



SCIENCE CAREERS: An Unpredictable Future Should Not Stop You from Planning

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ligent citizens but also “responsible” ones. Campbell’s study shows that schools matter. It may not be clear what should and can be done to foster the development of civic norms in the schools. But clearly we must think hard about which aspects of the existing system facilitate or hinder the attainment of that objective.

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SCIENCE CAREERS

An Unpredictable Future Should Not Stop You from Planning

Dmitrii F. Perepichka

Building a successful career in science or in any other endeavor is a long and difficult journey, where a few decisions—right or wrong—can profoundly change your future. Walking into the local bookstore or even a university library, you can find a plethora of career counseling literature, some of which may remind you of wilderness survival recommendations. Many of these titles are intended for business students, salespeople, and financial managers, and it seems next to impossible to find a good, comprehensive book that would help a beginning researcher. This scarcity is not because the scientific environment is inherently less hostile than the business world. In fact, scientists face a competitive environment in which only the fittest persist and are more likely to succeed with a better guide than trial and error.

With *Survival Skills for Scientists*, Federico Rosei and Tudor Johnston (an experimentalist in surface science and a theoretician in plasma physics, respectively, at the University of Quebec’s Institut National de la Recherche Scientifique Énergie, Matériaux, et Télécommunications) aim to fill this information vacuum. The book poses questions about careers that, although not forbidden, graduate students often leave

unmasked. Progressing from undergraduate studies to graduate school, through postdoctoral fellowship to their first real job, only a few young scientists can rely entirely on the advice of a good older friend or a mentor, a person who they would not hesitate to ask and whose opinion they can trust. How do you choose a field, a school, and a professor? Why should you continue on for a postdoc? Where and how do you publish your results? At the end of your training, how do you get the job you desire and how do you secure funding for your research? The authors address these and many concomitant issues through the prism of understanding of a younger professor (Rosei), rectified with the time-tested opinion of his senior colleague (Johnston).

Although largely based on the authors’ personal experiences, the book is amazingly multifaceted. Unlike other similar publications (of which there are only a few), *Survival Skills* is not limited to a single career choice. Instead, it discusses scientific life in academia, industry, and government labs as well as in different parts of the world. The authors should be congratulated for the depth of their analysis of challenges facing the modern researcher. Most of the observations and recommendations of these two

physics professors are quite general and would apply in almost any area of the natural sciences, engineering, and, to a lesser extent, the biomedical sciences. The specific circumstances in the social sciences are very different, although some parts of the book will be universally helpful.

I found the book thought provoking and packed with information, yet amusing and in most places easy to read. The anecdotes in the “Diversion” and Rosei’s collection of “Cautionary Tales” are both humorous and to the point. The book’s main message is that even for an unpredictable future, planning ahead is a better strategy than simply going along with the flow. Although no text can substitute for firsthand experience, an intelligent person should be able to learn from others’ mistakes. Reading and reflecting on the ideas presented in *Survival Skills* early in your career could save a



Providing guidance. Inukshuk, structures made by piling unworked, local stones, offer the Inuit of the Canadian Arctic guidance on the best paths to take and hazards to avoid.

lot of time and frustration. Best of all, you do not actually have to agree with all the specific advice the authors give. (I don’t, and even the authors do not always agree with one another.) But their arguments will certainly help you to work out your own line of behavior.

One criticism: The authors overemphasize their categorization of scientists as alpha (those who like to manage the research) or beta (those who like to do the research). That leaves the impression that the prime goal of any ambitious person should be to ascend the career ladder, as quickly as possible starting to manage research and forgetting “how to turn the knobs.” To the contrary, many recent science pioneers have been leaders at both alpha and beta tasks. Donald Cram (who shared a 1987 Nobel Prize for molecular recognition and supramolecular chemistry) is said to have greeted each new assistant professor in UCLA’s chemistry department by showing his palms and saying: “Look at these hands. That’s how I made my first 20 papers.” Thus, it is not the lack of desire to work in the lab that differentiates a scientific leader from a follower.

The regrettable truth, however, is that in today’s world the manager’s qualities are becoming an ever larger component of a personality of a successful scientist. Knowing this should make you a better player—whether you count yourself as a pragmatist (as perhaps are the authors of this book) or you are more romantically motivated (as I like to think of myself). And that is just one of the many useful lessons *Survival Skills for Scientists* imparts.

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Survival Skills for Scientists

by Federico Rosei and Tudor Johnston

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