

ORIGINAL PAPERS

In Search of Victor Horsley

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Fig 1. Colonel Sir Victor Horsley FRS FRCS AMS

The Life of Sir Victor Horsley

Victor Alexander Haden Horsley (Fig 1) was born in Kensington, London on April 14th 1857. He studied medicine at UCL from 1875 to 1881. He published his first paper as a medical student in 1880(1). He won gold medals in anatomy and surgery and the silver medal in physiology. He joined the Artists' Rifles (which became 21 SAS in 1947) as a medical student, only leaving when the pressures of his impending FRCS examinations loomed. He was appointed surgical registrar at UCL in 1882 and attained his FRCS a year later. In 1886, he was actively recruited to the staff of the National Hospital for the Paralyzed and Epileptic in Queen Square. A completely ambidextrous surgeon, his considerable knowledge of neurosurgery was based on extensive animal research studies. At the time of his appointment, he had performed over 100 primate neurosurgical operations.

In 1886, he performed his first craniotomy - removal of a post-traumatic epileptogenic cortical scar in a 22-year-old man. The patient did not fit again. He performed ten craniotomies that year and nine were successful(2). He pioneered the use of the curved craniotomy flap eschewing the standard poorly healing cruciate incision. Horsley had observed from canine surgery that modelling wax was useful in haemostasis. He developed his own mixture of beeswax, salicylic acid and almond oil to be used as a haemostatic agent - still known and used today as 'Horsley's Bone Wax'. Finally, in that same year, at the young age of 29, he was elected a Fellow of the Royal Society.

In 1887, he performed the first laminectomy for spinal tumour. A 42-year-old man with paraplegia had an intradural fibromyoma excised from between C3 and C4. The

patient made a complete recovery. Until this point, 19th century cervical spine surgery had been considered 'particularly hazardous'. Other firsts followed: The first reported ligation of the carotid artery for cerebral aneurysm, the transcranial approach to the pituitary gland, the intradural division of the trigeminal nerve root for tic dolooureux, craniectomy for microcephaly, electrode stimulation of the cerebral cortex for epilepsy surgery. With Robert Henry Clarke, a neurophysiologist, he developed the Horsley-Clarke stereotactic neurosurgical frame. This was used for selective stimulation and electrolytic ablation of deep cerebellar nuclei without damaging other parts of the brain.

He maintained a keen interest in comparative anatomy and physiology. In 1884, he had been appointed Superintendent of the Brown Institution. This was an eminent centre for animal disease and injury research. From 1884 to 1890, he published 51 papers on the pathology and neurosurgery of epilepsy, motor response to faradic stimulation of the internal capsule and cerebral cortex, healing by first intention, thyroid ablation and hypothyroidism. He established for the first time that myxoedema and cretinism could be treated with extracts of the thyroid gland. He verified Louis Pasteur's rabies vaccine for the British Government and campaigned to vaccinate against rabies in the UK. He once gave up his morning, human, neurosurgical consultations to dissect out the brain of a dead walrus at London Zoo. In 1891, he founded the Journal of Pathology.

As a Rifle volunteer, he had been a keen shot. In 1894, he persuaded a local butcher to allow him to shoot several animals with the newly issued Lee-Mitford service rifle. He thence produced a series of classical papers on the neurophysiology and ballistics of gunshot wounds to the brain. He noted that respiratory arrest occurred immediately following injury and that if not resuscitated, the animals died: the prevailing view at that time was that it was the cardiac arrest which resulted in death. He observed that post-injury, the systemic blood pressure, after an initial fall, would rise - as did the intra-cranial pressure. This systemic hypertension was closely associated with a vagal bradycardia. Horsley postulated that any indirect damage to the brain could be ameliorated if this rise in intra-cranial pressure

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could be prevented. This work was later expanded by Harvey Cushing (who had personally observed Horsley operate at Queen Square and who was 'shocked by his frenetic pace of surgery') and became known as the 'Cushing Response'.

In 1898, the results of these experiments were disseminated widely as they indicated that the initial treatment of gunshot wounds to the head should include artificial respiration (instead of cardiac stimulants) and surgical decompression for the raised intracranial pressure. Horsley advocated exploration and irrigation of the traumatized brain with 1:1000 mercury perchloride solution. He stated, "*It is best to open up the region widely as it is difficult to recognize the extent of the mischief*". He was knighted in 1902. He was to restate this advice 17 years later in 1915 when he criticised "*the wicked tradition of leaving head cases alone by the British Army Medical Services*". This advice was of course ignored until the latter stages of the war.

