

1. Edith hurried with her to her mother's room. Cleopatra was arrayed in full dress, with the diamonds, short sleeves, rouge, curls, teeth, and other juvenility all complete; but Paralysis was not to be deceived, had known her for the object of its errand, and had struck her at her glass, where she lay like a horrible doll that had tumbled down.

They took her to pieces in very shame, and put the little of her that was real on a bed. Doctors were sent for, and soon came. Powerful remedies were resorted to; opinions given that she would rally from this shock, but would not survive another; and there she lay speechless, and staring at the ceiling for days; sometimes making inarticulate sounds in answer to such questions as did she know who were present, and the like: sometimes giving no reply either by sign or gesture, or in her unwinking eyes.

At length she began to recover consciousness, and in some degree the power of motion, though not yet of speech. One day the use of her right hand returned; and showing it to her maid who was in attendance on her, and appearing very uneasy in her mind, she made signs for a pencil and some paper. This the maid immediately provided, thinking she was going to make a will, or write some last request; and Mrs. Dombey being from home, the maid awaited the result with solemn feelings.

After much painful scrawling and erasing, and putting in of wrong characters, which seemed to tumble out of the pencil of their own accord, the old woman produced this document:

"Rose-coloured curtains."

Dombey and Son, Chapter 37

2. That was the day of his leaving for France, and the day of his return brought these few hurried words. "Saturday, tenth of June 1865. I was in the terrific Staplehurst accident yesterday, and worked for hours among the dying and dead. I was in the carriage that did not go over, but went off the line, and hung over the bridge in an inexplicable manner. No words can describe the scene. I am away to Gads." Though with characteristic energy he resisted the effects upon himself of that terrible ninth of June, they were for some time evident; and, up to the day of his death on its fatal fifth anniversary, were perhaps never wholly absent. But very few complaints fell from him. "I am curiously weak -- weak as if I were recovering from a long illness." "I began to feel it more in my head. I sleep well and eat well; but I write half a dozen notes, and turn faint and sick." "I am getting right, though still low in pulse and very nervous. Driving into Rochester yesterday I felt more shaken than I have since the accident." "I cannot bear railway traveling yet. A perfect conviction, against the senses, that the carriage is down on one side (and generally that is the left, and *not* the side on which the carriage in the accident really went over), comes upon me with anything like speed, and is inexpressibly distressing." These are passages from his letters up to the close of June. Upon his book the immediate result was that another lost number was added to the losses of the preceding months, and "alas!" he wrote at the opening of July, "for the two numbers you write off! There is only one in existence. I have but just begun the other." "Fancy!" he added next day, "fancy my having under-written number sixteen by two and a half pages -- a thing I have not done since *Pickwick!*" He did it once with *Dombey*, and was to do it yet again.

The Life of Charles Dickens, Book 9, Chapter 5

ディケンズ・フェロウシップ日本支部総会（2005年10月8日 於：甲南大学）
「左側に転覆する列車 ディケンズと脳梗塞について」発表者：金山亮太（新潟大学）

3. “. . . I have so severe a pain in the ball of my left eye that it makes it hard for me to do anything after 100 miles shaking since breakfast. My cold is no better, nor my hand either.” It was his left eye, it will be noted, as it was his left foot and hand; the irritability or faintness of heart was also of course on the left side; and it was on the same left side he felt most of the effect of the railway accident.

(quoted from a letter to John Forster dated on 14 April 1866)

The Life of Charles Dickens, Book 8, Chapter 6

4. Gad's Hill Place, Higham by Rochester, Kent
Tuesday, Thirteenth June, 1865

My dear Mitton, ---I should have written to you yesterday or the day before, if I had been quite up to writing.

I was in the only carriage that did not go over into the stream. It was caught upon the turn by some of the ruin of the bridge, and hung suspended and balanced in an apparently impossible manner. Two ladies were my fellow-passengers, an old one and a young one. This is exactly what passed. You may judge from it the precise length of the suspense: suddenly we were off the rail, and beating the ground as the car of a half-emptied balloon might. The old lady cried out, “My God!” and the young one screamed. I caught hold of them both (the old lady sat opposite and the young one on my left), and said: “We can't help ourselves, but we can be quiet and composed. Pray don't cry out.” The old lady immediately answered: “Thank you. Rely upon me. Upon my soul I will be quiet.” We were then all tilted down together in a corner of the carriage, and stopped. I said to them thereupon: “You may be sure nothing worse can happen. Our danger *must* be over. Will you remain here without stirring, while I get out of the window?” They both answered quite collectedly, “Yes,” and I got out without the least notion what had happened. Fortunately I got out with great caution and stood upon the step. Looking down I saw the bridge gone, and nothing below me but the line of rail. . . .

