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On November 22, 1680, a Berlin court physician penned a letter to a Nuremberg colleague in which he announced, with evident pleasure, the progress of a book he had been working on: “We have reached the letter C”! The book in question, variously titled A Universal Index of the Names of Plants, A Multilingual Index of the Names of Plants, and (in Greek script) a Polyglot Botanical Pinax, was a collaborative effort, and formed the fruit of considerable labor for its authors. It had its origins, as did so many early modern European works, in a pedagogical exercise. Christian Mentzel (1622-1701), personal physician to Friedrich Wilhelm of Prussia and his companion on numerous difficult journeys abroad, had finally returned to Berlin. Here he took up the post of librarian in charge of

* I would like to thank a number of people for their inspiration and assistance, not least Grace Shen, for her creativity and hard work in organizing the panel for which many of the ideas in this paper were originally assembled, namely "Rectifying Names, Identifying Things: Philology and Natural History in Germany and China” at the 2001 History of Science Society annual meeting. I am extremely grateful to the other participants in this session, Carla Nappi, Denise Phillips, and Benjamin Elman, together with the audience, for their many helpful comments and insights. Benjamin Elman deserves particular thanks for inviting me to present a subsequent version of this paper at the 2002 Princeton Workshop in the History of Science, where I also received much valuable feedback. Finally, I would like to acknowledge the helpful comments of the anonymous referees.
the Great Elector’s striking collection of Chinese-language books,¹ launched a correspondence with several German travellers in the service of the Dutch East India Company,² and tried to resign himself to the fact that his sons had no apparent desire for higher education. “My son [in Geneva] has studied the French language and military exercises, and does not want to become a scholar (Gelehrter). I will just not worry about it, and will not force my sons into any studies they do not apply themselves to.”³ But another son did eventually come around, deciding to follow his father in a medical career, and Christian Mentzel assigned young Johann Christian (1661-1718) what he thought would be a useful exercise: reading all the botanical works he could get his hands on, from ancient texts to recent reports he had received from the Indies, and compiling an alphabetical list of every name every plant had ever had—in every language.

The exercise proved far too much for one person, and father and son ended up working together to complete and then publish it. When finally ready in 1682, the massive folio volume announced its linguistic erudition with a flourish. The book, so its title page proclaimed, contained the names of plants in dozens of languages and dialects, ranging from Latin and Greek at their head, through the full array of contemporary European languages, into the exotic realms of “Hebrew, Chaldean, Syriac, Arabic, Turkish, Tartar, Persian, Malabaric, Brahman … and Chinese” in Asia, “Egyptian, Ethiopian, Mauritanian … Canarian and Madagascan” in Africa, and “Brazilian, Virginian, and Mexican” in the Americas, to

¹ An experienced traveller within Europe, Mentzel had indeed picked up considerable erudition as well as familiarity with languages over the course of his peregrinatio academica and subsequent travels, which had taken him through Holland, France, Spain, and Portugal around the Mediterranean through Mallorca, Corsica, Sardinia, Sicily, Malta, Crete and Corfu before eventually depositing him with the medical faculty in Padua. Nonetheless, he knew no Chinese whatsoever at the time when he took up the Berlin post. Apparently a quick study, he picked up enough of the language over the course of a decade to venture the publication of a Latin-Chinese key (Mentzel (1685)). For more on this work, which seems to have been based on that of the Chinese scholar Mei Yingzuo, and for more on the search for a Clavis sinica more generally, see Mungello (1999), pp. 64-65, and the works cited there.

² Prominent among Mentzel’s contacts were Andreas Cleyer, who sent him botanical notes from China and Japan, and Georg Eberhard Rumpf (otherwise known as Rumphius, the “blind seer of the East”) in Amboina in the Dutch East Indies. See Winau (1976) and Cook (2007). In the Netherlands and many of the German territories, the Dutch East India Company seems to have taken on the same kind of role, in disseminating knowledge about Asian affairs, that the Jesuits played in other lands.

³ Cited in Artelt (1975), pp. 14-15. The originals of the letters in question, from Mentzel to the learned physician Johann Georg Volckamer in Nuremberg, are to be found in the Trew collection of physicians’ correspondence in the Handschriftenabteilung of the Universitätsbibliothek Erlangen.
name but a few. The previous two centuries had seen the assembly of some extremely ambitious works of scholarship; but in the sheer extent and drama of its claims to linguistic coverage, the Mentzels’ Index exceeded them all. Nature had, it seemed, been made to speak all of the world’s languages.

