

**United in Scholarship, Divided in Practice:
(Re-)Translating Smallpox and Measles for Seventeenth-Century Jews**

Magdaléna Jánošíková (Ben-Gurion University of the Negev)

Abstract

The article investigates the translatability of experience in seventeenth-century medical *practica*. It reconstructs the translation and the retranslation of the chapter on smallpox and measles taken from the immensely popular *Praxis medica* penned by Lazare Rivière. This text was adapted by two Jewish physicians: Jacob Zahalon who translated it into Hebrew, and Abraham Wallich who then modified it further, both presenting this work as their own. Reconstructing the decision-making that entered their work, I argue that the erasure of some practical and experiential content does not constitute a failure of translation, but revaluation of the content's applicability in a new context. The article, dealing with Jewish learned physicians, also examines how different environments were reflected in these physicians' writing. It, therefore, shows how physicians of comparative expertise resorted to dissimilar practices.

Jacob Zahalon (d. 1693), an Italian Jewish doctor of medicine, made history as the first Jewish author to publish an extensive Hebrew medical compendium during his lifetime.¹ His work *The Treasure of Life* (*Otzar ha-ḥayim*, 1683) received a warm reception from its Jewish readers north and south of the Alps.² Yet none of its readers made such a conspicuous use of its text as his equally learned co-religionist Abraham Wallich (d. 1693). Wallich, a Jewish doctor of medicine active in Frankfurt, adapted Zahalon's chapter on smallpox and measles as a foundation for his own Hebrew work, *Tractate on Fevers in Children Young and Old* (*Traktat me-ha-kadaḥat shel yeladi[m] ktani[m] ve-af mi-gdoli[m...]*), which was posthumously printed in *Harmonia Wallichia Medica* (*Sefer dimyon ha-refu'ot*, c. 1700), a pocketbook edited by his son Judah Leib Wallich (d. 1735).³ Abraham Wallich, nevertheless, did not acknowledge his use of other textual sources. Intriguingly, neither did Zahalon, who similarly obscured his textual sources. As Iris Idelson-Shein has revealed, much of *The Treasure of Life* was, in fact, an unacknowledged translation of the Latin compendium *Praxis medica* written by a lecturer in practice at the University of Montpellier, Lazare Rivière (d. 1655).⁴ The chronological chain of transmission thus suggests that, first, Zahalon translated Rivière's bestseller into Hebrew; then, Wallich adopted its Hebrew rendition for his own work.

The article was published in *Isis* 133.2 (2022).

Neither this chain of transmission nor the adaptation of source-texts were as linear and straightforward processes as this initial trajectory suggests. The comparative readings of these texts reveal a pattern of translational choices and interventions, which expose multiple lenses that early modern physicians applied when studying medical text and putting them into practice. Was the description of smallpox and measles in accord with these physicians' experience? Could the given therapy benefit patients far away from Rivière's climate in France? The reconstruction of the translational choices of these two Jewish physicians shows that these are the very questions that they pondered while studying, translating, and adapting Rivière's work.

Following such traces, this study examines the ways how expert medical practitioners inscribed experience into well-accepted theories via translation in its broadest sense. It examines the translatability of experience or the lack thereof. Doing so, it furthers the inquiry into the relations between theory and practice, building on the works of Hannah Murphy, Paolo Savoia, Alisha Rankin, and others.⁵ It captures physicians as constantly reevaluating the information read and reproduced, where the erasure of the experiential content did not signal the failure of translation of medical knowledge, but the limits of its applicability. Zahalon and Wallich, in a Latourian sense, had to "transform, translate, distort, and modify" Rivière's text across varying experiences, localities, and accepted practices.⁶ And they did so in accordance with the epistemologies inherent to seventeenth-century medical scholarship and practice. As a result, they eventually expressed different disease manifestations and therapies, although their texts so heavily depended on one another.

Furthermore, I advance a more nuanced understanding of Jewish physicians' work and its particularity depending on various cultural, social, and geographical factors. As a matter of fact, Jewish physicians only occasionally had their works printed, and a lot of medical writing that could help illuminate their practice is either missing or remains anonymous. Zahalon and Wallich emerge out of this anonymity as two figures sharing a university education obtained in Italy, sharing age (coincidentally both dying in 1693), and the status of servants of their respective Jewish communities. Zahalon practiced medicine in Rome, and later moved to Ferrara as the rabbi of the local Jewish community while continuing his medical practice. Wallich, born in Metz, served as the physician

The article was published in *Isis* 133.2 (2022).

appointed by the Jewish community in Frankfurt. Both Rome and Frankfurt housed Jewish ghettos with a long history and traditions in catering to its residents, albeit in the case of Rome suffering staggering financial decline in the second half of the century.⁷ Their writing was thus underpinned by different circumstances, organisation of work, and interaction with municipal authorities, but connected through scholarship and the method through which they incorporated their own experiences and the experiences of their respective communities into their texts.

