

Book Review

Intellectual Property Rights and the Life Sciences Industries: A Twentieth Century History.

Graham Dutfield

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Intellectual property law, once the privileged “scientific” account of property, vested with the natural and moral justifications ordinarily attending arguments of property rights, is being increasingly challenged not only by legal academics and practitioners, but also by those from non-legal backgrounds and from civil society. As such, the processes and development of the law have been made subject to heightened public debate, particularly in the areas of access to medicine and economic development. This critical and cultural phenomenon has been enriched by the recent publication of Graham Dutfield’s methodical historical analysis.

In the context of current developments towards stricter patent protection and the international harmonisation of rights and procedures, as well as ongoing controversies regarding access to medicines, Dutfield’s work, *Intellectual Property Rights and the Life Sciences Industries: A Twentieth Century History*, is particularly welcome. Dutfield’s aim is to understand the varied developments in the life science industries,¹ in the context of the globalisation of those industries, the protection of intellectual assets through patents, and the mutual implications for the industries and the development of patent law. The work provides a comprehensive and critical history of the international patent system and life science industries and, in doing so, a valuable critical context in which to consider international developments in patent law and the implications for public health, traditional knowledge, and development. The book is concerned throughout with the tension between, on the one hand, natural rights justifications for intellectual property (IP), and the perceived commercial and social reasons for securing limited exclusive rights, and on the other, conflict and interference with forms of knowledge use and development other than the dominant western model of innovation and commodification, which provides the basis for IP models.

The interdisciplinary analysis is of particular value to this area of legal research. In the introduction, Dutfield ensures the accessibility of the text for readers other than IP lawyers and academics, giving a concise introduction to the basic characteristics and key procedural elements of the main categories of IP, namely patents, copyright, and trade marks. A highly readable account of the early history of patent law is an enjoyable preparation for the thorough historical and critical analysis to follow. Historical readings of IP are becoming increasingly useful and crucial to considerations of the cultural particularities of its development, as well as understanding the impetus for changes that have occurred together with the means by

¹ Dutfield defines the life science industries to mean “industries which specialize in elucidating, synthesizing, manipulating and commercially exploiting the molecular properties of microorganisms, plants, animals – including humans – and other organic raw materials.” Page 7.

which to engage critically with policy concerns and the socio-economic implications of those developments.

In introducing the key factors contributing towards the development of the modern forms of the industries and of contemporary patent law, Dutfield notes three pivotal historical moments: the emergence of the first corporate research laboratories and the move from independent and entrepreneurial invention to collaborative research and development; the increasingly significant relationship between microbiological research and the synthetic dyestuff industry, towards the modern pharmaceutical industry; and the ancestral links between modern global pharmaceutical corporations and nineteenth-century European synthetic dyestuff companies. The fundamental question is the kind of inter-dependence and influence that might characterise the life science industries and IP rights. How critical have stronger IP rights been to the transnational flows of these industries, and how influential have these increasingly powerful industries been upon the development of modern patent law? This characterisation of this relationship between IP protection, innovation, and the globalisation of industry clarifies the effect of IP on technological advancement in developing countries and produces insight into relevant protection for developing countries.

Importantly, Dutfield explains, plant breeding industries are not discrete sectors of technology, but have developed inter-relationships with biotechnology and pharmaceutical interests, particularly in the context of medicinal qualities, agrochemicals, and seed development. These developments are carefully traced in the text, thus producing a much needed analysis of a controversial area of IP rights that is often neglected in analyses restricted to mainstream patent rights. Dutfield in fact describes the text as a history of the relationship between these phenomena, namely between the development and globalisation of IP (patents and plant breeders rights (PBR)), and the simultaneous expansion and development of the life science industries.

The important critical framework for the work is set out in Chapters 1 and 2. In Chapter 1, Dutfield characterises the relationship between industrial might and the ability to restrict flows of information, commodified and organised by IP systems. Describing innovation and creativity as playing pivotal roles in competition and economic performance, he identifies information and communication technologies as perhaps the most significant. While the technologies make the “risk” to controlled flows of information more significant as copying becomes easier and cheaper, IP laws become increasingly important to guard against this.

