lamb, perhaps feeling that Sydney would offer a less parochial environment than Adelaide, had written to Sir George Stokes (who was to chair the selection committee in England), enquiring whether he might be considered for the position. However, he received a discouraging response to this enquiry and did not submit a formal application. J. E. Barrow-Green suggests, plausibly, that Stokes’s negative response reflected his view that it would be easier to find someone new for Sydney rather than a replacement for Lamb in Adelaide. In any event, this sense of academic isolation seemed to be an endemic problem that Lamb felt throughout his residency in Adelaide. Seven years later, writing to his friend Henry Taylor, he complained:

the sense of isolation is at times most painful. Except every two years or so when I come across Nanson. I have hardly a soul to speak to who has any understanding of or sympathy with my pursuits. I confess too to feeling that I am fit for something better than the work I have here.

By then, however, he was already deeply engaged in a different strategy for easing the problem. In December 1883 he had written to the Registrar as follows:

Sir,
I wish respectfully to ask the Council whether they would be disposed to grant me a year’s leave of absence at the end of the next academical year [i.e. late 1884]. I shall then have been nine years in the service of the University, during which time I have undertaken duties which do not fall strictly within the scope of my professorship. I think I may fairly urge in support of my request that the change would give me opportunities, of
rendering myself more capable of discharging these as well as my other duties with efficiency and advantage to the University.

J. G. Jenkin\textsuperscript{4} has commented that although Lamb’s request seemed straightforward, it contained ‘the seeds of a long and sometimes distressing debate’. First, the university had no formal provision for leave of absence. Second, Lamb was reluctant to arrange for his teaching to be taken over by someone else during his period away (despite two requests from the Council for him to do so). Finally, the Council would not acknowledge the relevance of Lamb’s voluntary teaching of experimental physics to his application although they did discuss the question with him as a separate matter. Over the course of these exchanges certain members of Council formed the impression that the principal reason for the requested leave of absence was to provide Lamb with the opportunity of finding a position in England, a suggestion that Lamb firmly denied in a letter to the Registrar of 28 March 1884.\textsuperscript{16} However, perhaps that insinuation—that his main goal was to seek employment back in England—even if far from Lamb’s thoughts at the time, nevertheless lodged in his mind as an alternative option should the request for leave of absence finally come to naught. Correspondence travelled back and forth between Lamb and the Council, but by January 1885 no decision had yet been made. Thus, in the letter to Henry Taylor of 31 January 1885, a fragment of which is quoted above, Lamb had written:\textsuperscript{14}

My dear Taylor

I am going to ask you a very embarrassing question and so will acknowledge at once that I do not hope for any very satisfactory answer. However, I shall be grateful for anything you can say on the subject.

I would like to know, if possible, what chances I should have of getting employment in England. My position here is not uncomfortable, I get £1000 a year (which is, however, far from equivalent to the same sum at home), [and] I have not too much work, although my time is a good deal cut up. . . .

I have been on the whole very happy and comfortable here, but after all, I think, 10 years is a long enough time in Australia, if one has any chance of getting out of it.

There is a possibility that I may come to England for a visit towards the end of the year, but this is at present uncertain. If I came I could of course ascertain for myself what my prospects could be. But, in the meantime any ideas you could give me would be of great service to me in arranging the terms of my leave of absence. If I knew there was no chance of my getting anything I could afford to take I should probably engage\textsuperscript{17} to return and so secure more favourable terms; on the other supposition, I should leave myself free.

No record of Taylor’s written response to the above letter seems to exist, and negotiations continued with the Adelaide authorities. In February Lamb wrote a long letter to the Registrar regarding his physics teaching, at the end of which he begged leave ‘to suggest that the Council should formally establish a separate Lectureship on Experimental Physics. As I have no wish to create any unnecessary difficulties, I am willing . . . to accept this for the present, as an honorary appointment, from year to year.’\textsuperscript{4} As will be seen below, however, these negotiations were soon to be overtaken by decisive actions by Henry Taylor that sprang from that fateful letter of 31 January from Lamb.

Taylor, it hardly needs adding, was someone whom Lamb both admired and felt close to. He was, moreover, already indebted to him, for it was Taylor (in collaboration with another friend, W. D. Niven, also then at Cambridge) who had corrected the galley proofs and
otherwise steered the production of Lamb’s book through Cambridge University Press, a contribution to which Lamb referred both in the book’s preface and, obliquely, more than 40 years later, in his obituary of Taylor. As a non-verbal acknowledgement closer to the event, Lamb’s third son, born in 1883, was named Henry Taylor Lamb. The latter’s personal contribution to his father’s historical record appears below.

