Memories of JHS

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1 Introduction

On my return to the London Hospital in 1959 after two years as a research assistant at the University of Illinois, Chicago, I was imbued with new enthusiasms and understanding of how I could find something in dentistry I wanted to do. I was daunted by the prospects of working day after day as a clinical Orthodontist straightening children's crooked teeth. I immediately started looking out for a lectureship with a combination of teaching and clinical work and an opportunity to do research with all the freedom that gave.

I was fortunate I didn't have to wait long. A lectureship in Orthodontics was advertised at Queen's University in Belfast and I applied and was accepted and started work in September 1959. I was concerned about living in Northern Ireland, which I had always perceived as a remote outpost of the United Kingdom where life was led at a gentle pace. However, there was to be a major compensation, which I didn't realise at the time I applied: I would work in close association with James Henderson Scott, one of the few vividly imaginative people who ever found his way into dentistry. I had first heard him speak at a 1954 meetings of the British Society for the Study of Orthodontics (BSSO) when he asked informed questions in a refreshingly original way.

1.1 Early meeting in 1954

I had taken three months off from dentistry in 1954 to sort out what I was going to do in the future, as I knew that I did not want to work in a general dental practice. I contemplated finding a job as a schoolteacher I wandered round France and was walking in the Pyrenees when I decided to give orthodontics a go. It was one of the dental disciplines, which demanded more than technical skills. I started as a house surgeon in 1954 at King's College Hospital in Barry Leighton's department. He encouraged me to take orthodontics seriously and invited me to my first meetings at the British Society for the Study of orthodontics.

It was at one of their monthly meetings that I first observed James Scott sitting at the front of the lecture hall dressed in a casual brown suit. He was different from any of the other participants who all had the sleek well-dressed look of aspiring clinicians and he reminded me of the artist Stanley Spencer with his air of other worldliness, but there was nothing vague about James. He asked in his soft and gentle Irish accent unusually incisive questions at the end of a lecture, but without the usual clinical anecdotes to lend authority to his observations. I was intrigued to learn that he had virtually no clinical experience, but was a lecturer in Dental Anatomy at Queen's University in Northern Ireland and

that he had made important contributions to the understanding of craniofacial growth. Furthermore, that two years earlier he had published in collaboration with Barry Symons a long overdue innovative textbook on Dental Anatomy [2]. James Scott animated any meeting of the BSSO he attended and it was always a disappointment when he was not there. I never thought at the time he was to have such a beneficial and far-reaching influence in my life. I watched him in action another time at an International Association for Dental Research, IADR. He spoke spontaneously at a lunch gathering about the importance of research in dental education, but this was no dull plea to state the obvious, but a witty, shrewd and inspirational appraisal of the role of science in dentistry. He had an overall view of dental education free from the narrow specialisation of the dental consultants that used to dominate the profession when I was a student at Guy's Hospital (1944-50). He was unlike any dental academic that I had so far met.

1.2 Queen's University 1959

The dental clinics were separated from the main university campus. They were scattered in a turn of the century red brick building that was part of the Royal Victoria Hospital that had been officially opened by Edward VII. The buildings had been updated and converted over many years to serve as a Dental Teaching Hospital. It had the atmosphere of a seedy down town one-star hotel for commercial travellers and the ladies who provided them their pleasures. I was told the building could not be pulled down because of its royal memorial status. I wonder if that was true. The Orthodontic Department had one small room for a clinic in which there were only six dental chairs. Phillip Adams, the head of the department, had a small windowless office. There was no accommodation for a second lecturer. I must have been shown the facilities when I came for my interview and it should have been clear from the lack of clinical chairs that Orthodontics was not taught as an important part of the undergraduate teaching programme. However, I am not sure how aware I was of the significance of this before I accepted the appointment.

1.3 Fortuitous lack of accommodation

The lack of any appropriate accommodation proved to be most fortuitous for me. James Scott, the charismatic dental anatomist offered me space in the Anatomy department on the main Queen's University campus in return for doing tutorial work for his preclinical students. I was to spend most of the working week in the Anatomy Department and did very little clinical work and very little clinical teaching, teaching at most, two or three sessions a week. It gave me time, first of all, to catch up on my science education. James Scott was an admirable teacher. He had written with Barry Symons (1952) the best available textbook on dental anatomy for dental students and, with his encouragement, I immersed myself in learning all I could about the embryology, development and growth of the head. James was always willing to explain anything I didn't understand and he clarified for me many of the complex processes of embryology and their relation

to craniofacial growth. At the same time I attended his lecturers and tutorials in which he unravelled many mysteries of skull growth. The understanding he gave me enabled me to teach these subjects with great confidence in my subsequent career.

