

Wilfrid Edward Le Gros Clark (1895-1971): anatomist, anthropologist and neuroscientist

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ABSTRACT

Wilfrid Le Gros Clark (1895-1981) was respected as an anatomist, anthropologist and neuroscientist. He made major contributions to anatomical teaching methods, was active at the forefront of human anthropology, and was a pioneer of neuroanatomy, particularly of the primate brain.

Key words

Le Gros Clark • Neuroanatomy • History

I had the privilege to know Sir Wilfrid Le Gros Clark both as a teacher, when he was my Professor of Anatomy from 1960 to 1963, and later as a colleague, for that is what he made each of us junior researchers and demonstrators feel (Fig. 1).

A search for documents illustrating his career proved rather frustrating. In the Bodleian Library in Oxford are some papers dealing with the Le Gros Clark family donated by Lady Violet Le Gros Clark. But a note in the National Archives (2008) states: "Very little manuscript material remains from Sir Wilfrid's long career in anatomy. All attempts to locate additional material in either departments or private hands have been unsuccessful".

However, several laudatory (some even perhaps over-laudatory) mini-biographies were published at the time of his retirement and later, and in his obituaries, from which we can piece together some elements of his life (Boyd and Goldby, 1963; Weddell, 1972), as well as from personal recollections, both published (Simons, 2007; Wood, 2007) and not. He also left an autobiographical account of himself, *Chant of Pleasant Exploration* (Le Gros Clark, 1968).

Wilfrid Edward Le Gros Clark was born in Hemel Hempstead in 1895, the son of a clergyman. Both his grandfathers had been surgeons at St Thomas's Hospital, London: indeed, one had been President of the Royal College of Surgeons of England. Le Gros, as I always remember him, qualified in medicine in 1916, also at St Thomas's, having begun his studies there precociously in 1912. He became a Medical Officer in the army in France for the rest of the First World War. He then became an anatomy demonstrator at St Thomas's while studying for the Fellowship of the Royal College of Surgeons (FRCS, which he got in 1919), but soon realised that this line was not for him, although during this time he published his first research paper, on Pacchionian bodies, in the *Journal of Anatomy* (Le Gros Clark, 1920). It is remarkable that he seems to have been turned off anatomy at this early stage, only to more than make up for this passing negative feeling a bit later. But it did lead him to the other aspect of his career for which he is especially remembered. As he described in his autobiography (Le Gros Clark, 1968): "It was in such a mood of moral perplexity that I was overcome with an intense longing to escape from the



Fig. 1. - Sir Wilfrid Le Gros Clark, from Boyd and Goldby (1963).

artificialities of civilization by losing myself awhile in one of the remoter parts of the world”.

So after a visit to the Sarawak Government Office in Millbank he was appointed Principal Medical Officer in Kuching in 1920. He stayed for three years and became an excellent practitioner, much appreciated by the Dayaks, who honoured him with a tattoo on his shoulder. His elder brother, Cyril, joined the Sarawak Civil Service in 1925 two years after Wilfrid returned to England. In 1945 Cyril, by then Chief Secretary, was tragically executed by the Japanese. While in Sarawak Wilfrid had the opportunity to study the brains of tree shrews and tarsiers, and not only their brains but their more general anatomy too, and the scene was set for his renowned contributions to both neuroanatomy and anthropology.

After his return to England, in 1924, he became Reader and head of the Department of Anatomy at St Bartholomew's Hospital in London, and was promoted to Professor in 1927. His work developed two related themes, the detailed structure of the nervous system and primate evolution. In particular his research covered the cerebral cortex and the thalamus. He combined the anatomist's macroscopic

analysis with the microscopist's insight into detail. But in both he applied a rigid scientific approach to which he remained faithful throughout his career. His earliest contributions on the mycology and brain of the tree shrew appeared in the Proceedings of the Zoological Society (Le Gros Clark, 1924a,b).

He was soon recognised as a pioneer of experimental neuroanatomy. In 1929 he returned to the Chair of Anatomy at St Thomas's. There he enhanced his reputation in the domains of structural neuroanatomy, primatology and human evolution. Near the end of his tenure at St Thomas's he published *Early Forerunners of Man* (Le Gros Clark, 1934) which summarised his views on primate evolution and anatomy. Furthermore, much of what we now recognise as the modern foundation of our knowledge of thalamocortical relations and primate visual systems stems from Le Gros' work at that time (Le Gros Clark, 1932).

