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New Science in Old Yiddish: Jewish Vernacular Science and Translation in Early Modern Europe

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From its early beginnings in the late medieval period, Old Yiddish literature was relegated to an ancillary position within the Ashkenazi literary realm.[1] Largely perceived as a conduit for the dissemination of Jewish tradition and religious knowledge, which were inaccessible to most European Jewish readers in their original Hebrew, Yiddish functioned as Jewish lingua franca. It was a language of dialogue between different Jewish social groups, classes, spaces, and—as the primary (often the *only*) language spoken and read by Ashkenazi women—genders. To achieve this purpose of cultural dissemination, early Yiddish authors relied heavily on the translation and adaptation of canonical texts and liturgy from Hebrew.[2]

At the same time, Yiddish literature constantly seeped into new and previously unexplored literary territories. Here too, translation (whether from literary or oral sources) played a key role. Relying on the close linguistic affinity between Yiddish and German, by the fourteenth century, Yiddish authors began to translate profane works from the German, such as epics, romances, stories, and chapbooks.[3] This reliance on German and, to a lesser extent, other European vernaculars, such as Italian and Dutch, led to the formation of a rich library of Yiddish literary works, comprising translations, transliterations, and adaptations, but also semi-original works inspired by and modeled after non-Jewish literature. The literary encounters between early modern Christians and Jews that took place on the pages of Old Yiddish literature have received

no small degree of attention. Scholars such as Arnold Paucker, Sara Zfatman, Ruth von Bernuth, and Jerold C. Frakes have shown how Old Yiddish authors employed the literatures of their surrounding environments in imaginative and often subversive ways.[4]

But Yiddish was more than a religious or literary language; throughout the early modern period, Yiddish authors also produced works in other genres, including didactic, journalistic, historiographic, and scientific texts. Admittedly, genres of writing were closely intertwined in early modern literature, not allowing for any kind of neat separation between (and within) fiction and nonfiction. However, while the encounters between early modern Christians and Jews that occurred within the library of unambiguously literary works have been studied extensively, the interreligious encounters that took place in other genres of Yiddish writing have received scant attention. The few studies that have ventured beyond the belletristic pale have demonstrated that there is much to be gained by adopting a more heterogeneous approach to the study of Old Yiddish translation. A number of studies have revealed, for instance, a lively intercultural exchange between Jews and Christians that transpired through the translation of works of historiography, music, journalism, guidebooks, and even—as Rebekka Voß has recently shown—prayers.[5]

In the present essay, we discuss a particularly underexplored terrain of cultural transmission between Christians and Jews: the translation of scientific works from European languages (primarily Latin and German) into Yiddish. Little is known about this phenomenon or about the ways it dovetails with the corresponding phenomenon of Hebrew scientific translation of the same period. In the large surveys of early modern Yiddish literature, scientific works are most often discussed in the context of didactic literature, folklore, or magic and recipe books, and not as part of the history of early modern science.[6] A number of studies that have reflected

more rigorously on early Yiddish science have largely focused on individual works and have not located them within the larger context of early modern science in general, and Jewish interest in science in particular.[7] Medical works, particularly recipe books, have received slightly more attention from scholars of Yiddish, but here too, their relationship to European medicine and translation, on the one hand, and Hebrew scientific writing, on the other, has been largely overlooked.[8]

The genre of Yiddish science is even more underrepresented among studies devoted to early modern science in general, and Jewish scientific writing specifically.[9] The majority of the latter studies have focused almost exclusively on Hebrew works or on works produced by Jews in European languages.[10] Scientific translations into Hebrew in medieval Spain and Provence have received particular scholarly attention, and increasing attention has been devoted over the past few decades to similar pursuits in late medieval and early modern Italy. But the Jewish pursuit of science, particularly in the Ashkenazi realm, has often been imagined as a distinctive hallmark of the Jewish Enlightenment (Haskalah).[11] Within this founding narrative, earlier Yiddish translations are either entirely ignored or, as we shall presently see, relegated to the position of mere forerunners of the supposedly more mature scientific pursuits of the Haskalah. Although recent studies have complicated this association between the rise of the Haskalah and the rise of Jewish interest in science, they too have focused almost exclusively on works produced in Hebrew.[12]

Taken together, these literary and historiographical trends have contributed to the persistence of the artificial separation between early modern Yiddish and Hebrew literature, as well as between Yiddish and other European vernaculars of its time. Admittedly, over the past few decades, historians, philologists, and literary scholars have liberated Yiddish literature and

culture from the denigrating image imposed on it for centuries, but the scholarly divide between Old Yiddish literature and other literatures of its time endures, inadvertently reproducing the dichotomy between learned and popular culture, as well as Jewish and "general" history, which recent studies have done much to challenge.[13] Moreover, in presenting early modern interest in science as merely a prelude to the Haskalah, historians have adopted a teleological view that reduces the raison d'être of early modernity to the single goal of delivering the modern world.[14]

The marginalization of Yiddish science is not only characteristic of historiographical trends within the field of Jewish studies. In part, this scholarly oversight is also indebted to the perception of scientific investigation as sealed off within the walls of early modern universities.[15] And yet, as historians of science have taught us, early modern science was far removed from modern notions of institutionalized inquiry into natural phenomena; nor did it neatly correspond with the medieval understanding of *scientia* as the syllogistic search for universal truths.[16] Katharine Park and Lorraine Daston have revealed ubiquitous misprisions of early modern scientific thought through a discussion of the chimera of the "Renaissance man," which, they argue, constitutes a "trick of historical perspective, which creates polymathesis out of what was simply a different classification of knowledge and a different professional division of labor."[17]

Reading, translating, and disseminating scientific texts in a European Jewish vernacular

Attention to the reading, trabslation, and dissemination of scientinfic texts in Yiddish expands the scholarly exploration of the meanings of "science" prior to 1800, beyond the term's narrow and hierarchical understanding that once stood at the birth of the history of science.[18]

Between the fifteenth and seventeenth centuries, the rising emphasis on practical experience, novelty, and demonstration resulted in a reorganization of the place and practice of

scientific inquiry.[19] Early modern science emerged from the dynamic dialogue between various institutions and figures, including apothecaries, the authors and traders of recipes and recipe books, court-adjacent engineers, artisans, explorers, and missionaries. This cross-pollination between institutions of governance, markets, and the holders of scientific expertise shaped early modern science into a field that was, at one and the same time, "speculative," "practical," and "factive."[20] Scientific authors were expected to provide guidance for a good life and were presumed to be knowledgeable about producing, modifying, or exchanging material goods.[21] This narrowing of the gap between theory and practice holds true not only for the "immediate suspects" of applicative science, such as medicine, but also to what we today would consider basic science, such as astronomy, whose strong ties to astrology and prognostication may have motivated the discoveries of astronomers the likes of Copernicus, Galileo, and Kepler.[22]

In addition, already in the late Middle Ages, science in its textual form began to assume a multilingual dimension.[23] By the seventeenth century, Latin and the European vernaculars were largely understood as equally adequate for communicating works of science, philosophy, history, theology, and other theoretical fields of knowledge. Admittedly, Latin readership was imagined to be more scholarly and international, whereas a vernacular readership meant a more local focus but greater social and economic impact. Thus, as Carlos Eire notes, "Texts written in Latin by the 'experts'—if deemed significant enough—needed to be translated into vernaculars for a broader lay audience. Significant texts written in the vernacular, in turn, needed to be translated into Latin for international distribution, since Latin was the common tongue of the elite throughout Europe."[24] As Eire and others have shown, such bidirectional translations between Latin and the vernaculars were ubiquitous, complicating any attempt to imagine a tidy separation between learned and vernacular cultures.[25]

In the context of Jewish literature, recent scholarship has begun to reveal that the translation of nonfiction, and particularly works of history, medicine, and science, from Latin and the European vernaculars into Hebrew, was a widespread phenomenon in early modern Europe.[26] Admittedly, literary translations were more ubiquitous in Yiddish, and translations of science and historiography were more widespread in Hebrew. Still, much like other European vernaculars of the time, throughout the early modern period, Yiddish authors and translators exhibited an avid interest in works of nonfiction in general, and in natural science, arithmetic, and medicine in particular.[27] The result of this interest was the creation of a versatile corpus of scientific works in Yiddish, which were largely translations of works from German and, to a lesser extent, Latin and Dutch.

The present essay offers an initial survey of this early Yiddish interest in science, addressing a selection of Yiddish translations—or assumed translations[28]—from German, Latin, and Dutch of scientific works produced in eastern and central Europe between 1500 and 1800. We focus particularly on works that can be shown to have drawn directly on written sources, rather than on oral traditions that often served as the basis of Yiddish literary works.[29] To the extent possible, we identify the particular source texts and editions, as well as any mediating texts that may have been used by the translator. We furthermore offer initial comparative readings and notes on the methods of the translation and initial comments about the sociolinguistic context of such translational endeavors.

This short overview does not presume to be exhaustive; our main objective is to draw attention to the ways in which European scientific literature reached Jewish readers of various classes, spaces, and genders, well beyond the narrow elite of rabbinically or university-trained Jews. In so doing, we wish to challenge the notion that there existed in early modern Europe a

tidy division of labor between Hebrew, the language of the learned elite, and Yiddish, the language of the Jewish masses. In addition, we wish to contribute to recent attempts to question the prominence of the Haskalah as a harbinger of Ashkenazi interest in non-Jewish knowledge in general, and science in particular.[30]

YIDDISH RECEPTION OF LATIN SCIENCE

While recent studies have revealed the dominance of Latin as a source language for late medieval and early modern Hebrew translation, particularly of scientific works[31]—the possibility of a Latin influence on Yiddish literature and thought has been almost entirely ignored. And yet, traces of Latin influence are to be found in various Yiddish works. The meanings and valence of these traces vary considerably. As we discuss below, in most cases, Latin works were translated into Yiddish through the mediation of German translations. There is, however, at least one Yiddish scientific work that offers an unambiguous example of a direct reliance on Latin sources. We refer here to the Yiddish health-care manual *Sefer derekh ʻets ha-@hayim* (The path of the tree of life). Published anonymously in 1613, *Sefer derekh ʻets ha-@hayim* is the earliest printed Yiddish medical work known to us.

