



“Physics in Canada”
Book Review

“La Physique au Canada”
Critique de livre

Introduction to Modern Climate Change, Andrew E. Dessler, Cambridge University Press, New York, NY, U.S.A. 2012. pp. Xi + 238, ISBN:978-1-107-00189-3 US\$110.00 (hb), 978-0-521-17315-6 US\$50.00 (pb).

This audacious book approaches the complex subject of climate change and the actions that should be taken to avert its possible disastrous consequences by addressing head-on most of the questions commonly raised by those who deny or disbelieve the role of humans. The author assumes that his readers do not believe in science or in the content of scientific texts. The preface provides the *raison d'être* for the author writing this book. He believes that a modern democracy can only function effectively if its citizens are well educated so they can understand complex issues and ensure that good policy decisions are made.

This book is the formalized version of the lecture notes for a first and second year non-science course the author taught at a Texas university. Consequently, the examples used and the data are primarily American in origin. The author has benefited from his lecture room experience and the book is crafted to be effective with his target audience. The nature of the dissent in the US probably has a different focus than in Canada or elsewhere. Nevertheless, the questions he addresses have current universal relevance.

The first chapter explores how people reach conclusions about complex subjects and how they can determine who is an authority on a subject. Unstated is their educational background. The medical analogue is used to discuss second opinions. This leads to a discussion of why nations joined together in 1988 to create the Intergovernmental Panel on Climate Change and the procedure by which the members of its committees are assembled and their reports are written and vetted. The author leads the reader to accept the validity of the predictions of the IPCC committee reports. In doing so, he provides the reader with the most conservative projections of the range of global warming using different fossil fuel emission scenarios and avoids being too alarmist. This enables him to avoid discussing the reasons for these conservative projections. The role of self-interest is explored using the example of companies and their shareholders who deny that human activity, and theirs in particular, do not harm the environment. The powerful role of the scientific method and how scientific theories are created is outlined. The role of intellectual integrity for scientists is evoked to debunk conspiracy theories.

The seven introductory chapters cover the background material necessary to understand climate change and global warming. Each chapter focuses on the essential scientific facts necessary to answer a carefully chosen typical question raised by deniers. The author is clearly a gifted teacher and his approach to this complex subject is simple and logical.

These chapters are followed by seven more concerning the economic, policy and moral issues that arise because of climate change. Here again, the author is straightforward in addressing the various arguments that are advanced. The author's approach is straightforward but insightful and effective because he carefully avoids bias in his examination of the various alternative solutions to these issues. The chapter discussing exponential growth provides the tool for the discussion in a later chapter of the economic cost of mitigation using discount rates and the policies advocated by Stern and Nordhaus to minimize the impact of global warming on our society. His choice of the use of the US housing cost bubble as an example of exponential growth is timely and effective.

This reviewer doubts that many of the disbelievers the author targets will change their minds after taking a course using this text on the subject of human induced climate change and the related societal issues. There were places where this reviewer felt uncomfortable about some of the explanations as they seemed unnecessarily complex but the overall assessment is very positive. This text should be seriously considered as a valuable supplementary text for a non-mathematical course about climate change because it is essential to try and reach this audience. The publisher should be commended for publishing this book as well as a number of other books recently about global warming and its societal consequences. It should be widely read and particularly by those involved in all levels of public governance since it provides the lay reader with an excellent summary of the basic science underlying this complex topic as well as an outline of how sound public policy concerning its serious consequences can be developed and implemented. Physicists should read this book because of the important role they can play in educating the public about this extremely important societal issue.

Harvey A. Buckmaster, P. Phys
Adjunct Professor of Physics
University of Victoria.