

Article for "Neuromythology" section of Practical Neurology

"Organic" and "Non-Organic" – a tale of two turnips.

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Neurologists use the word 'organic' a lot. We like to think we can spot when things are 'organic', or indeed 'non-organic'. But what exactly do we mean?

The Oxford English Dictionary (OED) gives us eight definitions of the word organic. No wonder we get so confused by it. In the biological/medical sense it comes up with "*Of a part of the body: composed of distinct parts or tissues (obs.); of, relating to, or of the nature of an organ or organs. Later (Med.): producing or characterized by structural or other pathological change in an organ or organs (now esp. the brain) (cf. FUNCTIONAL adj. 3b); not psychogenic.*"¹

The chemical definition boils it right down to basics, "*relating to or designating compounds which exist naturally as constituents of living organisms or are formed from such substances (all of which contain carbon and hydrogen).*"

Other meanings include '*Of a fertilizer or manure: produced from natural substances, usually without the addition of chemicals*' and a '*work of art in which the parts seem naturally or necessarily coordinated into the whole*'.

We were disappointed to see the OED lend credence to the idea that the opposite of organic is functional. The opposite of organic is, in fact, non-organic - or if you are chemist, inorganic. The OED is a lot briefer on non-organic which it defines either as '*Not relating to or derived from living matter; not organic (in various senses)*' or as "*Of food, farming, etc.: not produced by, relating to, or involving production by organic methods*".

Since 'non-organic' refers to things unrelated to living matter we could rest our case right now. This is a word that cannot be used to describe conditions suffered by living human beings. As such, it should be consigned to the Neurological "Room 101", along with Hallervorden Spatz disease and Reflex Sympathetic Dystrophy. But, the word limit for 'Neuromythology' is 750 words and we have another 400 to go.

For the sake of argument, let's say we use organic in the other OED sense to refer to something '*characterised by structural or other pathological change in an organ or organs*'. That's useful, isn't it? Certainly, that was the case in the nineteenth century when neurologists first saw the pathology of multiple sclerosis or motor neurone disease. But what about primary generalised epilepsy or migraine - pathological, but not necessarily structural, or at least no more so than, for example, unipolar depression where there is quite substantial evidence for structural changes².

At this point this statement is usually wheeled out, 'there is no change in function without change in structure' – ergo, everyone is barking up the wrong tree. A philosopher might argue that there is no tree or even anyone to bark at it.

So how did we get here? Why do we need a word like 'organic' that encompasses all disorders emerging from living creatures, or indeed their organs? It is of course, another clumsy and pseudoscientific attempt to separate out those functional and psychological disorders that "do not belong", and have been blackballed from the club of legitimate conditions because of the difficulty in establishing their veracity.

Medical students, it seems are more dualistic about the mind and brain than the general public who, when quizzed on the topic, often display a less Cartesian view³. We are guilty in

Neurology of promoting the problem, simply with our very existence, and that of our Psychiatric colleagues down the corridor (or more usually on the other side of town).

But even the most sceptical neurologist, should, when examining their linguistic morals, balk at the word 'organic' and its evil twin 'non-organic'. The pair of them, are, by any argument, bonkers (Figure 1), and deserve their place in the hall of neuromythology.

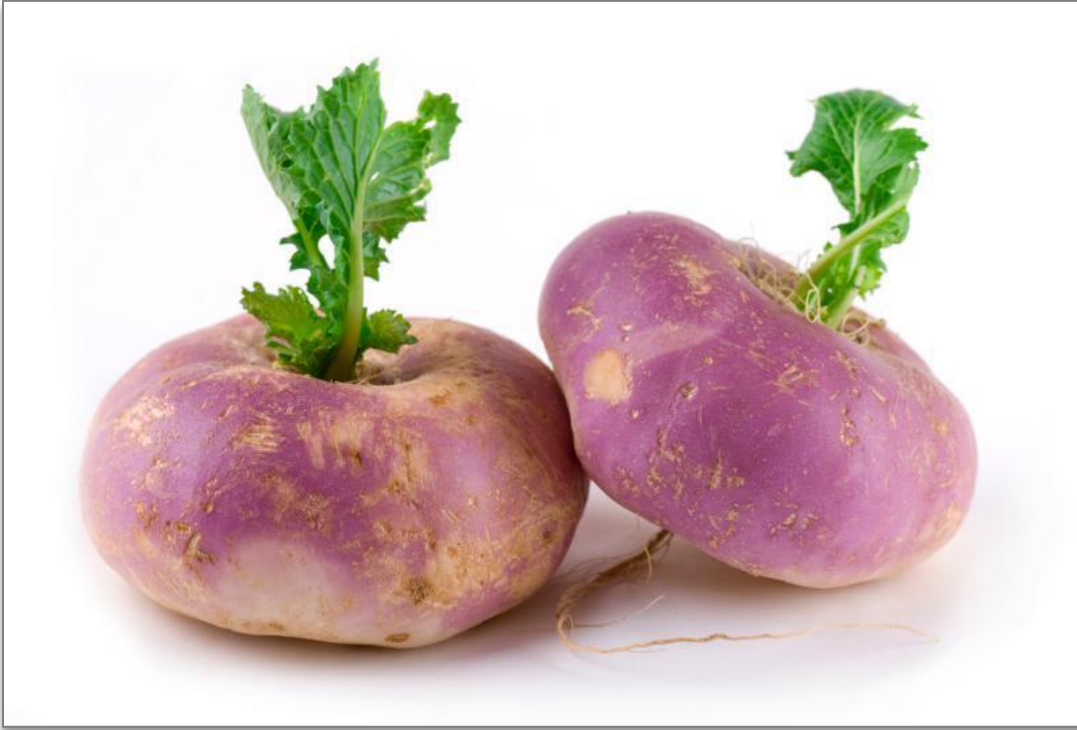


Fig 1. Two organic turnips. A picture of a non-organic turnip was both unavailable and philosophically impossible.

(PN : please note that I have downloaded rights to reproduce the turnip image!)

Conflicts of interest- we used the phrase 'organic disease' in a lot of our epidemiological studies- we shouldn't have.

- 1 Oxford University Press. OED Online. Accessed March 2017;:http://www.oed.com/
- 2 Arnone D, McIntosh AM, Ebmeier KP, *et al.* Magnetic resonance imaging studies in unipolar depression: Systematic review and meta-regression analyses. *Eur. Neuropsychopharmacol.* 2012;**22**:1–16.
- 3 Demertzi A, Liew C, Ledoux D, *et al.* Dualism persists in the science of mind. *Ann N Y Acad Sci* 2009;**1157**:1–9.