

Reviewed by Kate Mangels

By the Book

John Carreyrou published his first article about Theranos in *The Wall Street Journal* in 2015. The article was followed in 2018 by Carreyrou's book, *Bad Blood: Secrets and Lies in a Silicon Valley Startup*, which received critical acclaim and was a national bestseller. Together, the article and book had a drastic and devastating impact on Theranos and its founder, Elizabeth Holmes.

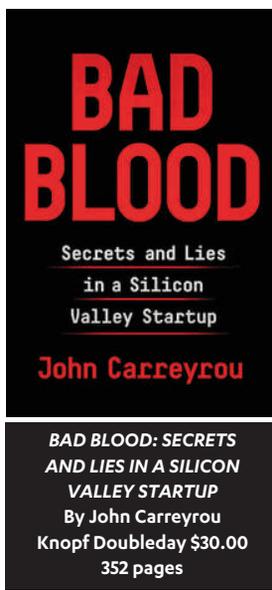
In light of recent criminal and civil court proceedings, *Bad Blood's* insight into the legal implications of Theranos and its downfall is more relevant than ever. Soon after *Bad Blood* was published, charges were brought against Holmes and Ramesh "Sunny" Balwani, former president of Theranos, in federal court in the Northern District of California, related to their putative scheme to defraud both investors and patients.¹ Last January, Holmes was convicted of one count of conspiracy to commit wire fraud against investors and three counts of conspiracy to commit wire fraud against investors. The case against Balwani is ongoing. A class action lawsuit is pending in federal court in Arizona filed by former Theranos patients, alleging misrepresentations about the accuracy of Theranos's blood tests.²

Bad Blood sheds a well-researched and detailed perspective into the individuals associated with these criminal proceedings—both those

charged and the alleged victims. It details the story of Holmes's journey from motivated, yet inexperienced, entrepreneur to founder and CEO of a company valued at \$9 billion. Yet Carreyrou's focus goes beyond Holmes, delving into the stories of former employees, investors, and alleged victims of Theranos's

flawed medical testing. These stories, the result of interviews of more than 150 individuals, are touching, captivating, and, at times, shocking.

Carreyrou explores false representations made to patients and the harm caused by Theranos's inaccurate equipment. Carreyrou interviewed Alan Beam, Theranos's former laboratory director, who indicates Holmes and Balwani were intent on running HIV tests on diluted finger-stick samples. Dilution would make the tests unreliable, and Beam felt that false HIV results "would have been disastrous." This same issue was presented in the criminal trial against Holmes in support of claims that she defrauded patients. A former Theranos patient testi-



fied that she received a false positive HIV antibody result, causing emotional distress.

The theoretical dangers of inaccurate results described by Beam and other former Theranos employees materialized when Theranos launched blood testing clinics in Walgreens stores across Arizona.

A nurse described three patients who received questionable results, two of whom received results showing abnormally high levels of thyroid-stimulating hormone. A third, a sixteen-year-old girl in good health, received a result showing a potassium level suggesting she was at risk of a heart attack. Another health care professional told Carreyrou of an inaccurate lab result from Theranos that was so frightening that the physician sent the patient to the emergency room, only for the emergency room to confirm it was a false alarm. Yet another doctor received results that a patient had a near-critical potassium value, indicating that the patient's treatment plan for high blood pressure would

need to be changed as soon as possible. Just as with the other results, further testing confirmed that the Theranos result was inaccurate.

According to Carreyrou's research, Holmes's targeting of patients in Arizona was not coincidental. Interviews with former employees revealed that Holmes and Balwani decided to launch in Phoenix due in part to Arizona's large number of uninsured patients. Holmes proceeded with the plan to launch in Phoenix even though Theranos had no labs in Arizona, requiring the blood to be transported to Palo Alto, during which the blood clotted due to heat during shipping. In addition, despite the fact that Theranos was well aware of inaccurate results, it pursued an aggressive marketing push in Arizona, running TV advertisements in the Phoenix area. Carreyrou notes that the advertisements were strategically aired during shows with high female viewership to target mothers, who have been shown to be a household's medical decision maker.

The human impact of the alleged fraud perpetrated by Theranos comes through in *Bad Blood* due to Carreyrou's intimate telling of individual patient stories. Yet, as he writes at the end of *Bad Blood*, the full legal fallout of Theranos remains to be seen. ■

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¹ United States v. Elizabeth A. Holmes, et al., No. 18-CR-00258-EJD (N.D. Cal. Jan. 3, 2022).

² In re Ariz. Theranos Inc. Litig., No. 2:16-cv-02138-HRH (D. Ariz. 2017).