**The Chair of Pure Mathematics at Owens College**

Thomas Barker had, as noted above, been appointed Professor of Pure Mathematics at Owens College in 1865 at the age of 27 years. He had an excellent record as a teacher but evidently did not spend his time—as Lamb very clearly did—exploring research issues in mathematics. However, it was not that he had no research interests; rather, it was that they were directed elsewhere. From his youth, mathematics had been one of his two passions in life. The other was botany, and it was within this latter field that his creative energies were directed. By the 1880s he had become particularly attracted by bryology (the study of mosses). Moreover, whether by good luck or wise strategy, by the mid 1880s he had accumulated what M. Lawley has referred to as ‘a modest fortune from his investments’. Thus, given that—as a bachelor living with two unmarried female cousins—his financial needs were modest, he decided to resign his chair so that he could devote himself more fully to his botanical interests. The minutes of Owens College Senate from 25 April 1885 note that ‘the Senate has learned with extreme regret that Professor Barker has resigned the Chair of Mathematics which he has during 20 years filled with so much credit and advantage to the College.’ A fortnight later, on May 9, 1885, the Senate resolved

> that a Committee consisting of the Principal, and Professors Barker, Schuster, Stewart, Core, Reynolds, Ward, Adamson and Dawkins be appointed to examine, arrange and report on the applicants which may be received for the Professorship of Mathematics.

In the above list of professors, the first two named were those holding, respectively, the chairs of pure mathematics and applied mathematics. Barker’s resignation was to take effect from 29 September. The fact that he was appointed a member of the committee assessing potential replacements to fill his own chair perhaps underlines the warm sentiment felt towards him by the college’s professoriate as well as the value that the committee placed on having his expert view.

The announcement of the chair vacancy (figure 1) brought 13 applications; the committee’s report, presented to the Senate on 13 June, expressed satisfaction at the high calibre of most of the applicants. From the nine whose qualifications they especially commended, ‘two of them, Mr Horace Lamb and Mr R. S. Heath[,] stand out before all the others as being eminently qualified to fill the vacant chair with efficiency and credit.’ In fact, the first of those named did not make his own application—indeed, given the observations made at the beginning of this article concerning postal transit times, he could not have done so. Its originator was, in fact, Henry Taylor who, after strenuous efforts in contacting potential referees to supply testimonials, had written to the Council of Owens College on 28 May:

> Gentlemen
> I am authorised by my friend Mr Horace Lamb, who is at present in Australia, to request you to accept him as a candidate for the Professorship of Pure Mathematics in the Owens College.
College. I herewith enclose letters in support of Mr Lamb’s candidature from the following gentlemen:

Professor G. H. Darwin,
Mr J. W. L. Glaisher,
Mr W. D. Niven,
Lord Rayleigh and
Professor J. J. Thomson.

I also enclose a private letter addressed to me by Mr Lamb which will explain in some measure the reason for the present application appearing in this form. It was in consequence of having received this letter that I was induced, on hearing of Professor Barker’s resignation, to communicate with Mr Lamb by telegraph and to ask him whether he would be a candidate for the post. His reply is my authority for making this application.

I am, Gentlemen,
Yours faithfully,
H. M. Taylor,
Fellow and late Tutor of Trinity College

The ‘private letter addressed to me by Mr Lamb’ is, of course, the one reproduced above near the end of the previous section. It is worth noting that if Taylor had not forwarded it with the letter of application on Lamb’s behalf it would, in all probability, have been destroyed rather than being filed in the University of Manchester’s archives, where papers of all successful chair applicants from that time are held. The five referees named in Taylor’s letter were all Fellows of the Royal Society and, of those, Niven and Glaisher were personally known to Lamb. Perhaps this single sample from J. J. Thomson, later to become President of the Royal Society and Nobel laureate, may serve to convey the broad tone of all:

Trinity College, Cambridge
May 22nd 1885

I understand that Professor Horace Lamb is a candidate for the chair of Pure Mathematics at Owens College, Manchester.

I have not the honour of knowing Prof Lamb personally but I have read his Treatise on the Motion of Fluids and such of his papers that have appeared in the Transactions of the Royal Society and the Proceedings of the Mathematical Society. Judging from them I
should say that Prof Lamb is eminently qualified for the post for which he is a candidate. They not only justify his established reputation as an eminent mathematician but the clearness of their style impresses me with the belief that he must be an admirable teacher. I am confirmed of this view by the fact that his excellent Treatise on the Motion of Fluids is an expansion of lectures given in this college.

I can think of no one better fitted than Prof Lamb to maintain the Mathematical School at the Owens College in its present high state of efficiency.

J. J. Thomson

Having narrowed the list of candidates to two, however, the Committee did not, apparently, find it straightforward to choose between them:

The Committee proceeds to the task of attempting to compare the claims of Messrs Lamb and Heath. They first remark that the degree of those candidates is identical, each was second Wrangler and second Smith’s prizemen, Mr Lamb in 1872, Mr Heath in 1881. Moreover, each was elected to a fellowship in Trinity College and each holds a Mathematical Professorship, Mr Lamb in the University of Adelaide and Mr Heath in Mason College, Birmingham.

Mr Lamb is the author of a work on Hydrodynamics and of numerous papers in that subject and in Electricity—all highly praised by most competent judges. It is proper to mention that these works and papers are all in branches of Applied Mathematics but that they imply on the part of the writer a high position in Pure Mathematics also.

