

# Chapter 8

## After the PhD: Electric and Musical Industries (EMI) and Marriage to Lenore Nicoll, 1934–1939



You may remember me as the excessively tall Australian, a research student of Ratcliffe's with whom you played cricket for the Cavendish . . .

I have always intended returning to Australia at any rate in time to educate my baby daughter in a country free from class prejudice.

–Letter from Pawsey to P.W. Burbidge in New Zealand on 31 October 1938.

We do not know how Pawsey envisioned the best possible life and career for himself as he neared the end of his PhD studies. The evidence suggests that he was not interested in basic research, and he would not become so until after World War II. His correspondence indicates that he considered himself best suited to applied work and wanted to undertake this in an industry context. He had sought such work before coming to Cambridge. Or was the Depression affecting his optimism about a research career?

Pawsey seems to have taken a jaundiced view of the “Ivory Tower”. In June 1936, he wrote to his parents:

You had just received a copy of my Cambridge Philosophical Society paper. You need not bother about being unable to understand it. It would be unintelligible to anyone not working along my lines . . . It is the result of this specialisation of modern life. A more cogent criticism would be the remark “What good is it to anybody?” Actually practically none. The same holds of most work published.

The justification is three fold. Firstly, the doing should supply some training in thinking to the authors. Secondly every now and again someone stumbles on to a revolutionary discovery such as those to which wireless etc. are due and because of the training are able to systematise the discovery and reduce it to a useful form. Thirdly the whole background of human knowledge progresses by this means though mainly incredibly slowly.

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Much earlier, in March 1933, with at least a year to go to complete his PhD degree Pawsey was already looking for employment; he had written then to the Radio Research Board in Australia,

perhaps applying for a position vacated by one of the research staff. As a part of the application, Pawsey asked Rutherford and Ratcliffe to write letters of reference.<sup>1</sup> They responded with remarks about his working style.

Rutherford: Pawsey has attacked his experimental problems with energy and enthusiasm and has made good progress. He has proved a very competent experimenter with good judgement in the interpretation of his results . . . I should judge Pawsey would prove a very useful investigator on radio problems and I am sure he would work well with his Colleagues. I can recommend his claims for consideration strongly for this post. (9 March 1933).

Ratcliffe: . . . I have been particularly impressed by Mr. Pawsey's caution in interpreting the results of his experiments. He is not satisfied with the results until he has checked them in every possible way. This tendency to suspect every result and to criticise his own work, has been of great value to him in the work on which he is engaged, as it is so easy in this work to take measurements which do not correspond to the quantities one is trying to measure . . . I consider that Mr. Pawsey has a very wide knowledge of Wireless matters. Mr. Pawsey will be found very acceptable in any society, and will fit in well with any team of workers. (8 March 1933).

Pawsey must have gone on looking for work, because in March 1934 he announced to Lord Rutherford that he wanted to join the Gramophone Electric and Musical Industries (EMI), along with a few others from the Cavendish Laboratory including Ted Nicoll. He required special permission because he had not satisfied a residency requirement for a PhD, missing out by one term. Rutherford wrote Priestley, the Secretary of the Board of Research Studies at the University of Cambridge on 16 March 1934:

J.L. Pawsey is leaving to take a post at the end of this term so he is one term short of the three years required for the PhD. As he did 2½ years work at research in Melbourne before he came to Cambridge, and also published a paper, I recommend he be allowed to proceed to the degree without completing the last term.

Pawsey also wrote Priestley on 2 May 1934 with this information<sup>2</sup> and pointed out that he intended to submit a PhD thesis on his Cambridge research later in 1934. On 16 May, the Board of Research Studies granted Pawsey's request for an exemption.

And so Pawsey left Cambridge to begin his new position at EMI, Hayes, and he travelled from Cambridge to Hayes, London, 115 km, on a bicycle with two suitcases. As he explained to his parents:

I "came down" [left the university as a postgraduate] from Cambridge today. I am no longer a student . . . Tomorrow I go to the works [EMI] to start work. It all seems queer does it not? I came down here equipped with a push bike, my small leather suitcase full of clothes and my other little one with results of work in Cambridge. I have to write it up yet and I did not wish

<sup>1</sup>These two letters are the first entries of Pawsey personnel file (NAA AH8520/PH/PAW/1Part1, 1933 to 1947).

<sup>2</sup>He also submitted a reprint of the publication "Accurate Measurement of the Frequency of the Carrier Waves of Victorian Broadcast Stations" to indicate his Australian research.

to lose it or to take a chance of doing so. The two made quite a load on a bike and I guess I looked a trifle gauche as I came through the centre of London—up Piccadilly and by Hyde Park Corner and so on.

However, the chief thing I want to talk about is this. I have this job. I am writing a thesis in my spare time. I am not sure how long this will take. I hope to finish by June but may find it takes longer than I think and there is a chance of it being carried over till October. During this time my time will be pretty full and I do not want any avoidable distractions.

It therefore looks to me as if the time after I finish my thesis is a time at which it would be a good idea for you two to come over to England. It looks as if I shall be fairly free and also not saving up money for any definite purpose. I would like to live with you again for a while and I do not think there will be another chance. I am not going back to Australia—for two years at any rate—and if we leave it much longer then I shall probably be getting married and preventing it [a visit of his parents to England] that way.

In early April 1934, Pawsey followed other Cavendish colleagues in joining the group of E.C. Cork at EMI in Hounslow, 17 km west of Charing Cross in London. This was at an extremely exciting time for EMI, a company that had emerged only 3 years earlier from a merger between two gramophone recording businesses. At the same time, the British government had set up a Television Committee and put out tenders for a new “high definition” service (defined by them as being a system of 240 lines or more) to be run by the BBC. EMI was one of the two tenders offered for an experimental period and established at Alexandra Palace (“Ally Pally”). Public excitement over the outcome of this rivalry between EMI-Marconi and Baird (the BBC broadcaster until this time) was considerable. And the pressure for EMI’s employees must have been not inconsiderable!

Radio astronomer Sir Bernard Lovell (1913–2012) has described Pawsey’s EMI experience in a thorough text in his Biographical Memoir for the Royal Society in 1964:

Pawsey’s work at EMI was dominated by the preparation for the television tests at Alexandra Palace using the EMI system. He was a member of the group led by E.C. Cork in I. Shoenberg’s (later Sir Isaac) research department. Cork’s group was dealing with a number of electronic problems associated with the early television development at that time, but Pawsey was concerned with the aerial and feeder design.<sup>3</sup> At the commencement of this work, Pawsey spent much time on field measurements of the polar diagrams of dipoles, reflectors and characteristic impedance of feeders. The number of lines to be used in the tests had not then been settled, and it seems that the late A.D. Blumlein was the first to draw attention to the effects of mismatched feeders on the transmitted picture. Two difficulties were recognised at that early stage. First, it was necessary that the impedance of the system should be matched at all frequencies within the television side-bands, so that no part of the signal should be attenuated. Second, since in the proposed installation at Alexandra Palace, and in any foreseeable practical system, a long feeder would be needed between the transmitter and the aerial, the time of transmission would be significant compared with the

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<sup>3</sup>In a letter to his parents, Pawsey wrote on 12 March 1935 pointing out that he worked for EMI who was responsible for the “special television problems” while Marconi was responsible for the “wireless transmitting end.” On 20 March 1935, he emphasised to his parents that he was “back on aerial work. The transmitting aerial, which is the Marconi Co’s job by rights appears to not be as efficient as it might be. We did some tests checking this up and now are trying to produce a substitute.”