Selected Letters of Charles Dickens

[References]

Collins, Philip ed., *Charles Dickens: The Public Readings* (Oxford: OUP, 1975)

Dexter, Walter ed., *Dickens to His Oldest Friend* (London: Putnum, 1932)

Dolby, George, *Charles Dickens as I knew Him* (London: T Fisher Unwin, 1887)

Forster, John, *The Life of Charles Dickens* (London: J. M. Dent, 1969) 2 vols

Johnson, Edgar, *Letters from Charles Dickens to Angela Burdett-Coutts* (London: Jonathan Cape, 1953)

Kaplan, Fred, *Dickens and Mesmerism* (New Jersey: Princeton U.P., 1975)

Paroissien, David ed., *Selected Letters of Charles Dickens* (Houndmills: Macmillan, 1985)

Slater, Michael et al., *The Dickens Index* (Oxford: OUP, 1988)

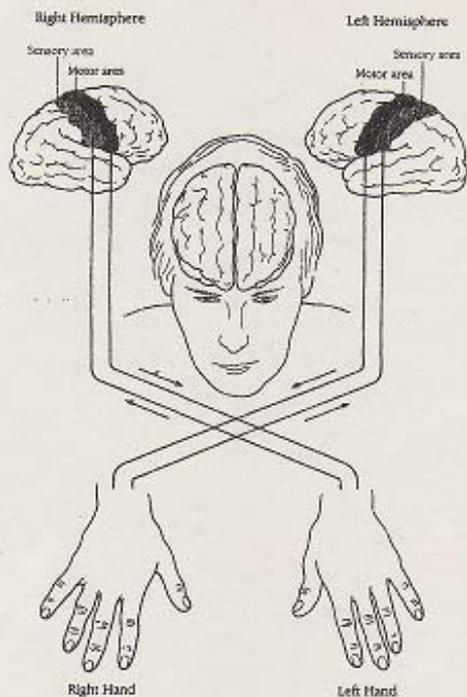
Springer, Sally P. and Georg Deutsch, *Left Brain, Right Brain* (New York: W. H. Freeman, 1981)

Steig, Michael, *Dickens and Phiz* (Bloomington: Indiana U.P., 1978)

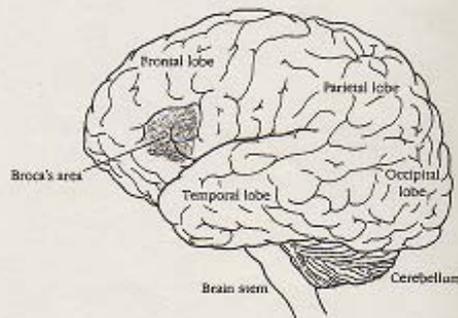
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Sally P. Springer and
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Left Brain, Right Brain

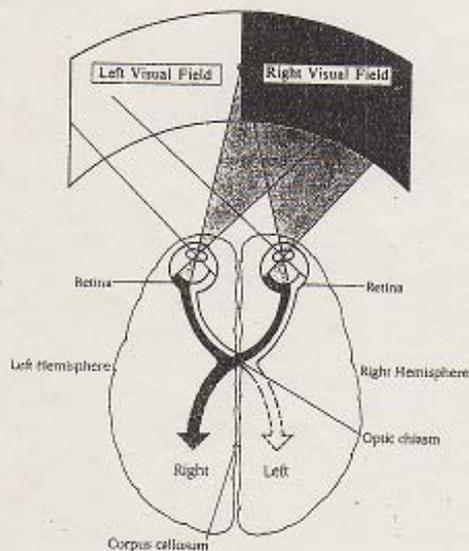
(W.H. Freeman & Co. (1981, 1985))



1.1 Motor control and sensory pathways between the brain and the rest of the body are almost completely crossed. Each hand is served primarily by the cerebral hemisphere on the opposite side.



