


Eastern to Western Europe, from the Mediterranean to the Baltic, these chapters will be valuable to scholars of early modern Europe no matter their specialty. In sum, this book is excellent. Two curious omissions, however, left this reader wondering. The lack of an epilogue is probably a missed opportunity to tie everything together and leave a good taste in the reader's mouth. More grievous, especially given the volume's geographic breadth, is the lack of any maps: no overall map of Europe at the front; no maps of the regions in each chapter. Accordingly, this reader needed to look elsewhere to remind himself where, exactly, Sighișoara (Romania) and Košice (Slovakia) are.

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Vera Keller. *The Interlopers: Early Stuart Projects and the Undisciplining of Knowledge*

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Vera Keller aims to take a large step further in an approach to the history of knowledge. She understands the histories of science, medicine, and technology to be interwoven with histories of early modern state formation and imperialism; she also argues that those interconnected histories emerged from personal interest and calculating passion. Drawing mainly from national records, Keller pushes against entrenched assumptions about how both early modern states and sciences emerged from dispassionate, reasoned, and ordered philosophical investigations. In their place she holds out the violent and piratical, enslaving, self-serving, boastful, and performative interlopers as the authors of early modernity. Her interlopers are not simply brokers and go-betweens but ambitious and often cold-hearted, rule-breaking risk-takers. The “projectors” did their best to push aside established disciplines and corporations for personal advantage and often succeeded because of patronage. Having the ear of many of the highest-ranking self-promoters of the reigns of James I and Charles I—not least Villiers, better known as Buckingham—projectors aimed to generate wealth and power from solving material problems. The Stuart monarchs themselves took a keen interest in the new and unbounded marvels on offer. The range of worldly information and physical methods emerging from all their activities could not have been anticipated. Sir Francis Bacon was only the most famous of those who proposed new approaches for bringing some order to the diversity of fact and experience thrown up by the multitudinous enterprises.

But if the conversation was being altered, it was not because of the obvious material success of the projectors. Keller presents many exemplary cases. One is the elite opportunist named Thomas Russell, Esq. Bacon followed his work closely. A well-to-do gentleman (and MP for Truro in the Addled Parliament), Russell knew much about medical preparations and distillations, and was involved in trials about the amount of silver per hundredweight of ore mined from a site in Scotland. When deposits of alum were discovered in Yorkshire, he devised a method of using kelp rather than urine to refine the ore; harvesting the kelp was also projected to be a way of setting the poor to work. Most of his innovations

for the project failed, however, resulting in thousands of pounds lost, starving laborers and threats of violence, lawsuits from other investors, and disputes among courtiers. But he seems to have kept his reputation for brilliance. Unstoppable, Russell was also concerned in a project to refine copper and bell metal and moved up to taking charge of royal mines in Cornwall and Devon. He was also central to a major new project to obtain saltpeter—critical to making gunpowder—from human and animal urine rather than dung heaps or pigeon roosts. King Charles decided to make it happen by issuing a royal proclamation mandating all his subjects to collect their own and their animals' urine in convenient vessels for removal by Russell and his partners; but the order was resisted, bringing all saltpetering in the kingdom to an end. Russell then proposed to the Privy Council an alternative: to collect the soil of privies throughout the kingdom. The Parliament of 1628 was not impressed. By then he was also proposing that the Virginia Company make much-needed wine from saffron (a kind of root beer). He was also deeply involved in the New Soap project that is elsewhere treated as one of the several monopolies that brought money to the Crown but was despised by laundresses and merchants: its downfall in 1642 was celebrated. Another exemplary figure who appears several times in Keller's narrative is Cornelis Drebbel, well-known for demonstrating his successful underwater boat to James I and producing perpetual motion devices. But his naval technology failed (in some unspecified manner) during Buckingham's attempts to seize the Isle de Ré and to relieve the siege of La Rochelle; the East India Company was also unfavorably disposed to send versions of submarines to Asia for impressing princes and harvesting pearls. Nevertheless, Charles set up Cornelis Drebbel and other projectors in a kind of armory-cum-research-center at Vauxhall so that the Crown could benefit from their latest innovations.

From such examples Keller argues that the undisciplining of knowledge typifies the period between Humanism and Enlightenment, pointing us to the passions that changed the valuing of nature. In directing her argument chiefly to historians of science she rightly holds that the interlopers were neither craftsmen nor philosophers but instead operators who took from both. They were often contemptuous of scholars. A political historian might see in the examples of favoritism, factional maneuvering, and absolutist exploitation the story of Stuart governance, which turned out badly. Social and economic historians might notice the movers behind more general disputes over monopolies and the fractious relations between the City and Court, or agents of new kinds of property relations. Those concerned with the development of empire will see yet another set of examples of projects that turned ordinary lives into often desperate encounters with monetization, although clearly geopolitical interests were at stake as well as personal ones. Some of the adversaries of the projectors (who do not get much attention) accused them of recusancy, so there might be a story of religion in the value of projecting as well. In short, the most important conversations of the day touched on the ambitions of the interlopers, but not simply because their ventures succeeded. As in war, collective discipline and materiel resource would remain fundamental to success even when clever ideas and personal charisma shone more brightly. *The Interlopers* is powerful in showing the passions at work in the real world. But were the successes of the new philosophy to be found in its examples, or in the need for new methods of assessing the unknown when caught in dangerous currents?

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