

GRIFFITH EVANS (1835 - 1935) AND HIS TRYPANOSOMEJohn Cule

[Originally published in *Veterinary History*, NS 1 (3) 1980, pp. 94-101].
Reproduced with permission].

Griffith Evans was born the third child of a farming family at Ty Mawr, near Towyn, Merioneth on 7 August 1835 and lived to be one hundred years old. His upbringing as an only son did not in any way mar the sturdy independence that characterised his life. Yet the influence of his home was evident in his Victorian conscience that set standards on self discipline, softened by a genuine compassion for others. His early apprenticeship was to John Pughe FRCS of Aberdyfi, whose scholarship in translating the medieval manuscripts of the physicians of Myddfai near Llandovery was combined with considerable surgical knowledge and skill. They were men in the same mould. John Pughe was a Plymouth Brother.¹

The Evans family had fallen on hard times and they were no doubt grateful for the timely help of their friend Mr Pughe, but Griffith had decided that he wished to practise veterinary medicine and this meant leaving Wales for London.

His ability to overcome formidable odds showed in his first long journey. The weather of December 1853 was appalling and blizzards daunted the hardiest traveller. Father and son set out on horseback to reach Machynlleth through Dyffryn Gwyn. The drifts were so deep that they barely made it in time for the Shrewsbury coach. Griffith travelled on alone to meet a friend of the family, a non-conformist minister who was to accompany him by train to London. The raging blizzard deterred the minister from even boarding the train but Griffith Evans regarded his attendance for registration at the Royal Veterinary College on the appointed day as essential. And so he went. The friends with whom he was to stay in London, secure in the belief that no one would attempt the

journey, did not meet the train. Griffith Evans presented himself at their door.²

His determination and persistently enquiring mind were the essential marks of a great scientist. Finding that the Royal Veterinary College did not provide microscopes for its students, he sought advice on the matter from Professor Simonds, and bought a secondhand one for himself, together with a book on how to use it. This early start was to stand him in good stead. He qualified MRCVS in May 1855 and spent his first professional years in civilian practice. It was not to his taste and he was among the first intake to be granted a commission in the army by the competitive examination which displaced the purchase system. He was commissioned in the Royal Artillery in January 1860 as a veterinary officer and the regiment moved to Canada.

American Civil War experiences

It was undoubtedly his devotion to the microscope that forged the bond of friendship with William Osler. They met in Bovell's rooms in Toronto.³ The indefatigable Griffith Evans used his leisure time by studying medicine at McGill University, Montreal and obtained his MD, CM in 1864. Now, doubly qualified in veterinary and human medicine, he sought the opportunity to gain war experience by spending his convalescent leave from an attack of dysentery in visiting the battlefields of the American Civil War. Through the personal recommendation of Professor Henry of the Smithsonian Institute to President Abraham Lincoln, he was given a letter of introduction to generals of the Northern army. The Yankees were not enthusiastic about receiving an officer of the British uniform, for English sympathies had been extended, all too evidently, to the Southerners. He reported to General Butler. Meticulous in his military deportment, correct in the submission of any notes he had made to the commanding officer but unswervingly loyal in the wearing of his country's uniform, he managed to obtain a grudging acceptance of his presence.⁴

He was soon invited to present himself on the quayside to join General Butler on his return to the front. As he sat, waiting, on his kit, the general and his entourage swept by him and up the gang plank, which was

pulled aboard behind them. Amazed by their ignoring his punctilious salute, but only momentarily paralysed by the imminent departure of the boat, he flung his kit aboard and hastily leapt over the bulwarks. Dignity then seemed best served by again sitting on his kit on deck to await events.

It eventually transpired that the general had been upset by the revelation, in some intercepted Southern mail destined for England, that he was known as 'Beast Butler'. Griffith Evans had once again to go through the patient explanations and aver that at least he had not written the letter. The general again capitulated and explained that the epithet had been mis-applied because of an order he had given at New Orleans. His officers had not been courteously received by the ladies of the best society in that town and so he had issued an order that their poor behaviour merited their treatment as 'common women' - by which he had not meant as prostitutes. Explanations were accepted and hospitality resumed.⁵

