

Science is based on replacing expired facts and evidences with new ones

Yoshiyasu Takefuji

Jeremy Berg wrote an editorial entitled “Imagine a world without facts” (1). Jeremy Berg emphasizes a role of facts and evidence (1). However, all facts and evidences have their expiration date respectively. The expiration data can be determined by the advent of a new technology or discovery. For example, with the advent of a nanowire technology, we must update or change our common knowledge. The atomic scale all common knowledge about material properties becomes invalid (2). The Ohm’s Law (the resistance of a conductor scales proportional to its length) breaks down (2). Gold is a better conductor than lead by an order of magnitude, for conduction through a single atom, lead beats gold by a factor of three (2). We must know that facts and evidences hold only under certain conditions. In other words, Science is not based on a collection of facts and evidences (not like LEGO blocks), but based on replacing expired facts and evidences with new ones. We must understand which are expired facts and evidences.

References:

1. Jeremy Berg, Imagine a world without facts, *Science* 26 Oct 2018: Vol. 362, Issue 6413, pp. 379
2. Nicolas Agrait et al., Quantum properties of atomic-sized conductors, *Physics Reports* 377 (2003) 81–279