

September 1943 to August 1944

During the Summer of 1943 the KCL Faculties which had been evacuated to Bristol returned to London. My parents were still in Blackpool providing a relatively safe base for the scattered family, so on continuing with the College in London I stayed with two Aunts near Alexandra Palace. However, I greatly missed the company of other students outside College so after a short while I moved to digs in Balham. There were nine other students in the digs, among them Don Sleep and Pat Keller, who I was later to come across in the Marconi company, and Roy Harding from Liskeard, with whom I had shared digs in Bristol. Roy spoke with a soft West Country drawl which he had lost when I met him (by then Sir Roy) at a KCL Reunion in 1997.

For about two years there had been no intense bombing raids or Blitzes on London and there was much going on in the way of entertainment, recreation and culture. The many visible signs that the country was at war - the numerous Services uniforms, strips on windows to prevent glass flying, sandbags, the blackout, temporary structures over damage awaiting repair and air raid shelters taking up space in roads, gardens and living rooms - were hardly noticed as we went about our daily lives.

Physics teaching took place in the Strand buildings - most of the lectures were in an isolated 2nd or 3rd floor back classroom off the staircase at the Strand end and the physics practical classes were in a large room a floor or two above. Many of the appointed staff were still absent assisting in the war effort and H.T. Flint continued to be Reader in Charge.

Dr. H.T. Flint, a kindly and gentle man, was my supervisor and one day, when I went to his office, I found him poring over some papers with the Headmaster of my school, Dr. B.L. Worsnop. Some 20 years before, as colleagues at KCL, they had written a *Textbook of Practical Physics for Students*. They were probably conferring over the 8th and last edition, published by Methuen in 1944. In 2009 I learned from Ralph Worsnop, Dr. Worsnop's son and Dr. Flint's Godson, a possible reason why H.T. Flint had not been seconded from King's to join the war effort - his wife was German.

One of the lecturers was Dr. F.C. Champion who with N. Davey of University College, Nottingham, wrote the textbook *Properties of Matter*. His lectures on that subject followed the textbook so closely that there was hardly any need to take notes. On one occasion he told we students, only a little ruefully, how he had come to miss discovering the neutron. He had noticed a mark in a photograph taken during an atomic experiment and had assumed it was a blemish on the photographic plate. Chadwick had noticed a mark in a similar experiment, had investigated it and discovered the neutron.

Physics teaching during the war was slanted towards what was required for the war effort. Thus one of the subjects was Atomic Physics, with Tolansky's *Introduction to Atomic Physics* as the textbook. There was also some emphasis on Radio (or what we would now call Electronics), in accordance with the Government initiative known as the Hankey Radio Training Scheme.

There was a student body known as the Maxwell Physical Society, after James Clark Maxwell who had been a Professor of Physics at KCL. One memorable meeting at this time was addressed by Sir Owen Richardson MA DSc LLD FRS, who had discovered what became known as Richardson's Law of Thermionic Emission, which led to the widespread use of the thermionic valve. Years later I met and spoke with Bardeen, Brattain and Shockley, who discovered the transistor effect on which modern electronics is based. I feel privileged to have encountered first-hand these pioneers of electronics.

When members of the Maxwell Society were asked for ideas about meetings my suggestion that we invite geologist Sir Lewis Fermor FRS, who I had met in Bristol, was accepted and I went ahead and made the arrangements. I received the following two letters from Sir Lewis, which as well as showing his interest in Gondwanaland gave a sense of how people were coping with the blackout:-

26, Durdham Park.

Bristol, 6

25.11.43

Dear Mr Beck,

You are quite right: your letter did come as a surprise. I do not know John's address, but I will ask my wife to add it as a postscript. [It is in Westbourne Green, Bristol].

With reference to your enquiry whether I could spare the time to lecture to the Maxw. Phys. Socy, I can say that I am always willing to help if I can. I shall certainly be in town at intervals next term, & it depends, perhaps, on whether the dates on which your Society meets will happen to fit.

Perhaps you could suggest a choice of dates. If the usual time for your meetings is after dark, please suggest days when there is moonlight. I might mention that most second Thursdays I am in town for a meeting of the Council of the Institution of Mining & Metallurgy at 2.30, usually over by 4 to 4.30 p.m. Such an evening at 5 o'clock of later would suit. [Feb. 10 and March 9 both seem to be allright for moon]

But you must let me know what the Maxwell Society is. Perhaps it is a students society of King's College, London.