shortest interval resolvable on the television picture. Any mismatch would cause reflexion along the feeder between the transmitter and aerial and eventual radiation with a time delay which would cause a double picture.<sup>4</sup>

Apparently the impedance measurements made on the first aerial-feeder system erected on the roof of the research block at Hayes were most alarming and it was with the measurements and modifications to this system, which eventually gave rise to the Alexandra Palace aerial, that Pawsey was primarily concerned. The vision channel was to be on 45 MHz, with 405 lines, 25 pictures per sec and interlaced scanning at 50 frames per sec giving a side band requirement of 2.5 MHz. The feeder length was 450 feet so that the travel time of 0.5 microsec corresponded to a frequency in the side-band range. Pawsey designed apparatus to measure impedances at 45 MHz to a few per cent. This requirement was somewhat similar to the problem Pawsey had encountered in his PhD work at Cambridge, where he had had to suppress the strong direct signal in order to measure the ionospheric reflection, which was only a few percent of the direct signal. At an early stage of this work it was necessary to solve the difficult problem of making a terminating resistance which would be constant and nonreactive over the frequency range 43 to 47 MHz. The solution of these various problems eventually led to the double ring of full-wave dipoles with the mast in the centre, erected at Alexandra Palace in the summer of 1936.

A most detailed and clear account of this work is given in the paper read before the Wireless Section of the I.E.E., by Cork and Pawsey (Cork & Pawsey, 1939) on 7 December 1938: "Long Feeders for Transmitting Wide Side-Bands, with Reference to the Alexandra Palace Aerial-Feeder System." The big challenge for Pawsey would have been going from MHz frequencies to 45 MHz for TV. The antennas used at Cambridge for ionospheric research were simple aerials and all the structures were much greater than the wavelengths used. But many new issues would have arisen at EMI working at 45 MHz because lengths of feed lines were now on wavelength scales. While some skills such as building radio finding devices to precise standards would still apply, many new problems would be encountered.<sup>5</sup>

As Lovell identified, a major achievement of this era was the **Pawsey stub**, the eponymous invention that Pawsey and Cork made in the 1930s. The relevant patent by Cork and Pawsey was Patent Number 462911, "Matching Aerial and Feeder". The device was developed for the 45 MHz Alexandra Palace television transmitter erected in August 1936, so was critical to EMI's challenge to the Baird company for the BBC tender. The main purpose of the Pawsey stub is to prevent the feeder from acting as an additional antenna. At EMI, Pawsey was working with much shorter

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<sup>4</sup>See Chap. 6 for remarks concerning how this scientific problem is closely analogous with current (2020) experiments to detect the EoR (Epoch of Recombination) signal. The problems are still exactly the same, but at quite a few orders of magnitude lower levels. The EMI work was even in similar frequency ranges.

<sup>5</sup>The authors thank CSIRO antenna engineer Alex Dunning for these insights.

wavelengths than had been the case for his PhD research at Cambridge.<sup>6</sup> At these shorter wavelengths, the distances between the connectors matter, since a wave could be reflected from any imperfections in the wiring. These kinds of reflections need to be cancelled out. Here Pawsey could immediately utilise the same principle he had drawn on in his PhD research. Then, he had suppressed the ground wave, which was the unwanted signal. In this case, Pawsey stub is a clever structure which is exactly  $1/4$  wavelength long and when unwanted currents (created by connecting an asymmetric structure such as a coaxial cable to a dipole antenna) are reflected by the stub, they have the opposite direction and are cancelled. The patent application reads: “This reflected current diverts power away from the antenna elements turning the cable itself into an antenna as well; this works by making the aerial connections look ‘balanced’, as the  $\pm$  voltage phases appear to radiate equally from both halves of the balanced  $1/4$  wave lines and hence cancel.” It acknowledges that “[T]hanks are due to Mr. A.D. Blumlein,<sup>7</sup> who foresaw the effects of mismatched feeder on the transmitted picture”.

A simple Pawsey stub, a quarter wave balun (balanced to unbalance transformer), as would be used by radio amateurs in the modern era is shown in Fig. 8.1.

The ham radio literature contains numerous references to the elegant and simple Pawsey stub with no reference to J.L. Pawsey and no reference to the history of the device. We note that the same Pawsey stub principle is used in microwave oven door seals, since the metallic connection between the door and oven cannot reliably stop microwave leakage. The Pawsey stub turns a deliberate physical open circuit into a good short circuit path for all currents circulating inside the oven, so none leak to the outside surfaces (Meredith, 1998, p. 126).

In 1936 and 1937, there were fleeting references to EMI work-related experiences in Pawsey’s letters to his parents. On 22 and 29 January 1936, he reported on his participation in the testing of a new 200-foot (61 metre) experimental mast at EMI, Hayes. “It is now ready to hurl to the top and erect.” The aerial was finally erected on 25 January 1936 with success. The output power of the TV transmitter was increased by a factor of two due to the fact that the previous tower was only 37 m high. A major concern was the distortion of the TV images; much work remained. By 15 July 1936, much progress had been achieved. There had been a big rush to get the new BBC TV station up and running:

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<sup>6</sup>Dunning has pointed out that at MHz frequencies and below concepts like Pawsey stubs would have been irrelevant but become essential for high quality TV research.

<sup>7</sup>Alan Dower Blumlein (29 June 1903-7 June 1942) was an English electronics engineer, notable for his many inventions in telecommunications, sound recording, stereophonic sound, television and radar. He received 128 patents and was considered one of the most significant engineers and inventors of his time. He died during WWII, 7 June 1942, aged 38, when the Halifax bomber on which he was testing an H2S airborne radar system (used to provide air crews an electronic map image of the ground below) crashed in Herefordshire. See <https://www.newscientist.com/article/mg12617215-100-forum-mystery-of-the-missing-biography-a-look-at-the-life-of-alan-blumlein/#xzz6DaRdYoES>.

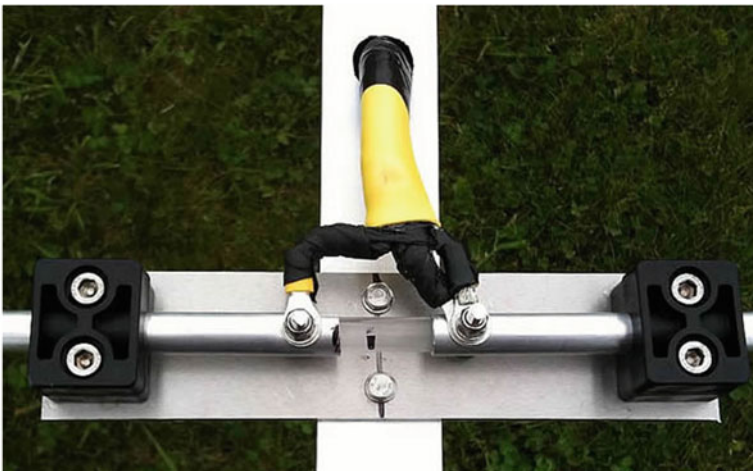
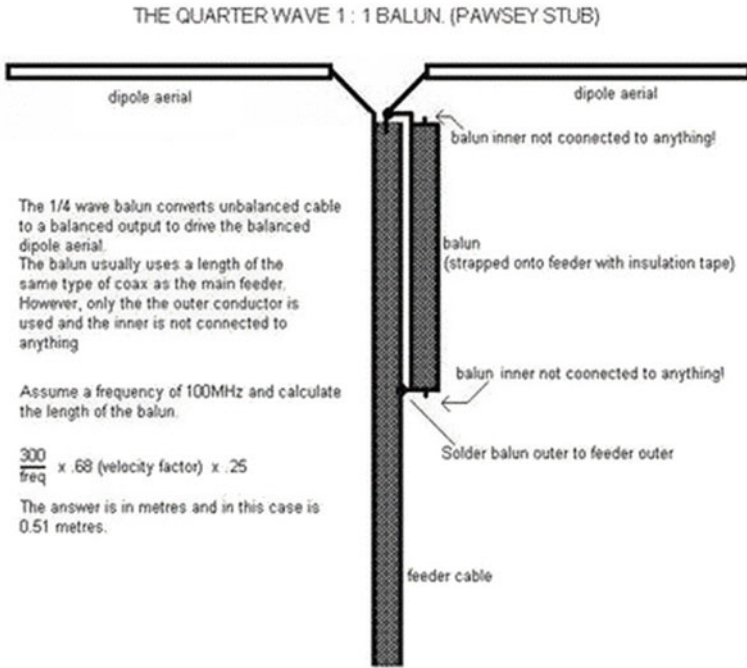