This process was engendered in the type of translational work to which Zahalon and Wallich resorted. Unacknowledged translations, according to Idelson-Shein, enabled undetected reception of ideas among Jews, which originated in the surrounding majority culture. It, nonetheless, did not aim to erase any cultural differences. Translation rather served as a reactive tool to process any developments transcending the communities of Jews on their own terms.⁸ This mediated look sometimes manifested in the presentation of non-Jewish sources. What once was visible became hidden, implied, or insinuated. It also became adapted, modified, erased, or substituted.⁹ Such “translational norm” was common to Jewish and especially Yiddish-writing authors of any genre.¹⁰ The presence of Hebrew, Yiddish, and even Judeo-Spanish medical compositions, nonetheless, suggests that such translational technique was adopted as one particular way of communicating medical knowledge to Jewish readers by early modern expert practitioners.¹¹ The examination of these adaptations further, through the prism of medical history, exposes that the textual interventions speak not only to the cultural status of Jews in Europe and the Mediterranean basin. These modifications and erasures, built on the constant reconfiguration of the relations between the theoretical, the practical, and the experienced, reflect on these physicians’ practice, which was embedded in the communities they served, and to whom they addressed their writings. As a result, we can observe the contours of these Jewish physician’s expertise invested into the hidden decision-making made on paper with its corresponding social and emotional dimensions.

Inscribing the experience into theories

The article was published in *Isis* 133.2 (2022).

Zahalon altered the very description of *variola* (smallpox) and *morbilli* (measles) provided in *Praxis medica*. So did Wallich, when he was reworking Zahalon's version of the text. These fundamental textual changes, however, do not introduce any scholarly revolution. Rivière, Zahalon, and Wallich articulated the commonly accepted principles that defined these diseases, rooted in the tenth- and eleventh-century concepts of Arabic *al-jādarī* and *al-ḥaṣba*, which migrated into Latin medicine as *variola* and *morbilli*.¹² By the seventeenth century, some European physicians doubted the accuracy of medical theory behind these concepts. Both Zahalon and Wallich encountered such sceptical medical literature, yet neither engaged with it.¹³

Instead, Zahalon and Wallich, writing for educated yet non-expert Jewish readers,¹⁴ used the framework derived from *Praxis medica* to locate their experience (and those of their urban communities) on the map of the accepted medical theory. Zahalon reported a febrile epidemic with high fatalities that afflicted the inhabitants of Rome in 1656,¹⁵ and a less lethal one after Pesach (March) 1673.¹⁶ Abraham Wallich recalled two particular cases of children who suffered from smallpox in Frankfurt around 1677;¹⁷ while his son Judah described such a “malignant fever” in children in nearby Hanau during the autumn of 1699, although he identified worms as the cause.¹⁸ The pre-existing categories of *variola* and *morbilli* enabled them to describe, from the modern perspective, widely varying phenomena. The categories thus also allowed Zahalon and Wallich to reconcile their descriptions with their personal experiences and scholarly expectations.

The standard theory concerning smallpox and measles identifies their cause with tainted blood, the remnants of the mother's menstrual discharge (heb. *niddah*)¹⁹ transferred during gestation. This residual matter awaited an external trigger that would set the disease in motion later in the child's life. Pustules, blisters, and various rashes—the characteristic features of these conditions—were interpreted as the body's attempt to expel the corrupted matter by boiling the blood (its ebullition) or by fermentation.²⁰

With few exceptions,²¹ seventeenth-century physicians tended to describe smallpox and measles as diseases that followed a similar course and were transmitted by comparable mechanisms. Nonetheless, they discerned differences in the qualities of the corrupted matter (the cause of the disease) and in its appearance on the skin. Rivière provided a standard distinction between the two, writing:

The article was published in *Isis* 133.2 (2022).

Authors do not agree well on the difference between smallpox (*variola*) and measles (*morbilli*). Customarily, smallpox designates larger pustules, similar to *vari*, from which their name is derived, which lead to suppuration. [And] measles are small pustules, like asperities of skin with intense redness, such as erysipelas (St. Anthony's fire), which are resolved within five or seven days without suppuration.²²

Curiously, Zahalon inverted this terminological hierarchy. Adopting the rabbinic *dictum* of writing in sets of questions and answers,²³ his revised version reads:

Question No. 1: What is the difference between *morbilli* and *varioli*?