Whether Sir James Jeans would give a lecture I do not know. It would no doubt partly depend on whether he comes to London on a convenient date.

What I suggest is that you first arrange a lecture from me and then write to him.

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Yours sincerely
R. D. Sower

26, Durdham Park.

Bristol, 6

1. 11. 43

Dear Mr Beck,

Thank you for your letter of the 24th inst.

You offer me my Friday lecture January 15th & March 2nd.

The most convenient date to me will be Friday March 17th, as I shall be in town for meetings on the 15th & 16th.

The moon is not propitious that day, but as the days will then be longer I think I can manage, if your meeting is held at 3.30

You ask for a choice of three subjects. I suggest:-

1. Gondwanaland a former southern continent.
2. Garnets
3. Coal as a Colloid.

You would I think find the first the most interesting.

Yours sincerely
J. H. Jeans

25.10.43

With reference to your enquiry whether I could spare the time to lecture to the Maxwell Physical Society, I can say that I am always willing to help if I can. I shall certainly be in town at intervals next term and it depends therefore on whether the dates on which your Society meet would happen to fit.

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Sir Lewis gave his fascinating talk on Gondwanaland in March 1944. Afterwards I took him to tea at a Fullers cafe just up The Strand from KCL, towards Charing Cross, exchanging puns and the like, such as weaving a complex topical expression into a sound-alike statement. Sir Lewis expressed his pleasure when I got one in about Bosnia Hertzogovenia (He saw his boss near Hertzog, Govenia of South Africa).

I also wrote on behalf of the Maxwell Society inviting astronomer Sir James Jeans, the other eminent scientist I met at Sir Lewis's home in Bristol and author of *Science & Music*, but he couldn't accept

CLEVELAND LODGE, DORKING.

TEL: DORKING 2117.
Jan. 17th, 1944.

Dear Mr. Beck,

Yes; of course I remember meeting you at Sir Lewis Fermor's house.

I am afraid I must decline your invitation. My movements are very uncertain for some weeks, and I cannot tie myself down by an undertaking to lecture at a specified time or place.

With many regrets, and all good wishes,

Yours sincerely,

J. H. Jeans

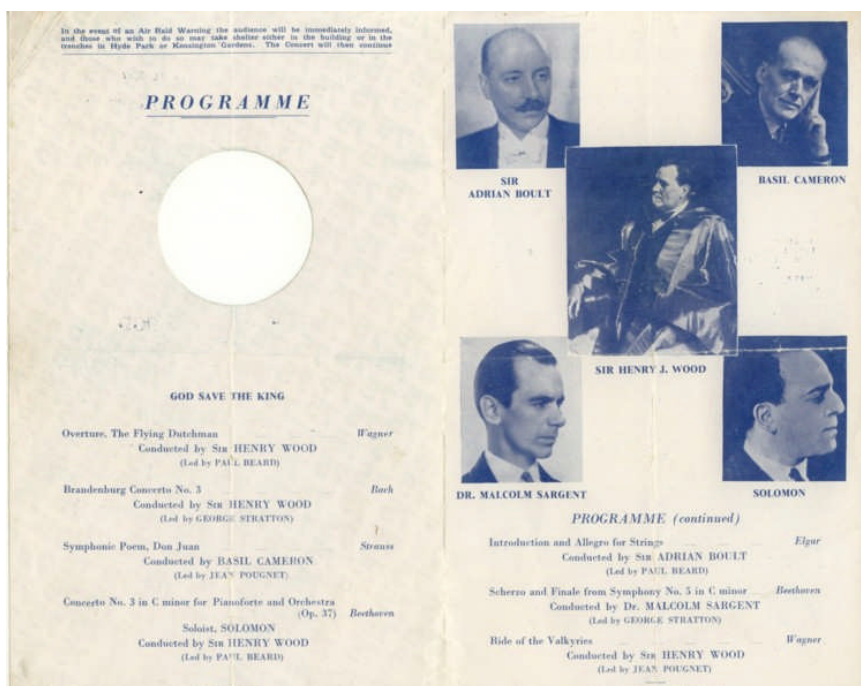
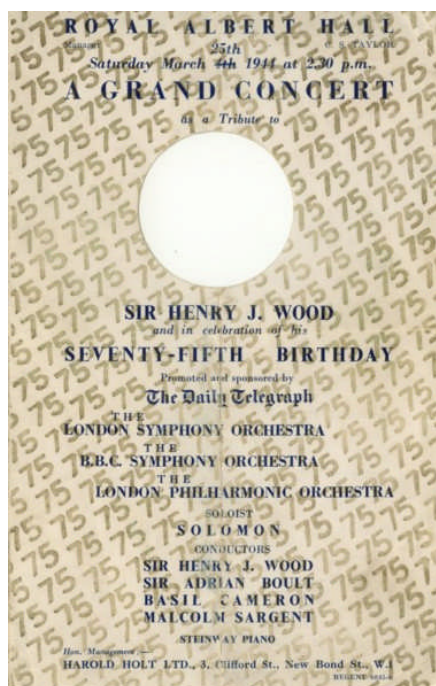
Meanwhile in late 1943 and in February 1944 there was a renewal of the bombing at night of London, though not on the massive scale of the 1940 and 1941 air raids - indeed they were referred to as the Little Blitzes. On one occasion in Balham, a number of us in the digs and some of the neighbours came out in the street - probably after the 'all clear' had been sounded - to see a great blaze a few kilometres away which we understood was Crystal Palace succumbing to incendiaries. We carried on as usual - we were lucky, some had not been.

