

# Alan Baker, as I knew him

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**Abstract.** Some recollections of Alan Baker, my times at Cambridge, and my interaction with him and his environment.

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On Feb 21, 2018 I got a message from a young colleague in an Israeli University: “My condolences on the passing of your Ph.D. supervisor. My brother-in-law, who is on the chevra kadisha in Cambridge, will be burying him this Friday, and is looking for some information about his family to mention at the funeral (who his parents were, where he grew up, etc.) Do you happen to know anything?”

This message found me totally unprepared. Last time I met Alan Baker, my Ph.D. supervisor, was in early October 2017. I gave a talk (on finite subgroups of  $SL(3, \mathbb{C})$  and some of their arithmetic applications) at the Newton Institute, enjoyed meeting Jack Thorne and others, and catching up with John Coates. The real motivation for the visit was my daughter – Kimron – starting her masters studies in International Development at Murray Edwards.

It is a well-guarded secret that one of the great advantages of graduating from Trinity College is – of course in addition to having shared living quarters with Isaac Newton and the like – the right to be invited to dine at Trinity High Table four times a year. In addition to the fine menu, and the ritualistic style of a gown, prayer in Latin and hierarchy, the conversation and company of great contemporary scholars brings much satisfaction, and this is sometimes followed by going up to the upper room, where port and other wines are served, with cheese, fruit, chocolates and coffee – all in a room decorated in style not to shame Henry the VIII. In the half-hour prior to that the diners meet at the lobby downstairs, to drink Sherry or white wine, read – old style – printed newspapers, contemplate the huge portraits of past members of the college, and chat with others gathering there.

It was there I met Alan for the last time. He was happy to see me, excused himself for skipping my talk, justifying it by his poor health. Alan said he had two heart attacks known to him, that needed hospitalization, but – he added – there were others of smaller magnitude that also caused damage but were not recorded. He said he was tired and weak, spoke very loudly as though he did not hear well, and I must admit I feel embarrassed when my private conversations are heard by everyone in the room.

Maybe because I told Baker I moved back to Israel, the short conversation turned to him telling me he had visited Israel some two years previously, at the invitation of his cousin “who married an Israeli soldier”, to participate in her daughter’s wedding. I told him at once it was a pity he did not inform of his visit to anyone, say at the Hebrew University; people would have been delighted to meet and hear him, but he said he was too weak to make that effort. I could not hide my surprise that Alan had a cousin “who married an Israeli soldier” – by which I assumed he meant an officer – and visited Israel for a family celebration. Baker seemed to me always to be such a stiff Englishman, I wouldn’t have been surprised had he told me he was charmed by Lawrence of Arabia. But then Alan added that he grew up in East London, in a neighborhood very supportive of Israel.

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Somehow we did not further this line of conversation, mainly because our conversation was loud and it seemed that everyone else in the room was listening, and then the bell rang to go up to the High Table (which is higher than the rest of the dining hall, where the students dine). Baker was sitting across me but the wide table forced people to converse just with their neighbors. In any case, I was not at all surprised Baker died a few months later.

Prior to that I visited Cambridge in 2009, three times. I gave a talk in the Number Theory seminar in March. I think it was then that John Coates – my big brother wrt Baker – told me the secret that as a Trinity graduate I have the right for the four Trinity High Table meals a year. Then for a special year on Fundamental Groups in Arithmetic Geometry at the Newton Institute, and finally in December 2009 to give a talk in the Final Conference of this special year, on counting automorphic representations, or local systems, of special kind.

As part of that conference there was a reception at the Cambridge University Press Bookshop on Trinity street, where we met. Alan was very friendly, obviously pleased to see me. He invited me to meet the next day to visit his flat, of which he was very proud. The flat was very spacious, but mostly empty, on Trinity main court, and the main thing I remember from this visit is Baker – a Fields medalist – telling me how lucky he was to get that place, as there were in the college people of much higher rank than him, in scholarship and in nobility. I rather liked this insecurity, in a man that previously I regarded as stiff and distant, although always very kind and helpful.

After the visit to his flat, we walked on the grass in Trinity main court, and he pointed out that only fellows of Trinity are permitted to do this. I commented that where I come from, on the border with the desert, grass is not so fine, and requires much watering and weeding. He replied: do you know how we got this fine grass? You plant it, water it, weed it, mow it, and keep doing it 800 years, so it comes out fine.

I have not visited Cambridge prior to 2009, after I defended my thesis in 1978. I did travel often between the US and Europe+Israel, and for several years after I left Cambridge I made a point of stopping in London to visit the theatre there.

It was Heini Halberstam, whose course in Analytic Number Theory I attended in my 2nd and final year of my undergrad studies at Tel-Aviv University, who suggested that I apply to Trinity College Cambridge. He also said he knew some people there, and that helped. At those times smoking was permitted inside buildings, and the stench of the tobacco of his pipe was ubiquitous in TAU Math Dept building.