The book's title page divulges few details. It makes no mention of its author, sources, or place of publication. Recent studies have taught us something of the book's provenance, suggesting that it was the work of an learned east European physician, published in or around Lublin.[32] Yiddish scholar Ewa Geller has furthermore suggested that the book is an adaptation of the medieval rhymed health manual known as the *Regimen sanitatis Salernitanum* (Salernitan regimen of health) or of one of the *Regimen*'s Polish or German adaptations.[33] Geller views this process of intercultural transfer as indicative of a recognition that "all people are equal or equally

helpless in the face of an illness or death." She goes on to argue that in embracing this view, "the author of the text […] shows himself to be one of the forerunners of the Enlightenment attitude […]."[34]

Our own research confirms that *Sefer derekh 'ets ha-@hayim* is indeed an adaptation related to the *Regimen sanitatis Salernitanum*. But it is neither an original adaptation nor a translation of any German or Polish mediating texts. Nor is it the revolutionary, protomaskilic text Geller understands it to be. In fact, the book is, for the most part, a close translation of parts of two distinct sixteenth-century Latin texts: *De conservanda bona valetudine* (The preservation of good health, 1557), by Johannes Curio (d. 1561), town physician and professor of medicine at Erfurt;[35] and Pietro Andrea Mattioli's (d. 1577) famous commentary (*Commentarii*, 1544/1554) on the *Materia medica* of Dioscorides.[36]

Curio's book constitutes a lengthy exegesis on the comments on the *Regimen* attributed to the thirteenth-century physician Arnaldus de Villanova (d. 1311).[37] This latter edition of the *Regimen* circulated widely throughout medieval Europe. It was translated into Hebrew from Latin and from Catalan during the Middle Ages and remained a work of canonical significance well into the early modern period.[38] Italian rabbi and physician Jacob Zahalon (d. 1693), for instance, translated a fragment of the *Regimen* from Latin to Hebrew and recommended its further study with Arnaldus's Latin commentary, as had become customary in the fourteenth century.[39]

The creator of the Yiddish *Sefer derekh 'ets ha-@hayim* took a different course. Rather than translate the original verse of the *Regimen* or Arnaldus's canonized commentary—both of which appeared in whole in Curio's adaptation—he chose to translate only Curio's original commentary on the *Regimen*.[40] Thus, Curio's book opens with the first verse of the *Regimen*:

If thou to health and vigor wouldst attain
Shun weighty cares—all anger deem profane,
From heavy suppers and much wine abstain
Nor trivial count it, after pompous fare
To rise from table and to take the air
Shun idle noonday slumber, nor delay
The urgent calls of Nature to obey.
These rules if thou wilt follow to the end
Thy life to greater length thou mayst extend.[41]

From this verse, and Arnaldus's additions, Curio extrapolated eight things that should be minded for the preservation of good health. It was with this list of practical requirements that the Yiddish translator began his book, while omitting the medieval verses of the *Regimen*. The book opens with the following recommendations, translated directly from Curio: refrain from excessive sadness or fear (*tristitia* and *timor* in Curio's Latin, *zorg* and *ershkreknis* in the Yiddish translation),[42] refrain from excessive anger (*ira/tsorn*),[43] drink moderately (*moderate vino utatur / venig vayn trinken*),[44] eat moderately (*modico cibo utatur / venig esen*),[45] take a walk after a meal (*a sumpto cibo surgat / nokh den abent esen ayn vayl umgen*),[46] do not sleep immediately after a meal (*ne a prandio somno indulgeat / nokh mitag esen nit shlofn*),[47] avoid urinary retention (*ne lotium diutus / der sheten nit far haltn*), and avoid constipation (*excrementorum retention / der tsorekh nit in zikh haltn*).[48]

In this way, the Yiddish translator adapted the first seventy-six chapters of Curio's work, transforming them into the first fifty-six chapters of his Yiddish book. Some chapters were omitted, while others were merged, but in general, the translator maintained the organization of

chapters that appeared in his source, repeating Curio's practical advice to his readers, and omitting the more flowery descriptions that characterized the medieval *Regimen* and Arnaldus's commentary.

Similar editorial choices inspired the translator's treatment of Mattioli's *Comentarii*, which forms the basis for chapters 57 to 83 of *Sefer derekh 'ets ha-@hayim*. Mattioli's book systemized the scholarly thought on medicinal plants, expounding and organizing information known about these plants, while basing itself on the work of the classical pharmacologist Dioscorides.[49] As was the case with the translation of Curio's source, so too Mattioli's scholarly achievements did not translate into the Yiddish work in their entirety. Inspired by his Latin source, the Yiddish translator included a list of common appellations of various medicinal herbs and plants. But rather than reproduce Mattioli's lists of classical and western European plant names, he created his own list of central and eastern European appellations, with the occasional nod to Latin names. In his discussion of *Caucalis* (bur parsley), for instance, Mattioli includes the alternative appellations, "in Greek Καυκαλίς, in Italian *Petrosello salvatico*, and in French *Persil sauvage*."[50] Recognizing the cultures of Ashkenazi literacy of his time, the Yiddish translator replaced these Greek, Italian, and French terms with German and Slavic ones, thus: "*Raukh biber nel* (bibernelle), meaning *vilde petrushke*." The plant's Latin name, rendered here—*kokulie* (קאקוליה)—was also mentioned in passing in the text body.[51]

The translator furthermore omitted the physical descriptions of the plants that appeared in Mattioli's source, as well as the descriptions of their habitat. Of Mattioli's rich and detailed descriptions, he extracted only the medicinal uses of the plants discussed. His selection of entries reveals the likely edition with which he worked—namely, the popular 1586 Latin edition prepared by Joachim Camerarius the Younger (d. 1598), known as *De plantis epitome utilissima*.

This edition displays one plant per page, each including a woodcut depicting the plant and Mattioli's text divided into five sections: the plant's Latin, Greek, Italian, German, and other appellations (*nomina*); its physical description (*forma*); a discussion of its natural habitat (*locus*); its general medicinal qualities (*qualitates*); and its practical uses (*vires*). The Yiddish author extracted only the information grouped by Camerarius under the section *vires*, suggesting his usage of the edition organized by this German scholar and not the book's earlier versions which display the whole chapter as running text uninterrupted by additional paratextual elements.

Similar to his treatment of Curio's medical text, in his treatment of Mattioli's botanical work, the Yiddish translator focused primarily on what was both practical *and* available to Jewish readers of his time and space. The book features roses, junipers, sorrels, pumpkins, pickles, and other plants and herbs of eastern European flora and agriculture, or available in local markets. While his translation was generally faithful, the translator occasionally omitted recipes that addressed issues that would have been irrelevant to an eastern European Jewish readership, such as the treatment of scorpion bites.[52]

In addition to this kind of regional domestication of the text, another feature of the translation was its Judaization; in his treatment of both Curio and Mattioli's source texts, the translator seized opportunities to dress his translation in Jewish garb, so as to make the work not only more relevant but also more acceptable to an eastern European Jewish readership.[53] Thus, for instance, to Curio's short discussion of the importance of sleeping on a light stomach, he adds that "this holds particularly true on *Shabbos* when people eat leftovers in the morning and from this emerge many illnesses."[54] Elsewhere, in a chapter dedicated to the issue of afternoon sleep, the translator encourages napping after the midday sabbath meal, as "one has no strength, cannot move himself, nor come to his senses for an hour."[55] Of particular interest is his addition to

Curio's discussion of the adverse health effects of sadness and fear; here, the translator notes that "it should come as no surprise [*kayn khidesh*] that [the people of] Israel are weak and have little power, since because of our sins in the diaspora [*goles*] we are constantly subject to many worries and woes [*fil zorg un' der shreknsh*]."[56]

Domestication was achieved not only through additions to the source but also through omissions. Thus, although unkosher recipes including rabbits, bats, or even pork often appeared in both Hebrew and Yiddish works, the translator omitted the chapters on pork and eel that appeared in Curio's source.[57] However, in his translation of the first chapter of Mattioli's grand work, the Yiddish translator added lard (*khazir shmalts*) to one of the recipes. In this context, it should be noted that the external application of lard was generally accepted by early modern eastern European Jews.[58]

Perhaps the most conspicuous difference, however, between Curio and Mattioli's Latin sources and their Yiddish translation was that of genre; while the Latin sources were focused on the scholarly aspects of medical practice—such as questions of controlling bodily fluxes, the correct identification of medicinal plants, and so on—the Yiddish translator focused primarily on practice. Theoretical discussions and literature reviews were almost entirely expunged from the translation, and the exegetical organization that had characterized the Latin sources was eliminated. Instead, the translator emphasized practical remedies and advice, and distilled only the most utilitarian elements of his source texts. In so doing, he collapsed the already narrowing gap between early modern theory and practice. The translation thus remolded its highbrow Latin scholarly texts into kind of popular Yiddish recipe book, the likes of which would have been familiar to Jewish readers of the time.

Although *Sefer derekh ʻets ha-@hayim* stands out among Yiddish translations in its direct resort to Latin sources, this particular propensity for the practical makes it a characteristic specimen of Yiddish science and Yiddish translation more generally. The same emphasis on practicality is found in the Yiddish scientific translations discussed below, as well as in other nonfiction translations, such as Shabbethai Bass's translation of Eberhard Rudolph Roth's *Memorabilia Europae* (1680), or Moses Markuse's translation of August Tissot's medical guidebook *Avis au peuple sur sa santé* (1790).[59] A similar phenomenon has been noted in Hebrew-to-Yiddish translations into which, as Chava Turniansky observes, "no substantial theoretical deliberations—philosophical, theological, mystical, or ethical—enter."[60]

Yiddish Science at the Crossroads of Languages, Libraries, and Institutions

While *Sefer derekh ʻets ha-@hayim* offers a fascinating example of a direct relationship between Latin and Yiddish sources, in most cases, Yiddish translators' and authors' access to Latin scientific knowledge was mediated via the German. Yiddish scientific texts thus often formed a meeting ground between learned languages, such as Hebrew and Latin, and the vernaculars—German and Yiddish, complicating the attempt to read these literatures in isolation. Through the secondhand translation of Latin works, or even merely the inclusion of Latin terms, vernacular authors of scientific texts located themselves on a continuum of past and present, learned and popular traditions, while at the same time signaling their scholarly erudition.