Dr Evans seems to have been an able diplomat and to have admired diplomacy in others. He illustrated his admiration of Abraham Lincoln with the story of the presidential visit to a hospital ward. A well-meaning but overpowering and wealthy lady who frequently visited the hospital, immediately sought him out to complain that no one would tell her what was the matter with one of the battle casualties. (Small wonder for the poor fellow had had his scrotum shot away.) Abraham Lincoln crossed over and had a quiet chat with the soldier. The lady waited expectantly for her curiosity to be relieved. The president did so in drawing room style. 'Madam. If you had been standing where he was standing, in the same position as he was, at the precise moment that he was hit, well, you would not have been hurt at all.'⁶

Evans was a staunch teetotaler. Not a common virtue among regular army officers. For him it was all or none. He once declined to join the Church of England Temperance Society because it had two pledges, one for total abstainers and another for moderate drinkers. He managed to avoid seeming pharisaical even in his illustrations of the evils of drink. At

Montreal, bodies of dead negro slaves from the States could be purchased quite cheaply for dissection. Nevertheless, some students indulged in a little body snatching by way of entertainment. Griffith Evans noted that it was the drunk ones who got caught.⁷

Tetanus in England

In 1870, the regiment returned to England. While still with his battery at Ipswich he was consulted by the medical staff of the infirmary on a case of tetanus which had been diagnosed in the young son of a sergeant, whose head had been injured by the wheel of a dog cart. There had been a local epidemic with invariable fatalities. Amputation had been tried in a case with a finger injury. But this was not a possibility with a head injury. Griffith Evans, doubly qualified, and familiar with tetanus in animals gave simple practical advice, without any concession to fashion for the sake of appearances. He regarded tetanus 'as a specific fever, due to some specific cause, and for which there is no known specific remedy. It has to run its course like other specific fevers, and our duty is to keep the patient in the best possible position for self-recovery.' He recommended rest and the avoidance of anything that could excite a spasm, nursing the patient in a dark, silent room with no food or medicine, but only water *ad lib*. He had observed recovery in horses under these conditions and knew it as a self limiting disease. The infirmary staff saw the advice as that of doing nothing with consequent blame for negligence in the event of death. Griffith Evans was made solely responsible for his treatment and happily the patient recovered.⁸

In 1870 he married Catherine, the only child of John Jones MRCS of Llanfair Caereinion, Montgomeryshire and the year following transferred his commission to the Army Service Corps at Woolwich. This gave this enthusiastic man another chance to do a postgraduate course at King's College and Moorfield's Hospital and to attend Jonathan Hutchinson's clinics at the London.⁹

Anthrax in India

In 1877 Griffith Evans went to India. His love of the microscope and his seizure of every opportunity to learn from medical scientists had

convinced him of the bacterial cause of disease, a matter of much dispute in the nineteenth century. Anthrax was a case in point. A veterinary surgeon by the name of Pollender had found rod like organisms in infected animals as early as 1849. Robert Koch had described the relation of the anthrax bacillus to disease in 1876. Pasteur confirmed Koch's results. But by no means was every one convinced.

Griffith Evans was despatched by the army to investigate the cause of a serious epidemic among horses at Sialkot, about fifty miles north of Lahore. He made two important observations. He noted the leucocytosis and the appearance of the large granular white cells, although he did not appreciate their significance. He also identified the *Bacillus anthracis* as the cause of the disease. This was its first observation in India and made against a strong body of opinion that it was not pathogenic.¹⁰

In August 1880 he went to Dera Ismael Khan on the North West Frontier to investigate the disease of horses known as 'surra' under incredibly trying conditions; work which William Osler was later to say would rank with that of Manson, Ross, Bruce and Cunningham 'and will carry the name of Griffith Evans a long way down the track of time.' Surra is a disease characterised in the horse by its insidious onset and in the late stages by the marked wasting accompanied by a hearty appetite. Griffith Evans wrote in his report: 'Some cases at last drop down, and die suddenly, perhaps when they are eating and enjoying food; others become delirious and struggle on the ground as if in pain; while other cases linger for days after they are down, too weak to rise or to stand, after they are helped up, but go on eating all the grass they get and much of the corn until at last they die, without pain, passing away like an English summer's day, no one can tell when the light ends or when the darkness sets in.'