Fig. 8.1 A Pawsey stub from [http://www.gareth.net.nz/nrgworkshop/half\\_wave\\_dipole\\_aerial.htm](http://www.gareth.net.nz/nrgworkshop/half_wave_dipole_aerial.htm)

Cork and I are responsible for the aerial measurements and adjustments at the new BBC television station at Alexandra Palace. The aerial is in course of erection now. We expect to begin tests about the beginning of next week (20 July 1936). There will then be a wild rush to

get the thing finished by about Aug. 10th. This date being fixed by a wireless show at Olympia on about Aug. 20th at which it is desired to show television sets.

Not surprising in the end, the EMI-Marconi company were the standout winners of the rivalry at Alexandra Palace. Exclusive broadcasting with the 405-line electric Marconi-EMI system became the standard for all British TV broadcasts until the 1960s.

In 1937 (12 January), Joe and Ted Nicoll's sister Lenore watched an evening's series of broadcasts. Their assessment was hardly favourable: "The quality of programs is pretty poor. I guess it is hard to make them good."

Pawsey was involved with 29 patents made at EMI from 1934 to 1939; colleagues involved in addition to Pawsey were Alan Blumlein, Cork, Bowman-Manifold and E.L.C. (Eric) White. Pawsey also authored or co-authored 12 reports at EMI during the time from 23 May 1936 to 14 December 1938, again with Cork and Bowman-Manifold. The earliest report from May 1936 was "The Centre-Fed Dipole Antenna", and the last in 1938 was "The Cylindrical Current Sheet Antenna".<sup>8</sup> His expertise and insight in antenna design was undoubtedly consolidated at EMI. His work there showed the same integration of practical and theoretical perspicacity. We note that here, too, in a paper by Cork and Pawsey (1939), the use of Fourier methods of analysis was evident: "An alternative method of considering the phenomenon is in terms of the Fourier components of the signal." Although he was the author, or co-author, of 12 EMI reports on aerial and feeder designs, the I.E.E. paper is the sole published account of Pawsey's work during the EMI period. Under other conditions the work described in these documents would form the subject of several published papers, but various factors of EMI policy, and the competition of the Baird system, led to the restriction on publication.

## J.L. Pawsey: Courtship and Marriage

After arriving in the UK at the end of September 1931 and "coming up" to Cambridge on 5 October 1931, Pawsey started an active work schedule. In addition, he had a busy social life, initially governed by events organised by the Dominion Services and Students' Hospitality Scheme, organised by Lady Frances Ryder and Ms. Celia Macdonald of the Isles (see Chap. 6). Pawsey had a number of casual relations with several young women in 1931–1933, all with an Australian connection.<sup>9</sup>

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<sup>8</sup>NAA C3830 D26/4. A number of the reports were concerned with details of the Alexandra Palace television transmitter, e.g. filters for separation of sound and vision frequencies and the question of interference of Overseas Broadcast radio signals at Alexandra Palace by the local transmitters.

<sup>9</sup>Alison Bedggood from London was a distant relation of Betty Bedggood, a friend from Melbourne. Of Alison, Pawsey wrote to his mother (22 December 1931): "Alison is the attraction—by the way—she is one of three daughters—the middle one—about my age. They are fairly homely people—the girls work—Alison and Madge are in offices in the city."

Pawsey had an interesting friendship with Ysonde Guilbert of Tasmania for a short period in early 1932: “[She is] interested in the same things as I am, clever, she got one of the top scholarships in Tasmania on leaving school to go to the University and full of pluck and initiative e.g. her trip over here. She expects to get married when she goes back which brings your hope of a spot of gossip to the ground and opens the question of whether or not a married woman may have men friends.”<sup>10</sup> Pawsey and Ysonde clearly had engaging conversations: “I have been amazed at the similarity of our views, the more so since we have not spent any appreciable time together nor have we even moved in similar circles of friends. It is definitely not due to passive acquiescence on either part for as you know I am argumentative and she is as independent a thinker as I am.” (24 February 1932).

Joe had remarkably frank discussions with his parents, starting on 8 December 1932, about his goals for companionship:

I am “on the bust” at the moment. Lady Frances’s parties form a nucleus and an excuse for a visit to London . . . Tea and a dance on Monday—a visit to the Ford works . . . I had decided to do my best on the previous evening to pick up a nice girl at the dance and take her out the next day. However, I reached the end of the last dance without having made the attempt. I suppose it was a case of being too particular. You see I wanted: (a) Dominion [e.g. Australian, New Zealand, Canada or South Africa] girl, (b) more or less hard up (financial reasons), (c) good looking (aesthetic reasons) and (d) intelligent. I was handicapped by only meeting two satisfying (a). One was a former friend Mary Martin who satisfies a,b,c and d but was booked up. Incidentally she is Catholic and we differ on most subjects but are content to differ and be friends. The other failed to qualify on condition (c).

He elaborated on the theme of “Dominion girls” two months later (letter, 15 February 1933):

You commented on my preference for Dominion girls. The reasons are various. Firstly I get on best with Dominion people in that our manners are more nearly the same—an apt saying [attributed to a Dr. Murray] expresses it, “You do not know whether or not an Englishman would prefer your absence to your presence”. Anyway, you know better [what matters] to me . . .

In an undated letter from the period 1932–1934, Pawsey elaborated:

[As regards people from the Dominions], I have a first class introduction to overseas people both as common exiles and in that we are more interested in the familiar things of common place to the English. Thirdly when we are in a strange country we miss various conveniences etc. we are used to and do not give credit for the others which replace them. Consequently, with two people of different country of origin in the home country of one, the other always has a grouch against life which the other cannot understand. Fourthly Dominion people in England [have been chosen in their home countries to have special abilities].

Finally on 26 July 1933,<sup>11</sup> Pawsey continued his discussion of aspirations for marriage with his mother:

<sup>10</sup>From Pawsey’s letter to his mother on 10 February 1932. Ysonde left London for Tasmania (where she was to be married) on 26 February 1932.

<sup>11</sup>At this time, he was involved with Helen Borland; within a few months Lenore appeared on the scene.



