
JAMES HENDERSON SCOTT (1913-1970): CHARISMATIC TEACHER

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Introduction

James Scott was a multi-talented man: anatomist, scientist, theologian, politician, poet, letter writer and wit. As an anatomist he published numerous scientific papers and co-authored two successful textbooks for dental students. Scott was among the first to write a coherent explanation of the development and growth of the skull. He was a convert to Roman Catholicism and published *The Christian Vision* in defence of the faith. Politics fully engaged him and he lectured and wrote extensively to lessen the tensions that prevailed in Northern Ireland. His poetry reflected his insights into the human condition and his letters to national and local newspapers were a continuous reminder of his participation in the world around him. Many people can remember a James witticism.

Meeting with Scott

I had taken three months off from dentistry in 1954, travelling in France to sort out what I was going to do in the future: I knew that I did not want to work in a general dental practice. I 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 an orthodontic house surgeon in 1954 at King's College Hospital in the department run by Barry Leighton. 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 these meetings when I first observed James Scott (Fig 1) 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. He reminded me of the artist, Stanley Spencer, with his air of other worldliness, but there was nothing vague about Scott. He asked in his soft and gentle Irish accent unusually incisive questions at the end of any 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, he

· Based on a contribution to the James Henderson Scott website, <http://www.computing.dcu.ie/~mike/jhs.html>, reproduced by kind permission of his son, Michael Scott.

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had earlier published, in collaboration with Barry Symons, a long overdue innovative textbook on dental anatomy. 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 on my life. I also listened to him participating at an International Association for Dental Research meeting. He spoke spontaneously at a lunch gathering about the importance of research in dental education. 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 met.

Figure 1 James Henderson Scott



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 so I started looking for a lectureship with a combination of teaching and clinical work, with 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. I applied, 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. I had no idea at the time of the underlying tensions in the community that were so tragically to manifest themselves in 1969. 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.

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, 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 with their pleasures. The building could not be pulled down because of its royal memorial status. The Orthodontic Department had one small room for a clinic in which there were only six dental chairs. Phillip Adams (famous for the pliers named after him), 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.

The lack of any appropriate accommodation proved to be most fortuitous for me. Scott, the charismatic dental anatomist, offered me space in the Anatomy department on the main university campus in return for giving anatomy tutorials to his preclinical students. I was to spend most of the working week in the Anatomy department and did clinical work and teaching at most, on two or three clinical sessions a week. It gave me time, first of all, to catch up on my science education. Scott was an admirable teacher. In 1952 he had written with Norman Barrington Bray Symons the best available textbook on dental anatomy for dental students.¹ With his encouragement I immersed myself in learning all I could about the embryology, development and growth of the head. Scott 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 lectures and tutorials for the undergraduates and postgraduates 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. 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 attended accompanied by their brothers and sisters and I noticed how remarkably similar many of their craniofacial features were, including very obviously the outlines of their mandibles. I asked myself if their mandibles were so clearly similar then why not their occipital or frontal bones? I tested the hypothesis that there were greater similarities of bone morphology within families than between

¹ John H Scott and Norman Barrington Bray Symons, *Introduction to Dental Anatomy*, Edinburgh: Livingstone, 1952.

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, forty-five of whom formed the basis of my PhD thesis, published in 1973.²

Research guidance

Scott 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. I shared the problem with Scott and he 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 and established a method that lent itself to statistical analysis. Scott was always there to encourage and always to ask the unexpected questions.

James Scott, 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 Scott never practised as a dentist, and for only a short time as an orthodontist, he had acute insights into where dental research was needed. His own favoured research area was in skull growth to which he brought diverse elements together to make a coherent story. He disapproved of research which gathered data for gathering sake without a clear hypothesis being identified from the commencement of the project.

During my four years at Queen's, Scott read, 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. Just, as a 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. Three of

² See W A Barry Brown, Forty-five Northern Irish families: a cephalometric radiographic study, *American Journal of Physical Anthropology* 1973; 39: 57-86.

³ B S Kraus, W J Wise and R H Frei, Heredity and the craniofacial complex, *American Journal of Orthodontics* 1959; 45: 172-217.

my colleagues discussed their research with him and all 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. Scott 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, Scott 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 afield to undertake projects under his guidance. There was an orthodontist from Michigan University in the USA and another from Turku University in Finland and both ascended the academic ladder. Scott made all the resources of the department available with the help of Stephen McKearney, his very helpful and reliable technical assistant.