Let us now go back several decades to look at the very first book Christian Mentzel ever published. For, as this paper will argue, in the genre this book represents can be found valuable clues to the relationships between language and nature in its successor volume—and in early modern European natural studies more generally. The book Mentzel published in 1650 was, in many respects, the seeming opposite of his 1682 magnum opus. Unlike the huge folio Index, this earlier work was small and rather thin. It lacked the splendid illustrations of its successor, nor did it have any such global ambitions; its contribution to botany was merely to discuss plants growing around the Baltic port of Danzig (today more commonly known by its Polish name of Gdańsk). But it did have some features in common with its more illustrious successor. It, too, was multilingual, though in this case much more modestly so, with Latin and German the only languages represented. And it, too, was the result of a pedagogical exercise, motivated in this case by Mentzel’s appointment to a position teaching botany and anatomy at the Danzig gymnasion. Inspired by the academy’s head, a follower of the educational philosophies of the Czech pansophist Comenius, the youthful Mentzel wanted to lead his students outside the classroom and to introduce them to the latest revolution in medical education from Italy, which had (a century late) finally reached the shores of the Baltic: namely field trips to collect plant specimens in their own surrounds. To steer his students in the right direction, Mentzel assembled and published what we would today call a “local flora”, a guide to the names and locations of plants to be found in a given place. This genre, which had sprung out of the fertile soil of sixteenth-century humanists’ botanical efforts, was just now coming into fruition in the seventeenth-century German territories. Mentzel’s tiny text thus represented one of many similar efforts at the time; and as we shall see, this tiny text and those like it did, in fact, have more in common with the major currents of early modern European science than might at first meet the eye.

This paper will examine the genre of the local flora, seemingly the antithesis of the universal index with its pretensions to global knowledge, to probe how Euro-

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4 Mentzel (1682). Note that, when the book was finally printed, it appeared with only Mentzel senior’s name on the title page, a not uncommon practice in an age when the labor of family members was frequently expected and often went unacknowledged. For the publishing history of this work (including the complicated matter of its multiple titles), see Artelt (1975), pp. 9-26.

5 Mentzel (1650). As I was not able to locate any surviving copy of this work, I am here relying on the reprint edition included at the very end of Reyger (1766). The German place name “Danzig” will be used throughout, rather than its Polish counterpart of “Gdańsk”, since Mentzel was a German speaker.
peans’ uses of language shaped their conceptions of the natural worlds they encountered both at home and abroad. As Christian Mentzel’s forays into print suggest, a key concern of early modern scholars was the attempt to translate natural studies from one place and speech to another, whether from the non-European world to the European one, or rather from the world of popular dialect to that of learned scholarship. Highlighting Christian Mentzel’s works as reference points, the paper will focus on two central themes in this problematic: first, the emergence in early modern natural history of a discourse of the “indigenous”; and secondly, the uses and consequences of multilingualism (and, in particular, bilingualism) in the early modern study of nature.

Science and its Languages

Historians of early modern European science have frequently found themselves intrigued by questions of language. One central reason for this is, of course, the fact that the same was true for their subjects. We have abundant evidence that numerous early modern virtuosi were fascinated by questions of language, in some cases devoting their considerable energies to projects attempting the full-scale reform of the language of science itself. As is well known, for example, early promoters of the Royal Society of London issued a series of notorious pronouncements on linguistic style, turning the topic into an active field of contention. Praising what he considered “plain” speech, while deriding forms of language he didn’t see as fitting this mode, Royal Society apologist Thomas Sprat (1635-1713) famously condemned the scholastic discourse of the early modern university, as well as much of what he saw as the flowery language of Renaissance humanism, as proffering mere “words” rather than insight into “things”, i.e. natural objects in themselves. Such forms of expression, he argued, not only wasted the time of those who encountered them, but also could be and were in many cases positively injurious to the advancement of natural knowledge. Nor were Sprat and his Royal Society fellows alone in their Baconian-tinged mistrust of the deceptive powers of language. Similar concerns were expressed, though in different idioms, by individuals widely scattered throughout Europe. Amid battles between ancients and moderns, disputes over linguistic style were never far from debates about to whom the new sciences belonged, and why.

And such debates did indeed ultimately reach far beyond issues of style alone—for they touched on fundamental questions of epistemology. How, given the very trickiness and slipperiness of words and of human language in general, could one arrive at a true knowledge of things? Various solutions were proposed. Some of the most radical of these involved bypassing European languages altogether. Galileo, for example, famously suggested that nature had its own lan-

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6 See Dear (1985).
7 For the longer history of some of these kinds of concerns, see Burke (1995).
language, namely that of mathematics: that the book of nature was written in the language of number. But not all agreed; some sought the “real character” elsewhere. Seekers after the _prisca sapientia_ or pure wisdom of the ancients, for example, pursued it in ever deeper inquiries into such ancient Near Eastern mysteries as Egyptian hieroglyphics or the Hebrew Bible. Others, meanwhile, chased it halfway around the globe, finding it in the Chinese language, which some thought reflected the “primitive language” that all human beings had spoken prior to the rise and fall of the Tower of Babel. The great philosopher and polyhistor Leibniz was one such, expressing great hopes that the use of the Chinese language could transform European science. Finally, still other virtuosi, like John Wilkins (1614-1672), invented completely new “universal languages”, in hopes that perhaps these could bridge the chasm between words and things. In each of these ways, a significant number of early modern thinkers channeled their hopes for worldly knowledge into projects that might to us today seem almost purely linguistic.

