

## **Origins and Ancestry**

### **Forbears**

I was born on 10th February, 1920, in No.24 Abington Road, Middlesbrough, Yorkshire, the last of the three children of John William Heslop Harrison F.R.S. (Biographical Memoirs vol. 14, 1968, p 243) and Christian (*née* Henderson). In 1920, my father left his post as Senior Science Master in Middlesbrough High School to take up a lectureship in Zoology at Armstrong College (University of Durham), Newcastle upon Tyne. Shortly after his taking up the appointment the family moved to the small mining village of Birtley, Co. Durham, my father's birthplace, some five miles south of the College. For the first few weeks we lived in two rented rooms in a Victorian terrace house in Orchard Street, before moving to No. 2 Windsor Road, a small hut in a wood-built camp, Elizabethville, which had been constructed in haste to accommodate Belgian refugees in the early years of the 1914-1918 war. We lived in this hut for seven years until my father, following his election to the Professorship of Botany in the College, felt himself affluent enough to build a house, "Gavarnie", also in Birtley but nearer to his parents.

My father's family had retained the connection of "Harrison" and "Heslop" for several generations. The Harrisons were a long established Co. Durham family of farmers and artisans, and the Heslops (deriv. *Hazelhope*, "hazel valley") were descended from residues of a lowland Scottish sept of the Hamilton clan, said to have been stranded in northern England following the 1745 rising. During correspondence following my mother's death in 1952, I discovered the surprising fact that the alternative combination, Harrison Heslop, existed in the North Tyne district of Northumberland.

My father was born in Birtley in 1881. His father, George Heslop Harrison, began as an apprentice at 14 on 9 shillings a week in The Birtley Iron Works, a smelting and casting factory, where he rose eventually to become foreman of the pattern-making shop. This factory was largely engaged on work for the massive Vickers Armstrong factory on Tyneside, and my grandfather was eventually offered an appointment as a foreman in the main factory at a much enhanced wage. However, his local loyalty (revealed also by my father throughout *his* life) was such that he declined, preferring to stay in Birtley. My paternal grandmother, Isabella Hull, came from Northumbrian farming stock. Brought up

in a rural community, her education had been quite limited, but she was a great reader with a special fondness for plants, gardening and local history of the more plebeian kind. She used to regale me with the histories of the various murderers hanged in Durham jail: as a teenager I found such stories as that of Mary Ann Cotton and the green arsenic-containing wallpaper entirely fascinating. Her older brother, my great uncle, the Reverend J E Hull MA, DSc (always known as the Reverend J E), had been given a fine classical education in Durham University. After taking orders and serving briefly as a curate, held livings first in the wonderfully remote parish of Ninebanks in West Durham and then in Belford in Northumberland. He was a true scholar of the Victorian country-parson type: a polyglot with good Latin and Greek, widely read in the classics. He was possessed throughout his life with a passion for natural history and local folklore and language, a preoccupation that must have competed sorely with his parochial duties. At the time of his death in the fifties, he had just completed the correction of the proof of a paper on spiders. My father, who greatly respected and admired his intellect, felt his influence quite strongly; and through him, I suppose, I was myself influenced. I recall the Reverend J E in the 1930s as a dapper little man in knee-breeches, with a goatee beard and brilliant eyes, talking fluently in his cultured but nevertheless well-marked Northumbrian accent on topics of church, local and natural-historical interest, mostly well above my head.

My mother was born in Anstruther in the county of Fife, of a seafaring family. Her father, John Henderson, apprenticed first in sail, became master of a cargo vessel trading between Leith and along the French coast into Spain. Unusually for the time he took my mother along on some of his voyages, and she profited from the experience by learning some more than rudimentary French. Although my mother entertained me endlessly as a child with tales of her girlhood in Fife and her experiences at sea with her father, I do not recall that she told me much about *her* mother (*nee* Watson), who came, I understand, from Fifeshire farming stock. My mother's family, consisting of two sons and two daughters, eventually moved to Leith, where she trained as a teacher. It seems that she was unable to find a post in Edinburgh after qualifying and was therefore impelled to look further afield. The result was her appointment, first as a student teacher and then as a fully fledged teacher, in a small school at Chester Moor, south of Chester-le-Street in Co. Durham. It was in this part of Durham that she met my father, through a common interest in natural history and cycling. They were married in Birtley in 1906.