On Mr Heath’s part we have (1) His Dissertation for his Fellowship at Trinity College and (2) a paper on a branch of Transcendental Mathematics published on the recommendation of Professor Cayley in the Philosophical Transactions of the Royal Society and entitled ‘On Rigid Dynamics of Elliptic Space’. Both of these papers are very highly praised by Professor Cayley. There is also a paper read to the Birmingham Philosophical Society, which is probably an abridged account of part of the former paper. This, though more elementary in its treatment of the subject, seems clearly and well expressed, and would lead to the inference that the writer’s lectures would have the same characteristics.

Mr Lamb’s writings cover a wider range of subjects and, on the strength of those writings he was last year elected a Fellow of the Royal Society. It is only fair to point out that he has had 9 or 10 years to build up a reputation.

Mr Lamb’s lectures at Trinity College on Hydrodynamics, which formed the foundation of his book, and his efficiency as a lecturer are very highly spoken of. The good style and clearness of his papers are also in evidence.

Mr Lamb having been a student of Owens College before proceeding to Cambridge must have some knowledge of our system and he has no doubt been doing work of the same kind in Adelaide. The same may be said of Mr Heath’s work in Birmingham.

Both Mr Lamb and Mr Heath present testimonials from Mr W. D. Niven of Trinity College and the Committee invites the Senate to compare these testimonials in their bearing on the relative claims of the candidates.

In fact, both letters from Niven are strongly supportive of their subjects. Indeed, because the custom at the time was for testimonials to be sent to the candidate to be transmitted with
the letter of application, they could hardly be other than strongly supportive. We note, however, that the letter on behalf of Lamb, written on 25 May (two weeks after that for Heath) concludes with: ‘Looking around among available English mathematicians there is no one known to me whom I would prefer to Mr Lamb for the present post.’

Overall, it would seem that the report went to great lengths to make the cases of the two applicants for the chair seem finely balanced. For example, Lamb’s array of published papers, his book and his election as a Fellow of the Royal Society were presented as though they were balanced by Heath’s thesis and a lone paper in Philosophical Transactions on the grounds that Heath was much the younger. Yet again, the fact that Lamb’s principal research contributions were to applied (rather than pure) mathematics could have been presented more positively. They certainly showed that Lamb’s parallel fascination with problems in physics enabled him to show practical applications of the analytical tools of pure mathematics, thus stimulating students’ interest in what some might otherwise see as a ‘dry’ subject. The Committee could also have noted that Lamb’s contributions made at a newly created university in one of Britain’s most distant colonies, isolated from the stimulus of intellectual interactions, made his achievements particularly remarkable—but again it did not. This in turn may suggest that there was a division of opinion on the committee as to which candidate represented the better choice for the college. Perhaps it was only by presenting the virtues of both candidates in such an even-handed way that it was possible for the Committee’s report to arrive at the final decision without bruising the sensibilities of a senior member of the Committee. Finally, the report reached its conclusion: ‘On the whole in the judgement of the Committee either Mr Lamb or Mr Heath would fill the vacant chair with credit and efficiency; they consider however Mr Lamb’s qualifications be superior to Mr Heath’s.’

However, if the suggestion above is correct, who might have been the individual for whom such care was taken to make the rival claims of the two candidates seem to differ by only a whisker? It clearly could, from the point of view of status, have been the Principal, Dr J. G. Greenwood, who was chairing the committee. But Greenwood had served as Principal since 1857 and was evidently an old hand at handling appointments committees. Moreover, he was a classics scholar and was clearly wise enough to let the subject experts determine the best candidate while applying his own special skills to the finer points of procedure and strategy. No, the only member that the Committee as a whole would wish not to offend was the departing Professor of Pure Mathematics, Thomas Barker. As already noted, Thomson had remarked (in what, overall, was intended as an affectionate tribute) that there was no record of Barker’s publishing anything in mathematics over the course of his career. Given his different priorities and interests, Barker may thus have been less than impressed by the substantial body of research published by Lamb and his consequent admission to the Royal Society. Were they not the danger signals that if Lamb were appointed he would give inadequate attention to what Barker clearly saw as the most important role of the new professor, that of providing rigorous yet sympathetic instruction for the student body? Moreover, Heath was 27 years old at the time of his application, the same age as Barker when he had been appointed to the chair at Owens. That would clearly have had nostalgic resonances for Barker as he moved towards his own retirement.

Alas, it now seems unlikely that evidence still exists to support the above conjecture. In any event, on consideration of the report, the Senate approved its recommendations but with the addition of a further proviso.
The Senate, while cordially adopting the recommendation of its Committee in placing Mr Lamb first, would draw the attention of the Council to the fact that, owing to the circumstances of Professor Lamb’s candidature they have not had before them any record of his career, other than of his scientific activity, or testimonials relating to his experience as a teacher in the post he has held for the past 10 years at Adelaide.

