Prof. P.A.M. Dirac 1902 – 1984.

Part I. You are probably familiar with most of the following – + Simon tells me you are familiar with all Dirac's work + are a distinguished physicist

1935 Paul Dirac came with his family to live in Cavendish Avenue Cambridge. The house was No 7 + our house exactly opposite No 8. When he came with his family he was 33 yrs + his wife not yet 30. Paul as you of course will know was a theoretical physicist + two years previously shared the Nobel Prize with Erwin Schrodinger. While still in his 20s he had been elected Lucasian Prof of Mathematics in Cambridge – the chair that Sir Isaac Newton once occupied. He held this chair for 37 yrs.

He was well known at Sr John's Cambridge where he was a fellow for many years. He was known for neither looking to right or left and for recognising – nobody – He avoided social contact + seemed intensely shy.

My father was an academic + many dons + professors were friends + came to our house, some very distinguished. But all knew that Paul Dirac was in a class of his own. If they didn't they simply didn't understand!

Widely regarded as one of the greatest theoretical physicists of all time Dirac was one of the founding fathers of quantum mechanics, the scientific discovery that explains why the stars shine + how transistors work.

quantum physics which has to alter accepted perception of the world in a way that defied common sense

His belief that physical laws should have mathematical beauty led him to predict the presence of antimatter a proposition confirmed experimentally in 1932 with the discovery of

the first antiparticle, the positron

Dirac's work is of continuing importance not only to physics but to chemistry + molecular biology. Sixty+ years on, positron emission tomography is an important technique for medical diagnosis

1996 Sometime after he died History was made at 6pm on 13 November, when president of the Royal Society Sir Michael Atiyah unveiled a plaque in Westminster Abbey to commemorate the scientific achievements of Paul Dirac. The memorial carries Dirac's celebrated equation of 1928 $(i\gamma.\delta - m)\psi = 0$ the first mathematical equation ever to be commemorated in the Abbey.

Subjects other than mathematics like philosophy + medecine, politics + economics require good brains but can be studied to a high level by many people so inclined. Mathematics though is in effect a culture - a particular way of looking at the world set apart from other disciplines by virtue of its rigour, its centrality to all scientific enterprise + its status as a language. Like Greek, or like musical notation it is for initiates only

I composed this from an article I read which articulates for me an excellent description of a mathematician

All the above was collected by me when I decided to find out as much as I could about this extraordinary man who was a friend. I did this a long time ago — It is the result of my research + not my words — forgive me if you know it all but I wasn't sure where to start!

Part II is about what I observed in this human being as husband, father + friend

1935 Part II

Cavendish Avenue was out of the town towards the Gog Magogs. It was a quiet tree lined avenue - (large elms whose branches met in the middle + were the resting place for many pigeons)

The Diracs turned out to be the most exceptional family. For a start Mrs Dirac + her children were Hungarian. They had been born in Hungary + lived there until they came to England in 1935. The children were a boy + girl of 10 yrs + 8 yrs. Their accents particularly Mrs Dirac's were very strong + their temperaments fiery!!

Professor Dirac was Mrs Dirac's second husband + step-father to her two children Gabriel + Judy (Gabor + Yootsika)

Professor Paul Dirac's father was French + a teacher at Clifton School Bristol where Paul was a pupil but his mother who we got to know very well was as English as could be with a West country burr - She was kind friendly + jolly. She told us that her husband made Paul work very hard.

Paul's work must have always required such intense concentration. How could it have been otherwise? The fact that he married an emotional + temperamental young woman with two quite wild though very intelligent children was to say the least astonishing! Mrs Dirac's brother was a distinguished scientist + it was probably through him that she + Paul met, I believe at a conference in the States.

My twin brother + I were 9 yrs old in 1935 + we instantly were friends with Gabriel + Judy. All 4 of us played virtually every day in each other's

house & garden

Being only 9 yrs old my brother & I of course had no conception that Paul Dirac was a genius – to us he appeared strange. He was very tall & thin with dark curly hair already receding from his high forehead. He had large feet & walked with a stoop. The garden of the house was totally neglected – quite a jungle but one thing that Paul would do was to prune the many very large trees – climbing up very high with astonishing skill.

He escaped for most of the time into his study at the back of the house which nobody was allowed to enter or to clean. He didn't seem to notice the 4 of us – though we were often very noisy & probably naughty.

About 2 yrs after ~~[illegible]~~ coming to live in Cavendish Avenue Paul & Mrs Dirac had 2 daughters, Mary first & then Monica. Judy & I were intrigued by these two babies but were not encouraged to be with them very much. They had an Austrian nannie who kept a strict regime. Judy may have felt a bit out of things. Her mother certainly found her difficult

When I first met Judy she was wearing a dress (with an apron) on top of many petticoats & red boots. She had a large bow on top of her head & looked adorable and <u>very</u> different from my other friends. We went to the Perse girls school (cycling there together & coming home to play together every day) We both had attic bedrooms in ~~the~~ the front of our respective houses & would whistle accross to eachother. We shared secrets & jokes for the next 10 yrs or so.