### **Early Life and Parental Influence**

Most of the Belgian families moved back to their own country after the war, and the Elizabethville hutted camp then provided housing mainly for miners. Shortly after however, the conversion for other industrial uses of part of a munitions factory built at Birtley during the war provided another source of employment. One section of the factory, not far from our hut, became the Artic (*sic*) Fuse Company, specialising in making ceramic insulators, fuse boxes and the like, while another small part was developed for manufacture of zinc oxide, mainly for medicinal uses. The glare from the zinc burning process was one of the features of the night sky, while another was the flickering light from burning of the coal-pit spoil heaps surrounding Birtley, which were not finally extinguished until the second world war. It was a while before I came to realise that a yellowish haze was not a general characteristic of the atmosphere all over the world, and that this and the all pervasive sulphurous smell were actually products of the local industry.

My pre-school life was spent largely with my mother, for my father left early each week-day and Saturday morning by the old Crescent 'bus service for Newcastle, not returning until almost my bed-time, while my older sister (Helena; known as 'Dolly', her own childhood name for herself), and brother (George) both set out in the opposite direction for Chester-le-Street Secondary School, three miles distant, and were engaged with homework most evenings. My mother had high hopes for all of us, and, true to her training as a teacher, she set about early to teach me the alphabet. I recall being wakened at the age of three specifically to recite it for one of her two brothers, now also a ship's captain, who had visited us for a day while his ship was in the Tyne. The tall, looming, blue-clad, gold-striped, tobacco-scented figure made a lasting impression on me when I saw him leaning over my bed.

The kitchen in the hut held a large cast-iron stove, kept going most of the time with free coal from one of the local collieries. This certainly kept the room warm, even though the rest of the hut, consisting of a parlour (euphemistically called the drawing-room) and three other small rooms were freezingly cold during the winter. A special and important prerequisite was electricity, supplied from a generator in Elizabethville village for 1 shilling per week - unmetered. The electrical system in the hut was primitive, reflecting

the haste with which the camp had been built, with paired separate conductors running across to the ceilings of each room.

One of the great advantages associated with the hut arose from its location at the north edge of Elizabethville, which meant that it had quite an extensive garden reaching down to a stream. This was ideal for my father for growing his experimental primroses, roses and willows. He played little part in my early life, beyond imposing a rigorous discipline when he was at home. One or two of his exploits did make an impression on me, however. A memory still lingers of his climbing an ash tree at the bottom of the garden when I was three to see if he could establish mistletoe on what was generally regarded as an inhospitable host.

On another hilarious occasion he brought back a clutch of salamanders to live in the bath (which accordingly had to be taken out of general use for a while). The origin of this ploy had been his reading of Kammerer's papers on the induction and subsequent apparently-Lamarckian inheritance of the nuptial pad in newts. Like many others he was highly suspicious of the reported results, and looked around for material that might be suitable for another experiment of the same kind. He knew that salamander colouring varied greatly, and he had the idea that if this could be shown to be affected by environment, mainly light, they might fit the bill. He soon realised that the idea was wholly impractical, but not before some of the salamanders escaped. They did not turn up until some months later when a plumber, called in to look for a leak under the bath, retired in disarray when he found himself confronted by a terrifying group of black and yellow animals beneath the floorboards.

The years 1924 and 1925 brought many memorable events for me. The famous trans-Canada meeting of the British Association took place in 1924, and my father received his very first grant from the College to participate and give a paper. He decided to take my mother, which meant that we three children had to be left on our own throughout the summer. My brother contracted meningitis, and had in any case to spend some months in a nursing home. My sister was working for her Higher School Certificate examinations, and the arrangement reached was that she and I would move in during the early summer with our grandparents, and would later stay in Northumberland with a gamekeeper's family on Colonel Leather's estate near Belford, in the Reverend J E's parish. My grandparent's house, also in Birtley, had neither electricity nor a flushing lavatory,

advanced features present in our own otherwise primitive hut. The upstairs room allocated to my sister and myself was lit by a single fish-tail gas jet. I looked upon this as a splendid novelty, but in retrospect I have often wondered how my sister ever managed to put in the amount of late-night swotting she actually did. The period in the gamekeeper's cottage in the Northumberland woods was indeed an idyllic one for me. I had never before had such freedom, and exploring the environment and encountering some of the animals were novel and delightful experiences. The most unpleasant memory was of the gamekeeper's board, with its grisly array of presumed 'pests' - rabbits, rats, jackdaws, crows and various raptors.

