

## DORSAL COLUMN

### Grey Matter

# The strange case of Dr William Gowers and Mr Sherlock Holmes

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Not long after I had embarked on my neurological career at University College Hospital, William Gooddy's advice to me at the end of a teaching round on Ward 5.2 came straight from William Osler. To study the phenomena of neurological disease without books was to sail an uncharted sea, but to study books without patients was not to go to sea at all. Only his book recommendations were unusual. He advised me to read *The Complete Works of Sherlock Holmes*, described later by its author Arthur Conan Doyle as 'the fairy kingdom of romance', and Marcel Proust's *À la Recherche du Temps Perdu*. Much later I realized it had been his clever way of introducing a young man beginning the long apprenticeship of neurology to William Gowers, his predecessor (Frances Walshe separated the two of them) at University College Hospital.

The Baker Street sleuth's method of crime detection soon proved of far greater value than anything I had read in *Brain's Diseases of the Nervous System*. Each time I took the clinical history from a patient I remembered Holmes's words to John Openshaw in *The Five Orange Pips*, 'Pray give us the essential facts from the commencement and I can afterwards question you as to those details which seem to me to be most important'. I came to see detective work as a metaphor for diagnostic acumen.

In a 10-minute 1927 cinematographic recording Arthur Conan Doyle explains, 'I thought I would try my hand at writing a story where the hero would treat crime as Dr Bell treated disease'. Joseph Bell, a surgeon at the Edinburgh Royal Infirmary, was able to divine the origins, occupation and past history of his patients from their attire, appearance and demeanour. This left a great impression on the young medical student.

In *The Adventure of the Resident Patient* Dr Percy Trevelyan, the author of an obscure monograph on brain disorders confessed to Sherlock Holmes, 'My own hobby has always been nervous disease. I should wish to make it an absolute speciality, but, of course a man must take what he can get'. As the story unfolds it becomes clear that Holmes would have made a far better neurologist than Trevelyan. Doyle had written his doctoral thesis on tabes dorsalis and the canon contains short descriptions of cerebral haemorrhage, delirium, St Vitus's dance, tetanus and meningitis. It seems probable that Doyle consulted Gowers' *Manual* for source material for the 'Russian nobleman's' feigned catalepsy. After his move to London in 1891 Doyle may also have attended some of Gowers' clinical demonstrations and postgraduate lectures at Queen Square.

Conan Doyle admitted that he was thinking of Joseph Bell when he endowed Sherlock Holmes with remarkable powers of observation and an ability to infer the activities and usual occupations of people. 'Doctor Joe', although flattered by Doyle's assertions, claimed that Doyle himself was the real Holmes.

### Sherlock Holmes' alter ego?

There is an intellectual depth to Holmes that suggests at least one other medical influence. Although there is no evidence William Gowers and Arthur Conan Doyle ever met, they shared a mutual friend in Rudyard Kipling. There are also enough parallels between Gowers' recorded clinical instruction and the aphorisms of Sherlock Holmes to suggest that Doyle had at least read the published clinical lectures of Gowers.

Gowers taught on the hoof without prior knowledge of the case. He would begin by asking the patient to relate the story of their illness observing as he listened. Then he would clarify certain points with specific questions before proceeding to elicit the neurological signs.

In his published clinical demonstration entitled *Silver and Syphilis* delivered at Queen Square in 1894, Gowers enquires of his students:

‘Did you notice him as he came into the room? If you did not then you should have done so. One of the habits to be acquired and never omitted is to observe a patient as he enters the room; to note his aspect and his gait. If you did so, you would have seen that he seemed lame, and you may have been struck by that which must strike you now—an unusual tint of his face’ (Gowers, 1894a).

During his apprenticeship to a surgeon-apothecary in Coggeshall, Essex, Gowers had learned shorthand, which allowed him to record accurately and in great detail his findings at the bedside. The qualities of systematic orderliness and meticulous observation he acquired through the study of botany, which was included in the curriculum for the entrance examinations for University College London. Although the knowledge he acquired from the study of flowers was of no practical use to him in later life, the discipline it had taught him was priceless. Further details of Gowers’ clinical technique and its continuing relevance for the practice of neurology are given in the accompanying text (Supplementary material).