An interesting example of the kind of multilingual dialogue that informed Yiddish translations of scientific works is offered by the Yiddish world geography *Tela'ot Moshe* (Moses's travails, 1711), by the printer Moses ben Abraham the Proselyte. As Chone Shmeruk and Israel Bartal have shown, the book was largely a translation of two primary sources—

Abraham Farissol's Hebrew *Igeret or@hot 'olam* (Epistle on the ways of the world, 1524), and Petrus Bertius's Latin *Tabularum geographicum contractarum* (1600).[61] Like many other Jewish translators of his time, Moses ben Abraham's treatment of his foreign and domestic sources was differential. While the Hebrew source text by Farissol was mentioned already on the book's cover page, *Tela'ot Moshe* did not identify itself as a translation of Bertius's *Tabularum*. Rather, the title page acknowledges the translator's usage of various non-Jewish sources, with Bertius himself mentioned in passing several times throughout the work, alongside other non-Jewish authors. As Shmeruk and Bartal have shown, however, *Tela'ot Moshe* was largely a secondhand translation of Bertius's book, mediated via a German translation that appeared in 1612. That the Yiddish translator relied on a mediating text may be gleaned from various errors introduced into the German translation that were reproduced in the Yiddish book.[62]

Such indirect translations of Latin works via the German are particularly prevalent in the field of Yiddish medicine. A case in point is a Yiddish manuscript copy of Andreas Vesalius's renowned *De humani corporis fabrica epitome* (1543).[63] Housed at the library of the University of Pennsylvania, the manuscript, which bears the title "Von der mensh körp[e]rs an[a]tomey," is a near word-for-word transliteration of a 1543 German translation of Vesalius's work, bearing the same title and prepared by Alban Thorer (d. 1550).[64] It seems to have been produced around Hesse or the Rhineland toward the end of the sixteenth century.[65]

The anonymous scribe and translator into Yiddish preserved both the German syntax and terminology of the source, along with the visual distinction between German and Latin. The German text, which was printed in the customary Schwabacher typeface in Thorer's source, was rendered by the Jewish scribe in the standard Yiddish script. Latin terms, which were printed in the Antiqua typeface in Thorer's version, were handled differently also in the Yiddish

manuscript. Wherever he encountered such terms, the Yiddish scribe left a blank space for them, which he later filled in with a Latin-language term in the Latin script. A few pages into the manuscript, however, the scribe abandoned this practice, leaving behind spaces which were to remain forever blank.

In some cases, the impact of Latin on Yiddish texts seems to have been limited to the inclusion of the Latin terms which featured in these works' German sources. An early eighteenth-century Ashkenazi manuscript, which has been preserved at the Bodleian Library, offers a poignant example.[66] The manuscript contains a set of texts, lists, and notes that confuse Hebrew, German, and Latin terminology. It features a list of forty-three Latin technical terms, from *abluentia, absorbentia, astrigentia,* all the way to *selentica,* accompanied by their German appellations in Latin script and their description in German in Hebrew letters. The terms were transcribed not from any Latin-language source but from the German pharmacological lexicon, *Gazophylacium medico-physicum, oder, Schatz-Kammer medicinisch- und natürlicher Dinge* (Medico-physical thesaurus, or treasury of medical and natural things,1709) by Johann Jacob Woyt.[67] Woyt's *Gazophylacium* was designed to tackle the changing nature of medical expertise during the sixteenth and seventeenth centuries. As medicine (particularly its chemical iterations) became increasingly concerned with mechanical and procedural aspects, it generated a voluminous Latin technical vocabulary, with which vernacular authors were required to familiarize themselves. This requirement generated multilingual lists of technical glossaries throughout Europe, of which Woyt's book is just one example. The Yiddish translation of the *Gazophylacium* is a textual remnant of central European Jews' attempt to catch up with these developments.[68]

As was the case with *Tela'ot Moshe,* Hebrew literature also left its mark on this macaronic manuscript. In addition to Woyt's list, the anonymous scribe also copied into his manuscript Hebrew medical-ethical works, such as the Hebrew translation of Hippocrates's *Aphorisms,* prepared by Joseph Solomon Delmedigo,[69] and Zahalon's translation of the Latin physician's admonition, originally written by Abraham Zacuto (d. 1642).[70]

In some cases, the recourse to Latin seems to have been mostly a means of signaling erudition. An example is offered by a mid-eighteenth-century manuscript by one Mordecai ben Ye@hiel Mikhal ha-Cohen mi-Schmallenberg, titled "'Ets ha-sadeh" (Tree of the field, ca. 1751). In a Hebrew preface to the Yiddish manuscript, ha-Cohen boasted his command of Latin and French and his vast reading in these learned languages.[71] The manuscript itself features long lists of Latin appellations for various medicaments and herbs, as well as the Latin names of a litany of diseases and body parts in Latin script, along with their Yiddish names or transliterations. The manuscript thus describes medical matters in both scripts and languages. It also includes references to a plethora of Latin authors. These various terms and references seem to have been designed to create the impression that the translator had perused the works of learned physicians in their original Latin. However, as a forthcoming study reveals, the greater part of the book is a near word-for-word transliteration of a German-language book by Pietist physician Christian Weissbach (d. 1715), as well as a handful of other German (and Hebrew) authors.[72] The translator's reasons for obfuscating his direct German sources while trumpeting his indirect Latin ones can only be speculated upon. However, given the target readership—which the translator identifies as "people who possess little knowledge, and no education"[73] and for whom such Latin terms and names would have been mostly meaningless—it stands to reason that at least in part, the translator's nod to Latin literature was an attempt to position himself as a

medical authority, possessing the required knowledge for the production of a learned medical book.

Although the Yiddish translation of Vesalius and Mordecai ha-Cohen's "'Ets ha-sadeh" preserved Latin terms in the Latin script, often Yiddish translators or authors preferred to transcribe such terms in Hebrew characters. Such Latinisms are ubiquitous in Yiddish scientific literature and feature (often alongside the much better-known phenomenon of Hebraisms) even in works that appear to be semi-original creations or in works clearly derived from vernacular sources.[74] In the 1670s, the eastern European physician Moses ben Benjamin Wolff, for instance, published two separate but interrelated works titled *Yerushat Moshe* (Moses's inheritance, 1677) and *Yerom Moshe* (Moses's exaltation, 1679). Wolff's books were accompanied by a preface in Hebrew and approbations (*haskamot*) from one Paduan rabbi (R' Shmaryahu Conegliano) and—unusually—from a number of Italian Jewish physicians. In the preface, Wolff presented himself as a graduate of the University of Rome.[75] An academic background in Rome may indicate that Wolff drew the information for his two books from Latin source texts.

Similar to Mordecai ha-Cohen, Wolff explained in his preface that he had resolved to write a Yiddish book of medicine to address those Jews of modest means who are unable to solicit the assistance of a licensed physician or to travel long distances to receive professional medical help. The book includes numerous Latin terms, the majority of which are the names of various medicinal tablets, ointments, and herbs. These terms were transliterated into Hebrew script and designed to assist the unlearned Jewish reader in identifying the specific materials she would need to purchase at the apothecary. Discussing his use of such Latinisms in the preface, Wolff clarified that he included them because "the apothecary calls [materia medica] everywhere

[by] the same [names], so you will not fail to find it" under its Latin name.[76] Thus, for instance, the author suggested, "when someone suffers from a bloody cough, do the following: take what is called in the apothecary (*trokhisli de tera sigilote* [*trochiscorum de terra sigillata*=clay tablets]) [with] rose water."[77]

Another Jewish physician, Judah Leib Wallich (d. 1735) similarly attempted to ensure his readers' familiarity with the Latin names of medicaments, by appending a pharmacopoeia in Latin in Hebrew characters to his Hebrew-language *Sefer dimyon ha-refu'ot* (Book of parallel remedies, ca. 1700).[78] Wallich opened this list of medicaments with a brief remark on chemical medicine, listing the authorities who had, for the past two generations, shaped the discipline, such as the German alchemists and physicians Adrian von Mynsicht (d. 1638), Michael Etmüller (d. 1683), and the Dutch chemist Franciscus Sylvius (Franz de le Boë, d. 1672).[79] Unlike the other authors discussed above, there can be no doubt about Wallich's command of Latin; in addition to being a graduate of the University of Padua, he translated extracts from the *Thesaurus medicinae practica* (1673) by Thomas Burnet into the Hebrew as part of *Sefer dimyon ha-refu'ot*.[80] And yet, notwithstanding Wallich's evident erudition, the list of medicaments that appeared in the Yiddish part of the work was compiled on the basis of a German tax list for remedies issued by the city of Frankfurt am Main, where Wallich resided.[81] This was a sensible choice, since the tax list would have reflected the medicines available in local pharmacies.

As Wallich's example teaches us, the use of vernacular works rather than Latin theoretical tractates by Jewish translators and authors is not necessarily indicative of these authors' linguistic capabilities (or lack thereof) but of the linguistic and administrative reality that characterized early modern pharmacology.[82] Over the course of the early modern period, pharmacies became the most prominent mercantile space to be dominated by Latin, in spite of

the largely vernacular nature of the surrounding urban environment. At the same time, apothecaries became the sole producers and sellers of complex medicaments, forcing licensed physicians, barber-surgeons, and lay healers, whose knowledge of Latin was often limited, to grapple with the language in one way or another. These same apothecaries were subject to oversight, inspection, and regulation by learned physicians, well versed in Latin and increasingly involved in the study of materia medica, who were solicited by the cities.[83]

Such town physicians were equally invested in the regulation of other healers, including Jews, who were targeted for their insufficient Latin. For instance, in the highly polemical *Medicaster apella oder Judenarzt* (1631), by Frankfurt physician Ludwig von Hörnigk (d. 1667), a Jewish healer named Schlam (Shlom zum Tennenbaum), is castigated for his erroneous Latin recipes, which Hörnigk transcribes, juxtaposing them to the correct Latin rendition.[84] This political and professional significance ascribed to Latin proficiency suggests that the use of appropriate Latin terminology in Yiddish works such as Wolff's and Wallich's bore not only medical but also perhaps political significance.[85]

Authors and translators who possessed no formal university training seem to have been equally eager to present at least some command of Latin. The seventeenth-century medical manual *Be'er mayim @hayim* (Wellspring of living water, after 1655) by Issachar Ber Teller, for instance, reveals a command of Latin well beyond the basic skill required for writing recipes. Born in Prague, Teller came from a family of barber-surgeons and served briefly as an apprentice to famous physician and Hebrew author Joseph ben Solomon Delmedigo.[86] Although the precise sources of Teller's rich book have not yet been identified, *Be'er mayim @hayim* includes numerous Latin terms in Hebrew transliteration, suggesting the existence of one or more Latin sources. In contrast to Wolff's works, they include anatomical, theoretical, and general terms

such as bilious (*biliosis*), phlegmatic (*pituitosis*), dog days (*dies caniculares*), and not merely pharmacological appellations, which could have also appeared in a vernacular work.[87] Significantly, then, this work by a healer trained by apprenticeship rather than in a formal academic setting exhibits a wider variety of medical Latinisms than works by his university-trained colleagues.