As for extra-curricula activities, I started on an AKC course which if I remember correctly was taught in a corner of the boarded up Chapel. I now regret I did not continue and hopefully obtain an Associateship. However I did attend some Theology lectures at a City Church.

I cannot recall being hungry in wartime London - we were probable fed well enough in our digs. I do, however, remember occasional top-ups at Salad Bars at Lyons Corner Houses. For 2s 6d (12½p) one could help oneself to as much of a variety of salad dishes as one liked, followed by a pudding. To be sure the composition of the dishes reflected wartime shortages of various basic fruits, vegetables, meats and fish but they were tasty and filling. Servicemen in uniform were envied for they could go back for another pudding.

I took an unadventurous interest in the opposite sex and went to the occasional dance, which were held in hotel ballrooms within two or three miles of the Strand campus. However, music was the love of my life. In addition to listening to concerts on my radio at the digs, I was able to take advantage of student tickets at a very low price for attendance at rehearsals at the Royal Albert Hall for a series of Royal Philharmonic Concerts. Thus I observed several conductors rehearsing their respective orchestras. We could sit where we liked in the stalls, except that Sir Thomas Beecham made us sit at the back, as far as possible away from his Royal Philharmonic Orchestra. John Barbirolli was interested in the balance of sound in the Hall - he left the Hallé orchestra playing and walked about the Hall listening with an attentive ear.

A Myra Hess concert at the National Gallery, just up the road from KCL, was another enjoyable experience but the most memorable musical event was a concert in March 1944 at the Royal Albert Hall to mark Sir Henry Wood's 75th birthday. I got a ticket for the gallery and enjoyed the concert in which three orchestras played together under three conductors. Sir Henry was present and took a bow at the end of the concert. In contrast with the austere programme notes produced for most wartime concerts, the 75th Henry Wood Birthday notes were colourful and sophisticated. For example in a circular cut-out in the cover page a photo of Sir Henry on the 3rd page appeared. On the back page there was a fulsome appreciation of Sir Henry Wood by F. Bonavia, Musical Critic of the Daily Telegraph. The programme notes carried the usual wartime notice that in the event of an air raid the audience had the option of making their way to trenches in Hyde Park.



Through all this my asthma continued to be very troublesome. One new development on my return to London was that I was referred to the Chest Hospital, City Road, for treatment. This consisted of fitting me with an artificial orthodontic? which changed the shape of my jaw. It was explained to me by the consultant, A.A. Nove, and his assistant, Ethel Bardsby, that as there was virtually no asthma among people in the Middle East there might be a connection between that and the fact that Middle Eastern people were lantern-jawed. It followed that if I was made lantern-jawed I might be rid of asthma - I am relating here what I understood was said to me as a 19 year old student. So I was fitted with a plate, with springs pressing against individual teeth. Frequent adjustment was required so I made my way to the Chest Hospital and later to A.A. Nove's surgery in Wimpole Street for them to be carried out. The nett result was that there was no discernable improvement in the asthma and I was left with a somewhat lopsided bite. Meanwhile I continued with self-administered treatment which consisted of frequent use of an atomiser and for persistent attacks taking ephedrine and belladonna.