It was suggested to me to inquire first on this foreign place, in particular to meet someone who was at the time at TAU, had been a spy, and was somehow related to “Cambridge or one of these places”. I knocked on his door, briefly introduced myself, and stated I was considering going to study at Cambridge, and wanted to hear from him on life there. What did you say? was his reply. I repeated, although I thought I spoke clearly enough the first time. Get out of here at once! he screamed at me. This time it was I that asked: What did you say? He repeated in equally ferocious manner. As I reached the door I heard him saying: “ok, you are an inexperienced youngster (I was 18), I’ll answer your question, but don’t ever mention that name to me again! At Oxford we” – I no longer remember what he said but when I left, a big smile showed he enjoyed his joke a lot.

Maybe due to the kind words of Halberstam and Harry Furstenberg I was incredibly fortunate to get a nice bursary from Trinity college. My father immigrated to Israel in 1942 from a ghetto in Bucharest, legally. As a member of a labor youth movement, he was placed in a Kibbutz, escaped after two weeks, and – although he came with not much more than the shirt on his back – within a year managed to bring his parents and siblings, then opened his business and managed to provide for

his family, but not to help with study abroad; such hard working self-employed people were looked upon negatively by the labor ruling class at the time.

Much worse was my mother's father case, who – instead of enjoying life at Warsaw and waiting for the train to a camp near beautiful Kraków, decided to cross the border to Romania illegally, and reached Tel-Aviv illegally too.

At the time, the English empire, that got from the League of Nations in April 1920 at San Remo a mandate to build a Jewish homeland at its ancestral land, named at the time by the name the Romans gave to obliterate the memory of the nation they defeated, after giving some 80% of the land (TransJordan; currently Judenrein, as are all Arab countries) to the Hashemite clan of the Sherif of Mecca, that was defeated by the Saud clan, restricted Jewish immigration, while leaving the land border completely open to Arab work migration to one of the few not totally impoverished places in the middle-east.

The way the ruling Israeli Labor party treated those who did not support it before and after independence was equally not commendable (google: The Saison, Altalena, public employment only to red card holders, etc.). Prosperity came only after it was voted out. Still, I did not feel insecure, and probably did not understand what insecurity was.

I must add the English always tried to be fair: much before the term “fake news” was introduced, on June 5, 1967, early morning, after the Israeli air force destroyed much of the Egyptian air force and routed the Egyptian army in the Sinai, the BBC reported that that was what the Israelis claimed, and that the Egyptians reported that they were holding to their positions and suffered no losses, and the BBC added that “both sides are Semites, tend to exaggerate and cannot be trusted, the truth must be somewhere in the middle”.

In a personal, unintended way, the BBC was right after all: In a war there are only losers.

At Cambridge the first year was hard, I spent much time and effort first learning English. I asked Baker to be my supervisor: I liked the fact that his papers were short, I believed I would be able to digest them and maybe contribute a little, and was rather afraid at the time of more elaborate math. Baker suggested to read his book and see if I could come up with any interesting ideas, questions, projects to do, he would not suggest anything himself, and I was happy with that. He was always accessible, very formal and distant, always in a suit, but friendly and helpful, as I expected Englishmen to be.

But I mostly talked on math with others, from David Masser on the subject matter of transcendence theory, I was aware of John Coates' interest in elliptic curves, with S.-J. Patterson on modular forms, and indeed all these showed up sooner or later in my work.

There were various visitors around – but nobody too remarkable – and grad students, in particular I, were treated well, and joined to dinners with visiting speakers and other visitors.

I remember vividly once my office was at the basement, and the phone booth – those things existed at those old times – was just outside my office. A woman was very excitedly shouting at the phone something such as “but this is your son” or so. When the call was over, Justine calmed down and apologized, asked me whether I heard of Alexander Grothendieck, told me her son was his. We visited her and her family, the young son was sweet and screechingly insisted on inviting us “come and see my room”.

I wrote six chapters for my thesis, five of them were published as papers, and still had a fourth, last year of my grant. I then decided to move on and explore areas in math other than transcendental number theory. Searching the literature at the time I got interested in automorphic forms, and participated in the Corvallis summer school. I had an idea to do with the Shimura correspondence,

spent most of this last year studying automorphic forms, half that year back in Israel, and returned to Cambridge towards its end.

It was then that I had the closest contact with Baker. He sat with me frequently, forcing me to explain to him word for word my work, forced me to rewrite it in a clearer way, and stated that it was at this stage of the thesis that he could contribute the most exactly in this way of straightening my writing. This indeed was extremely helpful to me. He also said that almost always when one reads a math paper, ideas for extension or improvement come up, but not all are suitable for publication. He was – of course very justly – very worried of the slightest errors: mathematicians are incredibly nasty, if they catch you in the slightest error you might be doomed.

Nevertheless I do not recall discussing with Baker anything but math. There were no personal things I discussed with him, he was always on his guard (except for our last conversation, a few months before he passed away).

In contrast, e.g. John Coates had wide interests, and charming personality, and it was a pleasure discussing arts and sciences with him.

Baker's professional achievements led to envy, it seems. Sir Peter Swinnerton-Dyer is rumored to have said Baker was "lucky" to have come up with his theory of linear forms in logarithms. This is not so: Baker was a deep thinker, maybe not of too wide horizons and interests, but what he worked on he understood as nobody else did, and his originality is extreme. He talked only on what he knew well.