This was family exception, the 30's our house was not modern so

The Dirac's house was a bit bigger than ours & had been completely refurbished & had central heating & more than one bathroom. It was furnished with large, splendid though rather dark & heavy furniture. The beds had eider duck ~~filled~~ feather filled, enormous quilts. There were portraits in oils on the walls including a large & appealing one of Judy. Mrs Dirac had brought a Hungarian maid ~~[illegible]~~ with her whose name was Piroshka. She spoke only Hungarian, was very short & plump with a round face & dark straight hair worn in a bun. She was always dressed entirely in black. Her dresses were ankle length & she wore boots on her very small feet. She did all the work in the house including mountains of washing. She had to stand on tiptoe to hang large sheets over the washing line. When she was tired she took off her boots & wore flappy slippers. She had the most fiery temper & would chase us with a rolling pin if she caught us helping ourselves before tea to the lovely little pastries she made. These pastries sprinkled with caraway or sesame seeds filled the kitchen with an irresistable smell & tasted wonderful. Poor Piroshka was almost always angry. She would go mad if we brushed against the washing as we played in the garden. She would shriek & chase us all round the garden. Once she thumped Gabriel on the back with a wooden spoon but he just laughed & nine times out of ten she never caught up with us.

The Dirac household & it's atmosphere ~~were~~ were so different from those of my own - I was intrigued. It was the Hungarian element that was so different

Judy & Gabriel fought a lot chasing each other with anything that came to hand, hockey stick, cricket bat, spade! ~~anything that came to hand~~ Mercifully & miraculously they never seriously hurt each other.

Judy was very intelligent & soon mastered excellent English though her accent remained strong. She was a very affectionate & loyal friend, brave when she hurt herself & un-complaining when she wasn't well — We were very good friends indeed. She didn't mix well with my other friends because she was so unusual — they were a bit wary.

Judy told me something about her real father who never came to England. He was she said a cavalry officer & had married her mother when she was only 18. He would tell her what she must wear & even how her hair must be cut. They had lived in her maternal grandparent's house which was very grand & they had horses & carriages. Her grandfather owned leather factories. Her father played cards & was a gambler — How different her father & stepfather were. Judy romanticised about her real father & about Hungary & was not that close to her mother. Gabriel was different & soon hero worshipped his stepfather. He went as a border to the Leys School so my brother & he lost touch with each other. Gabriel changed from reading classics to reading mathematics. He even began to look like his stepfather! He took a degree in pure mathematics at St Johns Cambridge & got a double 1st!!

During the war Cavendish Avenue had tanks under the elm trees & soldiers were billeted in 2 large empty houses. We had some fire bombs. Paul Dirac worked harder than ever in his

study & envelopes marked R.A.F or Top Secret arrived at the house.

Judy was very partisan & admired the Russians a lot & Polish soldiers billeted near chatted her up & she loved that!

However she married a very modest delightful Geography don called Geoffrey & they did up a flat together in the town. When they went to the states she wrote often & sent little gifts - I missed her. When I got married we gradually lost touch but she had written to tell me about her children particularly one son who she obviously adored.

I was very sad & shocked when Mrs Dirac (who wrote very affectionate letters every year) told me that Judy had disappeared - "Her car found but Judy never" Judy had apparently been taking pills & changed in personality.

After Judy married I still went accross the road to see Prof & Mrs Dirac. I had learnt as I grew up that Paul Dirac was a kind & gentle man who did in fact take an interest in many things other than mathematics like politics, the arts, theatre & films - for several years when I was a child he just used to pass me in silence on the stairs or wherever our paths crossed - then sometimes we would both smile at eachother - After a while he spoke to me. Once we enjoyed a discussion about the film "The Third Man" & that was the beginning of a friendship. If he was in the sitting room he would invite me in & to sit down. One of his friends who was quite a frequent visitor was a Russian Mathematician called Prof Petsikovitch a

marvellous looking man with thick white hair I enjoyed hearing him speak – his Russian accent was rather beautiful

Prof Dirac was probably an atheist but in discussions he revealed very high moral principles. He was modest & not interested in personal fame (He would have liked to refuse the Nobel Prize but was told this would create red hot news)

He encouraged me to talk – to say something. Once he really laughed at something I said & promised to come to my wedding! which he did (in 1952)

I enclose a picture of Paul Dirac which you might like —

I watched the progress of a beautiful bronze bust which the sculptor did in the sitting room

Mrs Dirac in one of her many letters told me that Paul was much more appreciated in the states than in Cambridge. I can't remember when they left for the states 1950's after 1952 anyway

The memorial (the equation) in the Abbey is next to the tomb of Isaac Newton – I intend to go & see it sometime

Hope this isn't too long! but I read & write very quickly & couldn't stop.

Prof & Mr Dirac always showed great affection for each other & she would call him Mickey Mouse & pinch his cheek. Mrs Dirac in her letters from USA told me about their many grandchildren – most brilliant but not all happy

Yours Rosemary McGregor Wood

A bit more!

I was remembering how sad it was that to the ~~genius~~ man in the street - anyone observing him walking in his strange way along Cavendish Avenue & even to some of the Cambridge dons who were out of his league in brilliance & were not mathematicians Paul Dirac was a figure of fun. When we human beings don't know or understand we can be so silly & even cruel. However as I was virtually a member of the Dirac family I was able to observe that he always seemed serene & happy - happily shut off - I never remember him being unwell - He did suffer from insomnia but drank Horlicks & perused a Mickey Mouse comic at the end of the day - maybe that helped! He obviously had some colleagues who admired him greatly amongst them Prof & Mary Mitchell, The Cockcrofts - & Now of course most people must feel very grateful to this extraordinary genius.

Because of the big age gap between us I never really got to know Paul's daughters Mary & Monica. Mary was often unwell & suffered 2 broken marriages. Monica more robust was quoted on the radio the other day.

Mrs Dirac was extraordinary! so very "foreign" in speech & temperament - perhaps Hungarians are the most different from us with our calm stilted behaviour - I believe she knew & understood Paul's genius & protected him a bit from the volatile step children. Paul was in his study & nobody ever near.