But there is, perhaps, an even more obvious factor which has piqued early modern Europeanists’ curiosity about issues of language. This might be seen as stemming not so much from longed-for “universal” languages as rather from the languages that early moderns actually _did_ use; and, over time, _ceased_ to use. Simply from their own experiences with their sources, most historians of early modern European science are intensely aware of how written language gradually underwent a fundamental shift—from Latin to the vernacular—and of how this shift ultimately came to affect almost all fields of natural knowledge over the course of the Scientific Revolution. In most early modern disciplines, it is impossible to pinpoint any single moment at which the shift occurred; but nonetheless it happened. Latin, as the universal language of European learning, was gradually forced to yield to a crowd of unruly new contenders. By the close of the eighteenth century, the very words and concepts of medieval _scientia_, their prefixes, suffixes, and roots, had, in all except a few fields, been dismantled and dispersed into the vocabularies of Europe’s numerous vernacular languages. Latin still existed, to be sure, and was to enjoy a continuation of its long and illustrious career in nineteenth-century and later establishments for education and _Bildung_; but, again with a few exceptions, it would no longer supply a working

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10 On the “universal language” movement of the early modern period, see Knowlson (1975), Slaughter (1982), Eco (1998), and many of the essays in Struever (1995).
11 The term “Scientific Revolution” will be used in this paper in its European context, leaving open the question of whether similar transformations occurred in China; see Sivin (1984).
12 On the role of Latin (and, to complicate matters, Greek) in the formation of the modern scientific vocabulary, see for example Hogben (1970).
language for science. This transition from Latin to the vernacular, exhaustively documented and quantified by historians of printing and publishing, has simply been, for scholars of the era, too striking not to notice, and to comment on.\(^{13}\)

Given these circumstances, it is perhaps no surprise that some modern investigators have sought to find broader meanings in the early modern European shift from Latin to the vernacular, seeing this transition as symbolic of larger shifts in society and culture: for example, from the premodern world to modernity itself. In Benedict Anderson’s widely-read book *Imagined Communities*, for example, the gradual eclipse of Latin by the vernacular is seen as reflecting the seemingly inevitable waning of elite and “hieratic” forms of knowledge, based on ancient languages, in favor of more “popularly” oriented ones in modern democratic society. In his narrative, Anderson presents this move towards the “languages of the people” as, in effect, a precondition for the emergence of modern nationalism, his main theme.\(^{14}\)

So, likewise, it is perhaps no surprise that an even longer tradition exists, within the history of science, of seeing the shift from Latin to the vernacular as something which, whether or not a direct precondition for the rise of modern European science itself, strongly aided and abetted that rise. For example, histories of the emerging seventeenth- and eighteenth-century scientific academies have (literally for centuries) mixed collective hagiography with an implicit approval of these societies’ vernacular-friendly language policies, seen as supplying still further evidence of their status on the cutting edge of the new natural and experimental philosophy.\(^{15}\) Meanwhile, it has become increasingly difficult to deny the elements of merit to be found in the once-controversial Zilsel thesis, according to which scholars’ interactions with such non-learned groups as artisans (almost certainly relatively lacking in Latinity) helped spur the Scientific Revolution—a development which would have been impossible without scholars’ use of vernacular skills and terms.\(^{16}\) In short, even with energetic attempts to avoid Whiggism, it has been difficult for historians of the “new sciences” not, in their consideration of linguistic issues, to end up writing themselves into the battle between the ancients and the moderns on the side of the latter.

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\(^{13}\) So much documentation indeed exists on this topic that it would be pointless to attempt to cite it all; for a general study, see Febvre and Martin (1976), and for a more localized and detailed one, Chrisman (1982). Pörksen (1983) is also useful in the German context. More generally, see Burke (2004).

\(^{14}\) See Anderson (1991), pp. 67-82.

\(^{15}\) Tellingly, the German territories’ own Academia Naturae Curiosorum, which used Latin as its language of record, was frequently dismissed by contemporaries, and continues to be dismissed by historians, as old-fashioned and unproductive. For an alternative interpretation of this institution, see Barnett (1995).

\(^{16}\) Zilsel (1941-1942). For examples of recent work which draws on similar ideas, see Smith (1994) and the articles in Smith and Findlen (2002).
But over the past several decades, as we know, our understanding of the origins of modern science—and of how to “read” the story of these origins—has undergone considerable revision. A great part of the credit for this must go to historians of Renaissance humanism and philology, who have shown how, far from hindering the progress of science, the cultivation and intensive study of classical Latin (and eventually of other ancient languages as well) helped provide crucial stimuli for the investigation of the natural world. As Karen Reeds and, more recently, Brian Ogilvie have shown for natural history, it was Renaissance humanists’ passion for precision in their Latin and Greek that led them to notice textual discrepancies in surviving classical descriptions of plants. And it was humanists’ attempts to reconcile these discrepancies that led them to develop the philological tools and humanistic habits that, in turn, led them to consult actual plant specimens—and to elaborate new and improved systems of nomenclature and description. It is now clear that accounts of the death of Latin had, in fact, been greatly exaggerated—that long after the initial impetus provided by Renaissance humanism, a vast number of works in many fields continued to be written in Latin up through the eighteenth (and sometimes even the nineteenth) centuries, frequently making important contributions to those fields. As Ann Blair, for example, has stressed, Latin persisted as a learned language not just because of the strictures of traditionalist university systems, nor even because of its convenience as a ready-made *lingua franca* uniting scholars of different nationalities, but because it supplied a copious and well-developed vocabulary, honed through millennia of use, of words and concepts suitable for discussion of natural affairs. But in the ferment of the Scientific Revolution, even this most traditional language had to adapt its treasury of terminology to meet the new demands placed on it.