In 1934 he was appointed Dr Lee's Professor of Anatomy and Fellow of Hertford College, Oxford, where he remained until retiring in 1962, and where I, as a neophyte medical student, first met him in 1960. Le Gros was appreciated as a teacher and a distinguished scientist. As an undergraduate I well remember his lectures, often not easy to follow as he had a slight lisp, but greatly inspiring.

For the time, his approach to the teaching of anatomy to medical students was rather progressive. He attempted to raise anatomy from its perceived rather lowly status to that of a modern pedagogic and scientific discipline. He believed that part of the problem on the teaching side was too much emphasis on topographical minutiae and I certainly enjoyed the benefits of his striving to instil upon us what he believed was essential, and useful. He employed everyone in the department who could conceivably be so employed to teach in one or other of the anatomical disciplines, including dissection. Graduate students were heavily involved in neuroanatomy, embryology and dissecting session, and there were always a couple of FRCS candidates to drive fear into our hearts in the dissecting room. Later, when I became a graduate student myself, largely due to the inspiration I had felt from Le Gros himself and from his disciple and my college tutor Tom Powell, I derived great benefit from having to muck in with so much teaching. On the research side, he lived to see the day when anatomy departments widely were

becoming active centres for the study of cell biology and, notably, neuroscience.

His contributions to the field of experimental neurology included the connections of the thalamus and hypothalamus and sensory inputs to the central nervous system, particularly the connectivity of the visual system, including the lateral geniculate body and visual cortex in collaboration notably with Sydney Sunderland and Paul Glees (Le Gros Clark and Sunderland, 1939; Glees and Le Gros Clark, 1941; Le Gros Clark, 1941a,b,c; Le Gros Clark, 1942; Le Gros Clark and Meyer, 1950). He also contributed some early work on regeneration in the central nervous system, which was, and still is, of topical importance (Le Gros Clark, 1942, 1943).

Some idea of Le Gros as an extremely sensitive man can be glimpsed from the story, related to me by Ray Guillery, about whom more later, that he had been seriously hurt by the criticism by Gordon Walls in his book in 1951 (Walls, 1953) to the effect that Le Gros had been wrong in his functional interpretation of the famous “layers “of the lateral geniculate body being associated with distinct pathways for colour vision to the visual cortex. Not that he was angry at Walls, for he probably recognised the strength of the case made by the latter.

Le Gros is also remembered for his contributions to physical anthropology (Simons, 2007; Wood, 2007). When Raymond Dart (“father” of the 1925 australopithecine Taung Child) and Robert Broom were unearthing fossil primate remains in South Africa, Le Gros visited them there in 1947. Dart’s Taung Child had not been well received in paleo-anthropological circles. This was partly because it conflicted with the then widely accepted “Piltdown Man”, the purported “missing link” skull unearthed in a Sussex quarry between 1908 and 1912, and only proved to be a faked mixture of orang-utan, chimpanzee, and modern human remains in 1953 (Turritin, 2006). The unmasking of the fraud was a milestone in anthropology and Le Gros was one of the leading lights responsible for the truth coming out. In 1955 he published *The Fossil Evidence for Human Evolution* (Le Gros Clark, 1955) followed by *History of the Primates* (Le Gros Clark, 1957a). In 1960, after the famous fossil discoveries at in East Africa by Louis Leakey, with whom he also worked, he published *The Antecedents of Man* (Le Gros Clark, 1960).

Some of Le Gros’ work brought him into conflict with Solly Zuckerman. Zuckerman was a demonstrator in Oxford under Le Gros in 1934, and was later appointed to the Anatomy Chair in Birmingham in 1939, although war work at the Ministry of Home Security prevented him taking it up until 1946. During the war he was back at Oxford on ministerial duty, so he and Le Gros had plenty of opportunity to see each other. A conflict grew up between the two anatomists, Le Gros being convinced that australopithecines, including the Taung Child, were in the human lineage, based on the shape and function of their teeth and jaws, while Zuckerman accepted them as apes (Le Gros Clark, 1950; Zuckerman, 1988).