Although German and Latin were the two most dominant libraries to leave their mark on Yiddish scientific texts, other languages also participated in the formation of this versatile corpus. A particularly interesting example is offered by a manuscript titled *Sefer ha-noshim* (The book of women, 1709), which reveals the ways in which vernacular medical literature entered the realm of Jewish women's apprenticeship. As Jordan Katz has recently demonstrated, *Sefer ha-noshim* was, in fact, a Yiddish translation of a Dutch treatise titled *Korte en bondige verhandeling van de voortteeling en 't kinderbaren* (A short and concise treatise on reproduction and childbirth, 1680), by one Samuel Janson. The translation was commissioned by a Dutch midwife by the name of Rachel Salomons of Amsterdam. Salomons commissioned the translation shortly after enrolling in a Dutch medical college to receive the training necessary for acquiring a practitioner's license in Amsterdam. Upon discovering that she was not literate in Dutch, the college also required her to commission a Yiddish translation of the city's regulations for midwives. For this Jewish midwife, translation into Yiddish thus functioned as a means of overcoming the increasing institutional demands imposed on midwives and other healers, as well as the limits of her own literacy.[88]

Scientific knowledge, then, often reached Yiddish translators in indirect ways, mediated through vernacular (predominantly German) texts and translations. Yiddish medical books in particular reflected the social and professional reality created by municipal regulations and the

expectations of an urban readership. These books were often informed less by an academic curriculum and more by practical needs and requirements, as well as by the urban and legal contexts that framed the early modern medical professions in general, and Jewish medical practice in particular. They thus present us with a form of medical writing that grew out of a deeply polyglot literary and social environment.

Transforming German Books for Yiddish Readers

As was the case across Old Yiddish literature, the close proximity between Old Yiddish and German made German works a particularly appealing reservoir for translation. The Yiddish version of Vesalius's *Epitome*, Moses ben Abraham's *Tela'ot Moshe*, and the other works discussed above were all products of the engagement of Yiddish authors with German books. In some cases, such Yiddish translations of German works of science may appear to be near-mechanical transliterations, but upon closer inspection they reveal varying degrees of adaptation, suggesting a much higher level of translational attention and care than immediately discernable upon first view.[89]

A case in point is an enigmatic Yiddish geography book titled *Seder hare 'olam beshraybung* (Description of the mountains of the world, 1792). The book, which appeared with no details concerning its author or sources, was in fact an unacknowledged translation of a German book titled *Die curieuse orographia* (1715), by the Lutheran pastor and famed geographer Johann Gottfried Gregorii (d. 1770), also known as Melissantes. The unnamed translator closely followed Gregorii's descriptions, even going as far as to organize his book according to the Latin (rather than the Hebrew) alphabet.[90] However, he omitted numerous details that appear in his source, resulting in a heavily abridged translation and a very different

kind of book.[91] Toward the end of the translation, the translator took further liberties with his source, adding a short description of several islands that did not appear in the German source, as well as a description of the so-called Jewish mountain (Judenberg) near Frankfurt an der Oder.[92] Such departures from the source in the interest of brevity comply closely with the translational norms that existed in early modern Europe and are also to be found among Hebrew, Yiddish, and European translators of both scientific texts and works in other genres.[93]

Another, particularly prevalent reason for departing from the source was religious considerations. In this respect, Yiddish translators of scientific texts resembled their Hebrew peers, on the one hand, and Yiddish translators of works in other genres, on the other—many of whom often eliminated or Judaized the distinctly Christian elements that appeared in their sources. An interesting example is offered by a 1583 Yiddish translation of the popular German medical handbook *Spiegel der Artzney* (The mirror of medicine), which remains in manuscript form and is preserved today at the Bodleian Library in Oxford.[94]

First printed in Strasbourg in 1518, *Spiegel der Artzney* was the work of the Colmar-based physician Lorenz Fries (d. 1531). It was popular in the first half of the sixteenth century, circulating in four editions, and was subsequently combined with Lanfranc's well-known *Chirurgia magna*.[95] Fries's book seems to have had a particular following among Jewish healers, echoes of which are found in the complaints of Georg Pictorius (d. 1569), a physician of Ensisheim, about the Jews' overreliance on the work: they "abuse [it] for writing recipes, not knowing where it is wrong due to the printer's errors."[96]

In 1583, twenty-six years after Pictorius's criticism, a certain Moses ben Jacob copied Fries's book for his father-in-law, Solomon ben Yo'ets.[97] Although the chapters became more abbreviated as his copying progressed, Moses aimed to translate the book in its entirety, even

copying the paratextual elements usually omitted by translators, such as the indexes, the forward, and even the printer's colophon. The colophon reveals that Moses used the 1546 edition printed in Strasbourg by Balthasar Beck.[98] Once again, a superficial reading suggests an almost mechanical transliteration. Moses even transliterated German terms that in other Yiddish translations were most often replaced with Hebraisms; thus, the biblical Noah, Noe in Fries's German, is spelled נאו in the Yiddish manuscript, and Isaac appears as איזק. Maimonides' preeminent work, *The Guide of the Perplexed*, is not rendered as *Moreh nevukhim*, as may be expected but, following Fries's text, as *Perplexorum* (פערפלעקשארום).[99] Similarly, a reference to the apocryphal book of Ben Sira is rendered in the same way as in Fries's source—that is, under its colloquial German title, *Die geistliche Zucht*.[100]

At the same time, however, Moses paused to domesticate his source and to neutralize its devout Catholicism. Fries published his works in Reformation Strasbourg, where he also briefly resided. He nonetheless remained a defender of the Catholic faith and, by extension, of traditional science, even publishing works in defense of Luther's attack on astrology.[101] Thus, in the foreword to *Spiegel der Artzney*, Fries greets "all lovers of the noble art of medicine," wishing them "health of the body and of the soul, and the peace of Jesus Christ, our saviour."[102] In his transliteration, Moses replaced the latter with "the peace of the Almighty Eternal God."[103] Elsewhere in the foreword, Fries addresses the godly nature of medicine and establishes the physician's vocation as holy. He argues that medical practice, as well as the efficacy of remedies, depends on *gratia gratis data* (gratuitous grace), unevenly distributed among men.[104] Here again, Moses felt the need to depart from his source, and the phrase "gnade[n] gratis datis," with all its theological and polemic charge, was replaced by 'gnadn Gots' (God's Grace).[105] Further omissions included references to the New Testament, Jesus, and other distinctly Christian

motifs.[106] Generally, in his translational choices, Moses aimed for the middle ground between a swift reproduction of Fries's lengthy text and a work that would meet the minimum bar for acceptability among Jewish readers. Obvious Catholic themes and Christian references were omitted, as were those terms that had clear polemic charge.

Interestingly, a similar strategy was employed by Fries's Protestant printer Otto Brunfels (d. 1534). While in 1529 Brunfels had produced a faithful reprint of *Spiegel der Artzney*, less than a year after Fries's passing, he made some minor but significant changes to the work. For instance, the 1532 edition did not list Cosmas and Damian, the two saints and patrons of the medical arts, in the list of leading historical medical figures. Omitting these names, Brunfels downplayed the significance of Catholic saints, thus conforming to the ongoing debates about their position in the Church.[107] In making such changes Brunfels, like Moses, targeted any obviously offensive or contentious content, but reproduced Fries's religiosity along with the book's medical information.

It stands to reason that it was precisely the pious religious tone of Fries's work that played a decisive role in the long reception of *Spiegel der Artzney* among Jewish healers. Jewish translators of various genres tended to rely on texts written by Jesuits, Pietists, and other distinctly devout Christian authors, often dressing their religious musings in Jewish garb to deliver what may, upon a superficial reading, be viewed as *kosher* Jewish works.[108]

Another translation that straddles the line between transcription and Judaization is Benjamin Ben Zolmen Croneburg's *Kurioser antikvarius* (1752). Largely written in German in Hebrew characters, with occasional Hebraisms and Latinisms, this book of basic geography was designed, according to Croneburg, to assist Jewish readers in acquiring both elementary knowledge of their surrounding world and proper German pronunciation. Like numerous other

translators of his time, Croneburg acknowledged only that his book was a "word for word" translation, without naming the source. In a Hebrew approbation that opened the book, Rabbi Eliezer Lipschitz of Neuwied claimed that the work was a translation from the French and German.