I was also interested in Mother's philosophy of happiness. I agree pretty well—you work to get success because you think educational success and eminence will make you happy. But it won't alone. I have felt that there is a tremendous enhancement of pleasures in friendship and I think I, at present, do not look much further ahead than to a super friendship with a wife someday. I wonder shall I have the ability to pick a winner. If I don't I shall be in the soup rather—my hobby is not beer.

Pawsey was clearly looking for something more permanent. In 1933, he began a more serious relation with an acquaintance from Melbourne, Helen Borland, now teaching in Edinburgh.<sup>12</sup> But this did not last either (ESM 8.1, Helen Borland), as he informed his parents in letters that directly addressed his views of marriage and sex (complete extract in ESM 8.1):

It is quite hard enough without the usual restrained wording. I have, tentatively at any rate, decided not to give you my own views on the subject in general for fear of rubbing you up the wrong way, even though I am an idealist in the matter . . . I believe that the most effective way to discuss sex is to try to avoid possible innuendo by making all statements as precise as possible. Loose wording suggests more than a bare statement in the same way that a naked person is less sexually exciting than one in semi-transparent drapery.

## Courtship (1933–1934) and Marriage (1935) to Lenore Nicoll

In October 1933, Ted Nicoll's older sister Greta Lenore Nicoll (1903–1974) was on a tour of Europe<sup>13</sup> and the UK.<sup>14</sup> Up to this time, Joe had already met Ted's mother, Mabel Edwards Nicoll (1876–1971), and Ted's brother Hastings (1916–1943). Lenore wrote in her diary:

Joe wrote his mother on 26 October 1933 with a first mention of Lenore to his parents:

Last Friday week Ted Nicoll roamed over and announced that he was off to London as his sister was coming over from Paris. So I gathered up the odd excuse and went down the next day on his motor bike (we only registered one motor bike this quarter and I use his). We, that is Ted and Lenore (his sister) and another Canadian girl [Kate Neatby] and I went to a show. The next day we went to a service in Westminster Abbey and I returned in the afternoon.<sup>15</sup> Such services are singularly cold lifeless things. Lenore came back [to Cambridge] with Ted and is staying at his digs. She intends to stay for a month or so. She is or was a teacher, her health was not too good so she chucked it and came over here for *divertissement*. She is now whiling away the idle hour by learning typing and shorthand. She is older than Ted, 27 [in fact 30] I guess, very nice but I do not think quite up to Ted's standard.

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<sup>12</sup>Her father, Dr. William Borland, was the pastor of the prominent Presbyterian Scots' Church, on Collins Street in Melbourne.

<sup>13</sup>She had traveled from Southampton by train to Paris, then toured around France before returning to Paris in mid- October.

<sup>14</sup>Lenore Nicoll diary.

<sup>15</sup>Pawsey implies the meeting was on Saturday 16 October 1933, clearly incorrect by two days.

The next mention of Lenore was made by Joe on 1 November 1933, when he announced to his parents that Lenore would stay longer than “a month or two”: “Lenore Nicoll is staying here indefinitely. Supplies quite good company about the place—quite an addition to Cambridge life in fact.”

We owe a coherent narrative of the developing relationship to an account Pawsey sent in a long letter written to his parents on 29 August 1935. In this letter he summarised Lenore’s history. Lenore had been the first girl from Battleford, Saskatchewan, to go to university and for many years was known as the youngest female graduate of the University of Saskatchewan. (“Took degree youngest,” his letter stated).

Taught school at various places till 1932 Christmas. Owing to some obscure illness, probably run down, took a year off. Stayed with friends in Eastern Canada [Ontario] and in September 1933 [arrived Southampton 24 September, having departed from Halifax, Canada, on the *SS Westernland*] drifted over to Cambridge to live with Ted a while.

He added: “During the rest of the year Ted and I and a few others implanted in her the general outlook which she should have picked up in university if older. I saw an awful lot of her but reiterated to myself that I was not interested emotionally in such effect that I believed it.”

As the busy Christmas season approached with several parties organised by Lady Frances Ryder, Joe and Lenore took part in several events (letter 5 December 1933):

I went down to London last weekend for some Lady Frances Ryder parties. They culminated in a gorgeous dance at the Goldsmiths Hall. There were three of us from Cambridge from the Cavendish. Bob Chipman,<sup>16</sup> Bill Henderson and I and Lenore Nicoll. We all stayed at the old place in Kensington Garden Square so we had a merry time. After my experience two years ago when Ted and I at a similar dance were almost the only ones in dinner jackets we decided to hire tails for the occasion and all did so and appeared in full grandeur.<sup>17</sup> Went to bed about ¼ to 5 and came back here the next day feeling somewhat forlorn. I am intending to stay up here over the Xmas vacation. The idea is to do some work.

In contrast to the Christmas sessions of 1931 and 1932, Pawsey did not go to a home of one of Lady Frances’s friends. He, Ted and Lenore stayed in Cambridge, cheered on by a Christmas shipment from Australia, arriving just in time (letter to his parents on 28 December 1933):

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<sup>16</sup>Born 1912, Winnipeg, Manitoba, died 2008, Chester, Pennsylvania. Degrees from University of Manitoba, McGill and PhD, Cambridge, 1939, where he worked under the supervision of Ratcliffe. During his career he worked at Acadia University, Queen’s University, McGill and Toledo University.

<sup>17</sup>Ted Nicoll wrote his family on 15 December 1933 (Nicoll Family Archive) with a humorous description of the mix-up, after being told initially that a dinner jacket was the dress code. “. . . [W]hen Pawsey and I arrived in dinner jackets we and three others were the only ones in them, everyone else of the 150 men had full evening dress (tails) . . . [W]e were sort of ‘black sheep’—as we all had black ties instead of white . . . I don’t know what effect it had on Lady Frances but at any rate tried to forget about it and had a very good time. We danced from 09:30 to 02:30, the hall can hardly be described it was so beautiful . . .” Joe and Ted accompanied the Ainsworth sisters from Sydney.

I received your “box of happenings” on Xmas eve. I was coming home with Ted and Lenore from the Mears so we three came along here and unpacked it. There were a most intriguing lot of things inside—I expect you know most of them, crystallised pineapple, tomato juice, tinned meats etc. Ted and Lenore were batching at the time so we used some of the stuff for Xmas dinner, tomato juice, turtle soup etc. I am going to keep some of the stuff for camping days, give some to Peggy Mears and some to my landlady Mrs. Long. It was a jolly good collection.

On 9 May 1934, Joe explicitly mentioned Lenore for the first time in 1934, after his mother had asked about her in an earlier letter:

PS Answer to a question. Lenore Nicoll is a **Canadienne**. Ted Nicoll’s sister. I went to my first motor bike trip [in 1932] with Ted and share digs with him now.

On 23 May 1934, Joe wrote his parents a long letter describing a long Whitsunday (19 May) weekend trip to Stratford and Oxford. Joe was trying to persuade his parents that Lenore was another passing fancy:

The next day [20 May 1934] I went on to Stratford-on-Avon to join Ted and his fiancée and Lenore (Fig. 8.2). [Lenore met the group there; she had already begun her long 4 to 5-week bike tour of North Wales and Ireland, see below.] . . . I suppose you have been wondering who and what etc. is Lenore Nicoll. She is Ted’s elder sister—a school teacher at home—over here because she liked the idea—living on her savings—cheaply like we all do. She is quite good company—**but I had best kill the romance you are weaving into it all now—I do not anticipate you having her for a daughter-in-law.** [our emphasis].<sup>18</sup>

On 30 May 1934, he wrote to his parents: “Lenore has gone on a cycle trip through Nth Wales and has gone to Dublin. Rather game don’t you think?” On 20 June 1934, Joe reported again to his parents about a recent trip to Cambridge:

Last weekend I went up to Cambridge. Ted was taking out a PhD [about 15 June]. Lenore was returning from her long cycle trip in Ireland and England. She started off from Cambridge, went to Stratford where I told you Ted and I met her one weekend [20 May] and then went on through Wales to Holyhead, took boat to Dublin, went down to Killarney by train, returned by bike and then went up to Gretna Green on the way home. It was an amazing trip to do alone.