With the addition noted above, the report was ‘adopted as the report of the Senate to the Council by resolution of the Senate’ and, at the meeting of Council on 19 June 1885, was approved without dissent. Henry Taylor was then duly notified of the likelihood that Lamb would be offered the chair subject to an interview by Council and to Lamb’s furnishing references from appropriate persons in Adelaide. Taylor in turn (and, from what is noted below, clearly at the request of Council) telegraphed the Council’s decision to Lamb. In response, on 1 July Lamb addressed an envelope (figure 2) containing four letters of support from members of the Adelaide Council to Dr Greenwood together with the following covering letter from himself:

Adelaide, July 1 1885

Dear Sir,

I have received a telegram from Mr H. M. Taylor from which I gather that the Council of the Owens College have postponed the election to the Professorship of Pure Mathematics for which I am a candidate in order to give me an opportunity, if possible, of meeting the Council in person, and also to furnish testimonials relating to my career in Australia. For this kind consideration on the part of the Council I beg leave to tender through you my warmest thanks.

I send with this letter testimonials from several of the more important members of the Adelaide University Council.

As regards a personal interview, I have arranged to leave Adelaide by the P&O steamer ‘Carthage’ which sails on July 30 and is due in London on Sept. 15. I will inform you immediately of my arrival; and in case there is anything which you would wish to communicate to me beforehand, I would be much obliged if you would kindly address it to me c/o Sir Arthur Blyth, KCMG, Agent General for South Australia.
Horace Lamb’s appointment at Owens College

The above date, July 30 is the earliest at which I could, consistently with my duty to the University here, make my departure.

I have the honour to remain
Your obedient servant
Horace Lamb

The four Adelaide testimonials all praised Lamb’s qualities but expressed regret at his probable impending departure. A fragment from the letter from the Chancellor, Samuel Way, has already been quoted. The following from the Vice-Chancellor expresses the general sentiment of all but, uniquely, shows a knowledgeable and affectionate view of Owens College that may have made it particularly persuasive.

The University of Adelaide, July 2, 1885

To the Council of Owens College, Manchester
Gentlemen,

It was with great regret that I heard from Professor Lamb, at the last meeting of Council of this university that he was a candidate for the vacant chair of Mathematics in the Owens College. He has held the chair of Mathematics in this university from the time when it first commenced practical work more than nine years ago. The difficulties of his position in having to occupy so prominent a place in a university which was then deemed by many, like Owens College in 1852, as unnecessary and premature did not appal him. He entered with spirit into the circumstances of the colony and did his best not only to teach the students of his classes but to foster the spirit of learning in the Community. By public lectures and evening classes he added to his own labours, & at the same time awoke more interest in the university and its work.

Of Professor Lamb’s unbounded enthusiasm in the cause of Science and of the wide range of his acquirements outside the limits of his own chair, all who know him intimately can speak with confidence and admiration. It has been my pleasure to work with him as a member of the Professorial staff, having for 2 years held one of the chairs of this university and to share with him in the labours of the examinations. I am thus able from experience to testify to his skill in the management of the internal working of the university, as well as to his wisdom in the deliberations of the Council.

I shall regret exceedingly the departure of Professor Lamb if he should obtain the appointment for which he seeks. At the same time I cannot be unmindful of the fact that I was myself a student of the Owens College in its early years & have always felt a deep interest and no small pride in its history & progress. For this reason I shall be glad if you see fit to appoint Professor Lamb to the vacant chair, for I believe his appointment would serve the best interests not only of Owens College but of Victoria University.

I am, Gentlemen
Yours obediently,
Wm. Roby Fletcher, M.A. Lond. & Adelaide
Vice Chancellor of the University of Adelaide

Even before receiving the above letter from Lamb, Greenwood’s actions suggest that he may have received some telegraphic communication, whether direct from Lamb or via Taylor, setting out a proposed arrival schedule. In any event, by early July he had realized that the inevitably protracted timescale of Lamb’s arrival in Manchester meant that the other candidates could not be kept waiting with no news of their applications.
until September (after Lamb had presented himself to Council). The next meeting of Council on 3 July thus decided that all the other candidates, including Heath, should forthwith be sent a letter thanking them for offering their services but announcing that the appointment would go ‘subject to certain conditions’ to Horace Lamb. A fortnight later the Minutes of Council of 17 July noted that ‘The Principal reported that he expected that Professor Lamb was now on his way to England’, although Lamb’s letter to Greenwood cited above (which was then still in transit) implies that to meet his obligations to Adelaide he had had to take a later sailing than had originally been intended.

Back in Adelaide, while the Council were aware that in all probability Lamb would be leaving permanently, he was formally granted leave of absence. The news spread around campus, and S. G. Tomlin reports that before his departure, at a gathering of students and staff in the university library, he was presented with a silver rose bowl and, from the student body, an illuminated address handwritten on vellum that read:

Dear Sir—We who have enjoyed the rare privilege of sitting at the feet of so able an instructor as yourself gladly avail ourselves of the occasion of your departure for England to enjoy a well earned holiday, to express in some slight form our high appreciation of your ripe scholarship and the universal esteem in which you are held. The zeal displayed in the discharge of your arduous duties, and the interesting and happy manner in which you have delivered your able lectures will not soon be forgotten by those who have attended them.