1.3 The location of Broca's area in the left cerebral hemisphere.



2.2 Visual pathways to the hemispheres. When fixating a point, each eye sees both visual fields but sends information about the right visual field only to the left hemisphere and information about the left visual field only to the right hemisphere. This crossover and split is a result of the manner in which the nerve fibers leading from the retina divide at the back of each eye. The visual areas of the left and right hemisphere normally communicate through the corpus callosum. If the callosum is cut and the eyes and head are kept from moving, each hemisphere can see only half of the visual world.

Charles Dickens: a neglected diagnosis

I C McManus

The novelist Charles Dickens died of a stroke on June 9, 1870, aged 58 years. He was ill for the last 5 years of his life, although no diagnosis has yet accounted for his varied symptoms. Here, I propose that Dickens had a right parietal or parietal-temporal disorder.

Dickens' symptoms

My hypothesis originates from an unusual and highly specific symptom. In 1868, while walking to the house of his friend and future biographer John Forster, Dickens noticed that "he could read only the halves of the letters of the shop doors that were on his right as he looked".^{1,2} He had the same problem again on March 21, 1870, as described by Forster:

"He told us that as he came along, walking up the length of Oxford-street, the same incident had recurred as on the day of a former dinner with us, and he had not been able to read, all the way, more than the right-hand half of the names over the shops."

Dickens' friends were amazed at the peculiarity of the symptom and by Dickens' explanation of it.³ These quotes seem to describe a form of spatial neglect,⁴ probably neglect dyslexia,⁵ and if this diagnosis is correct, they would constitute the first published description of the syndrome; Forster's biography of Dickens¹ pre-dates Hughling Jackson's brief and somewhat unclear account of spatial neglect.^{6,7}

As in most people who are right-handed (figure 1),⁸ Dickens' disorder was left-sided, which suggests right parietal lobe damage,² although data also implicate the superior temporal lobe.⁹ Some of Dickens' other symptoms might also have resulted from parietal disease, which often presents in varied and unusual ways.¹⁰

Dickens' spatial neglect is unusual only because he recognised it as a problem, which does however occur.¹¹ The film director, Federico Fellini, for instance had insight into his own spatial neglect.¹² Most patients with spatial neglect are, however, aware of visual segmentation¹³—ie, they know the length of words and they are able to recognise that what they see is not the entire word.^{5,14} Dickens noticed his problem most when reading proper names, perhaps because of the presence of contextual cues. To give modern examples, one could well realise something is wrong if a shop one passes regularly and which still has the same location, logos, and colour

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Figure 1: Dickens at his writing desk at Gad's Hill Place in about 1858

schemes, is now seemingly called Bloomsbury's rather than Sainsbury's, or Piebald's rather than McDonald's. A prediction is that insight might be more frequent in neglect patients who are misreading proper names in context.

Onset of symptoms

Dickens had problems with his right cerebral hemisphere. This problem became evident on April 18, 1869, in the middle of a gruelling—albeit lucrative—tour of public readings. After feeling ill he wrote to his doctor, Frank Beard, who rushed to Dickens, cancelled the tour, and brought him back to London, to be seen the next day by Sir Thomas Watson, who wrote:

"After unusual irritability, [Dickens] found himself, last Saturday or Sunday, giddy, with a tendency to go backwards, and to turn round . . . He had some odd feeling of insecurity about his left leg, as if there was something unnatural about his heel; but he could lift, and did not drag,

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National Portrait Gallery, London

his leg. Also he spoke of some strangeness of his left hand and arm; missed the spot on which he wished to lay that hand, unless he carefully looked at it; felt an unreadiness to lift his hands towards his head, especially his left hand—when for instance, he was brushing his hair.”²

Watson concluded that Dickens “had been on the brink of an attack of paralysis of his left side, and possibly of apoplexy”. These fears were confirmed the next year when, at dinner, Dickens stood and collapsed to his left. Apoplexy was diagnosed, and Dickens died the next evening without having regained consciousness. No necropsy took place.

History of Dickens’ illness

Dickens had had signs of heart disease, perhaps precipitated by renal disease,¹⁵ for several years, and in 1866 he was prescribed iron, quinine, and digitalis. Watson also noted signs of cardiac enlargement. The most confusing aspect of Dickens’ medical history was described by Forster as “that formidable illness in his [left] foot . . . [which] baffled experienced physicians”.