I personally like also Langlands' style, who attempted to give a talk in "Turkish", that my Turkish students reported that not a single word of it could be understood by them.

My surprise at the start of these recollections was then that I had never suspected – and of course Baker never told or suggested to me – he was Jewish, or of Jewish descent. I would never directly ask anyone on such a personal matter, but it has not occurred to me to ask anyone else. This tells of my blindness, of course.

I recall one exception to this rule: before J.-P. Serre visited us at Ohio-State, I asked Nick Katz whether Serre was Jewish, and the instantaneous reply was an angry "I never said anything like that". At OSU, after the reception I drove Serre back to his hotel, he said he was protestant, such as the Huguenots who built Gendarmenmarkt, and although at the time they made some 10% of the French, and Jews about 1% or less, the three groups were roughly equally represented in Bourbaki. Serre's Travaux de Baker at Séminaire N. Bourbaki, November 1969, preceded Baker's Fields medal.

In this context I regret not getting to know Serge Lang better: I invited him to give his last Colloquium at OSU – he paid himself for all the crowd that came to dinner with him at the finest fish restaurant we had in Columbus (students do not usually come to colloquium dinners in the US, and Lang did not say in advance he would pull out his CC when the bill came). When I was a year after my Ph.D. in a conference in Paris I asked Lang for any directions on how to do something – I forget what – and he screamed at me: "if I knew how to do it, the paper would have been published already". Baker pointed out to me Lang quoted C.-L. Siegel's in one of his books as saying something such as *Wer ist das Schwein, das in meinem Blumenbeet herumtrampelt?*

Perhaps hiding his roots has to do with the famous Chinese curse: "May you live in interesting times". A year before Baker was born, after the Munich Agreement of September 30, 1938, Neville Chamberlain returned to England a popular hero, speaking of "peace for our time." Baker was born a few days before the Anglo-Polish pact (August 24), and the Germans' attack on Poland (September 1, 1939). Maybe this explains his insecurity, in spite of his achievements.

Rereading this text perhaps it would appear I am somewhat critical of Baker not "coming out of the closet", in current terms. But I do not know what he or his family went through, beyond

spending the first six years of his life – that psychologists say are the most formative – in the shadows of WWII. I am just telling of my impressions.

I visited Cambridge once again, Friday July 20 to Sunday July 22, 2018, for my daughter's graduation. Once again I took advantage of my free pass to Trinity High Table, and met again some of Baker's colleagues, who I sensed respected him and liked him a lot. After some search I got in touch with his Israeli cousin, I quote from her letter below.

Perhaps Baker just did not have room for his roots in his narrow – but mathematically deep – world. He did not build a family either, although David Masser told me he tried at least twice to get married, and put some time in ballroom dancing.

It seems Baker is just the opposite of André Weil and his sister Simone, whose world was too wide to have any room for where they came from, although Simone's communism is so symptomatic of some naive Jews, who expected a miracle solution to the problem they tried to suppress (that when two Jews discuss, there are at least three opinions).

I had then much discussions at Trinity, and lots of correspondence with people who knew Baker well, and I would just quote – anonymously – from a message from a friend: “I have always assumed Baker was Jewish, but I never met any of his relatives.” and “I think his basic problem was insecurity”.

And here is most of the Israeli cousin's message:

“Sheldon Baker forwarded me the very nice email you sent him about Alan. I'm sorry it has taken me so long to reply.

I am the cousin Alan stayed with in Tel Aviv a few years ago. He was here to attend my daughter's wedding. I was delighted that we were able to show him a little of the country while he was here. He did say that he had had an Israeli student at one time but unfortunately I had no idea how to get in touch with you.

Alan wasn't the type who wanted to go sightseeing, he would have been quite happy to spend all his time here on the beach in Tel Aviv. However I did take him on a conducted tour of Jerusalem and my son Gil took him to Haifa to see the Carmel and the Baha'i gardens. He also saw a little of Jaffa where the wedding took place as well as Tel Aviv of course.

Alan and I were first cousins. As children during WWII we lived in the same house in Surrey. Although he was four years younger than me he was able to help me with my maths homework once I had explained to him what I was supposed to do! I knew then that he was something special. A friend who went to the same school as he did told me that at exam time when the other children were biting their finger nails and feeling the tension, Alan had a happy go lucky attitude and acted as if he didn't have a care in the world.

After he moved to Cambridge we were only able to meet up on my short visits to England. (I have lived in Israel since 1960 and married here in 1969). To answer some of your questions, my father and Alan's mother were brother and sister. We were not particularly religious although Alan would not eat non kosher meat. I don't know what the relationship was with Sheldon's family. Sheldon was his father's nephew. We have never met.

The last time I spoke to Alan, he told me he wasn't well enough to come to London to meet me and didn't want me to go to Cambridge. I was concerned because I knew that he neglected his health to some extent.

Anything else I can tell you I will be happy to do so.

Regards, Heather Rechtman.”

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