It is in this light that the linguistic dilemmas of the era of the Scientific Revolution must be seen. The early modern world saw a host of encounters and exchanges between languages. As Europeans during this period faced the challenge of the rediscovery of their own classical tongues, they simultaneously grappled with the surprises offered, for example, by such newly discovered scripts as those of Aztec and Chinese. All of these new (and old) languages needed translation into contemporary European idioms and understandings. And the natural world itself seemed to need translation most of all, into new systems of knowledge that would do justice to Europeans’ ambitions for them. All of this demanded philology and philologists. The results were such works as the Mentzels’ grand

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18 On the survival of Latin past the Middle Ages, see Blair (1996), Burke (1991), and Waquet (2002). On the survival of Latin in natural history in particular, see for example Stearn (1992), p. 8.
19 See Montgomery (2000).
20 Nor need this impulse have been confined solely to the European continent; recent
multilingual Index and, as we shall now explore, at the opposite end of the spectrum of geographical and linguistic scope (as well as size and cost), works like Christian Mentzel’s tiny earlier catalog of plants around Danzig, and its counterparts across Europe.

**From the “Local” to the “Indigenous”**

When in 1650 Christian Mentzel brought out his local flora of “plants growing of their own accord around noble Danzig”, he began the book by putting it in context. His work, he declared, was a product of the “history of our times”. Knowledge of botany, he maintained, had recently begun to increase for a particular reason. This reason was that learned men no longer confined themselves to visiting “more celebrated places”. Rather, they had begun to explore their own “native land, region, or city”, and to investigate thoroughly what they found in these more local surrounds. Though Mentzel himself was not from Danzig—he had grown up and studied in various other parts of Prussia and Brandenburg—he attached himself firmly to this school of localist research. Approvingly citing the native-born author of a previous local flora of Danzig, Nicolaus Oelhafen, he declared that he had “followed his footsteps”. Only through paying attention to the local, he claimed, could true progress in the study of nature be made.

In the process of making this claim, Mentzel joined the company of a host of other learned men, in particular physicians, who had begun to argue for Europeans’ duty to attend to the plants and herbs growing “of their own accord” around them. Over the course of the sixteenth and seventeenth centuries, numerous physicians came to call for the renewed study of what they variously called the “indigenous”, “domestic”, and “native” natural productions of their own countries, as distinguished from the “exotic” and “foreign” substances flowing in through new trade routes. The popularity of exotic remedies, they warned, had become such that Europeans had begun to neglect their own God-given treasuries of healing plants and herbs, to be found in their own forests and fields. Mentzel work suggests that strikingly similar impulses may have been at work in China as well. See for example Elman (1984) and (2005). For recent comparative studies of Chinese and non-Chinese forms of scholarship, including philology, see Henderson (1991), Lloyd (1996), and Cabezón (1998).

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21 Mentzel (1650), p. 201. The Latin phrase “sponte nascentium” used in the title of this book, and in that of many other local floras, might also be translated as “growing wild”; however, domesticated garden plants were often included in local floras, hence the translation above.
22 Mentzel (1650), p. 205.
23 Mentzel (1650), p. 205.
was thus far from alone when he claimed that the thorough investigation of local plants was an absolute necessity for the early modern physician.

Writing today, of course, Mentzel might scarcely have felt the need to insist on the value of the local. The language of the “local” and “global” permeates contemporary discourse, not only in the environmental sciences, where ecologists are now steady crusaders for attention to and preservation of “indigenous” species, but in the realms of society and culture as well, with increasing concerns about the status of “indigenous peoples”, and about globalization’s local effects. Over the past several decades, historians of science have themselves come to embrace this discourse of the “local” and the “global”, finding it a powerful heuristic tool to explore changes in systems of knowledge. And among historians of science, scholars of the Scientific Revolution have turned to this terminology perhaps the most of all, for its usefulness in clarifying one of the central explanatory problems attached to this period: namely how it was that certain ideas and practices of natural knowledge, originally confined to one person or area, came to be granted the status of “universal” knowledge across Europe and, ultimately, across large swathes of the globe. To turn an anthropological phrase, historians of science have found the polarities of this terminology to be “good to think with”. The conclusion has increasingly been that, in some ways at least, all forms of knowledge are, or originate in, “local knowledge”. Indeed, despite occasional charges of incitement to relativism, the concept of the “local” has ended up proving extremely fruitful in drawing attention to the importance of seemingly marginal or otherwise non-canonical individuals, ideas, and contexts, the role of which in the shaping of modern science might well otherwise have been ignored.

Nonetheless, it may be time for the concept of the “local” itself to be problematized. For if we turn to it, with an eye to the issues of language outlined in the first section of the paper, examination shows that up until relatively recently, it has not generally been an actor’s category, a concept used by “locals” themselves, of whatever kind. This is especially true in the context of early modern Europe. As far as historians have been able to gather, early modern Europeans rarely saw themselves as embedded in a single “local” context; rather, they held various overlapping forms of identity, based on such categories as religion, profession or trade, and language, as well as geographical location—and, even within the latter category, saw themselves variously as located in particular neighborhoods, villages or towns, territories, and in some cases nations or states. Despite, or perhaps because of what has been seen as the highly “local” character of most pre-modern European societies, in which the great majority of individuals never went more than several dozen miles at most from their homes, the term

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25 For one of the most well-known attacks on this problem, see Shapin and Schaffer (1985), which in some ways can be seen as responding to questions raised by Kuhn (1962) about the securing of assent to scientific change.