Dickens attributed his symptoms to frost-bite, which he first noticed in February, 1865.

“I got frost-bitten by walking continually in the snow, and getting wet in the feet daily. My boots hardened and softened, hardened and softened, my left foot swelled, and I still forced the boot on; sat in it to write, half the day; walked in it through the snow, the other half; forced the boot on again the next morning; sat and walked again; and being accustomed to all sorts of changes in my feet, took no heed. At length, going out as usual, I fell lame on the walk, and had to limp home dead lame, through the snow, for the last three miles.”¹¹

A month later, Dickens wrote to Frank Beard:

“This confounded foot [is] as bad as ever again. I suffered tortures all last night, and never closed my eyes. We are now at work at the Poppy[-head] fomentations again.”¹⁶

By April 22, 1865, Dickens’ foot seemed to have healed, though in September, the symptoms returned; Dickens could not bear the foot to be touched, sat with it up, and had a special extra large boot made. Further painful episodes happened in January, 1866, after which the problem subsided until Aug 2, 1867, when the foot seems again to have swelled.

“I cannot get a boot on . . . [I was] on the sofa all last night in tortures. I cannot bear to have the fomentations taken off for a moment.”¹⁶

Dickens was still lame on Sept 11, 1867, and could not wear shoes. Recurrences continued throughout his life: in early 1868; in February and April, 1869; at Christmas, 1869; and finally in May, 1870, when he was so lame that he could not even go up stairs to meet the Prince of Wales and the King of Belgium.¹⁷

Apart from exquisite pain, the foot was also “very tender . . . as though . . . in hot water”, and showed “extreme sensitiveness [so that he was unable] to put any covering upon it”. Although sometimes taking opiates (laudanum), Dickens’ problem was mostly treated with hot poultices and fomentations. “I have had the poultices constantly changed, hot and hot, day and night”, but the foot still remained “a mere bag of pain” despite having been “viciously bubbled and blistered . . . in all directions”.

Dickens’ pain was never properly diagnosed, and he died believing that his illness was localised to his foot, an idea backed up when Sir Henry Thompson suggested that his pain “originates in the action of the shoe, in walking, on an enlargement in the nature of a bunion”. Gout was suggested as a diagnosis, but Dickens denied this

possibility. While in Edinburgh, Dickens consulted James Syme, who disputed Thompson’s opinion of gout. Instead, he said the pain originated from the cold, and affected the nerves and muscles. However, other authors,¹⁸ Forster, and Edmund Yates, thought Dickens’ pain was gout.

“There is no one now, I suppose, who does not recognise that this pain in the foot and lameness were gouty expressions of internal disorder.”³

Gout, however, was a common Victorian diagnosis.¹⁹

Dickens also reported other paroxysmal pains: in 1866 he reported severe pain in his left eye. Forster emphasised the side of the problems:

“It was his left eye, it will be noted, as it was his left foot and hand.”¹

In December, 1869, Dickens’ left hand was sporadically painful, by Jan 23, 1870, he had to wear a sling, and throughout February, 1870, his hand was constantly painful.¹⁷

Railway accident

On June 9, 1865, Dickens was present at the Staplehurst railway disaster. Ten passengers were killed and 40 were injured (figure 2).¹⁶ Although some people have suggested Dickens’ health deteriorated after this incident,² the painful left foot and other symptoms pre-date the accident. Nevertheless Dickens did have post-traumatic flashbacks as his daughter Mamie recalls in her book:

“My father suddenly clutched the arms of the railway carriage seat, while his face grew ashy pale, and great drops of perspiration stood upon his forehead, and though he tried hard to master the dread, it was so strong that we had to leave the train at the next station.”²⁰

Dickens also acknowledged his fear:

“I cannot bear railway travelling yet. A perfect conviction, against the sense, that the carriage is down on one side (and generally that is the left, and not the side on which the carriage in the accident really went over) comes upon me with anything like speed, and is inexpressibly distressing.”