A comparative reading of the work against the German literature of its time reveals that it is, in fact, based solely on the German-language history and geography book *Neu-vermehrter curieuser Antiquarius* (1708), by the Hamburg-based Protestant theologian Paul Ludolph Berckenmeyer (d. 1732). On a first reading, the translation appears like a mere transliteration of its German source, including the Latinisms and references to previous literature that appeared therein. Croneburg even went as far as to transliterate Berckenmeyer's references to Jesus's birth, although he transformed the German "Christi Geburt" (birth of Christ) into the Hebrew "leydat Y.N." [birth of Yeshu the Nazarene].[109] But a closer look reveals a more complex picture. Throughout the body of the text, Croneburg often strayed from Berckenmeyer's German source to omit discussions he seems to have deemed either uninteresting or potentially offensive to a Jewish readership. Thus, Berckenmeyer's presentation of Europe as the realm of Christendom was omitted, as were all discussions of religion; the descriptions of Spain, Portugal, and a handful of other countries; and a litany of humorous poems on various European nations, which would have borne little significance and may even have been offensive to an international Yiddish readership.[110]

Other Yiddish translators took much greater liberties with their sources, treating them as a platform to produce their own, "original" scientific work. One such translation is Rabbi Moses ben Joseph Heida of Hamburg's *Ma'ase @horesh u-@hoshev* (Book of art and ingenuity, 1711). The descendant of a long line of Ashkenazi rabbis, Heida produced a book of basic arithmetic

that was particularly well received and, unusually for a Yiddish work, was cited as one of the sources for a later Hebrew scientific work, Eliyahu ben Moshe Gershon of Pinczow's *Mlekhet ma@hshevet* (Opus of meditation, 1765).[111] The latter also acknowledged his use of an unnamed "book of arithmetic published in the language and script of AKUM" (idolators, lit. worshippers of stars and signs), which has recently been identified as Georg Heinrich Paritius's *Compendium praxis arithmetices* (1709).[112]

Heida, for his part, made no mention of non-Jewish sources in his book, but in the preface he explained that he had "perused previous works on numbers and fractions, and […] found that some were so long, that the reader would despair of them before arriving at his desired information, while others were so short, so as to never arrive at it at all." Heida claimed to have found the middle ground between the hefty and the haphazard. *Ma'ase @horesh u-@hoshev*, he asserted, provides the sufficient arithmetical knowledge required by "the residents of the land (*yoshve ha-arets*) and its merchants and traffickers (*can'aneha*, acc. to Isa 23.8)."[113] In addition, the book targeted rabbinical readers who, Heida observed, are often required "to pass judgement on issues relating to numbers and fractions."[114]

It seems that Paritius's book was one of those Heida deemed too short to be of service to readers. The *Compendium* constituted a children's adaptation of Paritius's earlier, and much heftier, *Praxis arithmetices* (1706), which Heida may have deemed too elaborate.[115] A close inspection of Heida's book suggests that the author drew extensively on Paritius's *Compendium*, while complementing Paritius's lexicographic chapters with further explanations, examples, and exercises that are nowhere to be found in the German source. These additions were probably translated from yet another, unidentified source or sources. In addition, like the anonymous creator of *Sefer derekh 'ets ha-@hayim* before him, Heida changed the genre of the text.

Whereas Paritius had designed his *Compendium* for young readers, Heida's book targeted Jewish merchants and rabbis.

Still, the selection of topics, the arrangement of chapters, and the close linguistic proximity of the two works leave little room for doubt as to the relationship between them. Here, for instance, is the definition of subtraction in Paritius's German, followed by its definition in Heida's Yiddish:

> *Subtrahirn lehret eine Zahl von einer andern und grössern Zahl* […] *abziehen* […] *Darzu wird das Wörtlein* ***Von*** *gebraucht.*
>
> [Subtraction teaches how to deduct a number from another, bigger number. This requires the use of the word "of"].[116]
>
> *Subtrahirn lernt vi man ayn tsahl fun ayn grosere ab tsihen zol. Hir bay broykht man das vert* ***fun***.[117]

Heida's book affords an encounter with a highly critical Yiddish scientific translator, who felt secure enough to combine and compile sources, and to use his German source as a springboard for the articulation of his own scientific knowledge and expertise. *Ma'ase @horesh u-@hoshev* furthermore contributes to the complication of the scholarly dichotomies discussed above—here is a book that targeted both merchants and rabbis and blurred the lines between Yiddish and Hebrew, Jews and non-Jews, rabbinical and lay readers.

Conclusion

In his opening remarks to a 2007 collected volume dedicated to the study of twentieth-century Yiddish scientific writing, Alexandre Métraux declared, "The raw facts are evident, indeed. Yiddish science did exist."[118] The Jewish writers occupying Métraux's edited volume were

predominately twentieth-century authors, "affiliated with institutional bodies such as academies of science, research institutes, and universities," but in spite of their civic and academic affiliations, they chose to publish their works in Yiddish.[119]

Surprising as this modern Yiddish engagement with science may have seemed in 2007, it did not emerge out of thin air. As the works surveyed above suggest, even at a time when Jewish engagement with institutions of science was limited to the study (but very rarely teaching) of philosophy and medicine at a narrow range of universities—Jews of diverse social strata, occupational backgrounds, and genders consumed and disseminated science-driven content in their vernacular tongue. In fact, Yiddish engagement with science preceded not only the twentieth-century works surveyed by Métraux but also the late eighteenth- and nineteenth-century Haskalah, to which the rise of Ashkenazi interest in the dissemination of science in translation has often been attributed.

Admittedly, as the examples above demonstrate, early Yiddish engagement with science was far more decentralized than its modern iterations. At the same time, however, the pursuit of science among Old Yiddish authors was by no means exceptional, anecdotal, or idiosyncratic. Throughout the early modern period, Yiddish authors translated works from Latin, German, and other European vernaculars in an attempt to make the scientific discoveries and innovations of the time available to Jewish readers of various classes, spaces, and possibly also genders, in their own vernacular.

The forms that Old Yiddish science assumed were deeply entrenched in the social, cultural, and religious realities of Jewish life in early modern Europe. These realities informed Ashkenazi Jews' access to and propensity for different epistemic problem-solving tools. Accordingly, in contrast to many Hebrew translations of the same period, which often

perpetuated earlier translational traditions and norms, scientific works in Yiddish bear a particular early modern urban and mercantile imprint. Yiddish translators were more attuned to the needs of their intended readership, and their works were thus more specifically focused on the practical uses of science and molded to fit the requirements of Jewish lay readers in central and eastern Europe. Thus, within the library of Yiddish science, practical fields such as medicine, arithmetic, and geography came to the fore, while works in astronomy and physics—the prestige sciences that had long been privileged by Hebrew translators but were more removed from quotidian application—were largely overlooked.

Notwithstanding this propensity for the practical, the examples surveyed above demonstrate the remarkable versatility of Old Yiddish science. Yiddish translators of scientific works drew on sources primarily in German but also, occasionally, on Dutch and Latin works. They adapted sources both contemporary and distant, from highbrow academic sources, through middlebrow bestsellers, to incidental pharmacological lists and lexicons. In adapting their sources, they employed a wide array of translational techniques, from near-transliterations to free adaptations and liberal translations. The diversity of methods and sources that characterize the corpus of scientific work in Old Yiddish may, in part, be the result of the broad temporal and spatial perspective adopted by this essay. Some differences may also be the result of differing individual preferences, scientific developments, literary fads, or other considerations that are not available to us today. Although much work still needs to be done to clarify the social setting and historical developments that shaped the early modern library of Yiddish science, we now know that such a library existed and that it was constructed through a close conversation with the scientific production of the majority culture by means of translation.

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[1] The question of what to call Yiddish before 1800 has elicited some debate. For reasons of convenience, here we have elected to use the term "Old Yiddish," which is the most prevalent in contemporary studies of early modern Yiddish works. For an overview of the different approaches, see Jerold C. Frakes, *The Politics of Interpretation: Alterity and Ideology in Old Yiddish Studies* (New York, 1989), 21–103; Erika Timm, "The Early History of the Yiddish Language," in *The Jews of Europe in the Middle Ages (Tenth to Fifteenth Centuries): Proceedings of the International Symposium Held at Speyer, 20–25 October 2002*, ed. C. Cluse (Turnhout, 2004), 353–64. The question of the borders of Ashkenaz is also knotty. See Joseph Davis, "The Reception of the *Shu@hhan 'Arukh* and the Formation of Ashkenazic Jewish Identity," *AJS Review* 26.2 (2002): 251–76; Adam Shear, "Jews and Judaism in Early Modern Europe," in *The Cambridge Guide to Jewish History, Religion, and Culture*, ed. J. R. Baskin and K. Seeskin (Cambridge, 2010), 142–49. Here, we focus on Yiddish scientific works wherever they were produced in the period under study, that is, in central and eastern Europe. At present, we are unaware of any Yiddish translations of scientific works produced in northern Italy.

[2] For a history of Old Yiddish literature, see Elazar Shulman, *Sfat yehudit-ashkenazit u-sifruta* (Riga, 1913); Maks Erik, *Di geshikhte fun der yidisher literatur fun di elteste tsaytn biz der haskole tkufe* (Warsaw, 1928); Yisroel Tsinberg, *Di geshikhte fun der literatur bay yidn*, vol. 6 (Vilna, 1935); Max Weinreich, *Di geshikhte fun der yidisher sprokh*, vol. 4 (New York, 1973); Chone Shmeruk, *Yiddish Literature: Aspects of Its History* (Hebrew; Tel Aviv, 1978); Jean Baumgarten, *Introduction to Old Yiddish Literature*, trans. and ed. J. C. Frakes (1993; Oxford, 2005).

[3] See Elisabeth Hollender, "Die Schriftfunde," in *Von den Ausgrabungen zum Museum—Kölner Archäologie zwischen Rathaus und Praetorium: Ergebnisse und Materialien 2006–2012*, ed. S. Schütte and M. Gechter, 2nd ed. (Cologne, 2012), 144–52; Erika Timm, "Ein neu entdeckter literarischer Text in hebräischen Lettern aus der Zeit vor 1349," *Zeitschrift für deutsches Altertum und deutsche Literatur* 142.4 (2013): 317–443.

[4] See, e.g., Arnold Paucker, "The Yiddish Versions of the German Volksbuch" (MA thesis; University of Nottingham, 1959); Sara Zfatman, "Ha-siporet be-yidish mi-reshita ad shiv@he ha-BeSHT" (PhD diss., Hebrew University of Jerusalem, 1984); Ruth von Bernuth, *How the Wise Men Got to Chelm: The Life and Times of a Yiddish Folk Tradition* (New York, 2016); Jerold C. Frakes, *The Emergence of Yiddish Literature: Cultural Translation in Ashkenaz* (Bloomington, Ind., 2017).