I searched around for suitable research projects and after attempting one over-ambitious project to monitor mandibular growth in cattle, I embarked on an analysis of the genetic traits of the skeletal elements of human skulls as appraised from radiographs of living subjects. I got the idea for the study because the orthodontic patients in Belfast often came accompanied by their brothers and sisters and I noticed how remarkably similar many of their craniofacial features were, and very obviously the outlines of their mandibles. If their mandibles were so clearly similar then why not, I asked, their occipital or frontal bones? I tested the hypothesis that there were greater similarities of bone morphology within families than between families. I obtained standardised lateral skull radiographs (cephalograms) from over 60 families, including James Scott and his family. The families consisted of mothers and fathers and at least four children living in Northern Ireland, 45 of who formed the basis of my PhD thesis, published in 1970.

1.4 Research guidance

James was an excellent guide with whom to share my research ideas. I started the analysis of my cephalograms by identifying similarities of shape with the individual bones of the skull in a manner very similar to Kraus's (1959) landmark study on triplets [3]. However after presenting two or three trial papers at meetings, it became clear that the technique I was using was far too subjective, an opinion strongly held by Phillip Adams, so I knew I had to find another approach and start again. I shared the problem with James and he spent time looking with me at the radiographs and agreed that identifying similarities of shape was not a convincing enough procedure in a sample of such diverse age from 7 to over 70 years. I ended up by making thousands of measurements from the cephalograms [4]. I defined a method of analysis that lent itself to statistical analysis. James was always there to encourage and always to ask the unexpected questions.

Unfortunately, I had not finished my thesis before I was appointed in 1964 as an Orthodontic lecture at the newly founded Cardiff Dental School. For five years I was overwhelmed with all there was to do in setting up a new Orthodontic Department, but during all that time James never forgot my thesis was outstanding and would write letters of encouragement for me to get on and finish it. I did eventually get the thesis done because of the generous offer by Michael Harkness, my fellow lecturer, to take over the running of the Orthodontic Department for six months.

James, in spite of his apparent other worldliness, had his feet firmly on the ground when it came to appraising what was best for anyone's future career. Though James never practiced as a dentist and for only a short time as an orthodontist, he had astute insights into where dental research was needed. His

own favoured research area was in skull growth and to this he brought a capacity to bring diverse elements together to make a coherent story. He disapproved of the type of research, which gathered data for gathering sake without a clear hypothesis being identified from the commencement of the project. He would probably have argued that it took too long to collect enough data before starting a worthwhile analysis.

When Andrew Richardson joined the Orthodontic Department at Queen's University, he had already prepared ground sections to study dentine, which he intended for a PhD. thesis. In discussions with James's he decided to present his dentine studies for an MSc. James thought it would be more useful for an orthodontist to choose a PhD. project relayed to his speciality. Andrew got his MSc and became too busy in the running of the department and treating patients to do a further higher degree.

During my four years at Queen's, James read and discussed and made observations on numerous research projects that people brought to him. Many staff and graduates identified him as the unofficial research director of the dental school. He was always encouraging and ready with recommendations for refinements. He had an unerring insight into what people's capacity for research was, but he never told them what they should do. Like a traditional psychoanalyst he would listen patiently to what a researcher would propose and as their scheme unfolded would ask a few questions to help the individual to discover the path that was for them to take. Ian Finlay and Desmond Eccles discussed their research with him and both aspired to and achieved high academic status. He encouraged anyone, including general dental practitioners, to undertake projects and always advising them, well aware of the special difficulties facing a busy practitioner. James had a remarkable memory for the numerous projects with which he was involved, instantly being able to respond to any related questions. In contrast with the tradition prevailing among many senior academics, James never sought to have his name included as a co-author on other people's publications.

As well as sharing and offering critical suggestions on the projects of numerous Queen's researchers, students came from far a field to do projects under his guidance. There was Lysle Johnson, an orthodontist from Michigan University in the USA and Ollie Rnning from Turku University in Finland and both ascended the academic ladder. James made all the resources of the department made available with Stephen McKearney, his very helpful and reliable technical assistant.