Gowers understood that the case history, like the detective story, has its limitations. No matter what Sherlock Holmes uncovered through his careful appraisal of the evidence and his skill in reasoning backwards, much was left out. Holmes often solved the crime but rarely found the underlying cause. It is Dr Watson the physician who adds the narrative and colour to the crime’s reconstruction and the name of Holmes not Watson that should have been bestowed on IBM’s supercomputer. Watson’s acknowledgement of serendipity and coincidence complemented Holmes’s logical abductions. He was far more than Holmes’s amanuensis or house officer.

Despite his scientific approach to medicine Gowers acknowledged the stories out of which his patients came and to which well or ill, they had to return. Neurology begins where Watson does with the circumstances of the case—colourful, lively and often painful—with an acknowledgement that the lives of those who present with neurological signs are far more richly detailed than their misfortune suggests.

Medicine contains few absolutes and not every case has a tidy solution or positive outcome. Healing is a skill born out of knowledge of universals combined with experience and practice. In his lectures to the medical students at University College, Gowers emphasized that they should strive to acquire the habit of entering into the feelings of the sick and into their modes of thought:

‘Invest suffering with the reverence that is due its sad mystery. To relieve suffering, to cure disease and above all to preserve health—these are the objects of your life’ (Gowers, 1884).

Gowers was arguably more Holmes than Watson, but he possessed the wisdom to combine his firm grasp of anatomy and physiology with tacit knowledge in order to attend to his patients. In contrast to his monstrous fictional detective whom he came to intensely dislike, William Gowers was someone Conan Doyle could respect.

Both neurologists and criminal detectives seek hidden truths and meanings in narratives and it may be no coincidence that several of the early specialists in nervous disease, such as David Ferrier and Henry Maudsley, held joint appointments in medico-legal jurisprudence. Ferrier, a close colleague of Gowers at Queen Square, had graduated in medicine in Edinburgh a few years before Doyle and must also have been taught by Joseph Bell. Bell too was interested in medico-legal jurisprudence. Gowers learned the skill of meticulous observation through botany and Bell through ornithology. Many of the aptitudes that Sherlock Holmes used to solve crimes are essential components of the neurological diagnostic process.

## The power of observation

Gowers, like Charcot, was a visionary who through intense scrutiny described many new phenomena in the neurologically ill.

‘No practitioner can do his daily work with any competence without constantly observing for himself, constantly reasoning from his own observations. The work of the medical practitioner, high or low, is personal science, as that of no other worker is’ (Gowers, 1895).

Holmes: ‘You see, but you do not observe. The distinction is clear.’ (*A Scandal in Bohemia*).

In *The Adventure of the Cardboard Box* Holmes reminds Watson that they had approached the case with an open mind and had formed no theories, ‘We were simply there to observe and draw inferences from our observations’.

## Great attention to detail

On October 22 1901, Gowers delivered a lecture at Queen Square entitled *Metallic Poisoning*:

‘I was told that it seemed to be a case of ‘simple neurasthenia’. I looked casually at the bed-card and at once my eye was caught by the record of his occupation ‘Painter’. I looked from the bed-card to his gums, and there I saw written in equally distinct characters the record of the effect of his occupation—in a conspicuous lead-line” (Gowers, 1903).

In *The Borderlands of Epilepsy* (1907) his powers of listening carefully to narrative are particularly well

demonstrated. For example he notes that individuals who faint at the sight of blood never do so when it is portrayed in paintings or illustrations. The vitality of his clinical vignettes also illustrate his exactness of method and convey the sense that he is totally wrapped up in the patient's experience.

Holmes: 'Never trust to general impressions, my boy, but yourself upon details.' (*A Case of Identity*).

Holmes: 'You know my method. It is founded upon the observation of trifles.' (*The Boscombe Valley Mystery*).

Holmes: 'It has long been an axiom of mine that the little things are infinitely the most important.' (*A Case of Identity*).

## Detailed knowledge

Gowers always emphasized in his teaching that the practice of medicine was an interpretative activity in which scientific abstractions were adjusted to the individual case:

'Gentlemen—Professional knowledge grows apace. By professional knowledge I meant the general knowledge of medicine possessed by the profession as a whole, as distinguished from that possessed by those occupied in the advancement of medical science' (Lees *et al.*, 2012).