In December of that year I was taken as a Christmas 'treat' to see the shops in Newcastle. In the covered market I was impressed by the rows of rabbits, hares, ducks, geese and hens suspended head down outside the butcher's shops, some still dripping blood on the sawdust covered floor; and at dusk by the naphtha flares illuminating the stalls in the open market. The crowning event was, however, to cross the Tyne through the two-decker High Level Bridge on a horse-tram - the last in the city, the service being withdrawn altogether the following year.

My paternal grandfather, who retired in 1919 after 50 years of service with Birtley Iron Works, had expressed a wish to see the battlefields of Belgium and France before he died. My father organised a visit for him in 1925. The arrangement was that my grandfather should go on the trip with my grandmother, accompanied by my mother and sister and myself, while my father, with Lofthouse - a friend from his Middlesbrough days - would travel to the Pyrenees to collect lepidoptera and primroses. So at the age of five I paid my first visit to the Continent. We went first to Heyst and Zeebrugge, and then on to see the huge gun, Big Bertha, intended to shell Paris; I was photographed lying in the barrel, peeping out of the muzzle. I didn't care much for Paris, where I was worried by fleas. However, my grandfather quickly adapted, wandering around often on his own, or tugging me along by the hand. His tastes at home were rigidly conservative, but he explored remote corners of every menu presented him, and one occasion to my mother's horror consumed a *vol-au-vent* containing frog's legs.

The year 1926 was that of the General Strike<sup>1</sup>. Most things came to a stop; the family holed out in the hut, and my two sibs didn't attend school. A few buses ran the gauntlet of pickets, and also occasional trains, operated by engineering students who couldn't, however, manage the complicated crossing system at the approach to the High Level Bridge. My father struggled into the College for one or two days, cursing most of the time, before giving up. In spite of his working-class origin and close friendship with neighbouring miners in Elizabethville, a group of imported agitators threatened him as one of the class enemies. His characteristically robust response was to buy a pistol - never used, but retained many years after the end of the strike. One of my most vivid memories was of a riot at the end of Windsor Road, when a police charge broke up a picket line trying to prevent the delivery of provisions. One Cooke, an imported strike leader of notable ombonpoint, attempted to escape between the palings of a fence only to stick half-way, and be caught by our local bobby, who found the rear elevation a tempting target for his truncheon.

When I was old enough my father began to take me on local field trips, and sometimes on the longer excursions of the Wallace Club, a naturalists' society based in Newcastle. It was on these trips that I learned from him all I have ever known about entomology. He had a prodigious memory for lepidoptera in particular, and was never stumped for a name, English or Latin; so he was always a focus for an eagerly questioning group as we made our way through Chopwell Woods, Prestwick Carr, Gibside and other rich habitats. He also let me assist him with moth rearing. After the war he had special rearing cases imported from Fritz Wagner, an entomological supply agent in Vienna, and I was allowed to wash and dry these cages and help with transferring the caterpillars as they emerged. There was no heating in his college department on weekends, so all the culturing had to be done in our hut where there was some warmth - truly a penance for my mother<sup>2</sup>. I learned about the lepidopterous life-cycle from this experience, and also

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<sup>1</sup> The post of Reader in Genetics was created for his father in that year; one year later he became Professor of Botany and in 1928 he was elected a Fellow of the Royal Society. He retired in 1946 and then served as Senior Research Fellow until 1949.

<sup>2</sup> *Footnote from YHH:-* The moth story: this is very funny, but with a sad end. JWHH had isolated various species of moth pupae in little wooden chip pill boxes of the period, holding them as carefully as possible at various temperatures, and keeping some at a relatively even warmth (i.e. on the high mantelpiece of the old fashioned kitchen fireplace) when he hoped to accelerate their emergence, with a view to planned matings in the mating cages later on and subsequent breeding - a very optimistic experiment for

from breeding small-tortiseshell and cabbage-white butterflies as an independent enterprise. The success of this led to my first public lecture, given at the age of seven to members of the Wallace Club in the Botany Department lecture theatre in the College. The topic was butterfly life history, illustrated by slides provided by my father, projected through a fearsome 3 1/4" lantern with loudly hissing carbon-arc illumination.

