

SCIENCE AND THE LAW

Grappling with the Gulf

Dov Greenbaum¹ and Mark Gerstein²

We expect intellectual property attorneys to regularly confront scientific matters, and policy-makers (who often have a legal education) to incorporate complex technical issues into their decisions. Surprisingly though, general practice lawyers also increasingly engage science on many levels: they may need to understand the science underlying a contentious patent litigation, identify an expert witness for a criminal defense, prepare to sue a dentist for malpractice, mull over how to retrieve deleted e-mails for a trial, confirm the alleged science in a toxic tort case, or value a company's intellectual property portfolio in preparation for a merger. With less than 10% of all lawyers having an undergraduate or graduate degree in science (1), these can be daunting tasks for the majority of attorneys.

Science for Lawyers, edited by lawyer and psychologist Eric Drogin, offers a useful starting place for these and other situations that result from the collision of science, technology, and law. Written to be easily understood by readers who lack even a rudimentary understanding of science, the volume is intended to help lawyers "absorb a basic working knowledge of a particular applied scientific discipline."

The 13 chapters are designed "to reacquaint counsel ... with dimly recalled undergraduate survey topics." To this end, the contributors present their respective scientific fields in a variety of ways.

Some chapters, like the one on dentistry, speak mostly to the accreditation process and the division of subspecialties. Others, like those on genetics or statistics, present the basic fundamentals of the science, accompanied by case studies that show the interaction of the field with the law. The genetics chapter, for instance, starts with an overview of DNA and then progresses to more complicated issues surrounding genetic counseling. The

chapters on computer forensics and ballistics provide a less theoretical and more practical overview of their respective specialties, equipping lawyers with actual details that they may encounter. The chapter on psychology seems to combine all of these aspects, offering the reader an overview, a discussion of the fundamental science, and some practical applications relevant to lawyers.

Still, a concern in any broad survey of current technical topics is that parts will rapidly become obsolete. This is particularly the case for the book's sections with a practical bent. For example, we envision future chapters on computer forensics to be substantially differ-



ent given that computing is shifting away from storing files locally on an individual personal computer to saving information in centralized data centers in distributed "cloud computing" (2).

Overall, the contributors are far from agreeing on the types of information that lawyers need or the level at which the necessary technical knowledge should be presented. This reflects the currently apprehensive interface between science and law. The book's varied presentation accurately depicts the wide gulf between them and the many different perspectives on how to bridge it.

Fundamentally, the gulf stems from scientists and lawyers having very different mindsets with which they view the world—a manifestation of the societal divide epitomized in C. P. Snow's "two cultures." We might concretize this vague concept of different mindsets through a quick look at three distinctive aspects

of communicative writing in each profession.

Jargon: From early on, scientists are typically channeled into narrow disciplines that have specialized terminology. Research papers are often accessible only to a few initiates of the subfield, which creates a strong linguistic barrier to bridging the gulf with lawyers. Law students, in contrast, are urged to be generalists and to use a "universal" legal vocabulary—although, in practice, law has its own, albeit not as daunting, jargon.

Time scale: In scientific writing, there is a premium placed on being right and being accurate as opposed to producing an answer quickly. Granted there are races to discoveries, but research continues until it meets the required standards of rigor. In contrast, law toils mostly under tight, unsympathetic deadlines, providing the best advocacy it can within the limitations of resources and time. If you are late, you are useless or irrelevant: justice delayed is justice denied.

The story: Most scientific writing stems from the desire to explain novel concepts or new experimental observations; it endeavors to describe universal truths that are independent of context. Fundamentally, these efforts use language to transform complex ideas, visual observations, and mathematical concepts into textual representations. Papers are often built around figures and tables, with the exact wording only a secondary consideration. In contrast, legal writing uses only the known facts—as established by the relevant burdens of proof—in analyses; no new factual discoveries lurk in their pages. To the lay observer, it often seems that the attorney's goal is simply to construct and transmit a persuasive narrative, within a social context, and that the exact rendition of the facts and observations may be secondary to the way those facts fit the requisite precedential case law and the goals of justice.

Given these points, one can begin to understand the root of many disagreements: lawyers may perceive scientists as unable to see the bigger picture, whereas scientists may unfairly view attorneys as willing to bend the truth for an alternative good. In this context, Drogin's volume makes an ambitious and important step toward bridging the gap between law and science.

Science for Lawyers

Eric York Drogin, Ed.

Section of Science and Technology Law, American Bar Association, Chicago, 2008. 364 pp. Paper, \$129.95. ISBN 9781590319260.

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10.1126/science.1167955

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Downloaded from www.sciencemag.org on July 6, 2009