Although the *Manual* was based largely on his own extensive clinical experience he also had through his reading a detailed knowledge of relevant cases beyond his own practice, as illustrated in the section on Paralysis agitans: 'Cases have been recorded in which the disease began still earlier, as at 21 (Buzzard), 19 (Duchenne) and 17 (Berger)'.

Sherlock Holmes in *The Adventures of the Copper Beeches* protests impatiently to Watson, 'Data! Data! Data!'... 'I can't make bricks without clay'.

Holmes: 'Students of criminology will remember the analogous incidents in Grodno, in Little Russia, in the year '66, and of course there are the Anderson murders in North Carolina, but this case possesses some features which are entirely its own.' (*The Hound of the Baskervilles*).

Holmes: 'A man should keep his little brain attic stocked with all the furniture that he is likely to use, and the rest he can put away in the lumber-room of his library where he can get it if he wants it.' (*The Five Orange Pips*).

## The balance of probability

Gowers knew that diagnosis came down to probability based on rational deduction. Only his observations were certain:

'We must always remember it is the balance of evidence that determines diagnosis. The sciences concerned with disease deal largely with probabilities almost wholly so in internal medicine. The probability varies in degree but usually falls far short of certainty. We must learn to take probability as our guide. We have to act. To act we must decide, and to decide we must

weigh the evidence, and deal with the probable as if it were certain' (Gowers, 1905).

Holmes: "'We are coming now rather into the region of guess-work,' said Dr Mortimer. 'Say, rather, into the region where we balance probabilities and choose the most likely. It is the scientific use of the imagination, but we have always some material basis on which to start our speculations'" (*The Hound of the Baskervilles*).

In the face of uncertainty, Gowers emphasized that if delay was inevitable in forming a probable opinion then the hesitation should be conveyed decisively to the patient in order not to lose their confidence.

## Without prejudice

Gowers was aware that nosography was in its infancy, particularly with regard to diseases of the nervous system. Many of the disorders that had already been recognized were likely to prove to be little more than temporary conceptions and there were far more 'types' waiting to be delineated once new scientific methods for measurement became available. To deal with these uncertainties of accurate labelling he suggested a foolproof method for his students which is still used today by neurologists in the face of ignorance:

'The method you should adopt is this: Whenever you find yourself in the presence of a case that is not familiar to you in all its detail forget for a time all your types and all your names. Deal with the case as one that has never been seen before, and work it out as a new problem *sui generis*, to be investigated as such. Observe each symptom and consider its significance. Then pull all the symptoms together and consider the meaning of their combination, especially whether there is any one part of the nervous system at which disease might cause them all' (Gowers, 1892).