Dutfield notes the concentration of ownership in the life science industries, resulting in a consolidation of IP ownership, particularly patents, and control over the dynamics of the market largely located in a small number of pharmaceutical corporations, with obvious implications for development and access. IP regimes regularly respond to technological advances with a broadening of criteria for protection and the limiting or elimination of exceptions, the creation of new rights (including PBR), accompanied by the goal of evermore standardised features for the international IP system. As Dutfield explains throughout, the historical foundations of IP law, and the developments described in this chapter, largely originate from Europe and the United States. Thus, the development towards internationally harmonised standards of protection aspires ultimately to bind national IP regimes throughout the world to these Euro-American perspectives. Regarding the law’s regular response to new

technologies and advances Dutfield is critical, and suggests that the weakening of rights might be more appropriate in certain cases (with changes to lifetimes of products, decreases in research and development costs, and so on), particularly where protection becomes increasingly anti-competitive and prevents market entry by new competitors (providing the example of the patenting of genes and gene fragments). In particular, he questions the ready association of strong IP protection with economic development, suggesting that drawing this relationship can be nothing more than speculation. Of particular interest in this chapter is Dutfield's account of what he describes as the "propaganda war" between civil society organisations, academics, and industry, providing a balanced and useful overview of the key approaches in the academic literature.

Chapter 2 reviews dominant theories in regulation, and draws interesting relationships between corporate and national interests, noting the particular implications of this when the law attempts to "pursue" new technology without fully conceptualising and addressing the specific impact of that technology or the regulation necessary. Following earlier discussion, Dutfield examines the extent to which the patent and PBR systems are public policy institutions, responding to the public interest, as distinct from understanding the technology. Nevertheless, it raises some concerns to polarise the public interest and the technology in this way, denying the public rationality and reason when it comes to influencing public policy. However, Dutfield is careful to note that the greater issues are raised by those proposing to represent the public interest, often the powerful corporate groups, and perhaps the answer is broader public engagement on these issues.

Adopting what he describes as the new institutionalism approach (the analysis of economic regulation emphasising the role of institutions in the environments that influence the actions of organizations, as well as the eventual legitimisation of the culture of those organizations), Dutfield examines the common public goods justifications for IP rights. He challenges the notion that IP is the only means by which to enhance a particular society's capacity to generate such information goods. Studies of this justificatory approach are examined for their criticism of public goods models, and problematised as simplistic in their assumption of innovation as a discrete and independent commodity. Furthermore, Dutfield raises concerns that the "social contract" of disclosure in return for temporary monopolies may be compromised or defeated by strategic drafting. The need to find a balance between achieving adequate protection and facilitating follow-on innovation is complicated when considering that the way in which protection is achieved is through the restriction of use, and therefore the potential restriction of incremental innovation. This balancing exercise, which Dutfield describes as inherently political, will not achieve internationally uniform results; rather, it will and must vary between countries. In particular, adequate transfer of and access to technology for those countries in the process of developing capacity in technology, he argues, may indeed be more important and effective means than stronger IP rights.

Drawing upon economic theory and the concept of regulatory capture by industry, Dutfield delivers a penetrating reading of the dominant models proposed and moves beyond earlier economic analyses, when he resists a simplistic opposition between the public and private interests. He retains regulatory capture as a useful concept in the IP context, but identifies significant flaws with the model. In particular, from the point of view of public choice arguments, he is especially critical of its polarisation of the

public and government, and its emphasis on conservative premises of individualism and of humans as “self-interested rational utility maximizers.”