Dickens’ denial

Despite an interest in medicine—Dickens was apparently a regular reader of *The Lancet*,²¹ and his novels often described medical conditions²²⁻²⁵—and despite repeated, unpleasant indications of serious disease, Dickens denied his symptoms. On Sept 2, 1867, he wrote to *The Times* denying rumours of illness, and the next day wrote to a friend:

“I never was better in my life – doubt if any body ever was or can be better – and have not had anything the matter with me but that squeezed foot, which was an affair of a few days [sic].”¹⁶

Dickens’ friends, such as Yates,³ could not understand his attitude:

“Never did [a] man wishing to deceive himself carry out his object so thoroughly as Dickens . . . What would he have thought, what would he have said, of any other man who could only read half the letters of the names over the shop-doors, who ‘found himself extremely giddy and extremely uncertain of the sense of touch, both in the left leg and the left hand and arm’, and who ascribed those symptoms ‘to the effect of medicine’? With what caustic touches would he have described a man who, suffering under all those symptoms, and under many others equally significant, harassed, worn out, yet travels and reads and works until he falls dead on the roadside!”

Effect on Dickens' work

Dickens' last complete novel was published in 1865. The first monthly instalment of *Our Mutual Friend*, which Dickens started writing in 1863, was published in May, 1864. Dickens had part of the manuscript with him in the railway accident, and had to go back to the carriage for it. After the accident, Dickens' previously prolific and effortless writing ceased:

"Although I have not been wanting in industry, I have been wanting in invention . . ."

By August, 1865, Dickens was in what he called "agonies" after finishing his book, and was embarrassed to find he had "underwritten number sixteen by two and a half pages, a thing I have not done since *Pickwick!*".

Contemporary critical acclaim for the book was muted, and Dickens started to concentrate more on his public readings than on writing; *The Mystery of Edwin Drood*, which Dickens began writing in 1869, remains unfinished. No satisfactory resolution of the book's plot has ever been established, and Sir Angus Wilson has suggested that Dickens:

". . . altered the plot and found himself hopelessly entangled in a maze of which he could not find the issue."²⁶

Analysis of symptoms

Dickens had a confusing mixture of symptoms, which mostly affected his left side, and which coincided with a decline in his literary productivity. Most striking of symptoms was his inability to see the left half of words, a symptom almost pathognomic of right parietal damage, and which had not then been described in neurology. Dickens' unwillingness to move his left hand might also suggest motor neglect.²⁷ Could Dickens' other symptoms also be due to right parietal disorder?

The foot pain could well have been central in origin. Although usually regarded as thalamic (Dejerine-Roussy syndrome), about half of patients with central post-stroke pain have a non-thalamic lesion, which is often supratentorial.²⁸ Cortical pain usually arises after parietal lobe lesions,^{29,30} so-called pseudothalamic syndrome, and most patients have right hemispheric lesions and left-sided pain.³⁰

Pain perception is associated with the right hemisphere,³¹ and thalamic pain arises more often with right-sided damage.³² Central pain can also be associated with changes in skin temperature, trophic skin changes, and oedema in the affected limb.²⁸ Parietal lobe pain is often restricted to the face, hand, lower leg, or foot,³⁰ sometimes of a paroxysmal quality, with a Jacksonian-like march.³³ In Dickens' case, there is a suggestion of hypoalgesia (the hot poultices causing tissue damage) and of allodynia or hyperpathia (light touch being unbearable), which are both symptoms that arise in parietal damage.^{29,33} The pain has been described by others as burning, gnawing, and electric, rather like Dickens' description of a pain like hot water.

Dickens' apparent indifference to his problems might be due to anosognosia, a frequent occurrence in right hemisphere damage,^{34,35} particularly parietal lesions.³⁶ Anosognosia arises as a result of temporary cortical dysfunction, as in Wada testing, when it affects the left side of the body in particular.³⁷

Dickens' feeling of railway carriages falling to the left could be due to vestibular symptoms of cortical origin.

Patients with spatial neglect and anosognosia respond favourably to cold caloric stimulation;³⁸ right parietal damage results in absence of normal feelings of self-motion;³⁸ parietal lobe afferents and efferents go to the vestibular system;^{39,40} vestibular stimulation activates a part of the cortex adjacent to the parietal cortex damaged in spatial neglect; vertiginous seizures occur in temporoparietal epilepsy;⁴¹ and stimulation of parietal cortex can make patients feel as though they are rolling off the operating table.

