

narratives, the author demonstrates how both Leggett and Biddle continued to turn to depoliticized solutions—a class-based, antimonopolist, yet ultimately naïve libertarianism for the former and a highly centralized yet nevertheless private regulatory vision by the latter.

For Sklansky, the Gilded Age served as the last real chance in American history to return the power of making money to the people, as Agrarian organizer Charles Macune's elaborate subtreasury plan creatively pushed for an effectively nationalized banking infrastructure of agriculture silos that would cut out middle-men bankers by backing the value of paper bills with their crops instead of capitalists' gold. Controlled not by private bankers but public legislatures, the subtreasury system would not only create a low-interest, not-for-profit credit system but also an elastic currency that would ebb and flow with the agricultural cycles of the economy. Yet as Sklansky describes in his final chapter on the Progressive Era rise of corporate finance, investment banking, and large trust funds, this was not to be. While the rigid gold standard would be abandoned for a centralized flexible currency as Macune desired, the "independent" technocrat-run Federal Reserve System that was eventually established was insulated from class conflict and largely designed to maintain and stabilize the accumulated value and profitability of corporate investment capital.

To conclude, Sklansky's book helps explain why our own political imagination regarding money is so narrow—limited to technocratic, apolitical debates between economists on whether the next interest hike will be "good" for "the economy" and "the market" or not. Hopefully, this fine book will not only lead to a better understanding of money's complicated past but also a broader vision of its democratic future.

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Calculated Values: Finance, Politics, and the Quantitative Age. *By William Deringer.* Cambridge, Mass.: Harvard University Press, 2018. xxii + 413 pp. Figures, notes, index. Cloth, \$45.00. ISBN: 978-0-674-97187-5.

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Reviewed by Margaret C. Jacob

Economic historians have long looked to the English Revolution of 1688–1689 for an explanation of the political stability that encouraged

industrial development. Now we are asked by William Deringer to see an additional benefit: public political contestation (and not the state's "instrumental desire for numerical information") aroused an energy put increasingly into disputes about calculation (p. 13). The landowning seemed particularly suspicious of fancy calculations, regarding them as unmanly or trivial. Even Robert Boyle, son of a very landed earl, found mathematics esoteric and abstract, we are told. This account leaves out the fact that his opponent, Thomas Hobbes, wanted the new scientific culture to be mathematical and not experimental, hence less dangerous to royal order and power. Boyle had no animus against mathematics as such, but he was deeply suspicious of monarchical absolutism.

Bringing the history of science and mathematics into service as explanatory of "the rise of calculation in British civic epistemology" is indeed useful—if it is well done (p. 22). There are pitfalls, however. The fashion in science studies at the moment is never to credit change or improvement in science to the possibility that a discovery might just have been truer than its alternative. Rather than positioning the relative truth of numbers offering an avenue for commercial and industrial improvement, and hence their increasing importance and popularity, this book argues that the Revolution of 1688–1689 opened the partisan floodgates and made "numerical calculation" the object of "fear, animosity and distrust" (p. 28). The implication is that the more mathematically ignorant set the tone for political dispute; no set of figures escaped disputation. Just about any issue could turn polemical: the state of national revenues and expenditures, the payment of an equivalency to compensate the Scots for raising their taxes as a result of the 1707 union, the balance of trade with France, and not least, the national debt. The devastation wrought by the collapse in 1720 of the South Sea Bubble only raised the importance of calculation, and more controversy ensued.

Eventually not just the big cities but any hamlet could be used to produce "new data on the people, prosperity and produce of the countryside" (p. 268). Neither Ireland nor the American colonies were spared while both pessimists and optimists weighed in on the issue of an imagined depopulation. Luminaries like Richard Price, Arthur Young, and Benjamin Franklin joined the debate and gradually actuarial tables resulted. Moralists brought numbers and calculations to issues like social happiness, poverty, and alcoholism. Using numbers to advance political or moral agendas fostered "the emerging belief that numbers and calculations were a distinctly stubborn, honest, and incisive way of making public knowledge" (p. 301). The reader might well wonder why the landed and the Country opposition did not win the day and permanently consign mathematics to the categories of effete or esoteric.