Institutionalism receives the most comprehensive treatment by Dutfield, with a thorough history of the concept and its development in economic theory, towards treating the patent and PBR systems as regulatory institutions. In particular, in its departure from public interest models of uninformed and disempowered publics, institutionalism presents a much more effective critical model for the institution of (intellectual) property rights. Furthermore, rather than justifying property rights as *a priori* or natural rights, new institutionalism understands such rights to be granted by the state, and to be therefore arbitrary, inconstant, variable, and revocable. While knowledge is not finite and non-renewable, Dutfield argues that boundaries created by IP may nevertheless restrict and interfere with the legitimate rights, interests, and freedoms of others. This is especially true in view of the enormous expense required to access and maintain IP rights, potentially rendering IP protection unavailable to many groups. This is of particular relevance to current discussions towards traditional knowledge protection against bio-piracy and misappropriation, where the creation of economic rights will be meaningless if enforcement is unrealistic for the traditional and Indigenous groups involved. Similarly, the scope of patentable subject matter to include living things may be offensive to certain groups for various reasons, including religion, culture, and animal welfare. Furthermore, IP rights affect not only the right holders but also the non-right holders, with a duty imposed upon all individuals apart from the right holder to observe the rights granted, which has obvious implications for public health and access to medicines. New institutionalism highlights the potential for mobilisation of interest groups lobbying for stronger IP rights, such as the “patent community,”² and Dutfield identifies the key strategies, including arguments of self-evidence, threats, and the rhetoric of binary logic where IP rights are linked with positive, rational ideas, and all negative associations are resisted, denied, or ignored.

Setting the theoretical framework for the discussion, Dutfield moves onto a history of multilateral responses to patent law in Chapter 3, with a methodical account of the historical differences in patent law (tracing links to economic development), historical exceptions, and the free trade/protectionism debate. Notably, Dutfield identifies rhetorical strategies in the early conflicts over patent law application and harmonisation, and notes the way in which the reception of the impact of regulation in this area was strongly dependent upon the language used. This recalls his earlier discussions of the “propaganda war,” and the privileged position of intellectual property expertise.

The discussion of the representation of property rights as natural rights and the equation of private property rights with freedom is particularly critical at this historical juncture in the debate, as Dutfield notes that this was not a universal perspective by the twentieth century. Indeed, his account of the development of these approaches provides key insight into current debates over freedom, property, and innovation. Dutfield traces the changes through five key issues: the changing balance between instrumentalism and proprietarianism; the patenting of life forms, living material, and natural substances (in particular, DNA); compulsory licensing; exceptions; and the relationship between patents, free trade, and protectionism. In this

² Drahos P, “Biotechnology patents, markets and morality,” *European Intellectual Property Review*, 21(9) 1999: 441-9.

way, Dutfield charts a particularly complicated history of the development of intellectual property law and international harmonisation of patent law, and successfully navigates the reader through his comprehensive historiographical analysis.

In Chapters 4, 5, and 6, Dutfield examines the development of patent law and the life science industries according to the particular technological or industrial emphases: namely, the dyestuff industry (4), pharmaceuticals (5), and biotechnology, genomics, and the new life sciences (6). In this way, he develops a critical account of the historical development from the originally lucrative chemical and synthetic dyestuff industries towards the new biotechnologies of today. These chapters investigate the evolution of the modern life science industries, the changes towards inherently multidisciplinary approaches, and the corporatisation of scientific innovation through increased collaboration between science and business, making clear the relationship between patent law, the technologies, and their mutual development. These chapters collect an enormous amount of critical historical material, together with valuable technical detail, resulting in a particularly insightful documentation and analysis of these industries and the importance of patent law to the character of their development.