26 See Geertz (1983).
itself simply seems not to have been prominent in the vocabulary of most early modern European languages.\footnote{27}

So what words did early modern Europeans themselves use to describe their world? Here the genre today labelled the “local flora” can give us valuable clues. Early in the seventeenth century, small books which listed the plants to be found near a certain town (with the proximity often labelled as within a set radius of three, four, or five miles, for example) began to be published and sold, especially in the German territories. What was new about these books was not that they included local botanical observations (though they did indeed do just that). But the great sixteenth-century humanist “fathers of botany”, who had traversed much of Europe revelling in the contradictions they had found between classical texts and modern experiences, had themselves moved far beyond any simple unquestioning reproduction of the ancients’ accounts of Mediterranean plants, and had begun to make considerable quantities of notes on the plant species they encountered in their travels.\footnote{28} What was new in the local flora, rather, was the way in which, within its covers, these new botanical observations came to be framed. The great works of sixteenth-century botany, whether Latin or vernacular in orientation, had presented themselves as general works, potentially universal in scope. But the local floras that began to be published in the early seventeenth century explicitly defined themselves as geographically limited, as offering only very small pieces of the botanical puzzle. And in their very insistence on their works’ geographical limitations, the authors of these works came to showcase them as specimens of their own knowledge of the localities in which they lived, as a new kind of contribution to the project of natural studies.\footnote{29}

How, then, did these works—for they were not actually labeled “local floras” till much later\footnote{30}—refer to the objects of their investigations, if not as “local”?

\footnote{27} Though the term “local” has existed in English since the late Middle Ages, from the Latin word \textit{locus} (place), its early modern uses tended to be restricted to certain narrow contexts or fields, for example “local motion” in physics. In most of the early modern English texts I have seen, it is not used until the eighteenth century. The Latin adjective \textit{localis} did exist but was similarly rarely used. In German, the term seems to have arrived as a loanword, and is likewise rarely to be found in early modern texts. See the \textit{Oxford English Dictionary} and the brothers Grimm’s \textit{Deutsches Wörterbuch}. On the history of the concept of the “global”, intricately intertwined with the history of globes themselves, see Cosgrove (2001).

\footnote{28} For excellent discussions of sixteenth-century European humanist botany, see Reeds (1976) and Ogilvie (2006). Nappi (2001) mentioned that in China around the same time, similar listings of local botanical information were being recorded in Chinese dynastic histories; for more on early modern Chinese natural history, see Nappi (2006). See also Fan (2000) on subsequent European appropriations of the \textit{Bencao gangmu}.

\footnote{29} On the origins of local floras, as well as of regional geologies and of the localist impulse in early modern natural history more generally, see Cooper (2007).

\footnote{30} The term “local flora” did not arise until late in the eighteenth century, long after Linnaeus and his followers had embraced the genre, keeping the majority of the conven-
plants? The answer is through the cluster of words and phrases referred to earlier, which were used seemingly interchangeably: namely “indigenous”, “domestic”, “native”, or “growing spontaneously”. What is significant here is that these labels do not seem to have meant by any means exactly the same things that the word “local” means now. Nor did they mean the same things as their modern equivalents or cognates. Rather, they carried a whole cluster of resonances of their own. And from the frequently polemical contexts in which Mentzel and other authors of local floras discussed these terms, we can begin to see why Mentzel felt the need to insist so strongly on the benefits of the local flora. For the emerging pursuit of the “indigenous”—understood, almost always, to refer to the natural products of Europe, rather than, as today, the reverse—was thoroughly enmeshed in medical controversy.

This controversy centered on the origins of natural objects, and specifically medicines, those most powerful natural objects which human beings took into their own bodies. In the wake of late medieval expansion in trade, and in particular the new routes opened up by Spanish and Portuguese explorers, disputes arose over the relative merits and demerits of foreign substances. In response to the new disease of syphilis, for example, as it began, in the late fifteenth and early sixteenth centuries, to cause widespread alarm across Europe, guaiac wood from the Americas came to be sold as a sure cure. Other exotic medicaments likewise soon flooded the market as panaceas—including, of course, those most reliable cure-alls, coffee, tea, and chocolate, freshly arrived from parts abroad. Physicians hastened to examine and express their opinions on these new imports, publishing treatise after treatise on each one. In the process, they began to take sides. Some became enthusiastic advocates of new exotic drugs, for example, the Dutch physician Cornelis Bontekoe (1647-1685), with his eager recommendation that patients drink, if possible, up to 50 cups of the new beverage of tea daily.31

But some other physicians did not. Rather, they worried about the possible impacts of foreign materials, originating in lands far from Europe, on European bodies. Their concerns were not only medical; they also worried about the more insidious moral consequences of ingesting these foreign substances on European conceptions of autonomy and self-reliance—not to mention on the pocketbooks of their patients. Authors of local floras used the prefaces of their works to expound such concerns. They pointed out that the effects of foreign drugs were little-known and little-studied. They complained that apothecaries commonly adulterated these foreign drugs with cheaper substances even less-known and less-studied, all for the sake of profit, with scant concern for the welfare of their