2 Administration

Apart from running his own department and his daily lectures and tutorials, James took a close interest in the organisation of dental education. He never failed to attend the monthly evening academic dental staff meeting at 8 o'clock at Queen's. Professor Stoy, the dean, was chairman of the meetings and arrived carrying reverentially, as if it were the family bible, the Dental school minutes. Sticking out from the pages were numerous markers, which identified where Mrs.

McCrea, Stoy's secretary, had identified for the him past references to any items that might turn up on the evening's agenda. Doris McCrea sat beside Stoy to take notes, but never said anything, though I am sure she could have contributed a lot. From a glance at the agenda, one would imagine there was nothing very controversial to discuss and that the meeting couldn't possible last more than an hour. Unbelievably it rarely ended before 10.30. The trouble, to my mind, was that Stoy was such an honest sincere man, who wanted to be Mr. Nice, he insisted on hearing everyone's view. Unfortunately he was too modest to have his own convinced view. In the course of the discussions he would become increasingly uncertain, even bewildered by the variety of ideas presented to him. He was always searching for what had been decided and reported at previous meetings, as if they were decisions cast in iron. He would switch from one conclusion to another, usually being influenced by the last expressed idea. After I had attended a few of these meetings, I increasingly added my opinions and no doubt added to the confusion. James Scott always had very pertinent views. He was remarkably patient in discussion and usually waited to express his views after everyone had their say. As he was expressing the views of the basic scientists, it was inevitable that his perceptions were often in conflict with those of the clinicians. James had a marvellous command of English and a sharp, but kind wit and could out dispute most of the contrary views that were expressed by the clinical members of the staff. He never revealed his exasperation at the meetings, but I knew how he privately rank ordered everybody's contribution to the discussions. Sometimes the clinicians would say behind his back that his ideas were destructive. I think many of the clinicians failed to appreciate the uniquely gifted man they had in their midst. It was difficult to ignore James's contributions, but perhaps because of his witticisms, some of the staff thought he wasn't making a serious suggestion.

For me watching the participants and hearing how they perceived themselves at these meetings was an invaluable experience. It was here that I learned the different status of a university lecturer in debating about the Dental School's management. It was in strict contrast to the role of hospital clinical registrars who usually sang, if they were wise, the same tune as their consultants. However, I found the circuitous nature of the discussions at these meetings with Stoy's feeble grasp of his role tiresome to an extreme.

There were monthly meetings at the Medical Faculty under the imposing chairmanship of Professor Biggart. When Stoy got up to speak on behalf of dentistry, one sadly detected that he did not have the respect of his fellow heads of departments.

2.1 Awareness of clinical facilities

When an advertisement appeared in the dental press in 1962 for an appointment for a dean to design and organise a new dental school in Cardiff, I was surprised that James was interested and that he was proposing to apply. I could not imagine this less than robust academic, a man deeply immersed in his researches and the political and religious life in his own country, wanting to take on the bustle and thrust of the competitive clinical world. But James prepared detailed plans

for a circular building, which uniquely reflected the needs of clinical practice and teaching for groups of students. He was very critical how many of the new dental schools failed to provide adequate accommodation and facilities for research. I believe the USA and some countries in Europe had already successfully tested the circular principle. Essentially, the dental chairs were arranged peripherally in their own partitioned area facing outwards so that students could work with natural light. All the services were located centrally so there was a minimum of walking to and thro. Most importantly, as the emphasis on different clinical disciplines changed, the clinics could be easily adapted with the minimum of cost. I thought James's ideas were original and practical. James would have, at the same time as he submitted his application, outlined his principles for dental education with emphasis on a learning programme that after the students had qualified they would be able to keep abreast of the latest developments. Of course, there was no chance that the conventional leaders of the profession would accept such an imaginative scheme. In the end, the dental school that was erected was based on the old inflexible 19th century concept of hospital wards with lines of dental chairs instead of beds. The building of the Cardiff Dental School was a missed opportunity.

2.2 The European Orthodontic Society

I joined the European Orthodontic Society in 1960, the year it was to have its annual conference in Belfast. I had some experience of national conferences in the USA and England, which were seriously concerned with exchanging scientific ideas. The European Orthodontic Society was something else as well. It attracted most of the foremost teachers and ideas men and women of orthodontics, not only from all over Europe, but the USA as well. It was an opportunity for clinicians to promote their different treatment 'philosophies' and have a holiday.