Another useful experience for me was to learn something about photography. There were no facilities for this in my father's department in the College at the time, so preparing illustrations for his genetical papers had to be done at home, or in the house of a school teacher in Low Fell, Mr Johnson, who was a keen amateur photographer and naturalist. Our hut had a corridor running between the bedrooms and ending in a blank wall. Draped with curtains at the open end, this could be made into a darkroom. The exposures of mounts of segregating moth families were made in the garden, using a Thornton-Pickard plate camera, and the plates were developed in the corridor. I would kneel beside him in the dim red light as he carefully rocked each plate in a large dish filled with pyrogallol developer, watching the image slowly emerge. After the hypo-fixing, washing and drying there was the exciting business of making prints in printing frames on slow chloride contact printing paper. This required sunlight, and my father would wait impatiently for days until a gleam or two appeared. It was not until the 1930s that he achieved any more sophisticated facilities; but for me the early discipline was critical, and photography has played a significant part thereafter in my own scientific career.

My sister, Dolly, was another important influence during my early years. Her interests embraced archaeology, and she used to tell me long stories about the Romans, who had left such enduring marks on the North East. One memorable trip was to Hadrian's Wall, where we saw, *in situ*, the famous inscription made by a Roman quarryman in one of the quarries (his graffito has now been moved to Chesters Museum). She was studying

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the time, needing constant attention. One night-when everyone was asleep and the cat was dozing by the fireside it heard a noise from one of the pill boxes as an imago started to spread its wings and flutter precociously. Obviously the cat had climbed up on to the mantelpiece to investigate further, knocked the box on to the floor, which fell open disclosing a writhing and tasty morsel, By morning several opened pill boxes lay scattered-round the floor, the sleeping contented cat amongst the debris of torn moth wings. One can imagine the wrath of JW HH with a whole season of carefully planned work laid to waste when he first saw the chaos - Jack long remembered the black mood that descended upon the household that morning; apparently his father hardly spoke for days - understandably so!

Macbeth for one of her examinations, so I was introduced to Shakespeare second-hand through her in a completely painless way. On one of the field trips we raced through the woods carrying birch branches - taking Burnham Wood to Dunsinane.

At this time my father resumed correspondence with one Herr Dr Lange, a schoolmaster and dedicated entomologist in Freiberg in Saxony, with whom he had exchanged specimens in pre-war days. Lange's family was in a parlous state after the war, and my father suggested that he could perhaps help to relieve the pressure by taking Lange's daughter (Greta, known to us as 'Gritty') for a period. So she was fitted into our hut also, sharing my sister's bedroom. Gritty spent much time with me, so from my point of view the arrangement was altogether a great success, whatever my overworked mother may have thought of it.



*Jack aged about 4, examining something of interest, probably with his elder brother George*

My 'formal' education began at the end of my fourth year when I entered the Elizabethville Infant's School. The children attending were virtually all from mining families, but with widely varying standards of behaviour and dress - some with carefully

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washed pinafores, others shoeless and dirty even to my uncritical eye. The Headmistress was one Miss Kemp, who was both kind and strict. I was introduced for the first time to the use of the slate: at home there was never any shortage of paper, since my father used to bring back old examination books from College, with spare pages partly for use as his own notepads and partly for his children. I can still recall the screech of slate-pencil on slate as children laboriously made rows and rows of pot-hooks (a redundant exercise for me, since I had long passed this stage with my mother). It was at this school that I had my first encounter with sex, when I discovered one day when she bent down to pick up a slate that the little girl who shared my two-place desk wore nothing under her skirt. I thought the observation to be so important that I recounted it to my mother when I got home that afternoon.

From the Infants' School I moved to the Elizabethville Elementary School (generally known in Birtley as the Huts School), which had been built originally for Belgian refugee children as part of the hutted camp. I attended this school until I took the entrance examination for Chester-le-Street Secondary School at the age of 11, first walking from our hut, and then commuting by bus (1/2d each way) from Gavarnie after we moved in 1927. The Headmaster was Mr W Bolton and the teachers were all male; those I recall were Messrs King, Peterkin and Bee. Teaching and discipline were good, and my class, again mostly miner's children, buckled to mostly with a will. Mr King was the art teacher, whose special foible was taking snuff surreptitiously behind the door of the art materials cupboard. He used to draw landscapes on the blackboard, a skill that all the children thought was marvellous.