[5] On music: Felix Rosenberg, "Ueber eine Sammlung deutscher Volk- und Gesellschaftslieder in hebräischen Lettern," *Zeitschrift für die Geschichte der Juden in Deutschland* (*ZGJD*) (1888), no. 3: 232–96 (part 1); *ZGJD* (1889), no. 1: 14–28 (part 2); Diana Matut, *Dichtung und Musik im frühneuzeitlichen Aschkenas* (Boston, 2011). On journalistic works: Shlomo Berger, "Reshit ha-'itonut be-yidish," *@Huliot: Dapim le-me@hkar be-sifrut yidish u-zikoteha la-sifrut ha-'ivrit* 6 (2000): 363–71; Hilde Pach, "'In Hamburg a High German Jew was Murdered': The Representation of Foreign Jews in the *Dinstagishe un Fraytagishe Kuranten* (Amsterdam 1686–1687)," in *The Dutch Intersection: The Jews and the Netherlands in Modern History*, ed. Y. Kaplan (Boston, 2008), 213–24; Pach, "Arranging Reality: The Editing Mechanisms of the World's First Yiddish Newspaper, the *Kurant* (Amsterdam, 1686–1687)" (PhD diss., University of Amsterdam, 2014). On historiography, see Bart Wallet, "Links in a Chain: Early Modern Yiddish Historiography in the Northern Netherlands, 1743–1812" (PhD diss., University of Amsterdam, 2012). On guidebooks, see Iris Idelson-Shein, "Shabbethai Bass and the Construction—and Deconstruction—of a Jewish Library," *Jewish Culture and History* 22.1 (2021): 1–16. On prayers: Rebekka Voß, "A Jewish-Pietist Network: Dialogues between Protestant Missionaries and Yiddish Writers in Eighteenth-Century Germany," *JQR* 112.4 (2022): 731–63.

[6] See, e.g., Shulman, *Sfat yehudit-ashkenazit*, 112–23; Zinberg, *Di geshikhte*, 6:400–402; Jerold C. Frakes, ed., *Early Yiddish Texts, 1100–1750* (Oxford, 2004), xxiv.

[7] See, e.g., Chone Shmeruk and Israel Bartal, "'Tla'ot Moshe': The First Geographical Description of Eretz Israel in Yiddish" (Hebrew), *Cathedra* 40 (1986): 121–37; Shmeruk, "Moshe Markuze fun Slonim un der makor fun zayn bukh 'Ezer Yisroel,'" in *Sefer Dov Sadan*, ed. S. Werses (Tel Aviv, 1977), 361–82; Ewa Geller, "Yiddish 'Regimen Sanitatis Salernitanum' from Early Modern Poland: A Humanistic Symbiosis of Latin Medicine and Jewish Thought," in *Jewish Medicine and Healthcare in Central Eastern Europe*, ed. M. Moskalewicz (Oxford, 2019), 13–26.

[8] See, e.g., Baumgarten, *Introduction to Old Yiddish Literature*, 341–59; Shulman, *Sfat yehudit-ashkenazit*, 208–12; Erik, *Geshikhte*, 42–47; Simon Neuberg, "Der meditsinisher ksav-yad fun Mestre 1474," *Jiddistik-Mitteilungen* 55/56 (2016): 13–23.

[9] Modern Yiddish science (nineteenth to twentieth century), on the contrary, has, over the past few years, become the focus of sustained scholarly attention. See, e.g., Eli Maor, "Science and Yiddish Don't Mix: Really?" *Journal of Scholarly Publishing* 44.4 (2014): 340–54; Marek Tuszewicki, "Giving *Tshuve* to the Sick: Correspondence Columns of the Yiddish Medical Press in Poland," *Science in Context* 32.1 (2019): 25–41; Tuszewicki, *A Frog under the Tongue: Jewish Folk Medicine in Eastern Europe* (Liverpool, 2021). See also the essays collected in *Science in Context* 20.2 (2007), esp. the introduction by Alexandre Métraux.

[10] See, e.g., the classic work of David B. Ruderman, *Jewish Thought and Scientific Discovery in Early Modern Europe* (New Haven, Conn., 1995). See also Shimon Bollag, "@Hashiva fisikla'it ba-sifrut ha-'ivrit ba-me'ah ha-17 veha-18" (PhD diss., Hebrew University of Jerusalem, 1983); Noah J. Efron, *Judaism and Science: An Historical Introduction* (Westport, Conn., 2007); B. Barry Levy, *Planets, Potions and Parchments: Scientifica Hebraica from the Dead Sea Scrolls to the Eighteenth Century* (Montreal, 1990); Gad Freudenthal, ed., *Science and Philosophy in Early Modern Ashkenazic Culture—Rejection, Toleration, and Appropriation* (Simon Dubnow Institute Yearbook 82009). And see the entries by Gad Freudenthal and Norbert M. Samuelson for "Judaism, History of Science and Religion," in the *Encyclopedia of Science and Religion*, ed. J. Wentzel Vrede van Huyssteen et al (New York, 2003), 487–97. For an exception to the rule, see the bibliographic study by Ester Lapon-Kandelshein and Shifra Baruchson-Arbib, "Hebrew Scientific Publications from the 15th to the 18th Centuries: Social and Cultural Aspects," *La Bibliofilía* 104.2 (2002): 167–88. Lapon-Kandelshein and Baruchson-Arbib note an increase in Yiddish interest in scientific literature during the early modern period; however, they do not offer a sustained discussion of this literature, and their bibliographic survey is focused exclusively on printed works.

[11] See, e.g., Shmuel Feiner, "Seductive Science and the Emergence of the Secular Jewish Intellectual," *Science in Context* 15.1 (2002): 121–35; Christoph Schulte, "Sifre mada' u-filosofiyah me-'et yehudim ba-shanim 1700–1835: Skirah," in *Ha-sifriyah shel tenu'at ha-haskalah*, ed. S. Feiner, N. Naimark-Goldberg, and T. Kogman (Tel Aviv, 2014): 431–58; Tal Kogman, *Ha-maskilim be-mada'im* (Jerusalem, 2013).

[12] See the works by Ruderman, Bolag, Efron, and Freudenthal cited above, as well as David E. Fishman, "Rabbi Moshe Isserles and the Study of Science among Polish Rabbis," *Science in Context* 10.4 (1997): 571–88; Nimrod Zinger, *Ba'al ha-shem ve-ha-rofe': Refu'ah u-magiyah be-kerev yehude germaniyah be-reshit ha-'et ha-@hadashah* (Haifa, 2017); Maoz Kahana, *Tarnegolet bli lev: Dat u-mada' ba-ktivah ha-rabanit ba-me'ah ha-shmoneh-'esreh* (Jerusalem, 2020); Ahuvia Goren, "Ha-metodah ha-mada'it, ha-te'oriyah ha-atomistic u-farshanut ha-mikra' shel r' Moshe Hefez," *Zion* 88.1 (2022): 75–102.

[13] See, most notably, Roger Chartier, "Culture as Appropriation: Popular Cultural Uses in Early Modern France," in *Understanding Popular Culture: Europe from the Middle Ages to the 19th c.*, ed. S. L. Kaplan (Berlin, 1984), 175–91; Chartier, *The Cultural Uses of Print in Early Modern France* (Princeton, N.J., 1987).

[14] For a critique of this understanding of early modernity in other contexts, see Lorraine Daston, "The Nature of Nature in Early Modern Europe," *Configurations* 6.2 (1988): esp. 149–50; Randolph Starn, "The Early Modern Muddle," *Journal of Early Modern History* 6.3 (2002): 296–307; Arif Dirlik, "Revisioning Modernity: Modernity in Eurasian Perspective," *Inter-Asia Cultural Studies* 12.2 (2011): esp. 286.

[15] For reflections on the sites of knowledge and the relocation of the centers of research, see Steven Shapin, "The Invisible Technician," *American Scientist* 77.6 (1989): 554–63; Lorraine Daston, "The History of Science and the History of Knowledge," *Know* 1.1 (2017): 131–54.

[16] Cf. Tamás Demeter, Benedek Láng, and Dániel Schmal, "Scientia," in *Encyclopedia of Renaissance Philosophy*, ed. M. Sgarbi (Cham, 2016) (online entry), https://doi.org/10.1007/978-3-319-02848-4_266-1.
[17] Katharine Park and Lorraine Daston, introduction to *The Cambridge History of Science*, vol. 3: *Early Modern Science*, ed. Katharine Park and Lorraine Daston (Cambridge, 2008), 6.
[18] Daston, "The History of Science," 133–41.
[19] Gianna Pomata, "Observation Rising: Birth of an Epistemic Genre, 1500–1650," *Histories of Scientific Observation*, ed. L. Daston and E. Lunback (Chicago, 2011), 45–80; Surekha Davies, *Renaissance Ethnography and the Invention of the Human: New Worlds, Maps, and Monsters* (Cambridge, 2017); Harold J. Cook, *Matters of Exchange: Commerce, Medicine, and Science in the Dutch Golden Age* (New Haven, Conn., 2008). See also the studies collected in Pamela Smith, Amy Meyers, and Harold J. Cook, eds., *Ways of Making and Knowing: The Material Culture of Empirical Knowledge* (Chicago, 2014); and in Matteo Valleriani, ed., *The Structures of Practical Knowledge* (Cham, 2017).
[20] See James A. Weisheipl, "The Classification of the Sciences in Medieval Thought," *Mediaeval Studies* 27 (1965): 54–90.
[21] For recent discussions of the city as the location of knowledge production and exchange, see Bert de Munck and Antonella Roman, eds., *Knowledge and the Early Modern City: A History of Entanglements* (Abingdon, 2020).
[22] Robert S. Westman, *The Copernican Question: Prognostication, Skepticism, and Celestial Order* (Oakland, Calif., 2011). For a different view, see Noel M. Swerdlow, "Copernicus and Astrology, with an Appendix of Translations of Primary Sources," *Perspectives on Science* 20.3 (2012): 353–78.
[23] Joëlle Ducos, "Traduire la science en langue vernaculaire: Du texte au mot," in *Science Translated: Latin and Vernacular Translations of Scientific Treatises in Medieval Europe*, ed. M. Goyens et al. (Leuven, 2008), 181–96; William Crossgrove, "The Vernacularization of Science, Medicine, and Technology in Late Medieval Europe: Broadening our Perspectives," *Early Science and Medicine* 5.1 (2000): 47–63; Peter Assion, *Altdeutsch Fachliteratur* (Berlin, 1973).
[24] Carlos M. N. Eire, "Early Modern Catholic Piety in Translation," *Cultural Translation in Early Modern Europe*, ed. P. Burke and R. Po-Chia Hsia (Cambridge, 2007), 84.
[25] Sietske Fransen, "Latin in a Time of Change: The Choice of Language as Signifier of a New Science?," *Isis* 108.3 (2017): 629–35; Peter Burke, *Languages and Communities in Early Modern Europe* (Cambridge, 2004). On translations as an activity designed to gain recognition for expertise, see Michael Bycroft, "What Difference Does a Translation Make? The 'Traité des vernis' (1723) in the Career of Charles Dufay," in *Translating Early Modern Science*, ed. S. Fransen et al. (Boston, 2017), 66–90.
[26] See, e.g., David B. Ruderman, *The World of a Renaissance Jew: The Life and Thought of Abraham ben Mordecai Farissol* (Cincinnati, Ohio, 1981), 134–36; Jiřina Šedinová, "Non-Jewish Sources in the Chronicle by David Gans, *Tsemah David*," *Judaica Bohemiae* 8 (1972): 3–15; Giacomo Corazzol, "On the Sources of Elijah Capsali's Chronicle of the 'Kings' of Venice," *Mediterranean Historical Review* 27.2 (2012): 151–60; Idelson-Shein, "Rabbis of the (Scientific) Revolution: Revealing the Hidden Corpus of Early Modern Translations Produced by Jewish Religious Thinkers," *American Historical Review* 126.1 (2021): 54–81.
[27] On vernacular nonfiction, and particularly science, in medieval and early modern Europe, see, e.g., Gundolf Keil et al. eds., *Fachliteratur des Mittelalters. Festschrift für Gerhard Eis* (Stuttgart, 1968); Mary E. Fissell and Roger Cooter, "Exploring Natural Knowledge: Science and the Popular in the 18th c.," in *Cambridge History of Science*, vol. 4: *Science in the 18th Century*, ed. R. Porter (Cambridge, 2003), 145–79; Mary E. Fissel, *Vernacular Bodies: The Politics of Reproduction in Early Modern England* (Oxford, 2004).
[28] On the notion of "assumed translation," see Gideon Toury, *Descriptive Translation Studies and Beyond*, rev. ed. (1995; Amsterdam, 2012), 28–31.
[29] On the role of oral transfer in Old Yiddish literature, see Zfatman, "Ha-siporet be-Yidish," 155–83, 213–49.
[30] On the transformation of German reading culture, see Marr Erlin, "Useless Subjects: Reading and Consumer Culture in Eighteenth-Century Germany," *German Quarterly* 80.2 (2007): 145–64; Dominik König, "Lesesucht und Lesewut," in *Buch und Leser: Vorträge des ersten Jahrestreffens des Wolfenbütteler Arbeitskreises für Geschichte des Buchwesens*, ed. H. G. Gopfert (Hamburg, 1977), 89–124.