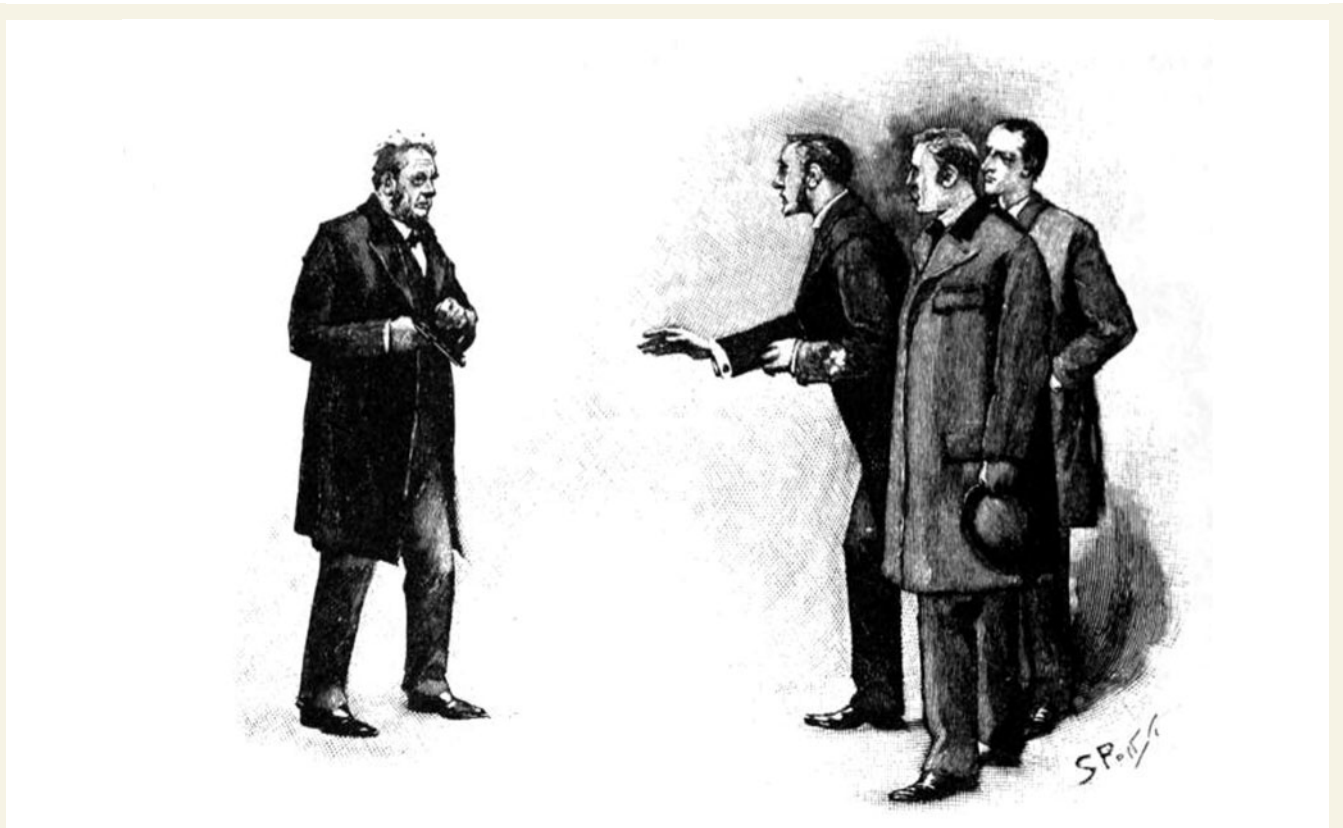
Gowers was able to distinguish the vital from the incidental, allowing him not to be overloaded with irrelevant minutiae. His case histories focused and narrowed the information and ordered the messy and confusing details of experience.

## Importance of negatives

In his lectures, Gowers frequently warned against the 'Crime of Procrustes'. If everything else pointed to a particular diagnosis then the absence of a single pathognomonic sign should not lead one to exclude it.

'Certain symptoms are very frequent in a given disease. Their presence may make that disease certain. But their absence does not prove that the disease does not exist. Neglect of this rule is one of the most fertile sources of error' (Gowers, 1905).

In other instances he emphasized how the absence of a particular sign could point to an alternative explanation.



**Figure 1** ‘*In his hand he held a pistol*’. Blessington, Trevelyan, Holmes and Watson in *The Adventure of the Resident Patient*. Reproduced from the ‘Internet Archive’, *The Victorian Web* <http://www.victorianweb.org/art/illustration/pagets/168.html>.



**Figure 2** Arthur Conan Doyle.

Holmes to Watson in *Silver Blaze*:

“Is there anything to which you would like to draw my attention?”

‘To the curious incident of the dog in the night-time.’

‘The dog did nothing in the night-time.’

‘That was the curious incident,’ remarked Sherlock Holmes.”



**Figure 3** William Gowers, aged 40. Reproduced with kind permission of Ann Scott.

## Finding the culprit

Soon after their first acquaintance Doctor John Watson reads Sherlock Holmes' article 'The Book of Life', in which he anatomizes 'The Science of Deduction and Analysis', a technique that requires the ability to reason backwards from present effect to absent cause. Holmes tells a sceptical Watson that 'From a drop of water a logician could infer the possibility of an Atlantic or a Niagara without having seen or heard of one or the other'.

Gowers used a similar method but his tools were his up-to-date knowledge of neuroanatomy and physiology, which allowed him to link specific symptoms and signs with pathology through logical deduction. Gowers, like Holmes, thrived on 'brain work' and his clinical observations at the bedside were always driven by his determination to understand their pathology. As a consequence, some of the students at University College Hospital who attended his lectures gave him the nickname of 'primary lesion' to reflect his relentless determination to trace symptoms back to their origins:

'When I say you cannot have too much of diagnostic method I mean that the power you will hereafter need, the power of discerning the nature of disease, can only be gained by constant exercise. You should systematically follow the process of diagnosis in every case observing its elements and their relative weight. Avoid the easy habit of taking in the diagnosis as a whole and being satisfied with the recognition of the disease. It is only by thoughtful perception of the reasoning, which varies in detail in every case that you can gain the ability to deal in like manner with cases that are unfamiliar. The power will come unconsciously' (Gowers, 1905).

