

required a physician to attend them on their continental travels. Through their close ties with the hamlet of Dalton, and their subsequent medical careers, the two medical men must have built up a close friendship, in spite of their ten-year age difference.

Annandale is but a part of a small county of Dumfriesshire but it has produced a number of well-known physicians amongst whom are Benjamin Bell, James Mounsey, John

Hutton and John Rogerson. In London, Halliday and Beattie were acquainted with Thomas Telford, the eminent civil engineer, also from Dumfriesshire.

Outside Dalton Parish Church stands a memorial to the fallen in the First World War. Amongst the 23 names inscribed on it is that of Brigadier Richard Linton of the Australian Expeditionary Force who was killed at Gallipoli, another far-travelled son of Dalton.

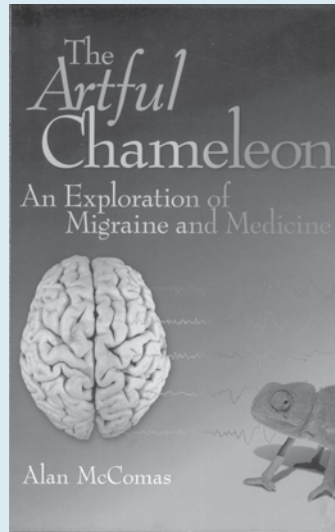
THE ARTFUL CHAMELEON

Alan McComas
ISBN 978 1 894088 70 1
Alkat Neuroscience Inc.; €25.00

Dr Samuel Johnson's provocative 'no man but a blockhead ever wrote except for money' is belied by the author who was motivated to write this book by the refusal of editors of reputable journals (*The Lancet*, *Neurology* etc) to publish his papers on his wife's incapacitating migraine, with highly original observations on a new form of treatment.

McComas' wife had her first attack of vertigo when she was a 21-year-old nurse, misdiagnosed as hysteria, and later as Ménière's disease, despite concomitant headache and visual symptoms. The monthly attacks were very unpleasant but only briefly disabling. Their 1971 move to Ontario was followed by dental pain, diagnosed as trigeminal neuralgia, and after surgery to the nerve she was completely pain free for six months. But then came attacks of incapacitating pain in various sites in the trunk, together with recurrence of the jaw pain and headache.

It was only in 1998, when she was 65, that the diagnosis came to be complicated migraine, when episodic paralysis of one or more limbs was added to the other symptoms; in some of the attacks there was also distortion of the body image. The attacks worsened in 2002 when the paralyses could also affect breathing, requiring minutes of mouth-to-mouth artificial ventilation. By 2004, there were about 50 attacks per month, and she had become quite disabled.



All was then transformed by the application of transcranial magnetic stimulation (TMS), marketed by Adrian Upton, the author's colleague at McMaster. This dramatically reduced the number of attacks from 10–16 per week to 1–4 per week, and relieved individual symptoms when TMS was selectively aimed at different contralateral cortical areas during the attacks, viz: for the head or trunk pains, the vertigo, the limb pareses, the visual hallucinations and distortions of body image.

The empirical cortical map from successful aimed TMS conformed to Wilder Penfield's cortical 'homunculus' which had resulted from direct cortical stimulation in the 1930s. McComas' cortical map changed and extended with time (2004–2006), in keeping with the newer concepts of cortical plasticity.

The muscle jerkings of successful TMS came at lower levels of stimulation than in controls, and suggested to McComas that there was heightened

cortical excitability during migraine attacks. He postulates a greater role for the cortex in pain perception from this unique therapeutic experimentation with TMS on his wife in no fewer than 159 recorded attacks of complicated migraine. The severity of her condition is fortunately quite exceptional, and almost unique. In a postscript the author gives a brief account of one other very disabled sufferer. He flew across Canada to treat her successfully by TMS, and she then did so herself, being a medical scientist.

Transcranial magnetic stimulation seems safe. It was first used experimentally in 1896 by D'Arsonval, and increasingly by physiologists since the 1980s. This book strongly suggests that it now also has a clinical use.¹

The author writes well, with many entertaining diversions, biographically of distinguished medics he has known, autobiographically on both sides of the Atlantic, on university politics, and on nature and culture in Canada. The main impact is, of course, the pathophysiology of migraine, but he also has original observations on consciousness and pain perception.

E Jellinek
Retired Neurologist

REFERENCES

- 1 Clarke BM, Upton AR, Kamath MV, Al-Harbi T, Castellanos CM. Transcranial magnetic stimulation for migraine: clinical effects. *J Headache Pain* 2006; **7**(5):341–6.
- 2 He flew from Ontario to the College library to read this book.

The full version of this review can be found on the College website.