still negative some years later, when brucellae were cultured from her blood, a circumstance that is not unique.[15]

Today, with chemotherapy, chronic brucellosis and serious complications are rare.[16] But if it was chronic brucellosis that condemned Florence to a lifetime of confinement and pain, it might be asked whether anything known now could have helped. It is ironic that, of the current therapeutic recommendations, the only one available to Florence's doctors was to advise the patient to rest.[22] This advice was given and she followed it for 25 years; and nothing in her entire life has generated more censure from her recent biographers.

Alice Evans noted that some patients with proved chronic brucellosis reported long delays before the correct diagnosis was made, and that the interim diagnosis was almost invariably neurasthenia.[23] Florence Nightingale's case has been the same, although a delay of 140 years seems excessive.

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Excessive impertinence or a missed diagnosis?

Timothy M Williams, Kim, Gareth Williams

In 1885 Gilles de la Tourette described a striking syndrome of motor and verbal tics, with uncontrollable gesticulations and verbal outbursts, especially of a profane or scatological nature (coprolalia).[1] As currently defined, Tourette's syndrome encompasses several neurological disorders, including echolalia and palilalia (invented words), obsessive-compulsive behaviour, and occasionally self mutilation.[2] Subjects often have a fascination with rhymes, riddles, and word play.[3,4] Interestingly, Tourette's syndrome has been linked with artistic creativity, and there has been speculation that Mozart and Dr Samuel Johnson may have been sufferers.[4,5] We believe that Tourette's syndrome could also underlie the bizarre and hitherto unexplained behaviour of one of the best known yet most enigmatic characters of 20th century English literature.

Case report

The case of SN, a male red squirrel (*Sciurus vulgaris leucourus*) of indeterminate age, was reported in detail by Potter.[6] SN came from an extensive family with no apparent history of neurological or other disease. He is described as "excessively impertinent in his manners" and was a source of great embarrassment to his family and of nearly fatal irritation to the local owl, a noted carnivore. He contrasts sharply with his peers, who were placid, well behaved, and content in their pursuit of normal squirrel activities such as collecting nuts, fishing, constructing rafts, etc.

The overwhelming impression of SN is of boundless energy and extreme motor, vocal, and cognitive restlessness. He was evidently in constant motion, and has been described as dancing, skipping, and "bobbing up and down like a little red cherry" (figure). SN's vocalisations ranged from inappropriate singing, laughing, shouting, and chanting rhymes and riddles to whirring noises and a curious chattering ("Cuck-cuck-cuck-cur-r-r-cuck-k-k"). He used frequent neologisms, such as "Hitty-pitty" (for nettle), and seemed to be particularly fond of rhythmic refrains (Hum-a-bum! buzz! buzz! Hum-a-bum buzz!). While the other squirrels foraged for food and were being deferential to the owl, SN indulged in solitary activities such as repetitive toying with pine needles and playing marbles or ninepins.

During the six days covered by the report, his motor and vocal behaviours became increasingly erratic and included taunting the owl verbally and tickling him with a nettle. These culminated in an impetuous leap on to the owl, an act that cost SN half his tail and almost his life. Long term follow up of SN is not provided, but it is clear from the end of the case history that his behaviour remained abnormal long after this episode.

SN in characteristic pose. Note motor tics, impression of incessant movement, and torticollis. © F Warne & Co, 1903, 1987

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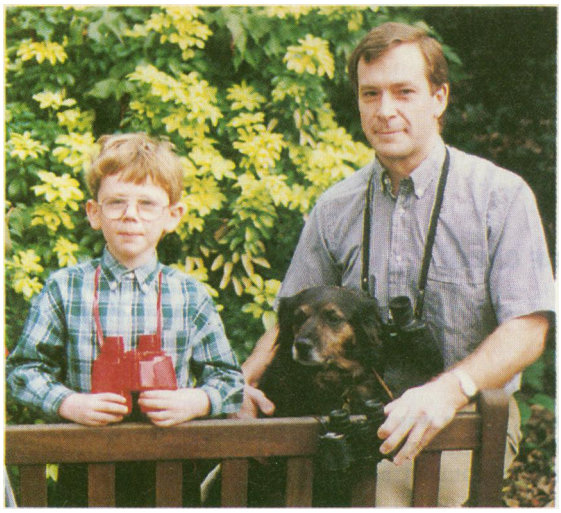

The research team in uncharacteristic repose

Discussion

We believe that the clear and beautifully illustrated account of SN's behaviour indicates a deeper problem than simple naughtiness and benign adolescent tics—he fulfils the diagnostic criteria for Tourette's syndrome.[2] Perhaps most striking are the continuous impulsive movements. We suspect that SN, like many patients with Tourette's syndrome, had learned to manipulate the tics into a more natural flow of dancing and bobbing. His apparently suicidal jump at the owl may have been precipitated by a tic which he was unable to control, although it may have represented a genuinely self-destructive urge, which is also a feature of Tourette's syndrome.[2] Some subjects with Tourette's syndrome have dystonias, including torticollis[2-5]; although not mentioned in the case report itself, this is obvious in the clinical illustration (figure).