What I mainly gained from him was an understanding of perspective, and the ability to draw objects like milk bottles with white chalk on dark paper, indicating only the reflections. There was also a science room, cut off from the end of one of the huts. This had splendid things like mercury and aneroid barometers, and, unaccountably, a Wimshurst machine - always a mystery to us because it never worked, no matter how fast the disc was turned. Mr Bee was the secretary of the local branch of the National Association of Schoolmasters, and as part of his duties he edited a little newsheet and magazine. When he found I had something unusual to write about he printed one or two of my natural history essays in the magazine - my first published papers.

### **1930-1941: Home Life**

Although there were many enjoyable interludes, the decade 1931-1941 was not, overall, a very happy one for me. After our move to Gavarnie in 1927, my father increasingly dominated my life in one way or another. His own boyhood had been very hard and rough, and although he had parental encouragement, especially from his mother, the financial situation of the family was such that any advance he made through the educational system of the time had to depend primarily on his own efforts in gaining bursaries and scholarships. He had in consequence developed a rigid mental discipline so far as work was concerned, and this he sought to impose on his children, for whom both he and my mother had high academic ambitions. My sister (Dolly) accepted the challenge, and realised some of his hopes, taking a MSc and becoming Head of the Agricultural Botany Department in King's (formerly Armstrong) College. In my father's eyes the trouble was that she was a woman, and liable to get married; which of course she did. My brother (George), who had recurrent health problems and in addition possessed something of a rebellious nature, was less than responsive as a teenager - although he, too, eventually achieved high academic distinction with his work in applied entomology, receiving a D.Sc for his researches on *Psyllidae*. As the last of the sequence, I felt pretty continuous pressure to achieve, and anything less than first position in my class in any subject (especially in science) was regarded as tantamount to failure<sup>3</sup>.

To set against this less than comfortable situation was the fact that my father made determined efforts to expand my horizons, especially by taking me on his various excursions and expeditions during the summer vacations. In 1930 we went to the New Forest, staying in Brockenhurst accompanied by Mr J J Thompson, a mine manager with a passion for *lepidoptera*. He and my father collected widely, and I spend a lot of time with a beating tray getting larvae out of trees. At night I went out, usually alone,

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<sup>3</sup> *Footnote from YHH:-* One other episode during Jack's early life is worth retelling - he said it was pure Thurber! One night he was suffering from a severe nose-bleed, got up to go to the bathroom, but tripped and fell heavily and fainted in the hallway. His father was the first to be awakened by the noise and rushed out of his room to see what was happening; his immediate-response was that it was a burglar, and promptly overpowered the body on the floor, shouting "I've got him, I've got him!". His mother, also roused by now, put on the light, and seeing Jack lying unconscious in a pool of blood being mauled by JWHH was distraught and nearly in hysterics shouting "You've killed him; you've killed Jack". Jack described the situation in great mirth, as it took some time to explain to all parties the series of events that had occurred!

"sugaring" - baiting trees with alcohol-laced treacle to attract noctuids. My equipment was a vasculum filled with wood-chip pillboxes and an acetylene hand torch, and the catch was often dramatically large. The following year we went to the Pyrenees, this time with George. At Ax-les-Thermes, l'Hospitalet and other centres I was able to indulge my passion for beetles, collecting longicorns and species of other groups of a size and beauty beyond anything in my former experience. The year 1932 took us to Switzerland, where we stayed in a chalet hotel at Widlerswil near Interlaken. Botanising and "bug hunting" took up most of our time, but we did take a rail journey to the Jungfrau, where I had my first sight of a glacier.<sup>4</sup>

The most ambitious trip was in 1933, when we visited various people with whom my father had had professional contacts. We went first to Freiberg in Saxony to see Dr Lange, the schoolmaster whose daughter Gritty had stayed with us in the 1920s. This was something of a sad occasion. Lange's son, Harry, had joined the Party and become a dedicated Nazi, and even Gritty had been tainted. Lange himself, who bore a conspicuous cranial head wound, had been distressed by these developments at first, but later, to save his job, he joined the Stahlhelm, the ex-service organisation, and paraded once a week. Later still, he began to end his letters to my father with "Heil Hitler!", to which my father responded by concluding his letters with "God save the King!". The correspondence then atrophied, and ceased altogether by 1936. Gritty's husband was one Walter Ventzke - artist and schoolmaster, and no more than a nominal Nazi. I had the embarrassing experience of going out with him and his class of girls about my own age on a field excursion, where I was so much of a novelty that many came up to study me carefully, and even to touch me.