At the outbreak of the Second World War, Le Gros organised a team to work in his department on problems of human ergonomics, of direct importance to the war effort. After the war, as the department grew in strength and reputation, it began to outgrow its physical volume, and its Victorian infrastructure began to show signs of tiredness. So Le Gros put forward plans to rebuild, incorporating modern laboratory and workshop facilities. The new building opened in 1958, and that occasion was marked by the presentation by his old and new colleagues of a bust of himself by Sir Jacob Epstein. It remains on display in the entrance hall of what is now the Le Gros Clark Building (Fig. 2).

Le Gros received many formal honours, of which just a few suffice to recognise his national and international stature. In 1935 he was elected a Fellow of the Royal Society. He was editor of the *Journal of Anatomy* from 1939 to 1945. The first post-war International Congress of Anatomy was held in Oxford under his Presidency in 1950: it was a great success and marked the beginning of a new era for anatomy. Between 1951 and 1953 he was President of the Anatomical Society. He became Master of the Salters’ Company in 1954, a position in which he took great pride. He was knighted in 1955. In his Ferrier Lecture to the Royal Society in 1957 he related his ground-breaking research on the olfactory system, about which there had been much misconception in the past (Le Gros Clark, 1957b). In 1961 he was President of the British Association for the Advancement of Science and was awarded the Royal Medal of the Royal Society. He served on the Medical Research Council and



Fig. 2. - Bronze bust of Sir Wilfrid Le Gros Clark by Jacob Epstein in the Le Gros Clark Building, Oxford. <http://www.cdb.ucl.ac.uk/history/dean/LeGrosClark.shtml>

was a member of many foreign societies, including the Norwegian Academy of Art and Sciences, the Royal Society of New Zealand, the American Philosophical Society and the National Academy of Science in Washington.

In Oxford he made frequent rounds of the department, visiting staff and students alike, encouraging them and urging them to ever greater efforts. It was during such visits that he displayed his wide range of knowledge and breadth of vision. He was responsible for the inspiration and training of a number of students who went on to careers in many countries (Neurotree, 2005).

On his retirement in 1962 John Dixon Boyd and Frank Goldby wrote an appreciation in the *Journal of Anatomy* (Boyd and Goldby, 1963). They remarked: "If anatomy is more 'alive' than it has ever been, if anatomical research is more active and the attraction it exerts on able minds so much the stronger, we owe this more to Le Gros than to any other single person in this country".

He retained a room in the Oxford Anatomy Department after his retirement, where he produced

a new edition of his well-known anatomical best-seller *The Tissues of the Body*, first published in 1939 (Le Gros Clark, 1939), completed a number of scientific papers and wrote his autobiography *Chant of Pleasant Exploration* (Le Gros Clark, 1968). He appreciated this gesture by his successor, Geoffrey Harris, for it enabled him to keep close to anatomy, to his colleagues, and to young research workers, like me. I related previously (Garey, 2009): "He had a little office cum lab up in the Victorian roof of the old part of Anatomy, and I used to visit him there. There was a big window at ceiling level, and it made me think of a Parisian artist's studio. Not that I was familiar with Parisian artists' studios, but I imagined them to be light, airy and with a view of the sky. He was preparing yet another edition of *The Tissues of the Body*, of which he had completed the sixth in 1970, and asked me to look at some drafts. [...] He asked me to collect and process some squirrel brains for him [...] I used to see Le Gros in the library just about every Saturday after his retirement until a couple of days before his death, in 1971".

His first wife, Freda Constance Giddey, whom he married in 1923, died in 1963. They had two daughters. In 1964 he married Violet, widow of Dr Leonard Browne, who had been a lifelong friend.

Interesting glimpses of a more intimate side of Le Gros can be seen in some recollections of him by Ray Guillery (Guillery, 1998), a master of neuroanatomy in his own right in a career that has spanned London, Chicago, Madison, Oxford and Istanbul, and which he kindly shared with me recently. Ray was born in Germany from where he moved to Switzerland in 1938 and finally to school in Oxford in 1940 "still finding my feet in a new environment and learning a new language". Mrs Le Gros Clark was on the Oxford refugee committee and there was space in their home. As his sister's name was on the list of refugees needing a home she was welcomed to the Le Gros Clarks' house in North Oxford in autumn of 1940. Ray was at a boarding school in Banbury, and in the holidays spent time with his sister in the Le Gros Clark home.