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Penny Illustrated Newspaper, 1865

Figure 2: Charles Dickens helps people at the Staplehurst railway accident

Conclusion

For the last 5 years of his life, Charles Dickens had a range of symptoms, mostly affecting his left side, including hemispatial neglect for words, paroxysmal pains, hyperpathia or allodynia and hypoalgesia in the left foot, and a feeling of the world falling to the left. He also seemed to be unaware of the seriousness of his symptoms, which suggests some form of anosognosia. Dickens was known to have had a definite attack of right-sided cerebral insufficiency, and he died of apoplexy affecting the right side of the brain. Dickens' left-sided symptoms thus could suggest damage to the right temporoparietal area.

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References

- Forster J. The life of Charles Dickens. London: Chapman and Hall, 1872.
- Forster J. The life of Charles Dickens, edited by J W T Ley. London: Cecil Palmer, 1928.
- Yates E. Fifty years of London life: memoirs of a man of the world. New York: Harper and Brothers, 1885.
- Parkin AJ. Explorations in cognitive neuropsychology. Hove: Psychology Press, 1996.
- Ellis AW, Young AW, Flude BM. Neglect and visual language. In: Robertson IH, Marshall JC, eds. Unilateral neglect: clinical and experimental studies. Hove: Lawrence Erlbaum Associates, 1993: 233-55.
- Jackson JH. Case of large cerebral tumour without optic neuritis and with left hemiplegia and imperception. *R Ophthalmol Hosp Rep* 1876; 8: 434-44.

- 7 Halligan PW, Marshall JC. The history and clinical presentation of neglect. In: Robertson IH, Marshall JC, eds. *Unilateral neglect: clinical and experimental studies*. Hove: Lawrence Erlbaum Associates, 1993: 3–25.
- 8 Wright T. *The life of Charles Dickens*. London: Herbert Jenkins, 1935.
- 9 Karnath H-O, Ferber S, Himmelbach M. Spatial awareness is a function of the temporal not the posterior parietal lobe. *Nature* 2001; **411**: 950–53.
- 10 Critchley M. *The parietal lobes*. London: Edward Arnold, 1953.
- 11 Marshall JC, Halligan PW. Blindsight and insight in visuo-spatial neglect. *Nature* 1988; **336**: 766–67.
- 12 Cantagallo A, Della Sala S. Preserved insight in an artist with extrapersonal spatial neglect. *Cortex* 1998; **34**: 163–89.
- 13 Driver J, Mattingley JB. Parietal neglect and visual awareness. *Nat Neurosci* 1998; **1**: 17–22.
- 14 McCarthy RA, Warrington EK. *Cognitive neuropsychology: a clinical introduction*. San Diego: Academic Press, 1990.
- 15 Bowen WH. *Charles Dickens and his family*. Cambridge: W Heffer and Sons, 1956.
- 16 Storey G. *The letters of Charles Dickens, vol 11, 1865–67*. Oxford: Clarendon Press, 1999.
- 17 Johnson E. *Charles Dickens: his tragedy and triumph*. London: Victor Gollancz, 1953.
- 18 Doggart J. Dickens and the doctors: a centenary causerie. *Practitioner* 1970; **204**: 449–53.
- 19 Porter R, Rousseau GS. *Gout: the patrician malady*. New Haven: Yale University Press, 1998.
- 20 Dickens M. *My father as I recall him*. London: Roxburghe Press, 1897.
- 21 Markel H. Charles Dickens' work to help establish Great Ormond Street Hospital, London. *Lancet* 1999; **354**: 673–75.
- 22 Marshall JC. Overheated imaginations. *Nat Neurosci* 1998; **1**: 651.
- 23 Garcia-Ruiz PJ, Gulliksen LL. Movimientos anormales en David Copperfield. *Neurologia* 1999; **14**: 359–60.
- 24 Jacoby NM. Krook's dyslexia. *Lancet* 1992; **340**: 1521–22.
- 25 Markel H. Charles Dickens and the art of medicine. *Ann Intern Med* 1984; **101**: 408–11.
- 26 Wilson A. Introduction. *Charles Dickens: The Mystery of Edwin Drood*. Harmondsworth: Penguin, 1974: 11–28.
- 27 Triggs WJ, Gold M, Gerstle G, Adair J, Heilman KM. Motor neglect associated with a discrete parietal lesion. *Neurology* 1994; **44**: 1164–66.
- 28 Boivie J, Leijon G. Clinical findings in patients with central poststroke pain. In: Casey KL, ed. *Pain and central nervous system disease: the central pain syndromes*. New York: Raven Press, 1991: 65–75.
- 29 Marshall J. Sensory disturbances in cortical wounds with special reference to pain. *J Neurol Neurosurg Psychiatry* 1951; **14**: 187–204.
- 30 Michel D, Laurent B, Convers P, et al. Douleurs corticales: étude clinique, électrographique et topographique de 12 cas. *Rev Neurol Paris* 1990; **146**: 405–14.
- 31 Pauli P, Wiedemann G, Nickola M. Pain sensitivity, cerebral laterality, and negative affect. *Pain* 1999; **80**: 359–64.
- 32 Nasreddine ZS, Saver JL. Pain after thalamic stroke: right diencephalic predominance and clinical features in 180 patients. *Neurology* 1997; **48**: 1196–99.
- 33 Fields HL, Adams JE. Pain after cortical injury relieved by electrical stimulation of the internal capsule. *Brain* 1974; **97**: 169–78.
- 34 Hécaen H. Clinical symptomatology in right and left hemispheric lesions. In: Mountcastle VB, ed. *Interhemispheric relations and cerebral dominance*. Baltimore: Johns Hopkins Press, 1962.
- 35 Ghika SF, van Melle G, Guex P, Bogousslavsky J. Subjective experience and behavior in acute stroke: the Lausanne Emotion in Acute Stroke Study. *Neurology* 1999; **52**: 22–28.
- 36 Starkstein SE, Fedoroff JP, Price TR, Leiguarda R, Robinson RG. Anosognosia in patients with cerebrovascular lesions: a study of causative factors. *Stroke* 1992; **23**: 1446–53.
- 37 Carpenter K, Berti A, Oxbury S, Molyneux AJ, Bisiach E, Oxbury JM. Awareness of and memory for arm weakness during intracarotid sodium amytal testing. *Brain* 1995; **118**: 243–51.
- 38 Rode G, Perenin MT, Honore J, Boisson D. Improvement of the motor deficit of neglect patients through vestibular stimulation: evidence for a motor neglect component. *Cortex* 1998; **34**: 253–61.
- 39 Büttner U, Lang W. The vestibulocortical pathway: neurophysiological and anatomical studies in the monkey. *Prog Brain Res* 1979; **50**: 581–88.
- 40 Frederickson JM, Kornhuber HH, Schwarz DWF. Cortical projections of the vestibular nerve. In: Kornhuber HH, ed. *Handbook of sensory physiology, vol 6, part 1*. Berlin: Springer-Verlag, 1974: 565–82.
- 41 Williamson PD, Engel J Jr, Munari C. Anatomic classification of localization-related epilepsies. In: Engel J Jr, Pedley TA, eds. *Epilepsy: a comprehensive textbook*. Philadelphia: Lippincott-Raven, 1997: 2405–16.