We were joined for part of this trip by Professor A D Peacock from the Zoology Department, University of Dundee, who had collaborated with my father in studies of parthenogenesis. After Freiberg we went on to Munich, where we witnessed massive Nazi parades through swastika-decked streets. To me this was all something of a

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<sup>4</sup> Footnote from YHH:

In 1932 the novelist John Buchan (later Lord Tweedsmuir, Governor-General of Canada, stayed with the Heslop Harrison family at Gavarnie. He liked to rise early to do some writing each day, and on leaving at the end of his stay he presented Jack with a copy of his children's book "The Magic Walking Stick", with a dedication to Jack on the flyleaf. Jack enjoyed Buchan's style and from then on read and re-read his books, throughout his life.

carnival, but the sight distressed and angered my father, a rabid anti-Nazi and anti-Fascist. My most vivid recollection is of the science section of the Munich museum, which was then well in advance of anything in the UK in display techniques. The practical demonstrations of the laws of motion I found fascinating, including notably a turntable on which one stood and was then spun round and round simply in reaction to vigorously throwing a ball into a net.

From Munich we went to Vienna, visiting various contacts in the University, and also Fritz Wagner, the entomological supply agent from whom my father had in the immediate post-war years obtained breeding-cages and other equipment. My mental image of the University is of grim corridors, gloomy laboratories, rows of dusty specimen cases and solemn professors. I have no other impression of the city as this time since we saw virtually nothing of it, nor of its arts and architecture - not that I would have had much basis for appreciating either. My father was especially blind to this kind of culture, preferring to spend his time discussing common interests with colleagues when he wasn't engaged in field work.

From Vienna we went to Czechoslovakia, and this was indeed a marvellous experience. My father was determined to pay a visit of homage to Mendel's monastery and experimental garden, so we travelled on from Prague to Brno. The museum on the site (subsequently destroyed as a monument to capitalist genetics by the Russians) I found fascinating. I had been coached sufficiently for me to understand something of what it all meant, and I gazed with awe at Mendel's modest equipment, and with astonishment at the door-jambes and window frames where he had scratched his first records of crosses and segregation ratios. I stood beside the Mendel monument to be photographed, and I have today only to look at the print of this picture to have the memories of the visit flood back.

This was to be my father's last journey abroad. During the succeeding years he was deeply concerned with the way things were going in Europe. Apprehensive of the intentions of Germany and Italy, convinced of the pusillanimity of France - and above all, worried by the political situation at home, where he deplored the softness of the Baldwin and Chamberlain governments and the adamant refusal of the Labor party to support and move toward strengthening Britain's defences - he felt war was inevitable. He was of course, right.

During the 1930s my sister decided that to run her Agricultural Botany Department and handle field classes at College farm, Cockle Park, she needed a car. Her first purchase was a large, virtually unmanageable Fiat, in which she was taught to drive by one of her students. This was followed by a Singer, which had the embarrassing foible of sticking occasionally in reverse. This was in turn replaced in 1938 by an admirable Austin 10, and in this she taught me to drive (no test or special instruction was required in those days).



*The granite memorial in the monastery garden at Brno; erected by the monks in 1922 to commemorate the centenary of Mendel's birth. The inscription reads "Praelat Gregor Mendel ... has made experiments for his law here".*

*JHH, age 13 (left) with (probably) Professor A. D. Peacock.*



*This cartoon (from YHH) records a zoological expedition by the Dundee Biology Department to the Hebridean island of Rona in 1934. The artist, Colin Gibson, was a member of the party, which had probably been organised by Professor A. D. Peacock, with Professor J. W. Heslop Harrison as a guest from the nearby University of Durham, accompanied by his two sons George and Jack (then 14). W. A. Clark was then a post-graduate student: he later became Jack's brother-in-law. He was also first author of one of Jack's earliest papers, a list of noteworthy plants from several other Hebridean islands. The complete cartoon is shown (above) with selected details below. In view of Jack's account of his father's strong anti-Nazi feelings (see above), the swastika drawn on the bug that his father is about to capture is notable. His father was at that time primarily an entomologist, witness his huge butterfly net and tiny vasculum! Some 30 years later Professor Peacock wrote JWHH's Biographical Memoir for the Royal Society. Jack was shown the cartoon and given a copy of part of it when he visited Dundee University decades later. Sir William Stewart, President of The Royal Society of Edinburgh, refers to it in his appreciation of Jack in the RSE Yearbook, p183, 2000.*