Horsley was a noted social reformer. A staunch believer in women's rights, he fought for the admission of female physicians to Queen Square. He was profoundly opposed to alcohol and tobacco use and mounted a vigorous but unpopular campaign against the rum ration of the British Army⁽³⁾. He stood, unsuccessfully, as a Liberal MP for the University of London seat. When the Medical Defence Union was in danger of collapse, he was elected its president and devoted efforts to protecting doctors from attacks by unscrupulous people. He engineered social and medical reform working for both the BMA and the GMC.

In 1910, as a Captain in the Territorials, he rejoined the army and was appointed to the 3rd London Hospital. He was on holiday when war broke out and anxiously awaited his call to arms. With over a million casualties in the first five months however, the medical arm of the British Expeditionary Force had other priorities. Now 57, he applied repeatedly for active service on the Western Front. He was eventually appointed, as a Major in the RAMC, to the 21st General Hospital. This unit arrived in Alexandria, Egypt in June 1915 with Horsley as the director of their surgical division. Alexandria was then the final staging post for wounded soldiers returning from the Dardanelles campaign.

Two things were immediately obvious to him: the first was that the numbers of soldiers transported for disease far outweighed the wounded – even at the height of the battle of Gallipoli. The second, was that very few head injuries from Gallipoli ever made it to Alexandria alive. In October he visited the infamous Heights themselves, lecturing to the physicians in the casualty clearing stations and field ambulances. Horsley

remained in Egypt until March 1916 when he volunteered to help the surgical services support to the Persian campaign at Basra. He wrote to his son "*I...want to get as near as I can to the front. There is no doubt that one can be of most use the nearer to the firing line, as the worst cases are the most difficult*".

On arrival in Basra, he was so outraged at the poor medical care that the troops were receiving that he continuously cabled Sir Alfred Keogh – the Director-General of Medical Services. He was appalled that English contractors had supplied unsterile dressings and that infusion sets for cholera were generally unavailable. He reported finding a young medical officer "*pouring saline out his own teapot into the patients vein – all due to financial terrorism in times of peace*". He was appalled by the inadequate transport of the sick and wounded down river. Personal diaries of other officers at the time were equally damning. "*When I saw the ship, I thought there were many ropes hanging off it, these turned out to be stalactites of human faeces...I came across a man writhing on the deck, his thigh was perforated in five or six places, I thought the warm mass on the leg was clot but it was dysentery. Limbs had been splinted with the slats of 'Johnny Walker' whiskey box cases and baling twine. I saw a mass of men lying in a pool of dysentery thirty feet across. Bedsores were commonplace*". Such was the political pressure that the British government was forced to take over from the Colonial Indian Government in May.

By 13th July 1916 then, Horsley was in Al-Amarah a hundred miles north of Basra. A paratyphoid epidemic was rampant. He had already made plans to return to India realizing that there was little he could now do in Iraq. On Saturday the 15th, he walked several miles to visit a sick colleague and returned to base complaining of a headache. His temperature rose to 107°F, no ice or cooling apparatus was available and by the next day, he was dead. Opinions still vary as to whether this was from pure heatstroke or Paratyphoid A or both. He was buried in a simple wooden coffin in a shallow earth grave at the military cemetery in Al-Amarah. Eighty fellow officers attended his funeral. His wife never received a formal telegram – only hearing the news from family friends. He received posthumous acclaim – but the war and its slaughter, continued without notice. Sir William Osler noted in a study of Horsley's life in 1920 that "*The peace which would have been denied him at home he finds in a soldier's grave in Mesopotamia – and perhaps better so*".

Historical Note: The Mesopotamian Campaign

The war in Europe had become a stalemate. A new front was needed. Emboldened by earlier successes, the Allies had conceived a plan to capture Baghdad, where the main

concentration of Turkish forces was, via the Tigris River. The British had occupied the area around Basra in November 1914. This was to protect the major British oil refineries just offshore on Abadan Island. General Charles Townshend was chosen to command the force. He built up a supply base at Basra but rapidly outstripped it. He fought his way north through an area *'infected with fleas, mosquitoes, sand flies and filthy dogs; notorious for its mud and searing sun; and plagued by jaundice, malaria, yellow fever and cholera'*. His men had to exist on a bottle of water, four dry biscuits and a tin of bully beef a day. Forty miles from Baghdad, his campaign was halted at the battle of Ctesiphon. Neither side could manage an outright victory. Supply problems forced Townshend into a humiliating retreat south to Kut-al-Amarah. Here, after five months of siege, he surrendered in April 1916. Horsley had just arrived in country. During the siege 23,000 soldiers died (Fig2). 8000 were captured and half of these were to die in Turkish forced labour camps. General Maude replaced Townshend – who survived the war.



Figure 2. A skeletal Indian soldier after the siege of Kut.