[31] In addition to the works on the topic previously cited, see A. Fidora, H. J. Hames, Y. Schwartz, G. Freudenthal, and R. Fontaine, eds., *Latin into Hebrew: Texts and* Studies, 2 vols. (Boston, 2013); G. Busi, ed., *Hebrew to Latin, Latin to Hebrew: The Mirroring of Two Cultures in the Ages of Humanism* (Berlin, 2006).
[32] Magdalena Bendowska, "Sefer derech ec ha-chajim na tle dziejów drukarstwa żydowskiego w I. Rzeczypospolitej," *Kwartalnik historii Żydów* 263.3 (2017): 381–403; Geller, "Yiddish 'Regimen,'" 13–26.
[33] Geller, "Yiddish 'Regimen,'" 13–26; Ewa Geller, *Sejfer derech ejc ha-chajim: Przewodnik po drzewie żywota* (Warsaw, 2015), 64–72; esp. 72.
[34] Geller, "Yiddish 'Regimen,'" 15.
[35] On Curio, see Richard Loth, "Das Medizinalwesen, der ärztliche Stand und die medizinische Fakultät bis zum Anfang des 17. Jahrhunderts in Erfurt," *Jahrbücher der Königlichen Akademie Gemeinnütziger Wissenschaften zu Erfurt*, n.s., 30 (1904): 445–46.
[36] The book was originally composed in Italian, but the Yiddish translator used one of its later Latin editions. Cf. Pietro Andrea Mattioli, *Di Pedacio Dioscoride Anazarbeo Libri cinque della historia, & materia medicinale* (Venice, 1544); Mattioli, *Petri Andreae Mattholi medici senensis commentarii, in libros sex Pedacii Dioscoridis Anazarbei, de medica materia* (Venice, 1554). See below on the Latin edition likely used by the Yiddish translator. The final four chapters of *Sefer derekh 'ets ha-@hayim* seem to have been based on another, yet unidentified source.
[37] On Curio's edition, see Alexander Croke, *Regimen Sanitatis Salernitanum: A Poem on the Preservation of Health in Rhyming Latin Verse* (Oxford, 1830), 74. In some editions, a German translation of the medieval verses of the Salernitian school was also provided. See, e.g., Johannes Curio, *Conservandae sanitatis saluberrima* (Frankfurt, 1559). On the reception of the *Regimen sanitatis Salernitanum* in medieval and early modern Germany more generally, see Gundolf Keil, "Regimen sanitatis Salernitanum," in *Die Deutsche Literatur des Mittelalters: Verfasserlexikon*, vol. 7, ed. W. Stammler et al., 2nd ed. (1989; Berlin, 2010), 1107–11.
[38] Luis García-Ballester, Lola Ferre and Eduard Feliu, "Jewish Appreciation of Fourteenth-Century Scholastic Medicine," *Osiris* 6 (1990): 90–91.
[39] Jacob Zahalon, *Otsar ha-@hayim* (Venice, 1683), 8v.
[40] Compare, e.g., Curio, *De conservanda bona valetudine* (Frankfurt am Main, 1557), 1v–5v; Anon., *Sefer derekh 'ets ha-@hayim* (n.p., ca. 1613), n.p., [4]–[5].
[41] English translation: *Regimen Sanitatis Salernitanum: Code of Health of the School of Salernum*, trans. J. Ordronaux (Philadelphia, 1871), 47. For Latin, see Curio, *De conservanda*, 1v.
[42] Curio, *De conservanda*, 1r–2r; Anon., *Derekh 'ets ha-@hayim*, [4]–[5].
[43] Curio, *De conservanda*, 3v–3r; Anon., *Derekh 'ets ha-@hayim*, [5].
[44] Curio, *De conservanda*, 4v; Anon., *Derekh 'ets ha-@hayim*, [6].
[45] Curio, *De conservanda*, 4v; Anon., *Derekh 'ets ha-@hayim*, [6].
[46] Curio, *De conservanda*, 4v; Anon., *Derekh 'ets ha-@hayim*, [6]–[7].
[47] Curio, *De conservanda*, 4r; Anon., *Derekh 'ets ha-@hayim*, [7]. The Yiddish translator replaces dinner with lunch/daytime meal. See below for an explanation of his concerns.
[48] Curio, *De conservanda*, 4r; Anon., *Derekh 'ets ha-@hayim*, [7].
[49] Lucie Strnadová, "The Role of Sensory Qualities in Renaissance Natural History: The Case of Mattioli's Herbal," *Early Science and Medicine* 25.6 (2021): 543–61.
[50] Pietro Mattioli, *De plantis epitome utilissima*, ed. J. Camerarius (Frankfurt am Main, 1586), 305.
[51] Anon., *Derekh 'ets ha-@hayim*, [99].
[52] Compare the chapters on laurel, endivia, wild parsley, and melissa in Mattioli, *De plantis epitome utilissima*, 60, 282, 305, 574; Anon., *Derekh 'ets ha-@hayim*, [88], [92], [94], [97], respectively. Although Mattioli describes the use of these plants against scorpion bites, such information is not featured in the Yiddish translation.
[53] On domestication in Yiddish prose, see Arnold Paucker, "Das Volksbuch von den Sieben Weisen Meistern in der jiddischen Literatur," *Zeitschrift für Volkskunde* 57.2 (1961): 177–94; Paucker "The Yiddish Versions," *passim*. On domestication in Hebrew scientific literature, see Kogman, *Ha-maskilim be-mada'im*, 120–25; Tal Kogman, "Haskalah Scientific Knowledge in Hebrew Garment: A General Statement and Two Examples," *Target* 19.1

(2007): 69–83; Idelson-Shein, "Rabbis of the (Scientific) Revolution," esp. 61–63, 78–81. More generally, see Gideon Toury, *Descriptive Translation Studies and Beyond*, rev. ed. (1995; Amsterdam, 2012), 131–32.

[54] Anon., *Derekh 'ets ha-@hayim*, [6]. See also [11].

[55] Anon., *Derekh 'ets ha-@hayim*, [11].

[56] Curio, *De conservanda*, 2r; Anon., *Derekh 'ets ha-@hayim*, [5].

[57] Other medical works included in this article, such as *Sefer ha-noshim*, *Shpigl der artsnei* and *Sefer dimyon ha-refu'ot*, also freely mention unkosher *materia medica*.

[58] Anon., *Derekh 'ets ha-@hayim*, [86]; Mattioli, *De plantis epitome utilissima*, 1. On the popularity of lard in Jewish medical and halakhic sources in Poland-Lithuania, see the forthcoming work of Iryna Klymenko.

[59] On these translations, see Idelson-Shein, "Shabbethai Bass," 1–16; Shmeruk, "Moshe Markuze," 361–82. Similarly, Jean Baumgarten has identified practice as an organizing feature of Issachar Ber Teller's Yiddish remedy book, discussed below. See Jean Baumgarten, "Un livre de médecine en Yiddish: Le *Beer Mayim Hayyim* d'Issachar ber Teller (Prague, seconde moitié du XVII[e] siècle)," *Revue des étude juives* 168.1/2 (2009): 120.

[60] Chava Turniansky, "Yiddish and the Transmission of Knowledge in Early Modern Europe," *Jewish Studies Quarterly* 15.1 (2008): 11. See also Bart Wallet's discussion of Menachem Amelander's treatment of his Hebrew sources in his *She'ers Yisro'el*: Wallet, "Links in a Chain," 203–8.

[61] Shmeruk and Bartal, "'Tla'ot Moshe,'" 121–37; Hilde Pach, "Moushe's Choices: Was the Compositor of the Oldest Yiddish Newspaper a Creator or an Epigone?," *Studia Rosenthaliana* 40 (2007–8): 203–4.

[62] Shmeruk and Bartal, "'Tla'ot Moshe,'" 132.

[63] Penn Libraries, Lawrence J. Schoenberg Collection (LJS) 485.

[64] Vesalius, *Von des menschen cörpers Anatomey, ein kurtzer aber vast nützer Außzug*, trans. A. Thorer (Basel, 1543).

