

### A. WONDERING: PSYCHOLOGY AND THE RESTLESS & LARGELY UNDISCOVERED BRAIN

Consider the implications of the following observations

- “In the average adult human, the brain represents about 2% of the total body weight yet it accounts for 20% of all the energy consumed, 10 times that predicted by its weight alone. Relative to this very high rate of ongoing energy consumption in the resting state, ***the additional energy consumption associated with changes in brain activity is remarkably small, often less than 5% of the baseline level of activity***” (Raichle, 2015b, p. 2, emphasis added)
- Raichle (2015b) describes the brain as “restless”
- The brain contains approximately 86 billion neurons, 85 billion glial cells, and 100 trillion connections.
- “Despite two centuries of neuroanatomy and the genius of such pioneers as Ramon y Cajal, we are still very unsure of the nature and function of the component parts of the human brain. The situation is worst when it comes to cortical gray matter” (Turner & Geyer, 2014, p. 155)
- “the brain does not have one stable unique functional organization that can be discovered and described, but many dynamically interwoven ones” (Anderson, 2014)
- "Intelligence measures an agent's ability to achieve goals in a wide range of environments. Features such as the ability to learn and adapt, or to understand, are implicit in the above definition as these capacities enable an agent to succeed in a wide range of environments"
  - is a property that an individual agent has as it interacts with its environment or environments
  - is related to the agent's ability to succeed or profit with respect to some goal or objective
  - depends on how able the agent is to adapt to different objectives and environments
 (Legg & Hutter (2007) as cited in Trewavas, 2014, p. 195)
- "there is no 1:1 function:molecule mapping in the brain. Dopamine/serotonin/oxytocin/etc all do lots of complex stuff" (Micah Allen [@neuroscience]. Tweet. Aug 25, 2015, 10:55 am. <https://twitter.com/neuroscience/status/636190151744585728>)

Korbyzski's Three Principles of What Maps Represent

- The map *is not* the territory
- No map represents *all* of its presumed territory, [and]
- Every map is *at least*, whatever else it may claim to map, a map of the map-maker; his/her assumptions, skills, world-view, etc.

(Alfred Korbyzski, 1933/1994, p. xvii, edited from the original).

The Earth in 1810



The Earth in 2015



How do these maps differ?