### **Chester-le-Street Secondary School, 1931-1938**

Chester-le-Street lies on the former Roman road from York to Corbridge, and the school itself overlaps with the site of a Roman camp on the banks of the River Wear (Samian ware and other Roman artefacts frequently appeared during the levelling of the playing fields in 1932). The management and running of the school in the 1930's provides an interesting contrast with modern educational fashions. Durham County Council was strongly socialist, as were most of the Governors and teaching staff. The Chairman of Governors during most of the period I attended was one Mr Gilliland, an ex-miner. His annual Speech Day addresses reflected the old traditional non-conformist type of socialism. They were essentially always the same, and the central message never varied: education is the key to everything; a good education demands hard work and discipline, so do your very best and strive to be a credit to the school. The ethos was shared by the teachers: they *taught*. No question for them of boys and girls doing more or less what they wanted when they wanted; in most subjects a strapping pace had to be kept up, and progress was monitored by frequent tests. Looking back in after years, I realised that I had actually gained an excellent education at "Chester Sec".

Up to the Fourth Form, when we all took the School Certificate examinations (to the Oxford Syllabus - for some unfathomable reason, not the Durham), there was no streaming. Thereafter, pupils with any promise went straight into the lower Sixth, and were separated into 'arts' and 'science' streams. No biology was taught in the school, apart from hygiene lessons for the younger children. I found in the lower school that my main strength was in English and the science subjects. Apart from getting various form prizes, I won the Ross Essay Prize, open to the whole school, in two successive years<sup>5</sup>, and since this was regarded as enough for one pupil I was not allowed to try again. I taught myself typing on my father's ancient upright Salter machine, and apart from writing several short science fiction stories (inspired by the example of American science fiction magazines, my principal light reading at the time), I wrote in 1932 a forty-

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<sup>5</sup> One of these essays was published in the Chester le Street Secondary School magazine for 1936, a prescient vision entitled "The conquest of space". He optimistically predicted manned space flight within twenty years – Sputnik flew in 1957, Gagarin in 1961. The essay, by a 16 year old, makes splendid reading and is reproduced here as a separate document.

thousand word story about New Forest ponies. In consequence of these efforts my mother and sister both felt that perhaps I should move towards the arts side - a view not shared by my father. The results from my School Certificate Examinations settled the matter. I did well in mathematics, the science subjects, English, geography and history, but gained only a pass in French. Latin was an optional subject, taken by very few pupils (among them, curiously, a miner's son called Lown, whose ambition was to play professional football with Tottenham Hotspur). I scraped a pass in this, mainly by virtue of being able to regurgitate chunks of Virgil and Caesar's Gallic Wars. So the balance was clear overall, and I went into the lower Sixth on the science side.

The masters in the Science Sixth were Flowers, Physics; Thompson, Chemistry; and Sanderson for mathematics. All were good, and Sanderson exceptionally so. Those in the science Sixth also took a German course, which was not examined, although the experience was thought to be potentially useful in applying for university entrance.

The physics laboratory was well equipped by the standards of the day, and we had from Flowers an excellent grounding in the main areas of the syllabus. This was biased towards classical topics - heat, light and sound, magnetism and electricity. Flowers was particularly strong on theory, and he required that we should match up in this respect to his own high standards. Thompson's very full programme also had its bias, here toward physical and inorganic chemistry, and was notably light on structural chemistry. Sanderson, whose very presence on the occasions when he took a lower school class was enough to produce total silence and attention, was superb in the Sixth.

On the non-academic side my fortunes were mixed in secondary school. I was physically quite small when I first entered, and suffered a certain amount of bullying. But I grew rapidly, and I entered the Sixth already over 6ft and able to command all the respect I needed, especially after I became a prefect. Throughout, however, I was a complete rabbit at team games. Football (always soccer) meant hours shivering in goal, except for the frequent occasions when I let a ball past and felt the opprobrium of my team. At cricket, I found my best ploy was to get out first ball if I could, and in the field to keep towards the boundary in the areas where few balls were likely to come, and then fall into a trance. My only advancement was in tennis, when not because of any ability, but simply due to the fact that very few boys had any interest in the game, I served once or twice as captain of the school team. Mr Thompson organised a chess club, and I enjoyed



travelling around on weekends and evenings in his 'stand up and beg' Austin 10, to play tournaments against neighbouring schools.

