

THE SYMBIOSIS OF ENGINEERING AND SCIENCE

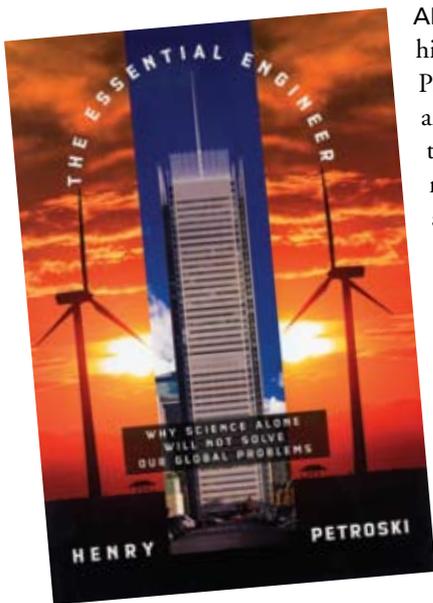
THE ESSENTIAL ENGINEER: WHY SCIENCE ALONE WILL NOT SOLVE OUR GLOBAL PROBLEMS

BY HENRY PETROSKI

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Reviewed by Darrel J. Danyluk, P.Eng., FEC



AN AUTHOR AND civil engineering and history teacher at Duke University, Henry Petroski unleashes a powerful message aimed at a broad audience. Citing cases taken from many sources, including daily newspapers and respected individuals (Einstein, Brunel and others), Petroski stresses that the subjects of science and engineering are not islands.

That said, science is about knowing and engineering is about creating. Science is a shorthand encompassing the many realms of interest into which knowledge builders delve. As Petroski succinctly puts it, “a scientist studies what is.” Yet it is the engineer who takes that knowledge and adapts it to the circumstances of a particular challenge to arrive at unique and innovative

solutions that benefit society. So, in the author’s view, “an engineer creates what never was.”

The author’s 14 chapters are an unemotional justification of the special value of engineers, their role in developing and using physical aspects of nature, and in addressing society’s needs for quality of life. These chapters lead readers through the relationship and distinction between engineering and science.

Over time, society’s needs have changed, thereby creating opportunities for engineers and scientists alike. Petroski weaves the thread that humankind as a whole, and engineers and scientists in particular, must understand and appreciate the symbiotic relationship between science and engineering—that scientists and engineers exist in a complex, interrelated world, and both play a special part in the evolution of our society. This part-

nership develops and implements new solutions, uses new technologies, is driven by economic infrastructure, and its acceptance is governed by societal factors. The evolution of scientific knowledge and engineering know-how has been for the good of society. Scientific knowledge is a tool for engineering, and engineered tools are essential for scientists.

To engineers, the book speaks to pride and, for the wider society, it calls for recognition of the distinction between science and engineering. Ultimately, it calls for respect for both.

This is a sound basis on which to build an understanding of society from a technological perspective. A good read. Σ

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