Administration

Apart from running his own department and giving lectures and tutorials, Scott took a close interest in the organisation of dental education. He never failed to attend the monthly 8pm academic dental staff meetings 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, his secretary, had identified for him, past references to any items that might turn up on the evening's agenda. From a glance at the agenda, one would imagine there was nothing very controversial to discuss and that the meeting couldn't possibly last more than an hour. Unbelievably, it rarely ended before 10.30pm. The dean always wanted to make sure everyone had their say. 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 until 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. Scott had a marvellous command of English and a sharp, but kind wit and could out-dispute most of the contrary views expressed by the clinical members of the staff. He never showed his exasperation at the meetings, but I knew how he privately rank-ordered everybody's contribution to the discussions. Some clinicians said behind his back that his ideas were destructive, but I think many of them failed to appreciate the uniquely gifted man they had in their midst. It was difficult to ignore Scott's contributions, but perhaps because of his witticisms, some of the staff thought he wasn't being serious.

For me, watching the participants and hearing how they perceived themselves at these meetings was an invaluable experience. I learned the different status of a university lecturer in debating about the Dental School's

management, and how 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.

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 Scott was interested and that he was proposing to apply. I could not imagine how this less than robust academic, a man deeply immersed in his researches and the political and religious life in his own country, wanted to take on the bustle and thrust of the competitive clinical world. But he 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 of how many of the new dental schools failed to provide adequate accommodation and facilities for research. 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 Scott's ideas were original and practical. At the same time as Scott submitted his application he outlined his principles for dental education. He emphasised a learning programme which, after the students had qualified, they would be able to keep abreast of the latest developments. Unfortunately the conventional leaders of the profession did not accept his 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.

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 concerned with exchanging scientific ideas. The EOS 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 much 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. He set up loudspeakers along the private drive to his home, 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.

Scott encouraged me to give a paper at the meeting, emphasising the importance of presenting up-dates of one's latest research and hold them up for critical analysis. I chose to talk on a 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.

James Henderson Scott and research

By his imaginative analysis of embryological, anatomical and histological specimens Scott was one of the foremost interpreters of craniofacial development and growth in the UK. 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 Scott was directed along this line of research by his re-writing, in collaboration with H...T..A.. McKeag, of the Brash report to the Dental Board of the UK on the aetiology of irregularity and malocclusion,⁴ one of earliest readable accounts of the complexities that orthodontists faced. It was not as universally studied as it should have been.

Scott needed material for his investigations so I went at regular intervals to the Maternity Hospital to collect aborted embryos or fetuses. 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. I frequently saw him measuring skulls because he had intuitively identified some special relationship between different components of the skull.

⁴ J C Brash, H T A McKeag and J H Scott, *The aetiology of irregularity and malocclusion of the teeth*, 2nd ed., London: Dental Board of the United Kingdom, 1956.

His lecture style

Scott rarely lectured undergraduate students for more than 35 minutes at a time. He told them he had written his lecture notes into a textbook which they could read. His lectures remained fresh because he continually updated his projection slides. Students listened to Scott 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.

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 Scott 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 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.

Work pattern

Although Scott 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 10am and was always away by 5pm, but that was enough time for him to sustain an extensive correspondence, write his papers, and revise his textbooks and every day 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 updated 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 most of us, 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.

Politics

As a convert from Protestantism to Roman Catholicism, James Scott 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 him between 1959 and 1964. In the years I lived in Belfast I imagined that the two communities were becoming more tolerant of each other but I was naively optimistic. I recall that at one public meeting the Irish Association organised, speakers came from the South. There was a surprising amount of fist shaking for a supposedly friendly meeting and one speaker had to be restrained by his companions.

Conclusion

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

He was so unlike many of the British clinical teachers I had experienced as a student at Guys and met subsequently at other teaching hospitals, where many of the staff suffered from the "great I am" complex. He never gave himself airs, never suggested that his senior status meant he was in anyway superior. He never looked over his shoulder before he talked. Scott 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. Scott's wide-ranging understanding was at everybody's service.

James Scott gave me many insights. Writing this appreciation of him 40 years after I last spoke with Scott reminds me how privileged I had been to know him. I was very sad when he died in 1970.

Acknowledgement

Thanks are due to Olive Scott, James's widow, for permission to reproduce the photograph.