I much appreciated many of the indoor extra-curricular activities. The school did a play once a year, and on one occasion the choice was Richard II by Gordon Daviot (Josephine Tey). I was auditioned for a part but found totally unsuitable for anything at all. But the outcome was gratifying, for I was allowed to help with constructing the stage lighting under the careful supervision of Mr Flowers. The project was not a total success because the dimmers vibrated loudly as the inductance was increased, something of a distraction for those on stage.

Some of the science Sixth formers had the idea of forming a science club, a project greatly welcomed by the science masters, who readily gave up their evenings to supervise and help with the organisation. I served for two years as the secretary, and it was on my suggestion when I was in lower Sixth that we held a Grand Scientific Entertainment. This was open to Fourth and Fifth forms, and the physics lecture theatre, which was banked in the manner of a university lecture theatre, was filled for the occasion. We did all the usual things - turning wine into water and *vice versa*; causing tin cans to implode and hydrogen-oxygen mixtures to explode; mixing colours to make white light; changing the colours of rotating sectored discs with stroboscopic lights, and even shooting things about, I think with compressed air, on the lecture bench. In those days there were no health and safety officers about.

It was indicative of the dedication of the science masters that they organised various visits to neighbouring industry in their own time. After generating and working through the properties of hydrogen, oxygen and carbon dioxide in the laboratory, and learning about the production of coal gas, Thompson arranged a visit to the Gateshead Gas Works, where we followed the process from coal through to coke and coal gas. On another occasion we went to the Vicker-Armstrong works at Scotswood, and saw the guns intended for the battleship King George V in the course of manufacture. In 1936 the science masters took a group to the Open Day at King's College. I am sure that this experience removed the misgivings of any of the boys who had doubts about going into science or engineering.

My education at Chester-le-Street Secondary School ended in 1938 after I took the Higher School Certificate Examinations. I gained Distinctions in chemistry and physics, but to my intense chagrin found difficulty with mathematics, dropping one grade to a Special Credit. This was a real disaster, for my performance was not good enough to win a £90 State Scholarship, the aim of all pupils throughout the County who wished to go on to the university - preferably, of course, Oxford or Cambridge. Matriculation was no problem; but falling short in this way meant that my father would have to bear the financial load of putting me through college. I also took the King's College Scholarship Examination, and disaster was here compounded for I went down again, this time in chemistry. On this occasion I felt the fates had been very hard indeed, for the chemistry paper had some emphasis on structural chemistry, which, following the Oxford syllabus, we had barely touched upon. The best I could do to complete the required number of questions was to write a long essay on ozone. My heart sank when I read the results notice and read myself listed as *proxime accessit*. My father's reaction to these various performances need not be documented.

During the summer I went with the departmental party to the island of Rhum in the Inner Hebrides, and a miserable period it was for me. There was no alleviation until we returned home, when I received a letter saying that one of the two boys above me had gained a scholarship elsewhere and had dropped out. Accordingly I fell heir to a three year scholarship of £60 per annum, which I felt, however, I had not actually earned. I entered King's College in October 1938, to take honours botany, zoology and chemistry.<sup>6</sup>

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<sup>6</sup> JHH's references to his misery during the 1938 summer excursion to Rhum, and to his father's reaction to his entrance scholarship examination, are part of a larger context. For long his father had pressed obsessively for him to perform better at school. Even in his childhood his father had preferred him to have books rather than toys, which were frowned upon as distractions - Jack managed to circumvent this stricture by secreting toys at his Grandmother's house, a more sympathetic environment for a small boy. Later, his elder brother George suffered an attack of rheumatic fever and as a consequence fell behind in his schooling. In an effort to ensure that this should not happen again, Jack was sent back to school prematurely when he too fell victim to the same illness. A long-term mark may even have been left on his health: certainly he had severe heart problems in later life. YHH recalls that his father, who could be the life and soul of the party on excursions, heartily entertaining his colleagues, students and even strangers sharing railway carriages, displayed notably less camaraderie with Jack. Save on subjects of genuine common interest such as field identification of roses, willows and moths, Jack's requests for advice on botanical matters would often be met with the brusque suggestion that he should go and look it up for himself.