COMMENTARY; The Nitpicking of the Masses vs. the Authority of the Experts

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Uneasily sharing space on the top ledge of my computer browser are two buttons I click almost daily for an information fix: Encyclopaedia Britannica, as old and steadfast as the ligature in its name, and a mercurial upstart called Wikipedia, in which almost anyone anywhere can fiddle with the prose.

It may seem foolish to trust Wikipedia knowing I could jump right in and change the order of the planets or give the electron a positive charge. But with a worldwide web of readers looking over my shoulder, the error would quickly be corrected. Like the swarms of proofreading enzymes that monitor DNA for mutations, some tens of thousands of regular Wikipedians constantly revise and polish the growing repository of information.

Sometimes there are abuses. An uproar last month over a prank article implicating a distinguished journalist in the Kennedy assassinations caused Wikipedia to tighten up the rules a bit. But for the most part, the utopian experiment has been a surprising success.

Wikipedia's rough-edged entries on science are often more detailed and current than the ones in Britannica, which still credits Hwang Woo Suk, the South Korean stem cell researcher accused of fraud, with successfully cloning human embryos. But can I really be sure, as Wikipedia tells me, that Dr. Hwang was born Dec. 15, 1952, when Britannica insists on Dec. 15, 1953? The question is whether to trust an encyclopedia that evolves like an organism or one that was designed like a machine.

A study last month in Nature showed that the decision is far from clear-cut. Calling on experts to compare 42 competing entries, the journal counted an average of four errors per article in Wikipedia -- and three in Britannica. That is not much of a difference, and a look at the details only adds to the anxiety. A fact is surely a fact, but what constitutes an error can be as hard to pin down as a bead of mercury.

A high school student looking for information on Dmitri Mendeleyev (also spelled Mendeleev), the Russian chemist renowned for the periodic table of the elements, would have learned from Wikipedia that he was the 14th child in his family instead of the 13th surviving child of 17 -- what Nature's reviewer, Michael Gordin, a Princeton University science historian, said was one of 19 mistakes in the article.

But it wouldn't have helped to defer to the competition: Dr. Gordin gave Britannica a demerit for describing the chemist simply as the 17th child. It is an imprecision one might easily commit. Dr. Gordin was surprised when I told him, in an e-mail message, that his own book, "A Well-Ordered Thing: Dmitrii Mendeleev and the Shadow of the
Periodic Table," uses the same number. "That's curious," he said. "I believe that is a typographical error in my book. Mendeleyev was the final child, that is certain, and the number the reliable sources have is 13."

These, he said, are in Russian, and they apparently were not consulted by "The Norton History of Chemistry," by William H. Brock, which like Wikipedia says there were 14 children, or "The Development of Modern Chemistry," in which Aaron J. Ihde goes with 17. In his book "Galileo's Finger: The 10 Great Ideas of Science," Peter Atkins, an Oxford University chemist, says that the number, "according to one's source," is 11, 14 or 17.

Wikipedia seems determined to try them all. Scrolling through the various versions of its article -- more than 300 at last count extending back to July 5, 2002 -- one can watch as the number oscillates between 14 and 17, stopping briefly at 15 (with the explanation from an anonymous editor that "a child was recently [sic] discovered to exist") then to 16 before returning to 14 again.

For several minutes on Nov. 10, before the vandalism was quietly corrected, Mendeleyev was "the oldest of five hundred million children," and in October some numskull scrawled at the top of the page, "IM COOL: IM DOING A REPORT ON DMITRI MENDELEEV AND YEA IM COOL AND HES COOL." Three days later the graffiti was swabbed away.

After the Nature report, Wiki's entry, like the others deemed to have flaws, was flagged at the top with a warning label ("This article has been identified as possibly containing errors") and retreated temporarily into the safety of imprecision -- Mendeleyev is "one of many children of Ivan Pavlovich Mendeleyev and Maria Dmitrievna Mendeleyeva (nee Kornilieva)" -- before adopting, in an act of faith, Dr. Gordin's number, 13.

Britannica clings to 17, as it has apparently done since the online article was reproduced from the 15th Edition, first printed in 1974.

Misstating the size of a 19th-century scientist's family is not exactly a howler, but what about the other mistakes Nature enumerated? Some were unambiguous -- Britannica's writing that the theory of the strong nuclear force, called quantum chromodynamics, was formulated in 1977 instead of 1973, or Wikipedia's noting that the deadline for receiving proposals for the Nobel Prize is Feb. 1 instead of Jan. 31. (Again, the Wiki error was quickly fixed.)

But many of the purported blunders seem open to debate. Wikipedia was wrong, one reviewer decided, when it said the embittering agent used to denature ethanol is denatonium, instead of identifying it more precisely as denatonium benzoate. But all a reader had to do was click on the word to call up an entire article on the substance, which noted that it also comes in the form of denatonium saccharide.

Britannica, on the other hand, was taken to task for writing that "Croton (now Crotone, Italy)" was the home of the ancient Greek mathematician Pythagoras and his number-worshiping cult. "The Italian town is Crotone, not Crotone," a reviewer objected. But not so fast.

The name has appeared in history as Crotona and, for that matter, Kroton (when it was part of Greece), but Crotene is the modern name. In an ideal world the Britannica editors might have included these etymological details. But at worst, this is an imperfection, and when you start looking for those there is no end.

Just as forgivable are some of the sins of omission. Should an error really have been scored against Britannica because its entry on Agent Orange does not mention that there were also Agents Purple, Pink and Green? There is always more you can put in an article, and part of the editorial art is deciding what to leave out.

Whatever their shortcomings, neither encyclopedia appears to be as error-prone as one might have inferred from Nature, and if Britannica has an edge in accuracy, Wikipedia seems bound to catch up.

The idea that perfection can be achieved solely through deliberate effort and centralized control has been given the
lie in biology with the success of Darwin and in economics with the failure of Marx.

It seems natural that over time, thousands, then millions of inexpert Wikipedians -- even with an occasional saboteur in their midst -- can produce a better product than a far smaller number of isolated experts ever could.

Meanwhile the competition has some catching up to do. While Wikipedia includes a good, balanced article on the history of Britannica, Britannica has not a word to say about Wikipedia, as it rapidly becomes one of the most significant phenomena on the Net.

Drawing (Drawing by William Duke)