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Book Review

The Laws of Spaceflight: A Guidebook for New Space Lawyers.

By Matthew J. Kleiman, Jenifer K. Lamie, & Maria-Vittoria “Giugi” Carminati.

Chicago, IL: American Bar Association, Section of Science & Technology Law, 2012.

Pp. xxi, 385. \$149.95 paper.

Reviewed by Glenn Harlan Reynolds*

Back in 1989, the *New York Times* published a feature story on the growth of space law.¹ The accompanying photo showed the former general counsel of NASA Neil Hosenball, attorney Dennis Ahearn, and me sitting at a conference table that had a few empty chairs. In that year, one could have filled those empty chairs with space lawyers who would have represented the majority of the attorneys in America who actually billed clients for work relating to space.

That same year, U.C. Berkeley School of Law Professor Robert P. Merges and I published a textbook on space law.² The book was intended as an

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1. Lis Wiehl, *Space Law: Anticipating Conflict in New Frontier*, N.Y. TIMES, Mar. 24, 1989, at B6.

2. GLENN H. REYNOLDS & ROBERT P. MERGES, *OUTER SPACE: PROBLEMS OF LAW AND POLICY* (1989).

introduction to space law for law students, interested practitioners, and industry professionals. That book did pretty well, and went into a second edition.³ But when the twenty-first century rolled around, we never seemed to find time to update the book again. My interests had shifted more thoroughly into the areas of constitutional law and other technology-related subjects, while my co-author was focusing on intellectual property, and had numerous other (and, no doubt, more lucrative) casebooks to maintain in that field. Nonetheless, we occasionally felt guilty that we were not updating our book.

Happily, that guilt can now come to an end. With the publication of *The Laws of Spaceflight*, the niche has been filled again, and ably. The change in the field since 1989 is encapsulated in this fact: the introduction to *The Laws of Spaceflight* is written not by an academic, or a science fiction writer, but by Marc Holzapfel, the legal director for Virgin Galactic—a company that is already building spacecraft and booking space tourism flights.⁴

For many decades, interest in space law outran space activity itself. In 1951, John C. Cooper published a pioneering article *High Altitude Flight and National Sovereignty*, which addressed the questions of how far upward national territory extended and whether it barred satellite overflight,⁵ years before *Sputnik*. The Outer Space Treaty of 1967 defined nations' rights to the Moon and other celestial bodies before anyone had traveled beyond Low Earth Orbit.⁶ And enthusiasts (including me) were writing articles about commercial space activity in the 1980s, when, aside from communications satellites, such activity barely even existed. Things are different now, and *The Laws of Spaceflight* is both evidence of—and a response to—how things have changed.

Today, numerous private companies are planning, and in some cases already undertaking, missions ranging from private moon flights⁷ to orbital human flights⁸ to space hotels.⁹ There is even talk of privately funded asteroid mining.¹⁰ All of these activities raise legal questions that go well beyond those present in the eras of Apollo and the space shuttle. Furthermore, as the amount

3. GLENN H. REYNOLDS & ROBERT P. MERGES, *OUTER SPACE: PROBLEMS OF LAW AND POLICY* (2d ed. 1998).

4. See *Virgin Galactic: Commercial Trips to Space by 2014*, BBC (Dec. 11, 2012), <http://www.bbc.co.uk/news/science-environment-20675521>.

5. John C. Cooper, *High Altitude Flight and National Sovereignty*, 4 INT'L L.Q. 411 (1951).

6. Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies, Jan. 27, 1967, 18 U.S.T. 2410, 610 U.N.T.S. 205.

7. Michael Winter, *Private Firm Plans Trips to Moon by 2020 -- for \$1.5B*, USA TODAY (Dec. 6, 2012), <http://www.usatoday.com/story/tech/sciencefair/2012/12/06/moon-private-missions-golden-spike-billion-dollars/1752287>.

8. *Dragon Overview*, SPACEX, <http://www.spacex.com/dragon.php> (last visited Mar. 12, 2013).

9. W.J. Hennigan, *Agreement Lays Groundwork for Private Missions to Space Hotel*, L.A. TIMES (May 10, 2012), <http://articles.latimes.com/2012/may/10/business/la-fi-mo-spacex-bigelow-space-hotel-20120510>.

10. Adam Mann, *Tech Billionaires Plan Audacious Mission to Mine Asteroids*, WIRED (Apr. 23, 2012), <http://www.wired.com/wiredscience/2012/04/planetary-resources-asteroid-mining>.

of money involved in space law escalates, so inevitably (and for some of us, happily) will the involvement of lawyers. For those lawyers, *The Laws of Spaceflight* will prove an excellent introduction.

