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### *Science, Technology, and Society: An Encyclopedia*. Edited by Sal Restivo. (Oxford: Oxford University Press, 2005. 728 p., index. ISBN 0-19-514193-8 \$150)

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Natural Science in the New World: The Descriptive Enterprise

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or Harriet Ritvo may find Derry's relatively limited treatment of 'cultural' issues related to art, aesthetics, and ethics in Part Four to be the weakest section of the book. That said, it is arguably to Derry's credit that *Horses in Society* devotes less attention to this avenue in favour of other, less frequently traveled lines of inquiry. Indeed, on this note it might be argued that the book's title is misleading. For if 'Horses and Society' is too broad a description, 'A Story of Animal Breeding and Marketing Culture' sells this study short. What Derry has produced, I think, is a history of the horse's encounter with modernity, and in particular with the physical or biological transformations that this encounter engendered. In this sense, it complements well the historiography that addresses this period of change.

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***Science, Technology, and Society: An Encyclopedia.* Edited by Sal Restivo.** (Oxford: Oxford University Press, 2005. 728 p., index. ISBN 0-19-514193-8 \$150).

Since the advent of the Internet many of us have likely seen layers of dust accumulate on encyclopaedia sets that probably still adorn our bookshelves. The superb availability of information in our electronically-mediated world, coupled with increasing specialisation within many disciplines, has influenced how scholars access, search, store, and use information. As many of us know, this situation also creates problems with information management and raises important questions about how information can stimulate new insights and theories. How does one assess the quality of information available online and across such a varied set of venues? How do we make sense of dispersed and sometimes contradictory scholarly work without the benefit of context? In recognition of these challenges, several prominent publishers of scholarly books have revived the beast known as an encyclopaedia. Sal Restivo's *Science, Technology and Society: An Encyclopedia* is a prime illustration of how judicious and inspired editorial direction can be valuable by providing context to assist readers in navigating complex and often contentious topics like abortion, acquired immune deficiency syndrome (AIDS), genetic engineering, sex and the body, and women and minorities in the scientific community.

Restivo has collected a set of essays from an internationally recognised group of scholars to reveal the range of science, technology and society

issues and to show how such issues coalesce, shape and co-construct one another. Although not explicitly focused on theory, method or formally constituted science, technology and society (STS) issues, this encyclopaedia includes entries that examine the relationships between science and society, technology and society, and medicine and society.

In the spirit of adding context, several themes can be gleaned from this collection of essays. Several essays highlight the importance of recognising that science is not the only epistemic “game in town.” Since science produces knowledge that is often empirical in nature, questions arise regarding the context in which scientific data is collected and translated. As an approach to making sense of the material world, science has benefited significantly from the so-called “scientific method.” The construction of a logically defensible, and empirically grounded set of hierarchical yet nested approaches to build a corpus of knowledge, has imbued science with a highly polished veneer that some characterise as the epitome of objectivity.

Various essays in the Restivo collection cast doubt on science’s claim to objectivity (and purported neutrality) by exhibiting the failings of scientists, the short-comings of organisations that develop and promote science and technological innovations, and the problems associated with uncritically basing public policy on scientific research without due regard to a host of limitations.

Although history has shown how several scientists have failed in their attempts to manipulate matter, characterise biological systems, or explain the movements of celestial bodies, more often than not the history of science is the history of successful individuals who made a difference outside of the laboratory in some demonstrable way. For example, in an essay on indigenous knowledge, a history of the medicinal value of coca and the derivative cocaine illustrates how indigenous knowledge can be utilised by adherents of a Western approach to science to exploit novel chemical properties found in nature. The use of cocaine by a Viennese ophthalmologist, Karl Koller, as an anaesthetic opened up a portal for wider-scale use (and abuse) of a medicinally valuable yet highly addictive drug. This example from Restivo’s encyclopaedia demonstrates how complex the relationship between different modes of knowledge production can be when Western science colonises new frontiers and emerges with little or no context or cultural experience. The Quichuas of the Andes had already harnessed the power of the coca plant for centuries to manage pain without building a legacy of addiction that flowed from a scientific approach which was focused on isolating active compounds, concentrating them, and synthesising related chemical structures.