Chapter 7 provides a detailed analysis of the particular concerns raised by plant breeding, the seed industry, and PBR. As well as the re-definition of intellectual property protection in this area, the controversies raised by plant breeding genetics, scientific intervention, and traditional perspectives upon agriculture are considered. In particular, the historical translation of the agricultural industry from the emphasis on the farmer and selection, to industry and corporatisation, is examined in detail. The historical suggestion of chance, through the selection of seeds, as distinct from physical and technical intervention is borne out in the current dynamics of the industry, and illustrated well through the example of the nursery industry. Well before the seed industry, the nursery trade associations achieved IP protection, largely attributed to their political activity, coordination, and to the distinct and commercial nature of their intervention (the production of identical plants). This recalls earlier discussions of the justificatory model of property rights, where innovation is understood, recognised, and indeed registered by the intellectual property system, by virtue of its creation of a simplistic and “independent” object. As Dutfield’s account shows, plant varieties, on the other hand, were historically considered to be almost random discoveries. The corporatisation of the industry leads Dutfield to ask whether the PBR system is being rendered obsolete. Indeed, the distinction he identifies, between the plant breeders and farmers, and the preference for UPOV, and corporations and lawyers, with a preference for the patent system, echoes the history in the beginning of the chapter, and the movement from farmer (“on the farm”) to corporations.

In Chapter 8, Dutfield returns to the significance of the inclusion of IP rights on the international trade agenda, set out in the introductory sections of the work. He examines the history behind the negotiations towards the Agreement on Trade-Related Aspects of Intellectual Property (TRIPS), and attributes the ultimate agreement of developing countries to the “net gain” of the World Trade Organization (WTO) package, despite the “loss” created by TRIPS. Importantly, having considered in detail the development of the technologies, the motivations for innovation, and the institutional critique of intellectual property law, it is now clear that this international standardisation of intellectual property standards through TRIPS is not an inevitability

of the technology, as Dutfield explains. Furthermore, the impact on counterfeit goods and free-riding, platforms on which interest groups lobbied so strongly during the negotiations, have not been sufficiently evident.

As Dutfield explains in the penultimate chapter, IP rights have trade implications whether interpreted in the context of liberalisation or protectionism. Furthermore, the act of granting those rights can no longer be accepted as “natural” or given, but must be justified, particularly given the increasing cooperation of and consistent in the perspectives of corporations and the patent community. In particular, Dutfield argues, increasingly IP systems are justified as performing public policy functions, but the historical analysis provided in this work compromises the ongoing assumption of this role and politicises the development of regulatory measures. Indeed, we have been shown that simplistic and uniform representations of this area of the law are disingenuous. While the current system’s efficacy for promoting economic advancement in developing countries is in doubt, the complex inter-relationship of industry, technology, policy, and the law presented in this work also brings into question whether it is the best for the industrialised as well.

Recalling earlier discussions of IP law as presenting the objective, rational side, Dutfield suggests that to oppose IP rights is interpreted as a reactionary opposition to innovation. To speak out against IP is to speak out (anti-socially) against the knowledge-based economy. Nevertheless, Dutfield identifies and describes in detail a strong “backlash” that has broadened the debate beyond the “respectable” boundaries of IP law. IP has become a “multidisciplinary” industry in itself, as it were, with connections to biodiversity, food and agricultural security, and to the rights of Indigenous and traditional peoples. Unfortunately, as Dutfield identifies, the proponents of stronger IP rights are refining supplementary strategies, through bilateral agreements and harmonisation. Towards the future, the powerful life science industries will be among the greatest forces of change, and recipients of the benefits.

The final chapter reviews an interesting proposition, that of the life science industries in a patent-free world. Would the industries themselves have developed as they are today, without the cooperation of the patent system? As a final anatomisation of the relationship between corporatisation, technological development, and economic policy, this is an insightful exposition upon this question.

Intellectual Property Rights and the Life Science Industries is an important and timely contextualisation of the debates, a lucid distillation of the issues, and a thorough exposition upon the technological, economic, and ideological motivations for the industries and for the debates themselves. It would make an engaging text for postgraduate programmes in these areas, and an essential edition to any library concerned with intellectual property. Graham Dutfield has produced not only a comprehensive historical analysis, scholarly critique, and technical narration of the industries, but also a thoroughly enjoyable exploration of an area of critical global importance.

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