[65] See the catalogue prepared for the *Les Enluminures* auction: https://www.textmanuscripts.com/medieval/yiddish-hebrew-60483 (accessed October, 2021).

[66] Oxford, Bodleian libraries, MS Mich. 6.

[67] Johann Jacob Woyt, *Gazophylacium Medico-Physicum, oder Schatzkammer medizinischer and natürlicher Dinge* (Leipzig, 1746).

[68] For an early example see Gerrit Bos and Klaus-Dietrich Fischer, *A Glimpse into Medical Practice among Jews around 1500: Latin-German Pharmaceutical Glossaries in Hebrew Characters Extant in Ms Leiden, Universiteitsbibliotheek, Cod. Or. 4732/1 (SCAL 15), fols. 1a–17b* (Leiden, 2021).

[69] The text is taken from Issachar Baer Teller, *Be'er mayim @hayim* (Prague, ca. 1655), [71]–[101].

[70] The text is copied from Zahalon, *Otsar ha-@hayim*, [ii]–[iii].

[71] Mordecai ben Yechiel Michal Ha-Cohen mi-Schmallenberg, "'Ets ha-sadeh," 1751–1753, National Library Israel, Yah, MS Heb. 56, first page of introduction (n.p.).

[72] Christian Weissbach, *Warhaffte und gründliche Cur aller dem menschlichen Leibe zustossenden Kranckheiten* (Strasbourg, 1712). For a detailed discussion, see Iris Idelson-Shein, *Between the Bridge and the Barricade: Jewish Translation in Early Modern Europe* (Philadelphia, 2024). We thank Ahuvia Goren for bringing this manuscript to our attention.

[73] Ha-Cohen, "'Ets ha-sadeh," second page of Hebrew introduction (n.p.).

[74] Latinisms also feature in literary translations, a phenomenon that requires further research. For a brief discussion, see Bernuth, *How the Wise Men Got to Chelm*, 96.

[75] Moses ben Benjamin Wolff Kalish, *Yerushat Moshe* ([n.p.], 1677), [3]–[5]; Wolff, *Yerom Moshe* ([Amsterdam], 1679), 1r–2r. Note that *Yerom Moshe* has been misidentified as a reprint of the first part. See Lapon-Kandelshein and Baruchson-Arbib, "Hebrew Scientific Publications," 179.

[76] Wolff, *Yerom Moshe*, 2r.

[77] Wolff, *Yerom Moshe*, 5r.

[78] Judah Leib Wallich, *Sefer dimyon ha-refu'ot* (Frankfurt, 1700), 73–112.

[79] Wallich, *Dimyon ha-refu'ot*, 73.

[80] See Magdaléna Jánošíková, "United in Scholarship, Divided in Practice: (Re-)translating Smallpox and Measles for Seventeenth-Century Jews," *Isis* 113.2 (2022): 289–309.
[81] Wallich, *Dimyon ha-refu'ot*, 74: "nakh dem Frankfurter taks gemakht."
[82] Cf. Florike Egmond, "Names of Naturalia in the Early Modern Period: Between the Vernacular and Latin, Identification and Classification," in *Translating Knowledge in the Early Modern Low Countries*, ed. H. J. Cook and S. Dupré (Munster, 2012), 131–62.
[83] Mary Lindemann, *Medicine and Society in Early Modern Europe*, 2nd ed. (Cambridge, 2013), 136–38. On the rise of physicians as administrators, see Manfred Stürzbecher, "The 'Physici' in German-Speaking Countries from the Middle-Ages to the Enlightenment," in *The Town and the State Physician in Europe from the Middle Ages to the Enlightenment*, ed. A. Russell (Wolfenbüttel, 1981), 123–29; Hannah Murphy, *A New Order of Medicine: The Rise of Physicians in Reformation Nuremberg* (Pittsburgh, Pa., 2019), 10–14, 46–52.
[84] Ludwig von Hörnigk, *Medicaster Apella oder Judenarzt* (Straßburg, 1631), 226–32.
[85] Yohanan Petrovsky-Shtern notes a similar phenomenon in Eastern Europe during the early eighteenth century. See Yohanan Petrovsky-Shtern, "'You Will Find It in the Pharmacy': Practical Kabbalah and Natural Medicine in the Polish-Lithuanian Commonwealth, 1690–1750," in *Holy Dissent: Jewish and Christian Mystics in Eastern Europe*, ed. G. Dynner (Detroit, 2011), 13–54.
[86] For details on the book and its estimated publication date, see Arthur Teller, *The Wellspring of Living Waters: Issachar Bär Teller, Physician and Surgeon* (New York, 1988), 1–8; Baumgarten, "Un livre de médecine en Yiddish," 106–9.
[87] Issachar Baer Teller, *Be'er mayim @hayim* (Prague, ca. 1655), [7], [13] (n.p.). See also the insertion of a Yiddish transliteration of the Latin translation of Gen 3.19 alongside the original verse in Hebrew: קוויא טערא עש, עט אין טעראם רעווערטעריס [7].
[88] Jordan R. Katz, "Jewish Midwives, Medicine and the Boundaries of Knowledge in Early Modern Europe, 1650–1800" (PhD diss., Columbia University, 2021), 138–79.
[89] This has also been shown to be the case with Yiddish near-transliterations of literary works. See, e.g., Paucker, "The Yiddish Versions," 7–12, 30–32, 241, 245, and *passim*; Ruth von Bernuth, "Das jischev fun Nar-husen: Jiddische Narrenliteratur und judische Narrenkultur," *Aschkenas* 25.1 (2015): 138–39.
[90] Compare: Anon., *Seder hare 'olam beshraybung* (Frankfurt Oder, 1792); Johann Gottfired Gregorii, *Die curieuse Orographia, oder accurate Beschreibung derer berühmtesten Berge in Europa, Asia, Africa und America* (Frankfurt, 1715).
[91] Gregorii, *Die curieuse Orographia*, 12–22, 591–95; Anon., *Seder hare 'olam*, 1v, 16r.
[92] Anon., *Seder hare 'olam*, 23r.
[93] On abridgement in non-Jewish (particularly vernacular) translations during the period, see Burke, Introduction, 31–32.
[94] Oxford, Bodleian Libraries, MS Opp. 690.
[95] Lorenz Fries, *Spiegel der Artzney* (Strasbourg, 1519); reprinted in 1529, 1532, 1546. See also Lanfrancus et al., *Kleine Wundartznei* (Strasbourg, 1528); reprinted in 1529; Lanfrancus et al., *Wundartznei* (Frankfurt am Main, 1566); also reprinted in 1569.
[96] Georg Pictorius, *Von zernichten Artzten: Clarer bericht ob die Christen von den Jüdischen Artzten, vertrewlich artzney gebrauchen mögen* (Strasbourg, 1557), 8r. The title was reprinted twice (in 1563 and 1566) as an appendix to other medical works by Pictorius.
[97] For initial discussions of the translation, see Moritz Steinschneider, "Jüdisch-Deutsche Litteratur und Jüdisch-Deutsch," *Serapeum* 30 (1869): 148–49; Shulman, *Sfat -Ashkenazit*, 208–9; Jerold C. Frakes, *Early Yiddish Texts 1100–1750* (Oxford, 2004), 354–55 (see further references there).
[98] Compare: Fries, *Spiegel* (1546); MS Opp. 690, fol. 409r.
[99] Ibid.
[100] Compare: Fries, *Spiegel*, 1r; MS Opp. 690, 14v.
[101] Lorenz Fries, *Ein kurtze Schirmred der Kunst Astrologie* (Strasbourg, 1520); on the defense of the Arabic authorities, see Fries, *Defensio medicorum principia Avicennae, ad Germaniae medicos* (Strasbourg, 1530); for

context, see Kenneth F. Thibodeau, "Science and the Reformation: The Case of Strasbourg," *Sixteenth Century Journal* 7.1 (1976): 43, 48.
[102] Fries, *Spiegel*, 1r.
[103] MS Opp. 690, 14r.
[104] Fries, *Spiegel*, 1r.
[105] MS Opp. 690, 14v.
[106] Compare, e.g.: Fries, *Spiegel*, 2r; MS Opp. 690, 20r.
[107] Compare the 1518 edition (p. 15) and the 1529 edition (p. 8v) with the 1532 edition (p. 15) and the 1546 edition (p. 3v), where the patrons are missing.
[108] For some examples, see Voß, "A Jewish-Pietist Network"; S. Maybaum, "Abraham Jagel's Katechismus Lekach-tob," *Bericht über die Lehranstart für die Wissenschaft des Judenthums in Berlin* 10 (Berlin, 1892): 3–18; Kahana, *Tarnegolet beli lev*, esp. 338–56; Goren, "Hefetz," 90–91.
[109] Compare: Paul Ludolph Berkenmeyer, *Neu-vermehrter curieuser Antiquarius* (Hamburg, 1708), 6; Benjamin ben Zalman Croneburg, *Kurioser antikvarius* (Neuwied am Rhein, 1752), 2v.
[110] Compare: Berkenmeyer, *Curieuse*, 5, 7–9; Croneburg, *Kurioser*, 2v, 3r.
[111] Eliyahu ben Moshe Gershon, *Melekhet ma@hshevet* (Berlin, 1765).
[112] Georg Heinrich Paritius, *Compendium praxis arithmetices* (Regensburg, 1708). See Ahuvia Goren, "Gershon, Eliyahu ben Mosheh—Melechet Machshevet" (entry no. 291), in Online Database of Jewish Translations and Cultural Transfer in Early Modern Europe (JEWTACT), ed. I. Idelson-Shein, A. a Goren, M. Jánošíková, T. Karkason, and Y. Z. Mayer (forthcoming), https://aranne5.bgu.ac.il/jtact/index.php. Forthcoming.
[113] Heida, *Ma'ase @horesh u-@hoshev*, last page of preface (n.p.).
[114] Heida, *Ma'aseh @horesh u-@hoshev*, p. 2 of preface.
[115] Paritius, *Praxis arithmetices* (Regensburg, 1706).
[116] Paritius, *Compendium*, 5.
[117] Heide, *Ma'aseh @horesh u-@hoshev*, 5v.
[118] Alexandre Métraux, "Opening Remarks on the History of Science in Yiddish," *Science in Context* 20.2 (2007): 148.
[119] Métraux, "Opening Remarks," 148.