With no facilities for staining bacteria - an art still in its infancy - a temperature of 82°F in the shade and hordes of flies that made work with the microscope tedious and exasperating, concentration must have been exceedingly difficult.¹¹ Again Griffith Evans was convinced of the truth of the germ theory. The fierce little creatures that he saw under the

microscope and that had appeared in the blood of animals suffering from the disease were its cause.

Trypanosome experiments

Timothy Lewis, who had discovered a trypanosome in the rat in 1879, was resolutely of the opinion that neither the *Trypanosoma lewisi*, nor any other trypanosome, including the one described by Evans was pathogenic. Griffith Evans in his beautifully written official report did everything to persuade him.¹² He transferred blood containing the parasites from horses with the disease, to horses without symptoms of the disease whose blood did not contain parasites. He transferred blood by ingestion and by subcutaneous injection. And then demonstrated the appearance of the parasites in the blood of the previously healthy horses together with a fever and the other signs of the illness. He also transferred the parasite to a bitch and through her to her puppy. At this stage, duty necessitated his posting away to Kachar in Assam and he left the puppy with Lewis and Cunningham in the hope that they would continue his observations. Both were rigidly opposed to the germ theory and Griffith Evans was very disappointed to find on his return that they had not paid any further attention to his experiment.¹³

Later on, after his return to England, Griffith Evans wished to maintain his interest in the pathogenicity and transmissibility of other trypanosomes with an attempt to transfer *T. lewisi* from rat to monkey. He was again thwarted despite the support of Lord Lister and the presidents of the Royal Colleges. This time the license for the experiment was withdrawn by direct personal request of Queen Victoria.¹⁴ Griffith Evans, despite his disappointments, played an important but hitherto neglected part in the acceptance of bacteria as the cause of disease. He was the first man to identify and demonstrate the pathogenicity of a trypanosome, which later became known as *Trypanosoma evansi*. Koch did not publish his well known postulates until 1882, two years after Evans' work on 'surra'. But they had already been suggested though not tested by Jacob Henle in 1840.

Griffith Evans returned to England in 1885 and was posted to Woolwich as inspecting veterinary surgeon. He took the opportunity to work at the new bacteriological laboratory of Professor Crookshank of King's College. He retired from the army in 1890, and immediately became lecturer in veterinary hygiene to the agricultural department of University College, North Wales, an appointment which was renewed annually until his final retirement in 1910 at the age of 75.

The honours came late; a distinguished service pension in 1913; the Mary Kingsley Medal of the Liverpool School of Tropical Medicine in 1917; the Steel Memorial Medal of the Royal College of Veterinary Surgeons in 1918; DSc *honoris causa* of the University of Wales of 1919 and the freedom of Bangor in 1931. He was presented with a scroll on behalf of the Royal College of Veterinary Surgeons on his one hundredth birthday, 7 August 1935. At this time he was confined to his bed and although suffering from extreme deafness, still maintained a useful exchange in writing. He died on 7 December of the same year in his one hundred and first year.

* * *

NOTES

-
- 1 Cule, J. *Annals of the Royal Surgeons of England* (1965) 37, pp 247-57.
 - 2 Griffith Evans Ms 220. National Library of Wales.
 - 3 *Bibliotheca Osleriana*, Oxford 1929. Entry 2547.
 - 4 Griffith Evans Ms 220. National Library of Wales.
 - 5 Griffith Evans Ms 220. National Library of Wales.
 - 6 Griffith Evans Ms 220. National Library of Wales.
 - 7 Griffith Evans Ms 220. National Library of Wales.
 - 8 *Annals of Tropical Medicine and Parasitology* (1918) 12, pp 1-16.
 - 9 *Annals of Tropical Medicine and Parasitology* (1918) 12, pp 1-16.
 - 10 *Annals of Tropical Medicine and Parasitology* (1918) 12, pp 1-16.

- 11 Evans, Griffith. Report on 'Surra' Disease (Madras 1885).
Military Dept. December 1880. No 7. pp 59-89.
- 12 Evans, Griffith. Report on 'Surra' Disease (Madras 1885).
Military Dept. December 1880. No 7. pp 59-89.
- 13 *Annals of Tropical Medicine and Parasitology* (1918) 12, pp 1-16.
- 14 *Annals of Tropical Medicine and Parasitology* (1918) 12, pp 1-16.

John Cule

University of Wales College of Medicine