Your ready and generous assistance in times of difficulty and the kind interest you have always shown in our welfare, have become by-words to us who in the pursuance of our studies have come under your care. It is therefore with mingled feelings of pleasure and regret that we join in wishing Mrs Lamb and yourself a very pleasant journey, and we trust that at no distant date we shall have the pleasure of seeing and hearing you again.

Though Lamb was evidently very touched by the gifts, he was never to return to Australia. Some 30 years after his death, however, both artefacts were donated to the University of Adelaide by his descendants.

As he had promised, on arrival in England he immediately made contact with the Owens College authorities and on 18 September a special meeting of Council was held at which just six members, including the Treasurer (in the chair) and the Principal, interviewed the aspirant new professor. At its conclusion the meeting resolved

That Mr Horace Lamb be appointed from and after the 29th September next and subject to the By-laws of the College for the time being at an annual fixed stipend of Three hundred and fifty pounds together with a share of the fees of students attending his classes according to the usage of the College.

That this resolution & engagement are made subject to their being reduced into form as an agreement with the Professor under the By-laws of the College.

Thus did Horace Lamb exchange his professorship in Adelaide for one in Manchester, thanks to his own personal qualities, the major efforts of a loyal friend and the coming of the telegraph! Indeed, this may well be the first occasion on which the telegraph had been employed to facilitate a professorial appointment.

Concerning the last of these contributors, the overland telegraphic connection from Adelaide to Port Darwin had been completed in August 1872 with much national rejoicing and praise. By October in the same year, the sea cable linking Port Darwin to
Java, after initially failing, had been repaired, thus providing the connection to Europe via pre-existing cables. This development meant that texts from England could reach destinations in Australia in a few days (rather than two months by sea) or, rolling forward in time to the mid 1880s, in a few hours. The telegraphic connection was immediately heavily used, but principally for commercial exchanges, governmental business and by journalists transmitting news events to home newspapers. Apart from the telegrams exchanged between Taylor and Lamb, however, no instance has been found of expatriate professors making use of the telegraph to seek (or be solicited for) possible employment in Britain. Indeed, in her review (appropriately entitled ‘Wranglers in exile’), Barrow-Green cites some two dozen British mathematics graduates who emigrated in the nineteenth century to take up posts at universities in the Southern Hemisphere. Of these, Lamb was the only one who returned, other than two who had been dismissed. As her title suggests, once the decision had been taken to emigrate it was, at that time, tantamount to a commitment for life.

The reason that the telegraph had been so little used by senior academics in seeking distant positions must principally have been the cost. In this connection, Henry Taylor’s name makes one further appearance in the records of Owens College Council, this time in the report of the Treasurer, Alfred Neild, of 7 August 1885 in the depths of the long vacation:

The only account which I have to present is: Mr H. M. Taylor: £9 1s 4d for telegraphic communications with Professor Lamb in Australia which I recommend the Council to pass for payment.

The value of the reimbursement in 2012 currency amounts to some £800 in terms of retail price index or, on the basis of average earnings, approximately £4000!

... AND THEREAFTER

Lamb, having agreed the terms of his appointment, set up house with his family in Burton Road, Didsbury, at that time a leafy suburb some four miles south of the new campus. Figure 3 shows a photograph of him taken on his admission to the Royal Society in 1885, one year after his election (when he was still resident in Adelaide). His signature on the reverse of the photograph, prefixed by the title ‘Prof’r’ and the postnomial ‘FRS’ seems to suggest his quiet satisfaction with his new estate. Once settled at the college, however, one of his first services was to the University of Adelaide as a member of the selection committee for his successor, a role to which W. H. Bragg was appointed. Records contained in the University of Adelaide’s archives make it clear that that was by no means the only service provided for his former employer, because on many occasions he acted as an agent for the university in making numerous purchases on its behalf as well as leading the assessment of candidates for the Chair of English at Adelaide in 1894.

The final step in Lamb’s installation within the academic establishment of Owens College did not occur until three years after his arrival in Manchester. In 1888, after the death in post of Balfour Stewart FRS, the senior of the two professors of physics, the college formed a committee of which Lamb was a member to consider whether, as a measure of economy, some rearrangement of responsibilities could be made to avoid the appointment of an external replacement. Lamb clearly became the driving force on the committee and
successfully proposed\textsuperscript{33} that Professor Arthur Schuster should relinquish his Chair in Applied Mathematics to take over the Langworthy Chair (which Stewart had held), while Lamb’s own remit should be enlarged to embrace Schuster’s responsibilities. Thus, as the Beyer Professor of Pure and Applied Mathematics, Lamb’s title and authority finally properly reflected his expertise and interests and provided the scope to develop in Manchester the broad spectrum of mathematics teaching and research that was to place the university among the top establishments in these fields.