The text begins with a brief overview—well-crafted for lawyers and others with limited technical backgrounds—of the physics of spaceflight, the workings of rockets and satellites, the dangers and hazards of the outer space environment, and the various uses of outer space, ranging from telecommunications to the increasingly popular field of space tourism. This is an excellent approach. As someone who has taught space law repeatedly, I can attest that while some lawyers and law students possess a great deal of technical knowledge, others, despite having an interest in space law, do not really understand what a geosynchronous orbit is or why slots thereon are necessarily limited resources. Many also fail to realize the extent to which spacecraft are limited in their ability to maneuver to avoid hazards, which turns out to be of considerable importance in discussions of space debris, liability, and space salvage. Reading this section will not turn readers into aerospace engineers, but it will ensure a degree of basic familiarity sufficient to allow informed classroom discussion.

The text also contains a helpful brief history of spaceflight and the development of space law. Again, the early development of space law—things like the Outer Space Treaty of 1967 and the Liability Convention¹¹—can only be understood against the background of the U.S.-Soviet space race and the Cold War, historical phenomena that for most law students (and many lawyers) today fall into that awkward zone—too recent to be taught as history, too long ago to be remembered as news.

The text then provides a competent summary of the existing international legal framework for outer space, along with discussions of the various legal institutions involved in the development of space law. There has not been much space-law lawmaking since the end of the Cold War, but the international bureaucracies continue to play their role and are likely to reemerge, should there be another round of international space law development—which is entirely possible. In addition, of course, institutions such as the International Telecommunication Union play important ongoing regulatory roles.

Where the book really shines, however, is when it turns to the development of U.S. space law, and in particular the United States' significant and growing body of domestic law governing commercial space flight. This is an area in which there has been considerable development in the past decade. *The Laws of Spaceflight* offers a clear outline of the existing legal regime, and of how it is likely to change and develop in the coming years.

The text also contains considerable information about the licensing of telecommunications satellites and earth-sensing satellites as well as useful

11. Convention on International Liability for Damage Caused by Space Objects, Mar. 29, 1972, 24 U.S.T. 2389, 961 U.N.T.S. 187.

sections on the particular issues involved in contracting with the U.S. government. Additionally, the book explores the always-fraught subject of export controls relating to space technology, which offers many potential traps for the unwary. The book's discussion will not turn a reader into a master (or mistress) of those complex and technical subjects, but it will at least allow the reader to develop a useful degree of issue-spotting skill.

The book also offers a brief and rather cursory treatment of space property rights, a subject that may have seemed too remote to interest the authors, but that will appear in the near-term in the form of privately financed asteroid-capture missions. Perhaps the authors, as others have suggested, regard asteroids as chattels rather than as "celestial bodies,"¹² a view that is entirely defensible (and, I believe, actually correct). But if so, the authors should have stated their views explicitly. I must also register an objection to the book's rather conclusory suggestion that the Outer Space Treaty's ban on "national appropriation" prohibits the creation of private property rights on the Moon or on other celestial bodies. This is a subject that is far from settled; in fact, I believe the better view is to the contrary. It would have been better to have discussed a variety of views on this subject or to have omitted it entirely if, as the authors suggest, it is presently of mostly academic interest.

That aside, I have only one major complaint regarding *The Laws of Spaceflight*: at \$149.95, it is too expensive. I recognize that this is a flaw shared by pretty much every legal text out there, but one must ask the American Bar Association, Section of Science & Technology Law, why it felt the need to charge so much for a 385-page paperback book. I feel certain the answer is not that the authors received an enormous advance, and I fear that the answer is that, like other legal publishers, they charge so much simply because they can. The book's price is the only reason why I might hesitate to assign it to my own students in space law, but, I am afraid, it is a significant reason.

The authors, however, are not to blame for the sadly overpriced state of legal publishing, and if experience is any guide, we will have law schools on Mars before a solution to that problem arrives—law schools in which students will probably be complaining bitterly about the high price of their new text in Interstellar Law. Some things, apparently, are beyond science. But until that day, *The Laws of Spaceflight* will serve as a valuable tool in educating the next generation of space lawyers. May they prove to be numerous and prosperous.

12. See, e.g., Andrew Tingkang, *These Aren't the Asteroids You Are Looking For: Classifying Asteroids in Space as Chattels, Not Land*, 35 SEATTLE U. L. REV. 559 (2012).