Answer: Authors do not agree. Some explain that *morbili* are small pustules (lit. bubbles, *bu'ot*), which suppurate (*hit'apesh*) after [several] days. And *varioli* are stains and redness emerging on the skin, like minute erysipelas, which do not suppurate and disappear within five to seven days. And there is [also] an opposing explanation [that] this is called *rosalia*.²⁴

In his text, Zahalon usually employs the term *morbilli* to refer to a disease with festering pustules, while he uses the term *rosalia* for a milder disease with red rashes and lumps.²⁵ Consequently, *variola*, with its larger boils—at the centre of most treatises on smallpox and measles—is absent from Zahalon's book entirely. Instead, it designates *morbilli* as the most lethal form of spotted fever in children. The author argued, contrary to Rivière, that *morbilli* were caused by the coarse particles in the tainted blood, thus constituting a great danger to the child.²⁶ As such, *morbilli*, literally meaning a small disease, represented the *morbus* (disease) of greater gravity.

This potential lethality of *morbilli* is further emphasized in its direct association with the Plague. In the mid-seventeenth century, the Plague spread across the Mediterranean. It reached the Italian peninsula via Naples in April 1656, spreading to Rome in June.²⁷ A native of the city, born in 1630 and later graduating from the University of Rome, Zahalon experienced the havoc of 1656 first-hand. Although there were fewer casualties in Rome than in Naples and Liguria, the number of mortalities is estimated to have reached 9,500.²⁸ The ghetto of Rome was closed on 18 July and reopened only five months later, on 15 December, when the number of cases in the entire city had fallen dramatically. Rome, however, was not declared free of the Plague before August 1657.²⁹ Zahalon reported that the Plague spread for nine months, dating its appearance in the ghetto to three months following its arrival in the city (approx. August or September):

In the year [5]417 since creation, in [16]56 according to their calendar, in the month of July, prior to the outbreak of the Plague (*ha-dever*), another disease called *morbilli* broke out among children, and most of them died. Then the plague came, and adults began developing a fever with stains of the skin (*ktamim ba-'or*) called *petechiae*, and they died within three days.³⁰

Pre-modern physicians closely associated plagues with skin conditions in general and with smallpox and measles in particular.³¹ They also tended to distinguish between two kinds of diseases among children: they attributed one to impurity of the blood alone, while they viewed the other as epidemic in kind, provoked by external causes such as malignant air—regarded as the principal cause of plague.³² Due to these correlations, smallpox and measles were sometimes considered the plague's forerunners.

In his chapter on smallpox, Rivière directly expressed this notion,³³ and Zahalon developed it. He further linked the chapter to his Plague experience by stating that the disease “spreads from child to child by the malignity of the air caused by the stars or other reasons.”³⁴ *Morbilli*, the small but festering pustules that Zahalon described, thus in all likelihood refer to the same skin eruptions he observed in children twenty-seven years prior to the publication of his work,³⁵ during the Plague of 1656.

United in theory, divided by historiography

Zahalon's textual transformation presented Wallich with a difficult choice: to rely on Zahalon's text, conveniently available in Hebrew, on other medical authorities, or on his own experience? The answer to this implicit question emerges from the first lines of the tractate on smallpox:

Addressing the first question, which discusses the difference between *rublis* (*variola*; text in brackets mine) and *redlin* (*morbilli*).³⁶

Answer: The ancient physicians indeed disagree [in distinguishing *rublis* from *redlin*], some writing that *redlin* (*morbilli*) resemble small pustules that suppurate, dry out, and fall off by themselves, while *rublis* (*variola*) resemble red stains on the skin that do not suppurate and disappear within five, six, seven days. [But] some argue contrariwise that these are called *redlin* (*morbilli*) and the other are called *rublis* (*variola*). The second opinion seems to me, indeed, more likely.³⁷

Wallich shifted the terminology closer to Rivière's text and towards the generally accepted understanding of the subject. In its first lines, Wallich's tract thus reveals that, although based on *The Treasure of Life*, his work was composed in a much richer environment.

This aspect has been overshadowed by the earlier emphasis on the textual dependence of *Harmonia Wallichia Medica* on other Hebrew texts. Already Harry Friedenwald noted that the book draws on *The Treasure of Life* in passing.³⁸ Samuel Kotték further specified the parts of Zahalon's work appearing in *Harmonia*: particularly the chapter on smallpox and measles, as well as the admonitions

The article was published in *Isis* 133.2 (2022).

of Abraham Zacuto (d. 1642), which were translated by Zahalon and printed in *The Treasure of Life*,³⁹ and the physician's prayer, printed in his ethical work *Precious Pearls* (*Margaliot tovot*, 1665)⁴⁰—the last two were included in *Harmonia* by Abraham's son, Judah Leib Wallich.⁴¹ Kottek described Wallich's own contribution to the treatise on smallpox as limited to two aspects: first, Wallich added Yiddish glosses to his Hebrew source text; second, he included two medical cases that provide tangible examples of smallpox.⁴² Kottek thus portrayed Wallich's text as derivative.