A referee of this paper has nevertheless posed the interesting question of whether Lamb, in the course of his career, may have applied (unsuccessfully) for professorial positions elsewhere. His highly principled approach to all matters would suggest that he would not have considered such an appointment until his academic plans at Owens College, in his role as professor of both pure and applied mathematics, had been brought to some kind of fruition. In view of his standing, it is also unlikely that he would have applied, still less been rejected, for a chair vacancy at any university other than Cambridge. Possibly, if Sir George Stokes (1819–1903), holder of the Lucasian Chair, had decided to retire soon after completing his service as President of the Royal Society (1885–90), Lamb might have been tempted to consider an application. As it was, however, Stokes’s chair became

Figure 3. Horace Lamb at the time of his admission to the Royal Society. (a) Official photograph. (b) Reverse of photograph with Lamb’s signature. (Copyright © The Royal Society.)
vacant only on his death. At that point Lamb, then in his mid-fifties, if he had ever been interested, chose not to apply.\textsuperscript{34}

This is not the place to provide a detailed account of Lamb’s accomplishments during his Manchester years, both within the university and at national level. Separate but linked obituaries by R. T. Glazebrook and A. E. H. Love\textsuperscript{1} have summarized his principal research contributions. Here, therefore, it is simply noted that in 1895 he published the second edition of his book on fluid mechanics, now expanded to more than twice the length of the original, while the title was trimmed to a single word that, coupled with his own name, provides a word pair that still has resonance for fluid mechanicists in the twenty-first century: Lamb’s \textit{Hydrodynamics}! In total, the book ran to six editions; the sixth, which weighed in at nearly 740 pages, appeared in 1932 when Lamb was well into his eighties. In his obituary to Lamb,\textsuperscript{35} G. I. Taylor wrote of the book:

\begin{quote}
\indent During its long career, which is still in full vigour, it has been the foundation on which nearly all subsequent workers in hydrodynamics have built. The long-continued supremacy of this book in a field where much development has taken place is very remarkable and is evidence of the complete mastery which its author retained over this subject throughout his life.
\end{quote}

By the time that the last two editions appeared, Lamb had retired to Cambridge but not, as noted in the introduction, until he had reached the age of 70 years. At what may have been seen as a prelude to a normal-age retirement, in 1913 Ernest Rutherford FRS had presented the university with a portrait of Lamb painted by Lamb’s son Henry\textsuperscript{19} (figure 4), which now hangs in the new Alan Turing Building of the enlarged university.\textsuperscript{36} However, the outbreak of World War I in 1914 caused Lamb to postpone any thought of retirement until the end of hostilities. When, in 1920, Lamb’s actual impending resignation was announced it was met with considerably more than the usual expressions of thanks and regrets. Senate, for example, resolved

\begin{quote}
\indent That [it] wishes to place on record its high appreciation of the long and devoted service of Professor Lamb as a Teacher in the Owens College and the University, its recognition of the distinction he has conferred on the Chair of Mathematics and on the whole University by his brilliant research and its gratitude for the wisdom and unfailing courtesy with which he has taken a leading part in its activities and maintained the dignity of its debates.
\end{quote}

Moreover, it took the unusual steps of organizing a farewell dinner in Lamb’s honour and conferring on him an honorary DSc degree. Thereafter, as the honorary Rayleigh Lecturer in Cambridge, he relentlessly pursued his scholarly and public-service activities for more than a dozen years.

Finally, the (known) progress of those whose lives intersected most directly with Lamb’s during the crucial transition phase in his life is briefly noted.

\textbf{Robert S. Heath}, Lamb’s principal rival for the chair, remained at the Mason College and published the successful \textit{A Treatise on Geometrical Optics} with Cambridge University Press in 1887. His role extended with time into the college’s management and he was appointed principal of the college in 1890. From that perspective he published a book on the college’s history in 1897. He must have been centrally involved in the absorption of the college into the newly created University of Birmingham in 1900, in which institution he became the inaugural Professor of Mathematics and Vice Principal, retiring in 1918. No further
publications by him are known. However, his younger brother, Thomas Little Heath, combined a successful civil service career in the Treasury (for which he received two knighthoods) with a distinguished record of translating the Greek geometrical mathematicians (for which service he was elected a Fellow of the Royal Society in 1912). In his several books, Thomas warmly acknowledged the contributions of his brother in checking the books’ proofs.

**Henry Martyn Taylor**, whose actions had been vital in arranging that there was a ‘Manchester period’ for Lamb, relinquished his tutorial duties at Trinity in 1894 but soon thereafter suffered the complete loss of his sight. Lamb\(^\text{17}\) wrote that ‘the calm and courageous spirit with which he met his misfortune was the admiration not only of his personal friends but a much wider circle.’ Indeed, in what may well be seen as an expression of the sympathy felt by the Cambridge mathematics community, in 1897 a proposal for Taylor’s admission to the Royal Society, signed by no fewer than 18 Fellows, was submitted. The recommendation was accepted in the following year. In the preface to the third edition of *Hydrodynamics* (published in 1906) Lamb wrote:
Horace Lamb’s appointment at Owens College

I have ventured to inscribe on the flyleaf the name of Mr H. M. Taylor whose kindly encouragement first led me to write on the subject and whose help in revision I had gratefully recorded on former occasions. I fear that this edition is the poorer for want of the vigilant censorship which has so often been exercised for the benefit of his friend but which is unfortunately no longer within his power.