One of Ray's recollections is of large shiny dishes on week-end mornings keeping the Professor's breakfast hot for him. That and the very English garden are among his clearest memories of their comfortable house. Ray did not see a great deal of "The Professor", as everyone including his wife

called him, although they did go on trips at weekends, mostly by bicycle, sometimes by train, and he remembers him being home for tea time occasionally. Ray recalls that he was not a talkative person, often silent and seemingly distant, but he was always kind and considerate, and remarkably patient with an eleven-year-old boy and his slightly older sister! On a few occasions he took Ray into the Anatomy Department letting him help develop photographs of their outings, and showing him the monkeys in the animal quarters. Ray still has a photograph of a small sketch that Le Gros made in his sister's autograph album in 1940 (Fig. 3). He writes: "She had asked Le Gros to write something for her, and I can imagine him scratching his head and wondering what on earth he could write or draw that might interest a 13 year old girl. He produced a fine sketch of a brain, labeled it 'a Human Brain' and signed the page W.E. Le Gros Clark Nov 1st 1940. That was it. Oddly, the brain had proportions that made it look like a mix of features from a macaque and a human brain. Perhaps he had spent the day with some monkey brains".

Several years later Le Gros wrote to Ray offering him a job in the Oxford Anatomy Department, but he already had a job at University College, London,

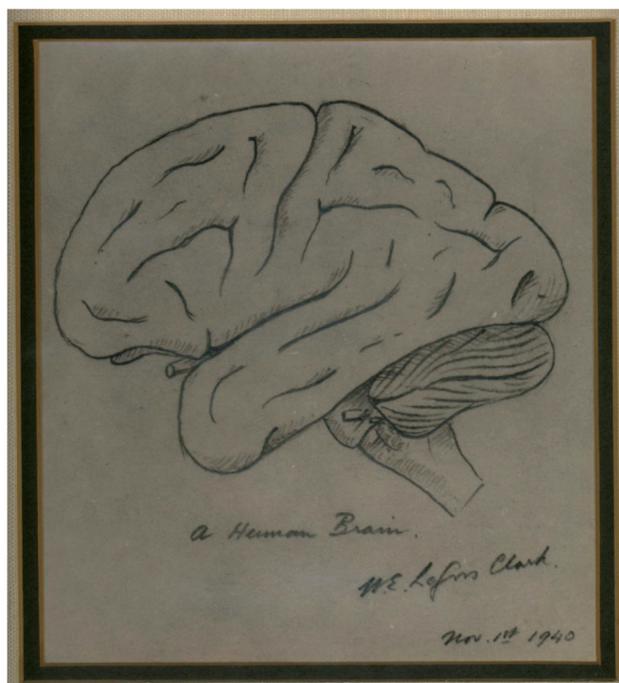


Fig. 3. - The sketch of a "Human Brain" made by Wilfrid Le Gros Clark for Evamaria Guillery, November 1940. Photograph kindly supplied by Ray Guillery.

was married and had children, and moving to Oxford would have meant a lower salary. Little did either realise that in 1984 Ray would be appointed Dr Lee's Professor of Anatomy in the footsteps of Le Gros.

Sir Wilfrid Le Gros Clark died aged 76 on June 28 1971 after being taken ill over the weekend. Many eloquent obituaries were published, including those in the *Lancet* and *Nature* (*Lancet*, 1971a,b; *Nature*, 1971). Even Solly Zuckerman praised him, albeit rather condescendingly in the opinion of some, in the biographical series of Fellows of the Royal Society in 1973: "Wilfrid Le Gros Clark was the leading figure of British anatomy for all of thirty years" (Zuckerman, 1973).

Graham Weddell, an old friend and colleague, wrote of him in his obituary in the *Journal of Anatomy* (Weddell, 1972): "With his death a chapter closes in the history of Anatomy. Sir Wilfrid was probably the last of the great men capable of carrying out fundamental research in several different branches of his chosen subject – capable of surveying in his time the whole field of anatomical knowledge – and also capable of introducing a new and reformed approach to the teaching and practice of anatomy".

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