Several essays in the Restivo collection also reinforce a well-known adage that science enters society often in the form of technology. Although on many levels science appears to possess qualities that seem mystical to the uninitiated, most of us have experienced directly the fruits of this bounty in the form of technology. This said, a significant disconnect exists in how the public participates in the process of converting science into technology. Generally speaking, science-based curriculum aims to inculcate in students an appreciation for the scientific method by exposing individuals to a range of theories and experiments. Little effort is expended to show how scientific ideas are converted into technological innovations. Paradoxically these social, ethical, legal, and economic dimensions of science-based innovations are rarely discussed in science classes, and many scientists likely feel inadequately prepared to address the criticisms of the work that they perform when science gets translated into technologies that generate controversy (e.g., therapeutic cloning, embryonic stem cells, xenotransplantation).

In an essay on biotechnology, the consequences of failing to address a wide-range of non-scientific concerns become evident. On a global level, small-scale farms are encountering increasingly desperate conditions. Due to low commodity prices, reduction of subsidies domestically but not internationally, increases in the price of fossil fuels, and restructuring of the global food industry, small-scale farms are disappearing rapidly. Many farmers in the developed world have been quick to adopt agricultural innovations stemming from biotechnology to increase profit margins. Since the mid-1990s, farmers in the United States, Canada, and Argentina have switched over to growing large quantities of genetically modified corn, soybean, and canola. These three countries produce a significant amount of the world's supply of food from genetically modified plants. The move from growing crops based on conventional farming techniques to using genetically modified plants has generated new sets of interpersonal and institutional relations that affect the social cohesion of rural communities around the world.

Many science-based concerns about the use of genetically modified crops have emerged in recent years including possible impacts on biodiversity, human health concerns regarding the introduction of new allergens, etc. Most of these concerns focus on the potential impacts that such crops may have on human health and on the environment. By contrast, little discussion on the social impacts of these applications is heard. Restivo's collection provides readers with a well-selected grouping of essays that facilitate a concerted shift towards asking these difficult questions on a wide array of STS issues. In closing, I recommend this encyclopaedia to specialists in the field and to general

readers with an interest in science, technology and medicine. Doctoral students preparing for comprehensive examinations in this field will likely benefit the most from the context created by Sal Restivo across several well-written essays.

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***Le nouveau roman de l'énergie nationale. Analyse des discours promotionnels d'Hydro-Québec de 1964 à 1997.* Par Dominique Perron.** (Calgary : University of Calgary Press, 2006. 240 p., ill., bibl., index. ISBN 1-55238-203-6 44,95 \$)

Professeure au Département d'études québécoises à l'Université de Calgary, Dominique Perron s'intéresse à un aspect crucial et pourtant peu étudié de l'énergie et de l'exploitation des ressources au Québec et au Canada : c'est-à-dire, la question des moyens discursifs mobilisés par les sociétés d'exploitation énergétique dans leurs communications avec le public qu'elles desservent. Au Québec cette question est d'autant plus importante car, comme on le sait, la constitution et le devenir de la société d'État qu'est Hydro-Québec sont intimement liés à l'histoire et l'identité des Québécois, sinon de la nation québécoise elle-même. Dans son livre, *Le Nouveau roman de l'énergie nationale*, Madame Perron a effectué un travail minutieux de recherche et d'analyse des archives d'Hydro-Québec afin de saisir les grandes lignes de son discours promotionnel pendant la seconde moitié du vingtième siècle. Non seulement le corpus choisi s'étend-t-il sur près de quatre décennies, il est également varié : l'étude traite surtout des campagnes publicitaires mais inclut aussi d'autres sources, dont une série télévisée et des discours d'inauguration de barrages. Dès la citation d'ouverture par un ouvrier-électricien d'Hydro-Québec : « Y nous disaient que Manic 5, c'était l'orgueil du Québec. Ben, pour nous autres, c'était surtout une bonne job... » (p.1), on comprend qu'il existe un écart considérable entre la représentation mythique du développement hydroélectrique au Québec et les réalités matérielles qui ont poussé les travailleurs et travailleuses à participer à ce que Hydro-Québec a souvent présenté comme une épopée nationale. À travers son étude, Perron veut souligner la place toujours plus « discursivisée » de l'énergie au Québec et, ce faisant, souligner son caractère éminemment politique, n'en déplaise à ceux qui affirment le contraire. Il s'agit ici de comprendre : « l'Énergie, qui s'en saisira, qui la dispensera et au nom de quelle entité ? » (p.7).