

A case for content

Scientific papers should be judged by their content and not by the journals in which they appear

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The best scientific research is not necessarily published in the most popular mainstream journals, and history has many examples to prove this. In 1986, when J. Georg Bednorz and K. Alex Müller made a breakthrough with their discovery of high temperature superconductivity in a ceramic material, they did not publish their results in the sought-after journals. They chose to publish in a journal that was not very well known: *Zeitschrift für Physik B*. Their discovery was awarded the Nobel prize in 1987.

In many cases, this is not a matter of choice. Lynn Margulis's efforts to publish her influential 1967 paper, "On the origin of mitosing cells", were remarkable: The paper was rejected by 12 journals before being accepted by the *Journal of Theoretical Biology*. Now, it is considered the work that brought to focus the endosymbiotic theory of organelle origins. This is the theory that mitochondria, the power houses of cells, were initially independent free-living cells and they got into a symbiotic relationship with larger cellular beings to form a new organism. Originally proposed by microbiologist Ivan Wallin in the 1920s, the theory needed Margulis's tenacity to gain acceptance.

Personal bias can also nudge a piece of scientific work towards lesser-known journals. The landmark paper of Ronald A. Fisher, "The correlation between relatives on the supposition of Mendelian inheritance", has been so influential that geneticists are celebrating the centenary of its publication this year. It was initially submitted to the Royal Society of London. It was withdrawn following inordinate delay and unfavourable reviews and was finally published in the *Transactions of the Royal Society of Edinburgh*. "The paper laid the foundations of the field of quantitative genetics," says evolutionary biologist Amitabh Joshi of JNCASR, Bengaluru.

Some important work from Russian groups was neglected because the work either never appeared in western journals or appeared only much later in translation. "One example is the work of Vadim Berezinskii on two-dimensional phase transitions, which appeared two years before the work of John M. Kosterlitz and David J. Thouless," says biophysicist Gautam Menon of the Institute of Mathematical Sciences, Chennai. "It was referred to as the KT transition, and both [Kosterlitz and Thouless] were awarded the Nobel prize close to four decades later. By then Berezinskii had died, so could not have received the prize, although the transition is now increasingly referred to as the BKT transition in his honour."

The lesson that these cases underscore is that it is easy to miss important scientific works, if only the name of the journal in which they are published is considered a marker of their consequence. History suggests that it is better to judge papers by their content.