Holmes: 'How often have I said to you that when you have eliminated the impossible, whatever remains, however improbable, must be the truth.' (*The Sign of the Four*).

Holmes: 'In solving a problem of this sort, the grand thing is to be able to reason backward. That is a very useful accomplishment, and a very easy one, but people do not practice it much. In everyday affairs of life it is more useful to reason forward, and so the other comes to be neglected. There are fifty who can reason synthetically for one who can reason analytically.' (*A Study in Scarlet*).

## Learning from mistakes

Gowers: 'Gentlemen—It is always pleasant to be right, but it is generally a much more useful thing to be wrong.' (Gowers, 1894b).

Holmes: 'I confess that I have been blind as a mole, but it is better to learn wisdom late than never to learn it at all.' (*The Man with the Twisted Lip*).

Gowers was always aware of his own diagnostic frailties, and what lessons might be learnt from them. Holmes' errors were infrequent, but there were cases, *The Five*

*Orange Pips* for example, which unfolded at a pace too fast for his reasoning powers with disastrous consequences for his client. Gowers was attuned to his fallibility, quick to appreciate what had gone wrong and he guarded constantly against the deadly sin of hubris.

If one investigative quality marks out the mature clinician it is the ability to spot possible inconsistencies among the clinical, instrumental, and laboratory examinations, considering not only what is present but also what is missing in chronic cases. Gowers always recommended reviewing critically a diagnosis as he was aware that inevitable errors could occur especially in the early stages of a disease process and that with time and diligent follow-up, clarification could be anticipated. One should always be ready for surprises but at times we may be surprised when we should not be:

'Our thought is apt to run in grooves from which it does not readily escape... and I would urge you to cultivate the habit of viewing a chronic case afresh from time to time; ignore what you have thought of it; put yourself in the face of a fresh observer and try and see if it thus bears a new aspect' (Gowers, 1905).

Holmes: 'One should always look for a possible alternative and provide against it. It is the first rule of criminal investigation.' (*The Adventure of Black Peter*).

Gowers always used his imagination, looked at the wider picture and when he felt it appropriate, self-experimented to obtain answers. One hundred years after his death, neurologists continue to take a careful history involving open then direct closed interrogation. We remain faithful to the notion that when you have eliminated the impossible, whatever remains, however improbable, must be the truth. We continue to record narrative, distrust general impressions and concentrate on detail. Our students are taught that the world is full of obvious things that nobody ever observes. We have not forgotten the importance of the physical examination and the laying on of hands. This comes so automatically that we delude ourselves that our methods are our own. The great age of diagnosis may have passed and neurology's focus shifted to the management of chronic disease, but brain mysteries still draw lively minds to neurology. The National Hospital, Queen Square is still a 'crime scene' and the spirit of William Gowers stalks the wards.

## Acknowledgements

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## Supplementary material

Supplementary material is available at *Brain* online.

## References

- Gowers WR. Introductory lecture delivered on the opening of the medical session at University College, London, October 1st 1884, London: H.K. Lewis; 1884.
- Gowers, WR. General principles of th diagnosis of diseases of the nervous system *Lancet*. 1892; 139: 403–5.
- Gowers WR A. clinical lecture on silver and syphilis: delivered at the National Hospital for the Paralysed and Epileptic, Queen Square, Bloomsbury. *Br Med J* 1894a; 2: 1221–3.
- Gowers WR. A post-graduate lecture on mistaken diagnosis: delivered in the National Hospital for the Paralysed and Epileptic. *Br Med J* 1894b; 2: 1–3.
- Gowers WR. The inaugural address on the art of writing in relation to medical and scientific work: delivered before the Society of Medical Phonographers. *Br Med J* 1895; 2: 817–9.
- Gowers WR. Lectures on diseases of the nervous system second series, Vol. P. Philadelphia, PA: Blakiston and Son; 1903.
- Gowers WR. A clinical lecture on a metastatic mystery. *Lancet* 1905; 166: 1593–6.
- Lees AJ, Woodward RM, Scott AE, Eadie MJ. W R Gowers 1895: two unpublished post-graduate lectures. *Brain* 2012; 135: 3165–77.