However, as Lamb was later to write, Taylor’s most notable work was still to come. Having become

expert on the Braille typing machine, with his own hands [he] transcribed a whole series of text-books on mathematics, astronomy and geology to name but a few. In this task he was met by the fact that the Braille alphabet had hitherto no provision for mathematical notation, and diagrams were of course a special difficulty. Taylor devoted much thought to the invention of suitable symbols and contrivances [to address these problems].

Lamb notes, however, that the last few years of Taylor’s life were ‘clouded by increasing infirmity’ and he died on 16 October 1927. The funeral service in the Chapel of Trinity College ‘drew together a large company of friends and colleagues to pay the last tribute of affection and respect to a lovable character.’

Thomas Barker, the prematurely retiring Professor of Pure Mathematics whose departure created the opening for Lamb, moved from the inner suburb of Withington successively deeper into the countryside, first to Whaley Bridge in Derbyshire and finally to Fairfield on the northern fringe of Buxton, where he died in November 1907. Lawley notes that in his will he left some £40 000 to the Victoria University of Manchester to found a professorship of cryptogamic botany plus bursaries and scholarships for the encouragement of able students of slender means in the departments of mathematics and botany. Alas, the university’s investment strategy proved to be less expert than Barker’s. By the time the final chairholder, Professor A. P. J. Trinci, was appointed in 1981, the endowment covered only a small proportion of the appointee’s salary. Professor Barker bequeathed his herbarium to the Manchester Museum.

Apart from an absence of four years as vicar in Ballarat, Victoria, the Rev. Frederic Slaney Poole was based in Adelaide for the remainder of his long life, serving in various clerical capacities. He also served on the Council of the University and, from there, the appointments board to fill (on two occasions) the Chair of Classics, a role presumably arranged by Lamb, who chaired the board. Indeed, on both occasions he took on a temporary role as lecturer in Latin and Greek in the interregnum between the departure of one professor and the arrival of the next. He died in 1936 in his 91st year and was buried in Adelaide’s North Road Cemetery to join his wife and only son, who had predeceased him. Eighteen months earlier, after Lamb’s death, he had written an affectionate tribute to him that appeared in the letters column of the Adelaide Advertiser:

The University [of Adelaide], so small and unimportant in those early days, owes a great tribute of affectionate regard to the memory of its old professor. I feel that the reputation which he obtained and the European fame which was his, confers an honor on the University which he so well and faithfully helped to found.

ACKNOWLEDGEMENTS

Appreciative thanks are extended to the archive-library staff of Manchester and Adelaide Universities for their considerable assistance in making available relevant archive documents.
NOTES


2 S. G. Tomlin, ‘Physics and physicists in the University of Adelaide—the first seventy-five years’ (undated). The preface to this electronic file contains the following statement by Keith Briggs: ‘This document was written by S. G. Tomlin and first produced as a typescript, probably in 1974. Mr Briggs indicated that while he had corrected the optical character-recognition errors, he had left untouched the several spelling errors, mainly of proper nouns, for example Herz (for Hertz). See http://www.chemphys.adelaide.edu.au/disciplines/physics/history/first-75-years.pdf (accessed 27 November 2012).


5 F. Slaney Poole, letter to the *Adelaide Advertiser* (10 December 1934), p. 12.


8 In his first letter to Thomas Dutton (University of Adelaide Archives: Registrar’s Department Correspondence, 1872–1923, Item 126) Lamb refers to an advertisement in *The Times*. Moreover, his letter asks: ‘Is it likely that sufficient leave of absence would be given within a reasonable time to enable the professor to visit Europe?’, a highly pertinent question considering later developments. It is very unlikely that Dutton would have been able to answer this question, although, as seen from the main text, Lamb proceeds with his application.

9 Application for professorships in mathematics and natural sciences, 1875, The University of Adelaide Archives ID 169-126.

10 From a letter of reference from Samuel J. Way to the Council of Owens College Manchester, 30 June 1885 (see note 14). Way, who was simultaneously the Chief Justice of South Australia, relinquished the Vice-Chancellorship seven years after the opening of the university. He thereupon moved to the less demanding role of Chancellor.


12 The other proposers were J. W. L. Glaister, W. D. Niven, G. H. Darwin, J. C. Adams and R. J. Glazebrook. The first two of these were colleagues of Lamb’s from his time in Cambridge.


14 Application papers for chair in mathematics, 1885, Owens College Archive, OCA/19/48, University of Manchester Library.