On 4 July 1934, Joe had a confession for his parents: “I had a jolly fine weekend with Lenore walking round the Isle of Wight last weekend. [1 July]. I suppose you are dutifully shocked.”<sup>19</sup>

On 11 July 1934, there was more: “We get our yearly holiday in about 3 weeks’ time—one miserable fortnight. It seems as if I shall be going over to the Continent with Ted and Kate Neatby and Lenore. We are thinking of taking a car over.”

<sup>18</sup>This sentiment was similar to a letter written at the end of March (31 March 1934) as he “came down” (ie, left Cambridge as a student) moving to the new job at EMI. Lenore was not mentioned explicitly as Joe tried in a half-hearted manner to convince them that he was still a “free man”: “I am not thinking of getting married—I mean I have no one possible in view which is a condition of affairs which may not last indefinitely . . .”.

<sup>19</sup>In this letter Pawsey also detailed his discomfort with Helen Borland’s negative impact on his self-awareness, see ESM 8.1, Helen Borland.

**Fig. 8.2** Joe Pawsey, Lenore Nicoll and Kate Nicoll at Stratford on 20 May 1934. Photo taken by Ted Nicholl. Credit: Joe and Lenore Pawsey Family Collection



Events took a new turn as Ted and Kate made a major decision in the next days of late July 1934. They announced that they would marry on 2 August in the registry office in Cambridge with witnesses Lenore and Kate's brother. The new couple would not participate in the European trip. Joe wrote to his parents on 1 August 1934: "Ted and Kate are getting married tomorrow and going to Cornwall so Lenore and I are all that is left of the Rhine party."

On 12 August 1934, Pawsey wrote a postcard to his parents: "Have come via Oberammergau and the Austrian Tyrol. All going well. The car giving no trouble. Have climbed about 4000 ft. this morning. We are now going on by Zurich to the Black Forest and then to Havre where Lenore sails for Canada and I to Southampton." On 29 August 1934, more details were sent. The highlight of the two-week trip to Europe was the Passion Play at Oberammergau in Germany, "A wonderful moulding of an old play in a modern, ultra-simple stage setting. In particular the blending of bright colours was very fine."

Lenore returned to Canada at the end of the trip. Pawsey explained: “Previously to this trip she had accepted a position in a little high school in Lashburn, Saskatchewan [110 km west of Battleford as an English and French teacher<sup>20</sup>].” He concluded: “Both our boats sailed the next night about midnight [20–21 August]—mine a packet to Southampton—hers the *SS Ascania* to Montreal and as I said before I did not enjoy the parting.”

In the omnibus letter of 29 August 1935 to which we have already referred above,<sup>21</sup> Joe also revealed the story of the turbulent development of their relationship in 1935. Both Lenore and Joe had major episodes of doubt as they decided their future. This letter (a typed letter from Joe to his parents), provided a series of “telegraphic style” brief phrases that provided a coherent summary of the difficult exchanges between Joe and Lenore starting in August 1934. Here is the sequence of events:

As Lenore left from Le Havre on 20–21 August 1934 to return to Canada after almost a year in Cambridge with her brother, Joe sent a telegram to the ship signed “Love, Joe”. On 23 August he continued: “. . . Feel as you do. Love, Joe.” On the same day she replied from the ship: “Thanks and love.”

The next telegram exchange began the following May (12 May 1935) as he sent a telegram to her in Saskatchewan: “Ted recovering well. Letter following answering letter in favour your visiting England.” She replied 31 May 1935: “Sailing *Athenia* June 29 if possible otherwise July Love Lenore.”

Then something went wrong. On 2 June there was no mention of “love”. Lenore succinctly wrote: “Visit cancelled. Lenore.” We do not have more detailed knowledge of her doubts, or his, during this time.

However, after almost two months, on 25 July, Joe issued Lenore an ultimatum: “Missing you. If ever coming come now. Trip or stay [at home in Canada?]. I pay fare. *Empress of Britain* sails Montreal August 3. Telephone me daytime Southal 2468 ‘personal’ if doubtful otherwise telegram reply paid.”

And Lenore decided to come to the UK: “25 July To Pawsey. Hounslow. Sailing 3 August. If you think one week in England worth price of fare. School starts Sept 1 anxious to see you cable immediately Lenore.” [That is—she would have to return immediately to Canada to begin the new school year.] On the same day Joe replied: “Come want you stay. Meeting *Empress Britain*. Cabling money Joe.”<sup>22</sup> On 29 July 1935, Lenore confirmed: “Sailing *Empress of Britain*.” On 1 August, Joe replied to

<sup>20</sup>She remained in Lashburn until May 1935.

<sup>21</sup>The letter was sent via airmail, a recent innovation for post from the UK to Australia. On the same day, Joe wrote his parents a letter via the conventional “sea post”: “I have completely exhausted tonight on a long air mail letter announcing my approaching marriage to Lenore. Result 11.40 pm. Hence may I retire from the letter business?”

<sup>22</sup>On 26 July 1935, Pawsey wrote the National Bank of Australasia in London with a request to send a sum of money to “a lady in Canada with utmost efficiency.” He wanted the transfer to occur by the next day. The funds were to be used for “rail and steamer fares” from Canada to the UK. Pawsey hoped that the transaction could be organised by letter but was willing to come in person to the bank.

Lenore on the *Empress of Britain*: “Wanted to see you so badly seemed futile act otherwise. Meet Southampton.”

During this period, Joe had kept his parents in the dark about the turbulent events in his relationship with Lenore. Longer extracts from the correspondence discussed here can be found in [ESM 8.1](#), Lenore Nicoll. The first mention of Lenore’s plan to return to England in 1935 appeared in a letter that he sent on 31 July, after Lenore had set sail. His information was written with a level of ambiguity:

The chief news this week is that Lenore is coming over for a summer trip. You may spend a lot of time guessing what the ramifications of this may be. That is what I am doing at present. However we shall see . . . My summer holidays begin the day after tomorrow. I do not know what I shall do except that I am going with Lenore and by car. Probably I shall remain in England. It is quite a time since I had an English holiday.<sup>23</sup>

Joe then confessed to his parents that some of the fault lay with him: “You will gather from the above a tale of rather unfortunate vacillation on my part.”

We now return to the omnibus letter of 28 August 1935 for what Pawsey called “the next act”, which:

began with the commencement of my holiday August 3 [1935] when I went to Oxford to stay with [his cousin Frances Lade Ward] for a week [at her home] before meeting the *Empress* at Southampton. From Southampton, Lenore and I came up to London to dump our luggage with Ted. Incidentally, neither Ted nor Kate knew of Lenore’s visit before our appearance. We then went on to Oxford and stayed the night with Frances before setting off the following night in the Fiat<sup>24</sup> for Scotland. We got as far as Gretna Green [in Scotland, famous for runaway marriages] the first night though without any serious result [ie, no marriage!]. The rest of the time was taken up by a rather fevered trip up through the Highlands to the extreme comers, John o’ Groats and Durness and a three day run down to the great North road. The net mileage was that I burned my boats and Lenore and I are to be married next Saturday week [7 September 1935].<sup>25</sup> I have been back about ten days now [at EMI]. Lenore is staying with Ted and Kate. We are busy looking for a place to live in the neighbourhood so that Kate and Lenore may do the feminine of fraternise during the day if they so desire. We have a small place in mind which calls itself a flat . . . We wish to live pretty cheaply and blow our money on other things when we wish to blow it. Our present choice is at 25/ a week, two-year contract.