In Balham on 6th June 1944 we woke to the news of the D-Day landings. At last things were on the move in Western Europe. Then on 13th June the first V1 - Flying Bomb or Doodlbug as they came to be known - fell on London. They continued to be fired at us until the end of March 1945.

It was at KCL that I had a close encounter with a V1. From early June 1944 the exam season was upon us and I was taking the finals of my 2-year BSc (Special) wartime Honours degree course. On 30th June 1944 I was in a group of students taking a Physics practical exam high up in a KCL building in the Strand when, without any warning, we heard an unfamiliar whining sound which prompted us to duck between the benches as it became very loud. I estimate that a V1 passed about 10 metres overhead. Mercifully for us, but not for the many killed and injured, the V1 travelled on about 100 metres, to explode a second or so later at The Aldwych. The suspended moving coil galvanometers in the experiment on which we being examined acted as seismometers and were dancing wildly when we got up from among the benches.

The following is from a Report by Stephen Henden of Dulwich, which appears on the www.flyingbombsandrockets.com website, part of The Lambeth Archives:-

The V1 cut out somewhere over Waterloo station and went into a steep dive. It exploded in the street just outside the Air Ministry at Ad Astral House in the Aldwych.



The Aldwych was packed with people out on their lunch hours. Others were at their desks and some of the girls from the Air ministry were sunbathing on the roof. . . .

The blast wave from the V1 was murderous. Numerous people in the street were mown down and killed or maimed, more died in the ruins of buses and the girls on the Air ministry roof also perished. Some workers at the Air Ministry were sucked out of office windows by the blast and vacuum and perished. It is normally accepted that 48 people lost their lives at the Aldwych with 200 serious injuries. I have however recently seen a reference to 198 deaths and it may be possible that the number was concealed as many would have been government officials or service personnel.

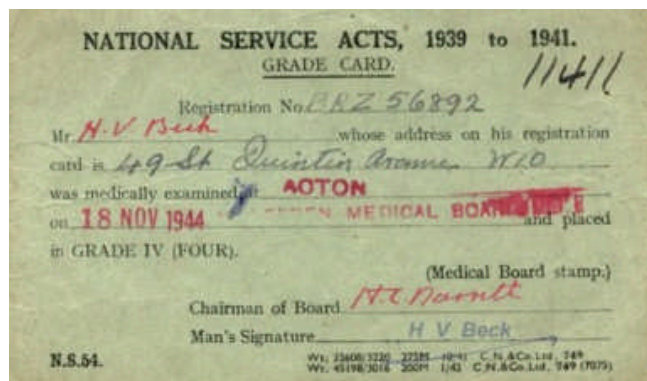


I failed the exams. Unfortunately while taking them I was in the grip of a persistent asthma attack and I was having to dose myself with ephedrine and belladonna. The ephedrine in particular, while improving the breathing also produced in me a feeling of jittery excitement which probably affected my judgement to a considerable extent. However, asthma was not the only reason why I did not get my degree first time round - I should have given more time to study and less to music and electronics.

September 1944 to August 1945

In the second half of 1944 my parents moved the family home from a flat in Blackpool back to a 4-story house in North Kensington, London. I lived at home along with two younger brothers and my sister.

Being without a degree made me eligible for call-up and I was duly summoned for a medical. This took place on 18th November 1944, as a result of which I was placed in the Grade IV category - unfit for military service. Also, without a degree, I was not suitable material to be drafted to a Government research establishment. I was therefore free to continue my studies and at the same time, to provide an income I carried out radio repairs, design and construction - I advertised my services and this brought work from as far afield as Cornwall. In this way I got to know Russell Jones, a businessman who later on wanted me to provide radios for 2000 taxis.