31 See for example Matthee (1995). The Arnold Arboretum collection of botanical works housed at Harvard University’s Houghton Library contains numerous such treatises.
patients. And they argued that, in the face of all this, it was time for Europeans to return to the study of their own “indigenous” or “domestic” plants and medicines. It was time for Europeans to return to a fuller understanding of their own natural worlds, and, forsaking the lures of potentially pernicious “exotic” (or ausländisch) substances, to return to the use and enjoyment of their own “indigenous” (or einheimisch) ones.32

What, then, can we learn from the early modern European “indigenous”? We can learn, for one thing, how fluid the language of early modern natural studies could be, how shifting. We can learn how different the discourses early modern Europeans developed were from modern ones; the debate between the “indigenous” and “exotic” can, for example, in no way be mapped easily onto contemporary debates about the relations between the “local” and the “global”. And we can learn about the ways in which European categories might simultaneously be shaped both by European traditions and by European reactions to these traditions in the light of new influences coming in from colonies and trading zones.33 Based on their authors’ claims, local floras do not seem to have originated entirely out of solipsistic self-absorption, but rather out of a very real awareness of the alternatives to local knowledge that were being opened up in the early modern world. In the very category of the “indigenous” itself, the local and the global were deeply interwoven.

The Uses of Being Polyglot

Local floras displayed this interweaving of languages and cultures in their scholarly apparatus itself, in the very set of conventions they developed over the course of the seventeenth century. For in the local flora, Latin and the vernacular came to be joined in a new kind of multilingualism, less ostentatious perhaps than that shown by the Mentzels’ Index, but persistent nonetheless. As the format of the local flora gradually became standardized over the course of the seventeenth century, its linguistic composition emerged as resolutely plural. For the local floras that came to be published in the early modern German territories were almost always bilingual, sometimes even trilingual, fusing elements of Latin and the vernacular into a single package.34 Their titles and title-pages were in Latin,
and so too (with only a very few exceptions) were their assorted prefaces, dedications, notes to the reader, and other frontmatter; but in their catalogue listings themselves, in the entries describing plants, local floras would switch back and forth between passages in Latin and passages in the vernacular, sometimes with a third language (usually Slavic) added as well. This is the model that Christian Mentzel’s flora of Danzig was already, in 1650, tailored to fit. And so the questions this final section will explore concern the role and purpose of this use of multiple languages, which tended to be highlighted by the different typeface used for each language. What functions did this multilingualism serve in these particular texts? Why was it there in the first place? And what can it tell us about the ways in which both language and nature were understood in early modern European natural studies?

For, as we have already seen from the Mentzels’ example, multilingual, or, as they were often called, “polyglot” (literally, “many-tongued”) works were far from uncommon in early modern Europe. But they seem frequently to have taken very different forms in early modern Europe than that of the local flora. Some, obviously, were dictionaries; these ranged from simple translation aids from one language to another, to compendia providing tables of words and their synonyms in up to a dozen or more languages. The audiences for these were various, from students (for whom glossaries linking their vernacular tongue with Latin, Greek, and sometimes Hebrew, were prepared) to travellers and businessmen (for whom compendia of the major European vernacular languages alone were seen as more practical). But polyglot works were not confined to the obviously utilitarian in purpose. For learned humanists, the production of a polyglot work, with its concomitant demonstration of linguistic mastery, seems to have been in itself a sign of significant scholarly achievement. One of the most striking examples of such humanist virtuosity was the renowned Complutensian (or “Polyglot”) Bible compiled in Spain in the early sixteenth century. This work and its successors, with their complex layouts and multiple columns enabling them to present the text of the Bible in an array of languages and alphabets simultaneously, were noteworthy for their lavish format as well as seeming encyclopedic scope and display of erudition. In contrast, local floras were extremely modest in format—usually published in octavo or duodecimo, they were literally pocket-sized—and, while they may have been seen as aspiring to encyclopedism in some ways, for example in their claims to list every plant to be found growing within the specified radius

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35 See for example Collison (1982), pp. 54-91.
36 For a recent discussion of the lengthy history of these works, see Miller (2001).
around their place of publication, these very narrow geographical limits seem to have likewise placed bounds on any lavish display of encyclopedism.\textsuperscript{37} Local floras did share some features with earlier encyclopedic works of the Renaissance—for example, the use of alphabetic order in the absence of any other clearly agreed-upon sense of order, in this case, natural order or precedence within the plant kingdom\textsuperscript{38}—but they seem to have had different goals.