As I was a newcomer and knew few people, I spent a lot of my time under the wing of James Scott. He was internationally known for his writings and ideas on skull growth, and his friendly accessible personality assured there was always a group of research workers around him, keen to share and exchange ideas. I enjoyed the stimulus of their company too. James and his wife Olive had a party to which they invited many of the world's well-known orthodontists. James had set up loudspeakers along the private drive to his home and gave me a microphone and located me in an upstairs room where I could see the approaching guests without them seeing me. 'Welcome the guests as they arrive,' he told me with a teasing smile, and I did.

I particularly remember the conference because I was accused of ingratiating myself with James Scott's and the "leading lights" of orthodontics who enjoyed sharing views with him. I was mortified, to say the least, as I was an innocent in those days. Subsequently, I was mollified to learn that one of the "leading lights" said what a good thing that James Scott took such an interest in orthodontics, adding, as long as the Barry Browns paid attention to what Scott had to say, it could only be good for the future of orthodontics.

James Scott had encouraged me to give a paper at the meeting. Conferences, he emphasised, were an opportunity to present up dates of one's latest research and hold them up for critical analysis. I chose to talk on the unique space saving device that enabled the permanent central incisors of cattle to form before there was sufficient growth of the mandible to accommodate them in their correct alignment. I had a large sample of cattle on which to base my observations. I misguidedly referred to a special arrangement of the teeth of baboons, but I only had one example. I was very nervous because there must have been several hundred delegates. At the end of my talk, Professor Lundstrom, asked me what further evidence I had about baboons. I quickly began to lose my scientific innocence.

2.3 Anglo-Scandinavian Orthodontic club

This informal club was founded in collaboration with Professor Friel from Dublin, Dr McKeag of Belfast and several leading Norwegian and Swedish orthodontists. James Scott was a member. The club held its meetings once a year a few days before the EOS conference. The organiser found an attractive hotel with a small conference hall where we could all stay and socialise and discuss. While the EOS members were mostly practicing orthodontic clinicians, the members of the club were all active research workers in different aspects of orthodontics. It was the ideal informal environment in which to have one's work critically reviewed and perfect for talking shop. I learned a lot. James shone in this relaxed environment where, there the emphasis was on adequate time to discuss every paper. In a way the club was a re-run of the EOS main meeting and as such was resented by the senior organisation. Dr. McKeag had invited me to join and I know I learned more from this dedicated research club than many hours of attending the main EOS meeting.

The subsequent EOS meeting was a bit of an anticlimax. It was on such a big scale and had such a wide range of papers of very variable quality that I found it difficult to focus.

3 James Henderson Scott and Research

James Scott by his imaginative analysis of embryological, anatomical and histological specimens was one of the foremost interpreters of craniofacial development and growth in the U.K. if not the world. He made sense of a diverse array of factors and wrote about them in a lucid and readable way. I suspect James was directed along this line of research by his re-writing in collaboration with Dr. McKeag of the Brash Report to the Dental Board of the U.K. on The Aetiology of Irregularity and Malocclusion [1]. I believe this publication was one of earliest readable accounts of the complexities that orthodontists faced, and yet it was not as universally studied, as it should have been.

James needed material for his investigations and I used to go at regular intervals to the Maternity Hospital to collect any aborted embryos or foetuses.

They were stored in coloured plastic dustbins and preserved in formaldehyde. It was a macabre trip and all sorts of thoughts went through my mind on what the police would think if they stopped me and found my unusual load. The large number of monthly abortions surprised me. But my role was to transport the precious material, not to ask the reason why.

James never seemed at a loss for an idea to pursue and I frequently saw him measuring up skulls because he had intuitively identified some special relationship between different components of the skull.

3.1 His lecture style

James rarely lectured undergraduate students for more than 35 minutes at a time for, as he said, I have written my lecture notes into a textbook, which the students can read. His lectures remained fresh because he was continually updating his projection slides. Students listened to James because he made his lectures interesting with a fund of apt anecdotes. He often prepared for his classes fresh anatomical dissections and never lost his dissecting skills.