Joe now provided additional information about the Nicoll family: Lenore was the oldest and Ted the next child. There were a younger sister Bessie Nicoll<sup>26</sup> and a younger brother Hastings Nicoll. Pawsey wrote:

<sup>23</sup>On 7 August 1935, Pawsey told his parents he would meet Lenore the following day. “I shall give you more information on this when details are available. At present they are not.”

<sup>24</sup>Pawsey’s car called “Lucretia”, bought for £35 in July 1935.

<sup>25</sup>In a letter from Pawsey to his family after their marriage on 27 September 1935, he admitted to his parents: “[In the evening of 19 August after our return from Scotland], Lenore and I had a most nerve wracking discussion on this problem of getting married . . . The occasion was one of about the highest nervous strain[s] in the course of those hectic weeks.”

<sup>26</sup>Pawsey had met Bessie the previous month while she toured Europe (letter from Joe to his parents 24 July 1935). “Last Sunday I went up to Cambridge with Ted . . . and Bessie Nicholl, his other sister. She is an exceedingly nice girl. While up there we said goodbye to Bill Henderson who sails for Canada tomorrow. He is the last of my real friends to leave Cambridge.”

We are getting married right away because Lenore has come over here from her work and is quite at a loose end till she is married. So we decided to get a house and have it fixed in a rudimentary fashion sufficient to just live in before getting married. I do not believe in its reality. It is not a case of getting excited about it, surprising little so in fact. We intend to get married in a local registry office. If possible we shall have Ted and Frances [Lade] as witnesses and to give us the necessary push off. I have arranged to have Saturday, Monday and Tuesday off. I am not sure yet where we shall go for a brief honeymoon. PS. Difficulty with nomenclature. Lenore knows me by the name of Joe.

On the day before the wedding, Joe wrote a short letter to his parents:

Tonight completes Book I of a life in the twentieth century. The individual chapters so far have been fairly good. It is hard to predict what will come. Marriage—War threatening—a century of social revolution. Work in London—Australia—or where. I have not time to really write.

We got your telegram and appreciated it very much—not so much your sending a telegram which I expected but I liked your wording very much. Lenore did too. I think she felt that somehow it conveyed that she was being really welcomed—that you were trying to look on it from the point of view of acquiring a daughter and not losing a son.

Finis.

Then next day Pawsey sent a short letter describing the next step, their marriage.

Book II 7 September 1935.

Married at Uxbridge Registry Office 12.15 pm [Ted Nicoll and Francis Lade—soon to marry Eric Ward—were the witnesses]. Now in train to Lyme Regis. Lenore looked fine in new dress for occasion—extent of celebration.

Love  
Lade

*Just a note to tell you both how much I liked being included in the telegram you sent. It was a very lovely welcome into the family. Joe is a dear and I know we will be very happy together. I will write to you at greater length before long.*

Love  
Lenore Pawsey

The wedding had been held at the Registry Office on 7 September 1935; the new couple went to a coastal resort on the English Channel in West Dorset, Lyme Regis. They stayed three nights with a total bill of £3 18 6.<sup>27</sup> Two images of this day have been preserved in the Pawsey Family Archive (Figs. 8.3 and 8.4).

After the wedding Joe and Lenore moved to a new house, 14 Tudor Way in Hillingdon, Middlesex. They were setting up house with a bare minimum of household furnishings, including wedding gifts.<sup>28</sup> On 27 September, Joe continued the discussion with his parents about the “surprise” wedding. He appeared to be feeling somewhat guilty that the parents had not been informed earlier:

I was surprised at your great surprise at my getting married. You know Lenore and I were pretty thick last year. Also having got her to come over and leave her job and having got

<sup>27</sup> Pawsey Family Archive.

<sup>28</sup> Letters from Joe to his family 11, 25 and 27 September. After the wedding, Joe wrote five letters in the rest of 1935. The rate of letter writing decreased in 1936 (eight letters) and in 1937 only three letters, all before Margaret’s birth in April 1937.

**Fig. 8.3** From their wedding day 7 Sept 1935.  
Credit: Joe and Lenore Pawsey Family Collection



**Fig. 8.4** Off on the train on their honeymoon, 7 Sept 1935. Credit: Joe and Lenore Pawsey Family Collection



engaged it seemed fairly obvious that we should get married right away. Anyway we did it and I see no reason to question its wisdom.

Also there was to be another wedding in the Lade family; Frances Lade was to marry Eric Ward, an English farmer who had been on a visit to Australia and was now back in England. Likely he had met Pawsey's cousin Frances Lade during this visit. Ward had run his father's farm and was now taking over a farm near Oxford.

Family orientation and concerns were growing. In April 1935, Ted Nicoll had become seriously ill. He and Kate had just moved from "the doleful district of Hounslow to a place called Ickenham" to a much nicer district (Joe's letter to his parents on 27 March 1935). Joe reported to his parents on 24 April that Ted was quite ill, taken to the hospital on 23 April. "This means that Kate is left alone in their house which is not too good as she is about to have a baby. I had a try to get Frances Lade [Joe's cousin, a nurse] to come and stay with her but she is booked up." A few days later (30 April 1935), Joe reported that "[Ted's] . . . malady is now diagnosed to be pleurisy and he seems to be in for a fairly bad time but should pull through quite all right." A week later (8 May 1935), Joe reported to his family again: "I have been living a rather hectic life recently in that Ted is sick in one part of London and now Kate has just had a baby [Brian Frederick Nicoll, born May 1935, died September 1936] in another part and is in a nursing home with it. Kate is OK but Ted is still pretty poorly."

Fortunately, Ted was recovering two months later (2 July 1935) and Joe reported that: "The Nicolls are now all well. Ted is back at work. The nipper rejoices in the initials B.F. Nicoll. However Ted assures me that Canadians don't know what this means." [possibly he suggested that BF signified "Bloody Fool"?].

On 9 October 1935, Pawsey mentioned in a letter to his parents that he and Lenore had been babysitting for Ted and Kate Nicoll, looking after their nephew Brian. "[He] is a magnificent spectacle—specimen I meant to say . . .".

In January 1936, both Joe and Lenore wrote to the Pawsey family in Victoria with descriptions of their reactions to the death of King George V on 20 January 1936. Lenore went to London on the day of the funeral (28 January 1936) but saw only massive crowds of spectators. Joe went to the railway station at Hayes (on the Great Western Railway) and watched the passing funeral train. In late August 1936, Lenore and Joe went on a cycling holiday in Czechoslovakia, visiting Prague and Bohemia; this was to be their last holiday without children.

On 10 November 1936, Joe discussed Lenore's pregnancy in a letter to his parents (apparently they already knew that she was four months pregnant): "Lenore is now feeling very well again but there are odd symptoms. Skirts are requiring to be let out a bit. It is a queer business is it not? However, she is still quite strong." Lenore's younger sister, Bessie,<sup>29</sup> had arrived in July and had been traveling around England on bicycle. At Christmas 1936, she stayed with Lenore and Joe; all were to go to her brother and sister-in-law (Ted and Kate) for Christmas dinner. In 1937, Bessie started working as a librarian, apparently giving up her teaching career.