Suture of second-degree perineal tears after childbirth

Sir—Over the past two decades, an unexplained trend has arisen in the midwifery profession towards leaving second-degree perineal tears unsutured.

In a study at Luton and Dunstable Hospital, Luton, UK, 75% of second-degree tears were sutured in 1996, but only 52% in 1998.¹ This change is not supported by research and is thought to be due to several factors. The increased autonomy of midwives in perineal management and a general move towards non-intervention in midwifery could be a factor. In one report, researchers suggest that parturients themselves may be affecting decisions, or that staff shortages might be a factor.

The concern is that there are several potential negative sequelae to non-suturing. There is debate as to whether healing is prolonged, although midwives report that healing is satisfactory when tears are left unsutured.² However, risk of infection of an open wound seems greater than for a sutured wound and, therefore, the potential for increased pain exists; although counter arguments suggest the increased risk of infection and pain from placement of foreign material, such as suture, in the tissues. A major concern also exists for the persistence of a weakened pelvic floor, since second-degree tears, by definition, involve the superficial muscles of the pelvic floor and could involve the deep pelvic floor muscles.

The evidence for the practice of non-suturing is extremely limited. Workers in a small study compared suturing with non-suturing,³ but the study had several limitations, making findings unsuitable to cause a change in practice. The conclusion of a retrospective study that most women were satisfied with how their perineum had healed when left unsutured was also deemed limited.⁴ Researchers, in a large randomised controlled study, showed that there were no apparent disadvantages to leaving perineal wounds unsutured,⁵ but tears involved only the skin layer and not second-degree tears.