3.2 Seminars and lectures

The hallmark of James's participation in seminars and lectures was his perceptive questioning. I would often listen to the presentation of someone's recent research and be uncertain what question to ask, but James never failed to have a question to hand. He would usually wait until there was a pause in the questions and I would think the subject had been exhausted and then James would put his question. He believed that being able to ask questions was a critical part of the research process. I never heard him put a speaker down and realised that his constructive questions were a reflection of his extensive knowledge and deep understanding.

3.3 Work pattern

Though James had severe rheumatoid arthritis, I never heard him complain and he never let it interfere with his work. His mind was restlessly active over a wide range of interests. He arrived at 10 in the morning and was always away by 5, but that was enough time for him to sustain an extensive correspondence, write his papers, and revise his textbooks and to give one lecture and take one seminar for the undergraduates throughout the term. He regularly requested research papers from all the research journals, which touched on his subject and had a facility for scanning their contents and picking out the elements, which would help to develop his latest ideas. It was with this flood of new information that he regularly up-dated his textbooks. One of his secrets was the fluency with which he wrote. He could write on his chosen subject with a continuous flow of meaningful text with barely a correction. It was something to emulate, but it took me years to achieve anything approaching his ability. In contrast to many

lecturers, James never appeared to take work home. I could only imagine that his mind was continuously working out what his next writing was to be about or what new idea he would explore.

4 Politics

As a convert from Protestantism to Roman Catholicism, James had a special place in the religion and politics of Northern Ireland. He was a ceaseless writer of letters to the newspaper, working to reconcile the opposing views that cast shadows on the lives of the different communities. He was a member of the Irish Association a group established to bridge the divide between the people of Northern Ireland. He invited me to join and I attended the monthly committees with James. Between 1959 and 1964. During the few years I lived in Belfast, I imagined that the two communities were becoming more tolerant of each other but I was naively optimistic. I do recall that at one public meeting the Irish Association organised, speakers came from the South and there was a surprising amount of fist shaking for a supposedly friendly meeting and one speaker had to be restrained by his companions.

At work, in the university or the hospital everyone knew what everyone's political stance or religious beliefs were. The students used to say how strange it was that James Scott should have converted from Protestantism to Catholicism and Barry Brown had resigned from Catholicism. At first I didn't appreciate what all the fuss was about. I should have known because my father came from Dublin and I had several relatives in the South. One of who asked me how I had managed to get a job at Queen's University, believing I must have sold my soul. I never imagined that Northern Ireland would descend to such a bitter and irrational state of chaos. I have one letter from James after I had left when he wrote: Who would ever have thought the Irish would invite the British Army to help in the control of the country?

I went to an Ian Paisley church service on Sunday and listened to him inveighing against the introduction of a new bible. It was a ferocious attack in an angry bigoted style. Shortly after I read in the newspaper how when Paisley talked about religion, he used the language of politics and when he addressed a political meeting he spoke in the language of a preacher.

5 Optimism

If you had a problem, James was an ideal person to have around. When our eldest son was born, the doctors overlooked that he had a displaced pupil and when I discovered it, I was afraid the lad would not be able to see properly. When I told James, he listened sympathetically and said you don't know how it will turn out. It'll give him a unique look and define his individuality. When James and I were being driven in my van out in the country, the driver took some unexpected risks and I was alarmed, but not James who said: 'it's more exciting than driving with you.' But whatever were one's problems, James would

always listen and find something re-assuring to say. He received and gave much pleasure during his life.

6 Free from pretence

Like all the clever people I've known, James was accessible to everyone. He never had a presence to awe people. Anybody could approach him. He always remained calm when things went wrong, and though there must have been occasions when he must have been exasperated, he never showed it. He would quietly sit and wait for things to be put right.

He was so unlike most of the British clinical teachers that I had experienced as a student at Guys and met subsequently at King's College Hospital and the London Hospital who suffered from the "great I am" complex. He never gave himself airs, never suggested that his senior status meant that he was in anyway superior. He never looked over his shoulder before he talked. James was a confident self-contained person who was happy to share his understanding, but equally happy if it was ignored. Most important of all, when he asked questions of presenters of papers at meetings, he did so in a very constructive way. He never put a person down by implying they were wrong, but would ask if the researcher had considered alternative explanations or if they had thought of an alternative approach. James wide-ranging understanding was at everybody's service.

James gave me many insights and writing this appreciation of him 35 years after I last spoke with him, reminds me how privileged I had been to know him.

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