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<sup>29</sup>As a typical Canadian, Bessie had joined a women's ice hockey team, the "Wembley Lambs".

By 25 March 1937 (letter from Joe to home), the impending arrival of the new baby dictated many chores. "My major job is the construction of a stand for a baby basket. I have made it of the dinner wagon construction with little wheels so it can be moved about with great ease. Lenore meanwhile does the frills." The doctor reassured them that the baby was ready to be born "in good order and at any time from now on." Margaret Lenore Pawsey was born on 16 April 1937.<sup>30</sup> Almost exactly two years later (20 April 1939), a son, Stuart Frederick Pawsey, was born while the family was living in Ickenham, Middlesex, London borough of Hillingdon.

Parenthood changes most of us; perhaps becoming a parent brought the worrisome international situation more urgently into Joe and Lenore's thoughts. In 1938 Pawsey was actively seeking work back in Australia. His correspondence indicates that even with the fear of impending war, he wanted to raise his family outside Britain.

## Seeking Employment outside the UK

Pawsey might well have been confident in finding a position in Australia, as there had been occasional earlier interest in employing such an able researcher. For example, in 1935, Geoffrey Builder, who had worked with Pawsey at the Radio Research Board in Melbourne in 1930, wrote to him about a possible job offer in Australia. By 1935, Builder had moved to AWA (Amalgamated Wireless Australasia) as head of their Standards Laboratory and wrote to Pawsey on 12 February 1935, who was by then at EMI<sup>31</sup>:

[To Pawsey] I heard a rumour that you are working for the Gramophone Company but that you might like to come back to Australia. If so, would you let me know by return air mail what sort of salary you want to come out here, and other details such as what you are doing now and have been doing recently. In fact, make it a formal application for a job as research scientist. There should be ample opportunities in this Firm and if you do want to come out here and take up the commercial side of radio, you could scarcely do better.

A few weeks later (28 February 1935) Pawsey wrote to Builder with a guarded response. He explained that he was involved in television research. He provided a short summary of his work environment:

[To Builder]: I like the work and the men with whom I am working who are an extremely capable crowd. Also I am gaining valuable experience both in classical wireless and the new art. So I feel that I should not wish to leave here unless I were offered a considerable increase in salary, say to about £900, together with reasonable holidays and a contract for a year or so. If this should appear high you will realise my position and in any case I thank you sincerely for letting me know of the position. If at any future date I should desire to return to Australia may I write you to enquire as to whether you have any position vacant at the time?

<sup>30</sup>Margaret was to die at age 40 in London, 20 December 1977.

<sup>31</sup>Builder correspondence, located in the Pawsey Family Archive.

I have been down from Cambridge a year now working on various problems connected with directional aerials, and feeders, and measurements on interference and field strengths at wavelengths of from 3 to 7 metres (100 MHz to 43 MHz). I had a bit of a grind at first in writing up the last of my Cambridge work on medium wavelength fading and lateral deviation which I published in the Cambridge Philosophical Society and on my PhD thesis, in the evenings. However that is satisfactorily concluded.

I am surprised to hear that you had left the Radio Research Board . . . Anyway it sounds like an interesting job and I wish you the best of luck in your new venture . . .

Circumstances had changed greatly by 1938, and Pawsey was very keen to move. On 21 September 1938, Pawsey wrote<sup>32</sup> to David Rivett enquiring about a possible position with the CSIR in Australia, in particular with the Radio Research Board. Pawsey reminded Rivett that he had worked with Laby of the University of Melbourne and Munro and Huxley of the RRB on Atmospherics. He reported on his PhD project with Ratcliffe and then the position at EMI:

You may know this company as the builders of the BBC Television Station, London . . . I have always intended to return to Australia and though I have a very interesting job over here with a salary of £ 500 I feel I would like to make the break now and take my wife and my baby daughter to Australia to make a home. If . . . you have any vacancies on the RRB or know of any other positions which you think might suit me I should be very grateful if you would let me know.

On 6 October 1938, Rivett responded to Pawsey. He had sent a copy of the letter to Prof J.P. Madsen, Chairman of the RRB, asking whether there were any openings:

With regard to other opportunities in physics, I am afraid that the CSIR cannot offer as much as we had hoped to be in a position to do at this stage. Everyone seemed satisfactorily for an excursion by us into chemical and physical problems associated with secondary industries; but unfortunately the necessity for very heavily increased expenditures on defence preparations has led to a reversal of policy and an instruction to us to delay our programme indefinitely. We are proceeding with the erection of an Aeronautical Research Laboratory [in Melbourne] and also with a Standards Laboratory [in Sydney], but this will, for the time being, be the full extent of our venture into applied physics and engineering. I doubt whether in either of these two laboratories there will be any post of interest to you. However, we advertise all openings and I shall ask Mr. Cook [Assistant Secretary of CSIR] to send [any future relevant] notices . . .

Rivett wrote Madsen in Sydney (8 October 1938) with a cautious message about Pawsey: "It is just possible that he might be a useful addition at some time to our team." But nothing was likely in October 1938; a year later the prospects were to change rapidly as war approached.

Pawsey also had written earlier (22 September 1938)<sup>33</sup> to his previous University of Melbourne advisor Prof T.H. Laby a revealing letter about his future plans. He was asking Laby's advice about a possible position in Australia. He was pleased that the EMI group was composed of a number of his colleagues from Cambridge: "The laboratory [working on the new television system] is almost an old Cavendish club; there are at least 8 men here who were research students at the Cavendish in my

<sup>32</sup>NAA AH 8520 PH/PAW/1 Part 1.

<sup>33</sup>Pawsey Family Archive.

time.” Pawsey was proud of the group’s achievements at the high frequencies of 180 MHz and 400 MHz; it was possible to determine the impedance of the system with a precision of a few per cent. At these high frequencies the ionosphere played no role in the propagation characteristics (“no evidence of skip distance phenomenon; I imagine that the signals are due to some sort of scattering in the atmosphere. But we know of no observation evidence to elucidate the point.”) There were also major questions of the choice of polarisation; the evidence was that the standard use of vertical polarisation for television transmission was less efficient than horizontal. Major questions remained between the behaviour over short distances and long distances (greater than 40 miles).

Pawsey wrote to Laby concerning his satisfaction with an industrial environment:

On the whole I have found the industrial work here quite interesting. There are advantages which are the way in which one tends to half do a job and then be rushed off to another and also in that we are not allowed to publish anything except on very rare occasions. [They were allowed to publish a paper on the Alexandra Palace for the purpose of “advertisement”.] . . . I now feel that I want to take my small family out to Australia to make a home so I am thinking of resigning here and looking for a job in Australia. Do you know of any positions going which might suit me? The sort of thing I was thinking of was a radio research job. I do not think I should take on academic life; I have been away too long. If there is any prospect of television developments at home I should very much like to get in on that. If I were to apply out there would you please be so kind to allow me to give your name as reference. When I do manage to get back to Australia, whenever that may be, I am looking forward to seeing you again.

There is no evidence that Laby responded. On 17 October 1938, Rivett wrote mentioning that the New Zealand Radio Research Board might have a position for Pawsey, who replied gratefully, but said he was reluctant to pursue the uncertain position in NZ while he had a “good job” in the UK.