KCL was very kind to me. I continued as a part-time student, attending lectures when I could and taking some part in College life. I was also given research facilities - I wanted to investigate an electronic circuit with a view to overcoming a practical wartime problem. Electrolytic capacitors were used in radios and other electronic equipment to 'smooth' DC voltages obtained from AC power supplies. During the war such capacitors were in very short supply and the higher the capacity the more difficult they were to obtain. I had devised a circuit which used a small electrolytic capacitor to provide rough 'smoothing' and a thermionic valve feedback circuit to complete the 'smoothing'. Feedback techniques were virtually unknown at the time.

I was provided with a room in the basement of the main building with a semi-circular window providing light from the forecourt of KCL and there constructed a 'breadboard' of the circuit and carried numerous measurements. My supervisor was H.C. Bolton, a Demonstrator. I remember him coming into the room in a state of excitement saying that two American physicists, Neher & Pickering, had just published a paper in which they described a very similar feedback circuit. My circuit worked well but with the improved supply of electrolytic capacitors was not economically viable. Feedback circuits are now widely used for a great variety of purposes.

At some time while I was a part-time student I visited the House of Commons and heard a debate. I cannot now remember what the topic was but something prompted me to see how the proceedings were reported. I got a copy of each of the daily papers. I also sent for a copy of the relevant Hansard - it was probably the first time Ellingtons, the excellent newsagent in North Pole Road, had been asked to get one. I was amazed and not a little concerned at the variety of presentations of what I had observed first hand in the Commons as well as the words recorded in Hansard. I was not sufficiently experienced in politics to distinguish between right and left orientation nor did I note, as I do now, the difference between the headline and the content - I was interested only in the veracity of information being conveyed to the public by that major link, the Press. I have been sceptical about the reliability of information in the Press about proceedings in Parliament ever since - indeed in 2009 there was such disgraceful reporting in The Times of a House of Commons debate that I cancelled my order for that paper.

In September 1944 the first V2 or Rocket Bomb - Hitler's second secret weapon - hit England. The bombardment continued until late March 1945 when the Allied Armies which had landed in France had captured all the territory from which the rockets could be launched. I had a fairly close encounter with a V2. Recounting the event from current internet information on V2 strikes on London, at a few minutes to 10 pm on 14th February 1944 I had left a Metropolitan line train at Latimer Road station and had walked about 750 metres towards my home in St. Quintin Avenue (I had got almost as far as the bombed St. Helen's Church) when there was a flash, a lamppost next to me rattled and I heard an explosion followed by a long screaming sound of the rocket coming down.

According to current records the rocket came down at 2158 hours at Steventon Road, Hammersmith, 2km away to the South West. The train I had just left continued on its journey and was quite close to the V2 when it detonated. It was reported at the time that numerous houses were demolished and damaged, leaving many dead and wounded.

There was a considerable lightening of atmosphere when the V1 & V2 bombardment stopped and the war in Europe was nearing the end. One of the signs was the relaxation of the ban on the ringing of Church bells for purposes of other than warning the population if an invasion had taken place. The first I knew of the relaxation was while having lunch in the KCL Refectory with a group of friends. One of them, a pipe-smoking campanologist daughter of a Canon or Dean, said she had been invited to take part in the first ringing of the bells of St. Paul's Cathedral since the start of the war and asked if we would like to come along. Several of us did and were in the bell tower on this special occasion. The ringing may have been to celebrate the liberation of Paris, which had taken place on 25th August 1944.

Next was the unilateral breaking by University College of a truce that student rags between Colleges would be suspended for the duration of the war. Reggie, KCL's lion mascot, was stolen and this led to a number of student confrontations. I went with the crowd from KCL to a battle in the vicinity of Guys Hospital, in which flour was thrown. I was present as an observer - I did not throw flour nor did I get any on me. I am not a demo man: the only demonstration in which I have ever taken part is the silent and subdued Good Friday procession in the centre of Harpenden.

VE Day on 8th May 1945 came with much rejoicing. Then the General Election took place on 26th July 1945, in which Labour had a landslide victory - I was just under 21 years old so could not vote. The war was finally over on VJ Day, 15th August 1945. By this time I had built a powerful amplifier and speaker system which I used to play Tchaikovsky's Marche Slave over and over again to the neighbourhood.

Harold Beck
October 2010