

**FISHER, E. – SELIN, C. – WETMORE, J.M. (eds.): *Yearbook of Nanotechnology in Society. Volume 1: Presenting Futures*, Springer, Berlin/ New York, 2008. 303 p.**

In spite of being opposites, nanotechnophiles and nanotechnophobes coincide in the idea that nanotechnology is “the next industrial revolution” (page v). The data are eloquent: billions of dollars are invested annually in nanotechnology research and development, and trillions of dollars in sales are expected within the next years (pages v, xxi). In this manner, irrespective of being in favor or against nanotechnology, we are at risk of becoming obsolete unless we pay attention to its dimensions, variables and characteristics.

As nanotechnology configures the future, paying attention to its relative discourses means investigating how the future is going to be shaped (page xxii). That is precisely what this volume looks for, focused as it is on the exploration of “the variety of ways social scientists, humanists, and public and private sector research planners engage an emerging technology like nanotechnology” (page vii). This exploration provides us a vision of the future for the next few decades.

*The Yearbook of Nanotechnology in Society* book series could not have a better starting point than this first volume, as thinking about nanotechnology, and “presenting futures,” are both activities of a synonymic character (page xxv).

The book starts with two polarized views on nanotechnology. On the one side, Joseph Kennedy offers an optimistic point of view about the different types of nanotechnologies (pages 5-7), discards the fears about its applications (pages 10-12), and claims that governments should restrict their influence over nanotechnology to the promotion of the discipline since this is understood here as a key element for the social progress (pages 12-19).

On the other side, Foladori and Invernizzi underline the negative impact nanotechnology products have on labor conditions. They base their conclusions upon six findings from the last report of the International Union of Food, Agricultural, Hotel, Restaurant, Catering, Tobacco and Allied Workers’ Association (pages 27-34).

In a similar vein, Georgia Miller, activist from Friends of the Earth, an Australian institution devoted to the protection of nature, formulates some questions related to the risks of nanotechnology. Miller’s analysis offers visions of futures that are non-compatible with those stated by Joseph Kennedy. Nevertheless, Georgia Miller is aware of the unstoppable advance of this field, and that is why hers is a moderate conclusion: she demands a moratorium on the commercialization of nano-products, a moratorium that would last until the problems inherent to nanotechnology are resolved (page 223).

Once the antithetic stances are described, the volume’s aim is clear: the envisioning of future scenarios based on the research about the nanotechnology field. Several papers discuss this issue. Rip and Kulve outline six socio-technical scenarios (pages 55-56 and 63-65) or “useful fictions,” which (a) explain the strategic aims of this new field, and (b) modulate – once they are applied – the socio-technical change. Kosal too creates some scenarios for understanding the future of these technologies. His proposal emphasizes how important nanotechnology is, arguing that in the U.S., where

the 58% of the budget goes to the military, nanotechnological applications attract an outstanding capital investment.

Finally, Rosalyn W. Berne defends the science fiction literature genre as a valid resource for the formulation of explicative scenarios. Berne claims that the future, like science fiction, is the product and the “source of the desires, images, and beliefs” (page 291), that is, the foundation of the wishes upon which the days of tomorrow are built.

Regardless of these views, Ulrich Fiedler does not believe that the nanotechnological future has such a clearly-defined face. The study of this future challenges the human mind as a consequence of internal motives (i.e. the typological complexity of the future) and, external motives (i.e. some groups take advantage of the vagueness related to the images of the future).

Robin Williams argues in chapter 22 that previous efforts of the past to anticipate the future were futile (pages 265-289). He analyzes how unsuccessful and vague the scenarios our predecessors anticipated about our present day were. In spite of that, Fiedler is not as pessimistic as Williams as he encourages analysts to accept the challenge that others could not handle in the past. In fact, the limits of nanotechnology should be imagined, even at risk of being wrong, since the possible consequences and adverse effects have to be assessed before they occur.

The success of nanotechnology depends not only on the lucubrations or prospects of some theorists, but also on how nanotechnologies are commercialized. Consequently, commercial networks have to be convinced in order to find an appropriate niche for a product. The company, *Lux Research*, is devoted to this task. Mark Büniger explains to us that the path of this company, which has been funded since 2004, has a big influence on the sector: their data are demanded internationally, both by researchers and other institutions, who aim to dispense valuable information prior to their millionaire investments. As Büniger underlines, *Lux Research*'s goal is to influence the future, “helping us avoid undesirable futures and make our hopes and dreams real.” (page 89).

Some chapters of this book insist on this goal. The chapter “What drives public acceptance of nanotechnology?” analyzes the lay public's views about nanotechnology, and the factors that determine its acceptance or rejection.

In another chapter, Andreas Lösch invites us on an aesthetic journey through the images that nanotechnology suggests for the day of tomorrow. Both Lösch's chapter and the one titled “Your children, their children” insist on how necessary aesthetic analyses are, since the images of future and nanotechnology can be used to extend some ideas, perceptions and associations of this innovative field.

Whatever the nanotechnological future is, Sutcliffe claims that we are currently experiencing some features of what is coming. The exploration of these features shows uncertainties and pressing hazards (pages 196-199). That is why a code of conduct, which would avoid the excesses of the companies whose main interest lies in obtaining commercial advantages, is necessary (page 199). In this sense, chapter 17 offers us an overview of the *Community Environmental Advisory Commission*'s worldwide regulation on nanoparticles (Berkeley, 2006).

In sum, the 23 chapters of this first volume of *Yearbook of Nanotechnology in Society* try to elucidate what the elusive feature of the essence of nanotechnology is, and

how the next few decades will evolve regarding its development. The nanotechnophile and nanotechnophobe stances that are present in the book make clear that the problems surrounding nanotechnology and its future development are neither prone to a univocal, uniform, nor necessarily a coherent treatment. This situation, far from confusing us, should bring us to a happy conclusion: if nanotechnology is being talked about, it is because nanotechnology is already alive inside our society. This way, the growth of nanotechnology has to be anticipated in order to avoid risks since, at the end, “fate leads the unwilling, and the unwilling drags fate.”

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