There is considerable originality in this book on calculations and their discontents. The topic is fresh and the sources used are not obvious ones. Like many ambitious endeavors by talented historians, the book at moments sounds monocausal. If political contestation is the only key that explains the rising interest in calculation, how can we explain the early and increasing recourse to expertise? In just the first decade of the century, experts in science and commerce—the Newtonian David Gregory and the Scottish financier William Paterson—took up the challenge posed by calculating and explaining the great project of the Equivalent due to the Scots. The career of Gregory, who is depicted here simply as an “outsider,” is reduced to his politics when in fact the accusations against him in Edinburgh centered on his assumed irreligion and his use of the new science to support it. Had the possibility of the mathematically truthful not been a shared value, why turn to a practitioner so controversial, even if widely regarded as the finest mathematician in Scotland?

English commerce and science put the necessity to understand calculations front and center in the secondary school curricula. Multiple French spies and observers reported home on the “perfection of the English” in mathematical education (Roederer MSS, 29 AP 75, 395, Archives Nationales, Paris). The result became a race to try to catch up with an assumed British superiority in mechanics and its application. To compete, French school and college curricula were revised, and by 1800, scientific education laid emphasis on mechanics and calculations and then on their industrial application.

By that date the French had a lot of catching up to do. In the later decades of the century, committees of the House of Lords, charged with approving canal bills, took expert testimony from engineers as they tried to assess the effects of water diversion on local water-powered manufacturing. English lords interrogated the theories and practices by which the experts arrived at their calculations. Opponents of the proposed canal contested the figures and sometimes even hired their own engineers. By 1800 in Britain everything from canal building to steam-driven factories and mines required experts. The wrong-sized steam engine could bankrupt a business.

Many factors contributed to the rise of, and fury over, calculations. To be sure, political contestation played a significant role, but so too did the needs of commerce and manufacturing. Not least, we must factor in the extraordinary impact of Newtonian mechanics and its many applications. In that sense, 1687 and the publication of Newton’s *Principia* should be added to 1688–1689 as benchmarks in the rise of mathematics as well as political contention. Knowledge of calculation added another weapon to the “rage of party” arsenal. More important, it also helped to make Britain into the first industrial knowledge economy.

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City of Debtors: A Century of Fringe Finance. By Anne Fleming. Cambridge, Mass.: Harvard University Press, 2018. 376 pp. Appendix, notes, index. Cloth, \$45.00. ISBN: 978-0-674-97623-8.

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Reviewed by Rowena Olegario

Is access to consumer credit a route to financial independence or a path to “debt slavery”? When the credit seekers are low-wage earners, the questions become even more complicated: Is credit a better solution than charity and state aid? Anne Fleming’s book reveals that the deep division of opinions about these questions among policymakers, lenders, and borrowers has clear historical roots. Fleming traces the history of “fringe lenders,” a diverse set of credit providers to mostly lower-income people. She argues that laws, regulations, and court decisions fundamentally shaped the industry and put constraints on reform. The core problem was that fringe lenders were governed by varying regulatory regimes. Most states had usury laws, but they applied only to particular types of lending. Moreover, federalism—the arrangement that divides power between the federal and state governments—contributed to the patchwork nature of the regulation. Focusing on New York State is therefore an advantage, Fleming argues, because “the development of small-sum lending regulation is best observed by closely tracking one state’s progress rather than bouncing around between dozens of different jurisdictions” (p. 6).

Even so, the book offers a narrative that is national in scope. It also identifies the historical patterns that have characterized fringe lending since the turn of the twentieth century: (1) lenders who sought stability and legitimacy welcomed regulation; (2) private power, such as the Russell Sage Foundation and industry associations, supplemented state action; (3) groups with very different agendas formed coalitions to push through reform; and (4) dominant ideas about the role of the state influenced what could be achieved legislatively. Another clear pattern is the way that fringe lenders eluded regulations. The book begins in early twentieth-century New York, where pawnbrokers, “salary buyers,” and chattel lenders served a significant proportion of wage earners. Like most states, New York capped interest rates at