To understand why the compilers of local floras chose to interweave Latin and the vernacular in the way they did, it is necessary first to consider the question of their audience. Authors repeatedly aimed their prefaces at “studious youth”—in particular, medical students at German universities.\textsuperscript{39} This didactic and pedagogical context of the local flora appears repeatedly in authors’ insistence that a knowledge of local plants was necessary for any would-be physician. Reinforcing this point with laudatory quotations from Galen, Hippocrates, and other authorities, which urged the study of “simples” as essential for prospective physicians, they presented the local flora as a learning tool towards this aim. Caspar Bauhin (1560-1642), for example, chose in his local flora to highlight Galen’s opinion that “the doctor ought to have experience of all plants, if possible”,\textsuperscript{40} and other authors likewise emphasized the need for medical students to acquire knowledge not only of the human body, but of living plants themselves. Most evidence, indeed, points to the fact that local floras were designed specifically so that students could carry them along on botanical excursions arranged as part of the medical curriculum. One of the reasons that local floras did not contain as much information about each plant as they conceivably could have (i.e. were not as “encyclopedic” as they might have been) was that they were specifically designed for use in the field, and for a particular form of instruction in which the presence of the professor on the excursion would, in fact, be crucial. This is most probably the reason why so many of the exemplars surviving today are bound with blank pages interleaved, so that students could take notes on what the professor said. The bilingualism of the local flora, its intermixture of Latin

\textsuperscript{37} For this discussion of encyclopedism, I’d like to acknowledge my debt to discussions with Ann Blair in a course she taught on “The History of Encyclopedias”, Harvard University, Cambridge, MA, Fall 1991, and afterwards. I look forward to her forthcoming book on the topic.

\textsuperscript{38} On the use of alphabetical order in the Renaissance, see Blair (1997), pp. 66 and 162-163.

\textsuperscript{39} The title pages of most local floras specified that they were designed “for the use of the school of medicine” of the respective university. See for example where the title page lists the book as “in usum scholae medicæ Ingolstadiensis” (Menzel (1618)). Knauth (1687) described his audience as “rei herbariae Studiosos & Tyrones”, or beginners; he also stressed that his book might be of interest to “Viris eruditis” in general, though, in the process making it clear that the audience was not intended to consist of the unlearned (sig.):(28).

\textsuperscript{40} Bauhin (1622), title page: “Medicus, omnium stirpium, si fieri potest, peritiam ha-beat...”
and the vernacular, might, if viewed in this light, be seen as meshing perfectly with the effectively bilingual culture of early modern students and professors alike.

But local floras were not aimed solely at medical students (even if they were probably the primary audience). In the dedications composed for these works may be seen signs of another at least potential readership. Local floras were frequently dedicated both to university and to town officials; for example, deans, rectors, and other functionaries in the early modern university were often named, but so too were town councilors, local dignitaries, and “ provincials” (or members of noble families with country seats in the area). These dedications suggest at least the possibility that local floras might also have been seen not only by students and scholars, but by at least some of the “locals” as well—if only because these lucky few were likely to have received as gifts copies of those volumes dedicated to them. One author expressed hopes that it might indeed be possible, with the help of a colleague’s local flora, for non-students to negotiate their way through the difficulties of matching plants with words, claiming that the latter had put geographical information in the vernacular so that plants “could be investigated with less work by amateurs, herb-collectors, and Batavian botanophiles, and shown to foreigners.”

Furthermore, as this last phrase suggests, authors of local floras sought to broaden their works’ appeal even more widely. They claimed their local floras as “ornaments” to the towns whose plant life they purported to describe, not only testifying to the skill of the scholars who compiled them, but also presenting a favorable image of both town and university to any outsiders who might read them, in short, adding to the town’s prestige.

Several pieces of evidence suggest that local floras did, in fact, not uncommonly make their way beyond town walls: first, the number of copies found in university libraries, often ones far away; and second, the number of citations of these floras by learned scholars based in different universities, often indeed in different countries. However, whether scholars abroad could understand the portions of the local flora that were written in a vernacular different than their own is dubious. So the question remains: Why the bilingualism?

Let us return one final time to the scholarly apparatus of the books themselves, and examine in detail how Latin and the vernacular actually worked together in the local flora. A typical entry would begin by giving a plant’s Latin

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41 See Bidloo (1683), p. 6. As to how many town-dwellers might have encountered local floras, there is far less evidence, and local florists’ claims about their works’ appeal should probably be taken with a certain amount of skepticism. How many “locals” actually read or used these books remains an open question. This is especially the case given such features of these works as their Latin title-pages, in which even town names were universally Latinized, which would in quite a few cases have rendered them almost completely unintelligible to the uninitiated.

42 On town-gown relationships, see Bender (1988).
name (or names, if it had more than one, as was most frequently the case at this time, before Linnaeus had put his standardizing stamp on botanical nomenclature). These names were frequently long, strings of half-a-dozen or more words put together (or, at any rate, longer than the two-word length Linnaeus would later mandate for his binomial system). The reason for their wordiness was, of course, the effort by botanists to describe each plant as thoroughly as necessary to differentiate it from others, with this description having come, more and more over the course of the seventeenth century, to focus on the visible form and structure of the plant, rather than its other attributes such as taste, smell, use, and so forth. After the Latin name or names, the (usually much briefer) vernacular name of the plant would then be given—or names, if it had more than one, which was less likely but sometimes did happen, especially in areas where dialects overlapped or where German city-dwellers presided over a countryside populated by Slavs; in these cases the German name would be given first, then the Slavic one, in the appropriate language. Then the text might revert back to Latin for one more sentence of physical or visual description of the plant’s form; this seems to have been optional, and to have depended largely on how thoroughly a plant’s various Latin names had set forth its appearance and structure. And then, finally, the entry would almost always revert back to the vernacular, ending with a German or other vernacular sentence discussing the habitat of the plant in question, in particular, the specific places where specimens could be found.

