A part of but apart from politics

Can scientists advise policy-makers without compromising their objectivity?

Nature’s Experts: Science, Politics, and the Environment
by Stephen Bocking
$60, £44.50 (hbk); $24.95, £17.50 (pbk)

Roger Pielke Jr

In this excellent book on environmental science and politics, Stephen Bocking grapples with a problem that he characterizes as a riddle: “How can science be part of the political process yet separate?” Or more specifically: “How can we ensure that scientific research provides the information we need to pursue our environmental values and priorities (whether these relate to exploitation or to protection) without science itself becoming subject to the conflicts and controversies of environmental politics?”

For decades, the riddle posed by Bocking was answered through a widely shared conceptual model about the role of science in society, presented most influentially in Vannevar Bush’s 1945 report to government, Science: The Endless Frontier. The policy advocated by Bush depended on a distinction between basic and applied research, with basic research contributing to a reservoir of knowledge that could be tapped to solve problems and exploit opportunities. Basic research was characterized simply as the quest for knowledge; it was pure. The elegance of the plan is that basic research was also fundamental to societal progress, and hence was part of the political process. Science was both separate from, and yet a part of, politics and decision making. This blueprint created momentum that was ultimately expressed in the creation of the US National Science Foundation. But the Bush report is remembered chiefly for its expression of the axiology and culture of science — it proposed that science should be led by scientists, not politicians — rather than for its ideas for creating institutions.

Bush’s science policy has always had its critics, but only in the past decade or so have their criticisms been accompanied by shifts in science policy. Scholars of science and politics have begun to characterize conceptual models for science policy that move away from this model. An example is provided by Helga Nowotny, chairwoman of the European Research Advisory Board of the European Commission, and her colleagues. She says the old paradigm of scientific discovery “characterized by the hegemony of disciplinary science, with its strong sense of an internal hierarchy between the disciplines and driven by the autonomy of scientists and their host institutions, the universities” is being superseded, but not replaced, by a new paradigm of knowledge production. The new paradigm is “socially distributed, application-oriented, trans-disciplinary and subject to multiple accountabilities”.

Another characterization of the move away from the old Bush model is the late Princeton historian Donald Stokes’s 1997 model Pasteur’s Quadrant, which reflects “use-inspired basic research” — a concept that is oxymoronic in the context of the Bush model. This sort of thinking has led, for example, to the adoption of the National Science Foundation’s second review criteria, which focuses the evaluation of research proposals on societal impacts of research, and to ever more attention to scientific assessments and advisory bodies as important institutions in the policy process.

Scholars of science, technology and society have developed a robust body of knowledge about the role of science in policy and politics. Bocking presents well-informed and cogently present many of the complexities and contradictions of science in policy and politics. Bocking presents well-informed discussions of three cases: natural resources management, global environmental change, and chemicals in the environment. Each chapter is well written and argued but is chock full of detail and allusion that may make them most meaningful to those...
books and arts

already familiar with each case.

Concepts such as ‘credibility’, ‘influence’
and ‘deliberative democracy’ are the focus
of the book’s closing chapters. Although they
are important concepts, these chapters
would have been more valuable if they had
been discussed with the same analytical
breadth and empirical depth of the book’s
first six chapters. But the same critique can be
made of much of the literature on science
and society: strong on diagnosis, less strong
on prescription. It shows that scholars of
science, policy and politics are just like the
experts they study — they have more work to
do in practising what they have learned
about knowledge and action in the changing
context of science policy.

Overall, this is an excellent book, worth
reading by anyone interested in science, poli-
tics and the environment. But it is likely to be
of particular value to environmental scien-
tists who want to understand how and why
the role of science in society is changing.

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Marketing Marie

Obcessive Genius: The Inner
World of Marie Curie
by Barbara Goldsmith
320 pp. £14.99/$23.95

Susan Lindee

The life of Marie Curie was better than fic-
tion. She was brilliant, driven and difficult;
a scientist of the first rank; a mother; a
young widow; a shrewd marketer
of both herself and her discoveries. She won
two Nobel prizes — for her work on radio-
activity and the discovery of radium and
polonium. She died aged 67 as a result of
her cavalier approach to laboratory exposure
to radioactive materials. Her appearance was
also striking, both as a pale, beautiful young
woman and as a stern, intense matriarch.

It is perhaps unsurprising that her life
story has been told and retold in hundreds of
biographies since her death in 1934. Begin-
ing with her daughter Eve’s affecting 1937
study, biographers have sought to illuminate
her tragedies, intellectual style, determina-
tion and achievements, in studies aimed at
scientists, children and the general public,
published in English, French and many other
languages. The flood shows no signs of abat-
ing: since 1995 there have been 36 English-
language biographies entitled, roughly, Marie
Curie. These include Susan Quinn’s Marie
Curie: A Life (Simon & Schuster, 1995), a fast-
paced and well documented portrait of the
Curies and their world, and Marie Curie: A
Biography by historian of science Marilyn
Bailey Ogilvie (Greenwood, 2004).

It would be reasonable to wonder why
anyone would want to write another biogra-
phy of Marie Curie. Her personal papers, still
somewhat radioactive, have been accessible
to researchers for more than a decade, and
the details of her life have been well known in
outline for 60 years. What more could there
possibly be to say?

Yet I must acknowledge that Barbara
Goldsmith has managed to say some inter-
esting things, and they are not the result of
intense data-mining. Rather, she contributes
a slow, methodical curiosity about matters
that other authors have brushed past.

Goldsmith turns her attention to Curie’s
shifting ways of writing about her husband
Pierre in the diary written after he was killed
in a traffic accident, and to the mixed
messages in Pierre and Marie’s discussions of
the commercial applications of their work.
She addresses Marie’s decision to involve her
17-year-old daughter Irene in the dangerous
and gruesome war work of X-raying stricken
soldiers, and she ponders Eve’s estrangement
from her mother. The Curies’ interest in
spiritualism, their attendance at séances and
their involvement with the Society for Psy-
chical Research are explored in the context of
Marie’s reactions to Pierre’s death. The pub-
lic scandal over her affair with the physicist
Paul Langevin is considered primarily in
terms of its depressive effect on Marie, rather
than in sociological terms, which could
illuminate gender relations in early-twentieth-
century France. Goldsmith then considers
the Curies’ incautious handling of radium,
which she attributes to their love of their own
discovery. A final chapter outlines the family’s
enduring legacy and continuing scientific
achievement. In all these discussions, Gold-
smith makes good on her promise to exca-
vate an “inner world”.

As Goldsmith acknowledges, Marie Curie
invented her own life story in the ‘autobio-
ographical notes’ that accompanied her 1929
study of Pierre after his death. That life story,
which has shaped virtually every biography
of her since, emphasized the irrelevance of
the physical body to scientific work. She
described her paltry diet, her cold garret
room and her poverty, using such details to
highlight the legitimacy of her apprentice-
ship to science. Curie said she was strong
enough to overcome the constraints of the

More than a woman: Marie Curie believed she had overcome the physical constraints of the body.