Carphology by A Fo Ben

doi:10.1136/practneurol-2012-000433

Junk DNA yields its secrets

What genetics needed was to get more complicated. Ask any jobbing neurologist—genetics' problem was that it was too self-evident, predictable and there weren't quite enough acronyms or use of jargon. All this exploded 'overnight' in September with the release of data from the Encyclopedia of DNA Elements (ENCODE) project and the discovery that the 98% of the genome which does not directly code for genes is stuffed full of regions that control gene expression from afar—so called enhancing and promoting regions. In fact, 80% of what was rashly called 'junk DNA' is in fact vital: my surprise is that this figure is not higher—nature abhors redundancy. A series of 30 papers draws references from evolutionary biology to herald a new era of genomic understanding.

Nature 2012;**489**:57–74
Nature 2012;**489**:91–100

'Arguably the finest physician that ever lived'

C Miller Fisher passed away in April of this year at the age of 98; he is regarded as the father of modern stroke neurology. He was Canadian and trained at Toronto Medical School before later joining the Navy in 1940. A year later he was serving on a British ship—the Voltaire—sunk by German fire. After 9 h in the water, Dr Fisher was captured by the enemy and interned as a prisoner of war for 3.5 years. After the War, while working under Wilder Penfield, he was inspired to work as a neurologist, later joining the staff at Harvard University and the Massachusetts General. Here he established the first stroke service at a major teaching hospital—where he continued to work for the next 50 years. Amongst his achievements was recognising the importance of atrial fibrillation and internal carotid disease on stroke risk, the importance of aspirin in stroke prophylaxis and the term transient ischaemic attack. 'Arguably in the 20th century, he's the finest physician that ever lived, both as a brilliant clinician, as a caregiver to his patients and as an outstanding academician' Professor J Phillip Kistler.

Int J Stroke 2012;7(6):444–6

Finally—evidence that managers really do think differently

We've all been in meetings where the decisions taken have made us question whether we just think differently to other people. A recent fMRI study aimed to shed light on the neural mechanisms that underlie decision-making in people, particularly focussing on differences between those in managerial roles and those who do not have managerial responsibilities. It appears that, when asked to make frequent decisions, managers showed greater activation in the head of the caudate than non-managers, and were more likely, when asked to choose which they found the most appealing between a 'collectivistic' and 'individualistic' word, they preferentially selected individualistic terms such as 'success', 'performance' and 'challenge' over more collectivistic words such as 'togetherness', 'safety' and 'humanity'.

PLOS One 2012;7(8):e43537

Dead salmon can perceive human emotions

Functional MRI studies are increasingly widespread, and their results so influence us all that even A Fo Ben has been known to comment on them. However, it can be difficult for the non-expert truly to evaluate the quality of studies that can be statistically complex, meaning that spurious studies can often be given more credence than they deserve. To illustrate this point, at a conference in 2009 researchers presented the results of an fMRI experiment in which a mature Atlantic salmon—'not alive at the time of scanning'—was shown human faces with a range of emotions. The salmon was asked to determine what emotion the person was experiencing. Significant activation was demonstrated in localised regions within the salmon's brain. Why? Well either dead salmon are more intelligent than we thought, or, as the authors suggest, fMRI studies that do not fully correct for the number of tests performed when analysing data are highly susceptible to false positive results.

http://prefrontal.org/files/posters/Bennett-Salmon-2009.pdf