Here it will be necessary to focus on this final, vernacular part of the typical entry, as it is indeed what most illuminates the special role and purposes of the vernacular in these books. In these final sentences, which often actually provided the bulk of many entries, the compiler would discuss plants not in terms of their visual characteristics or differentiae, but rather in terms of place. These sentences effectively supply us with a colloquial taxonomy of the different kinds of places where a plant might grow: in fields, in ditches, in swamps, alongside the road, in hedges, in mountain pastures, and so forth. “Fields”, “meadows”, and “swamps”, and so forth, formed the “common places” of the local flora, in a sense similar to that in which humanist discourse had earlier developed its own set of “commonplaces” or topoi. Frequently more specific locations would also be given; for example, a particular mountain or road might be named, or even a specific house near which the plant might be found growing. One compiler, for example, men-

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43 On this general process, see Ashworth (1990) and Ogilvie (2006), pp. 332-337.
44 For naturalists’ interest in “local”/dialect terms, though in the English context, see Gladstone (1991).
45 The following Latin title, for example, lists many of these “common places” that were simultaneously being developed in the vernacular in the local flora: *Deliciae botanicae Hallenses, seu catalogus plantarum indigenarum quae in locis herbosis, prattensisibus, montosis, saxosis, clivosis, umbrosis, arenosis, paludosis, uliginosis, nemorosis, & sylvestribus circa Hallam Saxonium progrescent* (Schäffer (1662)). For more on the idea of “commonplaces” during the early modern period, see Blair (1992).
tioned in his local flora plants that could be found growing around the university’s Collegium; near the poorhouse; and even near nearby mines.\textsuperscript{46}

In the substance of the local flora, then, a sort of division of labor seems to have taken shape, a form of linguistic cooperation in which each language came to take on a specific \textit{task} of description. Latin came to be the language of choice for discussing names and nomenclature, which merged seamlessly with the visual description of plants; Latin would thus be identified with the “universal” and with those aspects of natural history (i.e. visual characteristics) which later, under Linnaeus, were to be seen as most useful for scientific classification. In contrast, the vernacular ended up being reserved for discussions of place and habitat, for the varied and diverse world of the fields and forests in which townspeople actually lived. The Latin language was certainly quite capable of dealing with variety and diversity, as it did in naming and describing plants; but the task of labeling the particular kinds of variety and diversity of the vernacular landscape seems to have been felt to demand the vernacular, as one author suggested in the Dutch context: “The birthplaces of plants … will be expressed in the speech of the \textit{patricia} (native land), so that the places of cities, countrysides, houses, rivers and canals will remain unaltered under their own names.”\textsuperscript{47} While Latin came to be identified with the universalist world of naming and scholarly activity, then, German and other vernaculars came to be employed in contexts of particularity and of “popular” associations. In the precisely patterned interweaving of Latin and the vernacular, these different worlds were brought together.

This kind of bilingualism, and its resulting division of linguistic labor, can be seen especially well in Christian Mentzel’s local flora of Danzig. It was in Latin, for example, that Mentzel provided almost all of his names, synonyms, and descriptions of plants, with the vernacular inserted here solely on those occasions when he knew of a German name for a plant—and even then only briefly. By contrast, German was the language with which Mentzel \textit{ended} almost every entry, as he described the places where a plant could be found. Yet even these entries on place were themselves bilingual, with more general information about habitats presented in Latin, and only more specific locations rendered in the vernacular. For example, Mentzel used Latin in one entry to assert that a plant could be “found in the mountains”, but then switched into German to report that near Danzig, the best place to look for it was “behind Jaschkenthal”\textsuperscript{48}. Likewise, it was in Latin that he remarked that another plant could be found “on seashores”, switching then to German to name a specific place (“near Zoppot”, or Sopot, today a popular seaside resort).\textsuperscript{49} Mentzel’s local flora, then, vividly displays the bilingualism of the local flora to an even higher degree than normal in this genre, with

\begin{thebibliography}{9}
\bibitem{46} Hoffmann (1662), \textit{passim}.
\bibitem{47} Bidloo (1683), p. 6.
\bibitem{48} Mentzel (1650), p. 209.
\end{thebibliography}
the division between the use of Latin for universals and the vernacular for particulars occurring even in mid-sentence.

As this paper has attempted to show, local floras like that Christian Mentzel wrote in 1650 thus went far beyond the merely “local”. Through their bilingualism, through the way in which they made connections between the worlds of scholars and those of townspeople, local floras mediated between university and town, object and environment. In their construction within apolemic about the relations between Europe and the rest of the world, they also mediated between what we would today call “local” and “global”, like the Mentzels’ great multilingual Index itself. For early modern Europeans, the pursuit of the “indigenous” was not separable from the multiple ways in which virtuosi and scholars attempted to remake their knowledge of the natural world through the tools of language, which exerted their powers over long ago times and far-away places. Philologists had, in the Renaissance, bridged the enormous gaps between the cultures of the classical Mediterranean and the European world over a millennium later; so too could seventeenth-century naturalists, building on the humanist skills of their sixteenth-century predecessors, bridge the gap between words and things scattered over the globe.

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