Nonetheless on 31 October 1938, Pawsey wrote<sup>34</sup> Prof P.W. Burbidge of Auckland University College Physics Department (of the University of New Zealand) about a possible position “on short wave work” with the NZ Radio Research Board. Pawsey had met Burbidge in the summer of 1933 at Cambridge: “You may remember me as the excessively tall Australian, a research of Ratcliffe’s with whom you played cricket for the Cavendish.” He was explicit to Burbidge:

I have always intended returning to Australia at any rate in time to educate my baby daughter in a country free from class prejudice. Recent events have made us wish to accelerate the move in the hope of removing my wife and baby from the battle zone. I presume you can recommend New Zealand as a place in which to make a home . . . If there is this job I should be very much obliged if you could give me an idea of conditions of work, prospects etc.

Burbidge replied on 19 December 1938 with discouraging news: “[I] regret that at the immediate present, there is no opening under the NZ RRB, since we have entered into negotiations for the services of a man in the short-wave branch.” Burbidge listed the areas of research in NZ: (1) survey of field strength of broadcast stations, (2) ionospheric work in Christchurch and Wellington under the direction of

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<sup>34</sup> *Ibid.*

Professor F.W.G. White [Fred White, formerly a student of both Ratcliffe and Appleton] of Christchurch and (3) short-wave work at Auckland. He did, however, hint at the likelihood of positions in the future due to “strategic reasons” [presumably the approaching WWII]: “[t]here are possibilities on the horizon.”

Pawsey wrote back on 18 January 1939. “I [think] I should be most useful in connection with television, ultra-short wave measurements of directional aerial systems since this is the most recent [work I have done].” He also pointed out that he was still interested in additional research on the “degree of horizontal irregularity” in the ionosphere, a continuation of his PhD thesis research.

On 13 April 1939,<sup>35</sup> when the outbreak of war was more imminent and Pawsey must have been feeling increasingly anxious, a fascinating correspondence began with C.W. Hansell of Radio Corporation of America (RCA) Communications, Inc. of Rocky Point, New York (engineering department).

On this date (13 April 1939), Pawsey wrote Hansell with a request to be considered for a RCA staff position (at RCA at Rocky Point, New York). He referred to their 1938 meeting at EMI. Hansell had sent photos of the RCA installation on the Empire State Building for the new television system in New York. Pawsey was impressed with the severe weather conditions the aerial had to withstand (elevation about 450 metres) as well as “the almost complete absence of reflected waves on the feeder over a very great range of frequencies . . .” Pawsey mentioned that Ted Nicoll had now joined the RCA research staff in the receiving cathode ray tube section in New Jersey.

His going to the States has been encouraging my own ideas about leaving England. I am an Australian . . . I have always intended getting out to the Dominions, or the States, before it was time for my small daughter to go to school, I have never adjusted myself to the English class system . . . However, international affairs today suggest that it would be good thing to get my small family out of England before ill befalls. What would you say, are the possibilities of my getting a job on the RCA staff? . . .

On 16 May 1939, Hansell replied. He gave Pawsey the names of five RCA sections and one NBC (National Broadcasting Company) division which might need a man of Pawsey’s talents. Hansell thought the best opportunity would be the antenna division of RCA manufacturing. His own division seemed unlikely since he had not had any new colleagues in the last 10 years. The main obstacle was the requirement for US citizenship: “the reasons for this are probably that RCA does considerable confidential work for the Army and Navy and that some of its activities, such as broadcasting, are particularly sensitive to political pressure.” Hansell also provided Pawsey with the names of five additional companies that he might contact (e.g. General Electric). He ended the letter with a description of the status of television in mid-1939. Regular transmissions had started on 30 April 1939. Receivers were being sold; “our main difficulty technically is multipath transmission, which is very bad in the metropolitan area of New York. It is not so serious in

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<sup>35</sup> *Ibid.*

outlying districts so that it may be capable of giving good service to several million potential viewers.”

Several months later (6 August 1939), Pawsey replied to Hansell. Pawsey had “got wind of a likely opening elsewhere [likely in Australia] and was hoping to hear something more definite before replying to your letter. However, I am still waiting which leaves the situation much as it was when I wrote you . . .” Pawsey described in detail the second television station in the UK, at Birmingham with links to London at 170 MHz by cable or radio links. There was much discussion of methods to improve the picture quality.

Pawsey expressed his misgivings about the signs of war in Europe:

International politics are still as crazy as ever. There is a [cheap] book on the subject which appeals to me. (*Why War?* By C.E.M. Joad—English philosopher and broadcast personality). The author states his faith in human rationality very aptly.

“I maintain that man is rational in the sense that, if a proposition is true, and if it is presented to him often enough and persuasively enough, then, though he will reject it again and again, he will in the end accept it, and when he has accepted it long enough, he will begin to act upon his acceptance.”

On 15 December 1939, Hansell continued his correspondence with Pawsey. He never succeeded in getting anyone at RCA to be interested in hiring Pawsey: “. . . [I]t is somewhat difficult to get them interested enough to offer a job to a man in another country when they are receiving application [sic] constantly from good men closer to home.”<sup>36</sup> Hanson sent Pawsey a copy of a letter that one of Hansell’s colleagues (Beverage, a Chief Research Engineer at RCA had written a colleague at another RCA lab in New Jersey) on 7 December 1939 trying to sell Pawsey’s services to another branch of RCA<sup>37</sup>:

Mr. Hansell had met Pawsey [in 1938 at EMI in the UK] and was very much impressed by him and we would have liked to have employed Pawsey very much but since we are an international public service business, one of our requirements is that all of our employees must be American citizens . . . Pawsey is an exceptional and outstanding engineer in the field of antennas and transmission lines and is just about the type of man you have been looking for.

Nothing came of this effort.

In the letter of 15 December 1939, Hansell continued as he expressed concern about the early course of the war (this was before the Battle of Britain 10 July 1940 to 31 October 1940) and the Blitz (early September 1940 to mid-May 1941):

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<sup>36</sup>Pawsey Family Archive. Hansell also discussed the sudden cessation of television developments due to the war in 1939. “We understand that British television has been discontinued, due to the war. Ours is operating a few hours a week but the public hasn’t taken to it in a big way. That may prove to be fortunate in the long run for I believe television and all other services on frequency above 30 MHz will eventually use frequency modulation [FM]. Therefore, before the television standards are frozen, the system should be changed to use [FM].”

<sup>37</sup>From Pawsey Family Archive: letter sent by H.H. Beverage, RCA Communications, Inc. to a colleague (Paul Godley of RCA in New Jersey, US), 7 December 1939.

Naturally the progress of the war is a subject of considerable interest here. Sentiment in the US is overwhelmingly in favour of the democracies against the dictatorships. Feeling against Russia invading Finland is very strong, no doubt especially so because as we understand Finland was the only country which had been paying its debts to the US contracted [in WWI]. Over here some of us have been predicting that, in the end, if Russia is at all successful as an aggressor, England, France and Germany will forget the quarrel between them to deal with Mr. Stalin. Our own “reds” and “pinks” have found themselves badly confused since Hitler and Stalin became pals . . . No doubt the war has increased the need for men with your qualifications so that keeping employment is no problem for you. I hope it has not at the same time made living too uncertain and difficult, or separated you [from] your family.

Pawsey’s reply to this letter was not sent until February 1940. As we will see in the next chapter, this was because, at last, it was sent from Sydney where he had a job working on WWII radar at the Division of Radiophysics at CSIR.

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