Kut was retaken in February 1917 and on March 11th, Baghdad was liberated. The Turkish Army surrendered in October and the British entered Mosul on November 14th 1918. Over 92,000 men had been lost in the Mesopotamia campaign, 23,000 at the Siege of Kut alone, mostly of heatstroke, disease and poor medical care. Although our own medical care was perhaps better in Iraq in 2003, disease and non-battle injuries still markedly outweighed those directly injured by the war.

If we are not finally convinced that history often repeats itself, then we should perhaps compare General Maude's Baghdad Proclamation of 1917 – *"Our armies do not*

come into your cities and lands as conquerors or enemies but as liberators", with that of Colonel Tim Collins' in 2003 – *"We go to liberate, not to conquer; we are entering Iraq to free a people"*.

Authors Note:

In early 2003, as part of the war-fighting phase of Operation Telic, I travelled with 23 Air Assault Surgical Group, part of 16 Close Support Medical Regiment, from Kuwait, across the Euphrates river and along the banks of the Tigris river, to Al-Amarah in the Maysan province of south-central Iraq(4). My unit was supporting the Royal Irish and Parachute Regiment battle groups of 16 Air Assault Brigade as they moved up-country.

In May of 2003, when the operation was generally quiet, by chance, I was given a book entitled *'Surgery on Trestles'* by R. Campbell Begg MC MD(5). This autobiographical account of the campaign, by a Regimental Medical Officer was written just after the war in 1919, but was not submitted for publication until the late sixties. The lifespan of an RMO up-country at that time was six weeks. As I was living somewhat roughly myself in Al-Amarah at the time, it was both apposite and entertaining. Colonel Horsley's arrival was eloquently portrayed in one of the chapters.

'A lifelong teetotaller who refused to wear a hat, even in the blinding sun and believed alcohol to be root of all evil'.

His death, when it came was also described.

'He came in with heatstroke and one of these temperatures that was so high it was unrecordable; we buried him in Al-Amarah'.

This led to some discussions with the Padre - Captain Mark Christian RACHD and a local area map. We left the base together, very early one morning. As we drove over the Tigris River, the sun was just coming up. A lone felucca drifted slowly down the wide river, a scene unchanged since Horsley's time. We found the cemetery, with its high walls, off a side-road in the town. We rang the bell and were admitted by the grave keeper. His family had maintained the cemetery for three generations since the war. He had not been paid since 1991! He showed us the grave papers and register of graves. Of the headstones, there was no sign: They had been taken to Baghdad in 1937. The wall plinths were pristine. The grass in the cemetery, although tired and brown, was cut short and the grounds, even in the centre of this small Iraqi town, were well kept. We found Colonel Horsley's grave-plinth - one of many (Fig 3). We lingered for while, took some photographs, thanked the gardener(6) and left. The same journey, in 2006, it is fair to say, would be somewhat more problematic.

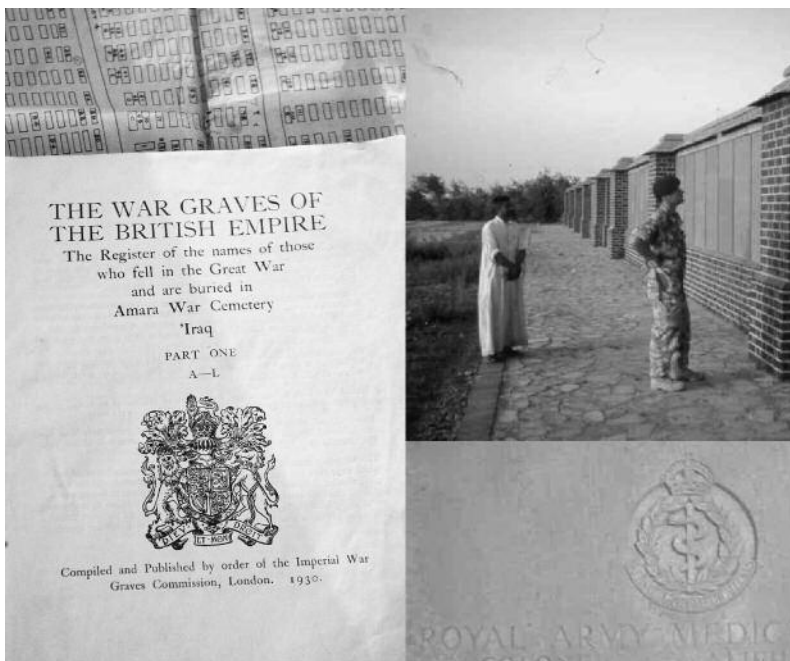


Figure 3. The high walls of the military cemetery in Al-Amarah; the list of the dead; the grave-plinth of Sir Victor Horsley.

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