Until randomised controlled studies of adequate quality can support non-suture, all second-degree tears should be sutured.

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1 Sandland D. Perineal tears: audit and proposed RCT. *Pract Midwife* 1999; 2: 32.

2 Steen M. The abused perineum. *Br J Midwifery* 1998; 6: 428–29.

3 Head M. Dropping stitches. *Nurs Times* 1993; 89: 64–65.

4 Clement S, Reed B. To stitch or not to stitch: a long term follow up study of women with unsutured perineal tears. *Pract Midwife* 1999; 2: 20–28.

5 Gordon B, Mackrodt C, Fern E, Truesdale A, Ayers S, Grant A. The Ipswich Childbirth Study, 1: a randomised evaluation of two stage postpartum perineal repair leaving the skin unsutured. *Br J Obstet Gynaecol* 105: 435–40.

Dickens: an alternative diagnosis

Sir—I McManus (Dec 22, p 2158)¹ proposes that the novelist Charles Dickens had a right parietal or temporoparietal disorder. I think the symptoms described by McManus suggest an alternative neurological diagnosis.

The nature of Dickens' initial visual symptoms in 1868 are unclear, but his description of the same disorder that recurred in March 1870 leaves little doubt that Dickens was describing a recurrent temporary left homonymous hemianopia, not spatial neglect. Patients with spatial neglect are unaware of their deficit. A homonymous hemianopia localises the disorder to the right occipital cortex, not the temporoparietal area. These episodes were due to transient ischaemic attacks in the right posterior circulation.

In 1868 Dickens also had temporary left-sided motor symptoms and giddiness, which suggest another vascular episode in the right posterior circulation. Unfortunately, 2 years later, Dickens had a fatal stroke, possibly in the same area.

Dickens' left-sided sensory symptoms began in 1865, without a preceding stroke. If the cause was neurological, it is more likely that the symptoms were due to central post-stroke pain arising from a thalamic infarct, the classic site for stroke that produces post-stroke pain of this kind. The lateral thalamus is also supplied by branches of the posterior circulation.

Dickens' denial of his physical complaints has no neurological explanation. Dickens' friend Yates is scathing of Dickens, who ignored his symptoms and continued working; however, it is difficult to see what else he could have done.

The clinical picture is, therefore, more simply and concisely explained by premature atherothromboembolic disease in the posterior circulation, causing recurrent transient ischaemic attacks and, finally, a fatal stroke, perhaps due to hypertension. McManus reports that Dickens had signs of heart disease, possibly precipitated by renal

disease, making it very likely that he had hypertension, and putting him at a high risk of early stroke.

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1 McManus IC. Charles Dickens: a neglected diagnosis. *Lancet* 2001; 358: 2158–61.

Bringing global issues to medical teaching

Sir—Catherine Bateman and colleagues (Nov 3, p 1539)¹ address the necessity for educating medical students about global health issues. However, they neglect a more important perspective—students and physicians must also acquire cross-cultural attitudes, skills, and knowledge that affect directly their clinical decision making.

We agree that violence is an international health issue, that African countries need expensive AIDS drugs, that genome mapping must not be used to produce biological weapons for use against specific ethnic groups, and that physicians in training will benefit from global health knowledge. However, our perspective is that of collaborators at an Israeli-US medical school, in which a compulsory course in international health and medicine is added to the normal US curriculum.²

The course combines international health issues with practical training in cross-cultural communications and clinical clerkships in Africa, Asia, the Middle East, and in under-served communities in the USA. The focus is mainly on the global physician in her traditional role as clinical decision-maker and only secondarily as a contributor to health policy.

This view emphasises both what medicine in developed countries can do for developing countries, and what developing countries can teach developed ones. Attitudes appropriate for working across national boundaries are just as useful for working across cross-cultural boundaries within a particular European or US city. Working in developing areas that lack advanced technology requires honing of clinical skills that will improve clinical decision making anywhere. Learning about the health effects of army violence will affect a physicians' ability to better cope with the developed world's murder epidemic. Learning to use available drugs effectively is a critical skill in the US's wasteful health economy. From this perspective, a physician trained in global health and medicine who never leaves his or her