15 Edward John Nanson was a year younger than Lamb and had graduated from Trinity College in mathematics in 1873 with an identical level of distinction (namely 2nd Wrangler and 2nd Smith’s prizeman). After spending a year as Professor of Applied Mathematics at the Royal Indian Engineering College, Cooper’s Hill, Runnymede, he was appointed professor in the University of Melbourne, arriving there in June 1875. (From G. C. Fendly, ‘Nanson, Edward John (1850–1936)’ *Australian Dictionary of Biography*, vol. 10 (Melbourne University Press, 1986).)
Horace Lamb’s appointment at Owens College

16 Letter from H. Lamb to Registrar, 28 March 1884, University of Adelaide Archives Series 169.
17 Lamb’s calligraphy is sufficiently indistinct (and not aided by the passage of time) that the word ‘engage’ is a best interpretation by the author of what is written. The word clearly has two letters with descenders at the positions where the two letters ‘g’ appear and the shape of the other letters is not inconsistent with their making up the remainder of the proposed word.
19 Henry Taylor Lamb RA became a war artist and notable portrait painter from the first half of the twentieth century; see figure 3.
21 Report of the Committee of Senate on Applications for the Chair of Pure Mathematics, Owens College Appendix of Senate Minutes vol. II, pp. 279–282, OCA/10/1, University of Manchester Library.
22 There was a further letter of support from Sir George Stokes (op. cit. (note 14)), who later that year was to become President of the Royal Society. However (as recounted in his letter), having been asked by Taylor for a letter and having expressed his willingness to furnish one, the matter went out of his mind until the final date for submission, an omission he blamed on his lecturing responsibilities and the fact that the brothers Sir William and Professor James Thomson from Glasgow University were visiting him (‘and you know perhaps that Sir William Thomson is a man who keeps your brain going’). When he finally recalled his undertaking, Stokes feared that the absence of any report from him might count against Lamb’s case (because many of his own research contributions had also been in hydrodynamics) but did not wish to send in his letter late. Accordingly, he wrote to Sir Henry Roscoe FRS, Professor of Chemistry at Owens, whom Stokes presumably knew via the Royal Society, asking, in the event that he were on the Chair Committee, whether he could introduce his (Stokes’s) response at the right place. Roscoe was not in fact a member but he evidently passed the letter on because it was filed in the same box as all the others relating to the appointment to the chair. In fact, the letter is more a witness to Stokes’s inability to cope with the pressures of life than an endorsement for Lamb, because the great majority was concerned with his personal dilemmas. Indeed, he admitted that he had never even looked at Lamb’s textbook published six years earlier because ‘hitherto I have always found something else claiming attention’.
23 In the original draft version of the report the words ‘both’ and ‘and’ appeared rather than ‘either’ and ‘or’ but were struck out with the finally adopted words written above.
24 Even though he was only 47 years old.
25 Minutes of Senate of 13 June 1885, University of Manchester.
26 Op. cit. (note 14). Note that the date is one day after that of Lamb’s letter. It seems unlikely that either would have got the date wrong, however. Possibly Lamb wrote his one evening, having been promised one from the Vice-Chancellor that was written and passed over the next day.
27 Minutes of Owens College Council, 18 September 1885, OCA/9/1, University of Manchester Library.
30 See http://www.moneysorter.co.uk/calculator_inflation.html.
31 The committee’s choice, William Henry Bragg, was younger and even less experienced than Lamb had been at the time of his own appointment to Adelaide. The committee evidently perceived quality and potential, however, because Bragg, after spending some 20 years in
Adelaide, went on to win the Nobel Prize in Physics (jointly with his son) and to become President of the Royal Society. In fact, Lamb also served on the committee that appointed Bragg’s son, William Lawrence, to the Langworthy Chair of Physics at Manchester, after the resignation of Ernest Rutherford FRS, thereby replacing one Nobel laureate by another (University of Manchester Senate Minutes, 11 April 1919).

It was presumably in appreciated recognition of these services that the University of Adelaide presented Lamb with an oak drop-leaf desk and a fine art nouveau display cabinet, the latter engraved with his name and year, 1894. Lamb’s descendants presented these to the University of Manchester.

This action arose from a resolution of Council of 16 March 1888 (Appendix Book 6 of Minutes of Council, OCA/9/1, p. 299) and concluded with the resolution of 4 May 1888 by Council (ibid., p. 311):

“(iv) that the subjects hitherto assigned to the Chair of Applied Mathematics be transferred to the Chair of Pure Mathematics and that the combined professorship be called the Beyer Professorship of Pure and Applied Mathematics;

“(v) that from 29th September Professor Lamb receive a fixed stipend of £400 per annum together with 2\textsuperscript{nd} of the fees paid by students in the classes of pure and applied mathematics.”

The chair vacancy was filled by Joseph Larmor, who remained in post until his retirement nearly 30 years later. Cambridge University Archives (UA O.XIV.54) indicate that the applicants did, however, include one professor from what by then had become the Victoria University of Manchester: Osborne Reynolds. He was then in his sixties and already suffering from the early stages of the memory loss that was to force his early retirement in 1905. His application must be seen as a quixotic gesture, provoked no doubt by his great admiration for Stokes; see J. Allen, ‘The life and work of Osborne Reynolds’, in Osborne Reynolds and engineering science today (ed. D. McDowell & J. D. Jackson), pp. 1–83 (Manchester University Press, 1970).


After the amalgamation of Victoria University of Manchester and the University of Manchester Institute of Science and Technology in 2004, the new University of Manchester embarked on the creation of many new buildings, of which the Alan Turing Building was one. The lower floors of the building provide the current base of the university’s School of Mathematics.