

The New Engineer

Management and

Professional

Responsibility in a

Changing World

by Sharon Beder

Published by Macmillan

Well, I must admit that when asked to review *The New Engineer* by Sharon Beder I wasn't overly keen to sink my teeth into a textbook over the summer holiday. But after reading it I think every engineer should be nailed to chair and made to read it regardless.

Styled as a "resource to help engineering students understand the social dimensions and context of engineering work as well as the social role and responsibilities of the new engineer" the book is divided into three parts. The first part outlines the history of the engineering profession, design methods and philosophy and various views of technology development. Whilst the sections on engineering history are interesting (how many are aware that one of the strongest reasons for our emergence as a profession was based upon a desire for increased social status?) the remainder is somewhat dry. It will come as no surprise to any engineer working in the nineties that the design and implementation of new or improved technologies are initiated and influenced by a wide variety of factors beyond mere physical constraints including: politics; social needs and/or wants; economics; engineering judgement and personalities. However, I don't recall such knowledge being imparted to me when I studied for my Bachelor's degree six years ago and I suspect this may still be the case.

Part Two then takes a rapid shift up a few gears on the readability scale with a case study of the development of Sydney's sewerage system. Starting in the late 1800s and following through to present day Ms Beder presents a thoroughly researched, vivid and compelling account of the social and political dimension surrounding the choices made by engineers past and present. Being a surfer and something of a hairy greenie myself, I was pleased at the rather condemning treatment of ocean outfalls as a suitable option for sewage disposal (although one can already hear the screams from our sanitation engineering faction).

Sharon Beder really gets her teeth into the heavy stuff in Part Three with chapters on technology and the environment, the role of experts, ethics and risk management. I found the section on technology transfer with all its associated demons especially enlightening. She outlines in clear terms how, inevitably, we are faced with the overpowering influence of politics and power, in the type of work we do and the decisions that we make. It also raises more than a few questions about the current content of engineering courses - why have I not heard more about 'appropriate technology'? Surely this is a field of study in its own right and yet it received only a very brief treatment in my engineering course.

The sections on ethics (which includes whistleblowing) and risk are downright fascinating. Have you heard about the engineer who was expelled from the Association of Consulting Engineers (Australia) for his campaign against a proposed sewage outfall in the vicinity of his favourite surfing spot? Or that an engineer who wrote a short letter to his local paper about the use of overhead power lines would be subsequently admonished by IEAust in their magazine for breaching the code of ethics? From a textbook point of view, my only criticism of these last four chapters is that there should be more discussion tables set into the chapters to more fully explore the issues raised.

This book is a must for all engineers working in the nineties and should be a standard prerequisite for all engineering and technology related courses. It gives a balanced, comprehensive and well-written introduction to challenges faced by engineers at the turn of the century and offers a focus for well-informed debate. Ms Beder cries out for change, long overdue, in the way we teach our students, carry out our work and regulate our profession. It's time to move away from the stereotypical engineering boffin, happy solving his technical problems and hiding behind feigned neutrality over controversial social and political issues. I, for one, am very impressed.

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