Also remarkable are SN's verbal tics, including palitalia and a love of nonsense words (Hitty-pitty) and the numerous rhythmic riddles and songs. We hesitate to draw attention to coprolalia, present in 30-50% of patients with Tourette's syndrome[2 4 5] but have to point out SN's repeated use of the word bum (Hum-a-bum). Although not as blatant as Mozart's frequent references to buttocks in his letters,[4] this must have been quite risqué for a squirrel of the period. Intriguingly, while drafting the report, Potter wrote that "the words of the squirrel book will need cutting down," and several rhyming riddles are known to have been deleted from the final version.[7] As the report only contains 1200 words and 27 figures, it seems unlikely that length was a concern. Instead, we speculate that some of SN's utterances were so indelicate that they had to be censored, perhaps in the same way that Dr Johnson's more scatological outbursts were edited by his friends "for fear of impugning his formidable reputation."[5]

Other features of SN's case, not of diagnostic value but of interest because of their parallels with other cases, include his obvious creativity; the clever plays on words and ideas in the rhymes and songs, and a fascination with ball games, which he shares with Mozart[4]; and obsessional behaviour (playing with pine needles) and curious clucking and other sounds, reminiscent of Dr Johnson.[5]

In conclusion, therefore, we suggest that SN may have suffered from Tourette's syndrome. To our knowledge, this is the first recorded case in squirrels. Although Potter was a keen naturalist, and indeed had noted a tailless squirrel at Lingholm in the lake district,[7] her description of SN may have derived at least in part from her observations of people. Several of her other animal subjects seem to have been drawn from her acquaintances, including a hedgehog, TW,[8] who was based on Kitty MacDonald, a Scottish washerwoman.[6 9] We have found in Potter's journal for 1894 a description of an elderly woman on a train in Northumberland who "appeared incapable of holding her tongue or her limbs" and whose incessant movements and chattering evidently embarrassed her fellow travellers.[9] It is possible that this lady suffered from Tourette's syndrome and that this encounter was subsequently to influence Potter's report of SN, which was completed in draft form some seven years later.

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Conflict of interest: Though the second author has contributed significantly to this report through her lifelong devotion to the pursuit of squirrels, thereby making the whole team thoroughly familiar with their normal behaviour, her canine origin must be taken into account.

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A call at Christmas

I can still remember my first Christmas night call, 50 years ago. It was to a house called Morus Alba. The patient was having severe abdominal pain. The name must have meant a white tree of some sort, but the headlights had not shown up a tree of any sort. After a while I managed to get to a road of almost the same name. There should not, of course, be a road, a street, a close, and an avenue, all within striking distance of each other with similar names, but there are. I got to the right place in the end. The patient with his family and friends was sitting comfortably.

"I'm awfully sorry to have got you out tonight," he said, "especially on a false alarm. It must have been indigestion. Too much drink, I expect. I did ring to say I was better, but you'd left." "Well," I said, "let me take a look at you just the same."

I felt the abdomen. I kept feeling the abdomen. I wished I was a bit more sure of what I was feeling. He was not rigid, but was the abdomen a little doughy? Could this be a perforation? Was he heading for peritonitis? I felt miserable and uncertain. Anybody else would have been decisive, anybody else would have known. "Can I use your phone?" I asked. They did not have a telephone. Nobody nearby had a telephone.

Outside it was even wetter, and it could not have been darker. I was not sure that I wanted to find a telephone. It would give me a reasonable excuse to shelve the matter. I found that I had to carry on looking. Suddenly there was a telephone. "Look here, doctor," said the houseman, "I've got just one bed left that I'm saving in case of an emergency. Do you think you're justified in taking it?" The little pointer wavering in my mind swung round. "Yes," I said.

I've wondered since whether there really was only one bed left. I believed it at the time but I am not sure now. Anyway it was just as well the patient was admitted. He did have a perforated peptic ulcer. He had been at risk. He came in to see me quite a time later. I do not think that he realised that it had been a near thing. He did mutter a few words of thanks, but really it was I who should have thanked him. It was this case that made me think, perhaps I might make it after all.—E SAPHIER, *retired medical officer, Brighton*