

to prosecuting green patent applications, developing green patent portfolios, licensing green technologies, and prosecuting green trademark applications while building green brands. Anyone involved with or interested in IP law and/or clean technology will enjoy Lane's book and find it to be a valuable addition to their library.

La regulation des nanotechnologies.

Clair-obscur normatif,

by Stéphanie Lacour.

Brussels: Larcier, 2010, 279 pp.,

€55.00, Paperback.

*François Thoreau**

A 'clair-obscur' normativity. In French, Historians of art use it when they refer to an abrupt association of zones made out of very dark shadows together with dazzling lights, like da Caravaggio used to paint. It applies successfully to nanotechnologies, which points out to this set of technologies that are being developed at a billionth of a meter. At this scale, matter shows new and unexpected properties, which could potentially lead the way to numerous applications but how do we regulate it? Lacour's edited volume should be of interest to lawyers and regulators interested in this subject. It borrows this formula of the *clair-obscur* to characterize a fluctuating normative environment which surrounds nanotechnologies' development.

The book is divided in three parts. The first part addresses the shifts in the regulatory regime of nanotechnologies, reflecting on the social production of norms, on the underlying philosophies as well as on the invisible, yet tangible, shaping of nanotechnologies' development. The second part goes more concrete and addresses the ways through which these norms are elaborated, debated and even disputed, in modern societies especially through public debates and public participation. Lastly, the third part brings into light actual regulation of nanotechnologies, in the most legal meaning of what a "norm" is. It offers state-of-the-art review of the current state of nanotechnologies' regulation.

Among others, Hervé-Fournereau show the powerful undertaking of nanotechnologies by public authorities, who actively trigger research & development as well as the release of nano-enabled ap-

plications on the market. Consequently, these are imposing themselves at an impressive pace. Just take, as an example, the inventory of nano-enabled consumer products from the *Project on Emerging Nanotechnologies* (PEN), which was recently updated to reach an overall total of more than 1,300 entries. One understands it is therefore needed, let alone urgent, to equip our societies with an accurate regulatory regime which allows regulators to understand and frame all these recent evolutions.

The collective volume comes up with two broad challenges to address. The first one is about "nanotechnologies" as an object which covers a vast array of different realities and technologies. In such a context, numerous questions arise, for instance as for the opportunity of a dedicated regulation (as opposed to adaptations to the current legal frameworks) or how to label or define what exactly are nanotechnologies, nanomaterials, and the like. In her chapter, Desmoulin-Canselier addresses these terminological as well as definitional issues. The stakes are potentially far reaching, in most industrial and commercial sectors as well as in almost every field of law (p. 19). Such diversity is not likely to be fully grasped through the traditional categories of legal thinking.

The second challenge builds on the first: complex socio-technical objects like nanotechnologies are re-defining the very meaning of the legal rule. Law is put under pressure by such developments. The whole book is concerned with the implications of potential major shifts in law making. The meaning of law, the multiplicity of ways it is being constantly redefined and expressed are paid careful scrutiny by most of the authors in the book. Therefore, through a subtle inversion the volume sometimes deals with philosophy of law rather than legal issues of new and emerging technologies. It is here that a "norm" as something broader than its traditional legal meaning becomes relevant. Indeed, this extended notion of a norm pervades the book which is fortunate in the case of nanotechnologies, as the legal rules are being shaped through, and thus appear as a result of, constant interactions among a broad range of social actors and unwritten conventions.

Such a reflection is much welcome. In his chapter, Laurent demonstrates how technical and social categories are being "co-produced", in the case of

* PhD Candidate, Fonds de la Recherche Scientifique (F.R.S.-FNRS) Spiral, University of Liège.

nano-silver. The way certain prejudgments and particular visions about the role of expertise in society are constantly mobilized, and imply a specific vision of society. As a consequence, the understanding of what is the “public” and how it should be involved in the decision-making process changes over time and from one actor to the other. In the same fashion, the whole volume brings into light the mutual and dynamic co-production of the technological and legal orders. On the one hand, nanotechnologies are imposing law to adapt itself to its evolutions and inner complexities. On the other hand the definition of new categories and frameworks shapes in return the technologies themselves. For example, think about what would happen if ever some nanoparticles would be classified as a specific kind of “waste” that would require appropriate treatments. Verdure addresses this plausibility in his chapter indicating that it would have important consequences on relevant industrial sectors and, in return, on the nanomaterials they produce.

Following this line of thinking the edited volume also attempts to unpack the underlying politics of an approach to nanotechnologies by means of regulation. In this sense, some of the authors are being reflexive about the respective roles of the lawyer and the law, with respect to the ambiguities and uncertainties of such technological developments. For instance, Vergès asks himself, at the beginning of his contribution, about what are “the needs for law” (pp. 211–213). Yet further, the Chapter 3 rises a philosophical questioning on how the phenomenon of the norm is performed by our societies. Using Canguilhem, Guchet demonstrates that the norm is not to be taken-as-granted, but is rather constructed, negotiated, disputed. As a result, the very process of law making should be “made reflexive” (pp. 94–97).

Hence, the legal thinking is fair to the very complexity of the matter at stake and goes deep into the philosophical reasoning.

Even though this exercise proves fruitful with respect to law making processes, one could regret at some point that it is not always as ambitious when it comes to the buzzword “nanotechnologies”. Most authors underline how diverse and complex nanotechnologies are, but nonetheless treat it as a black box. This term could have been a little more unpacked and problematized, in order to locate precisely what are “nanotechnologies” about, and possibly somehow deflate the big deal about them. For example, it is now shown in the literature that the importance of “nanotechnologies” sometimes tends to be over-emphasized¹, for instance when it is used by relevant actors in order for them to attract funding. Therefore, it is not always easy, nor possible, to distinguish what exactly are nanotechnologies about, especially when the name is used to re-qualify former works and thus covers old and already existing technological developments. This question is being raised with much precision when it comes to the regulatory regime but not systematically about the object “nanotechnologies” *per se*.

It does not matter much to an edited volume which proves rich and textured, and suggests constant round trips from legal to technological thinking far beyond mere technical legalities. In a sense, it is logical if one considers the very specificity of nanotechnologies as platform or enabling set of technologies which makes them inherently multidisciplinary. Here, sociologists and philosophers are most welcome to join the legal reflections. Numerous challenges are being raised and the volume edited by Lacour undertakes these, reaching beyond the classical French understanding of what law is and how it is being done. Therefore, the book does not overcome the deep shadows raised by nanotechnologies’ development. On the contrary, it contrasts them by shedding a bright light on a series of crucial stakes which are turning society as well as legal categories upside down. It makes emergent issues actual and encourages the reader to question further the regulation of nanotechnologies.

1 David M. Berube, *Nano-Hype. The Truth Behind the Nanotechnology Buzz* (New-York: Prometheus Books, 2005); Geoffrey Hunt and Michael Meta (eds), *Nanotechnology: Risk, Ethics and Law* (London: Earthscan, 2006); Joscha Wullweber, “Nanotechnology – An Empty Signifier à venir? A Delineation of a Techno-socio-economical Innovation Strategy”, in 4(1) *Science, Technology and Innovation Studies* (2008), pp. 27–45.