Such an evaluation arises from the adoption of an Italian medical scholar as the standard model for a Renaissance Jewish physician.⁴³ This model combines the prevailing focus on academic medicine in research concerning Italy⁴⁴ with the openness of Italian universities to Jewish students, and the peculiarity of Italian Jewish physicians combining their work with rabbinic occupation.⁴⁵ Mauro Zonta and Giuseppe Sermoneta have demonstrated that Italian Jews were thoroughly integrated into the Latin-dominated scholarly culture by the fifteenth century.⁴⁶ During this time, the first wave of Jewish doctors of medicine graduated from Italian universities, a phenomenon that reached other regions only a century later.⁴⁷ Sixteenth- and early-seventeenth century inventories of books belonging to Jewish physicians and Jewish converts to Christianity display the dominance of Latin and vernacular medical books, rather than Hebrew ones.⁴⁸ Moreover, Andrew Berns has shown that these figures applied the scholarly methods acquired in the field of natural history to the study of the Bible.⁴⁹

The Treasure of Life is a late example of such Jewish intellectual work. Zahalon, a physician-rabbi, served as a preacher from his mid-twenties and spent the last decade of his life as the chief rabbi of the Jewish community in Ferrara. He combined his advanced linguistic skills and his medical practice with pastoral duties when composing *The Treasure of Life*. The book is the third (and the only printed part) of a larger thesaurus on science.⁵⁰ Although Zahalon heavily relied on *Praxis medica*, parts of Sennert's *Practicae medicinae* and possibly Sennert's *Institutionum medicinae libri*,⁵¹ he produced a creative piece of scholarship, as his exposition of smallpox and measles indicates.

Harmonia Wallichia Medica seems incomparable with *The Treasure of Life* at first glance. Taken at face value, *Harmonia* may appear to be an incoherent hodgepodge of ephemera and brief treatises on selected diseases combined with the compiler's own observations.⁵² While Zahalon's *The Treasure of Life* was a part of his thesaurus of sciences, *Harmonia Wallichia Medica* contained Judah's

The article was published in *Isis* 133.2 (2022).

treatise on selected diseases, followed by Abraham's tractate on smallpox and measles, followed by additional ephemera, including the physician's prayer and admonitions, regimens of health, and pharmacopoeia available at the local pharmacy.

Zahalon directed his voluminous book at an educated Jewish urbanite interested in his physical wellbeing as advised by a trained physician.⁵³ It is, nevertheless, impossible to identify *Harmonia* with the same readership. There is a discrepancy between the scholarly presentation of Judah's sources and their actual contents. The Latin regimen in *Harmonia*, the *de Diaeta*, can be traced back to posthumous re-editions of Massaria's (d. 1598) *Practica medica*.⁵⁴ However, in the mid-seventeenth century, this regimen circulated in jest books, *Nugæ Venales*, rather than in medical titles.⁵⁵ Similarly, Judah introduces the *pharmacopoeia* with a list of past physicians and alchemists. He signals his erudition in Latin and Dutch chemical literature, but delivers a compilation of medicaments on the basis of the local price regulations.⁵⁶

Harmonia, however, is also a pocketbook imbued with the public display of expertise. By including the Yiddish list of medicaments, Judah Wallich positioned himself as a mediator between the institutions firmly rooted in Frankfurt's cityscape—the city hall with its power of medical oversight and the pharmacy. It is a macaronic text; its Hebrew title, *Sefer dimyon ha-refu'ot*, is accompanied by its Latin name, *Harmonia Wallichia Medica*.⁵⁷ Mixing Hebrew and Latin scripts positioned Judah Wallich in the role of interpreter, well-versed in both worlds. A further look into the book's contents even reveals active engagement with Latin medical scholarship, not much different from Zahalon's use of his unacknowledged Latin sources. The first part of the book, Judah's treatise on the spiritual and bodily causes of diseases,⁵⁸ and its second part, Abraham's treatise on smallpox, contain unacknowledged extracts from *Thesaurus medicinae practicæ*, an alphabetically organized compendium of medical knowledge by Scottish physician Thomas Burnet (d. 1704).⁵⁹

The Jewish physicians of Central Europe inhabited multilingual spaces, requiring translation of their expertise across different cultures. Like their Christian counterparts, Jewish physicians put their linguistic skills on display. When applying for a license, Abraham Wallich noted his knowledge of Latin, French, and Italian, which were partially corroborated by documents submitted along with Wallich's petition for a practitioner's license. The petition, written in German but likely only signed by

The article was published in *Isis* 133.2 (2022).

Wallich, was accompanied by a Latin diploma and a French testimony of practice from Metz.⁶⁰ To this list, we may add Yiddish, the language in which the ghetto's daily life was conducted, and Hebrew, the language of the Jewish religious elite and, to some degree, the ghetto's administration.⁶¹ Judah's linguistic capabilities were likely similar and also included reading skills in German⁶² and Dutch.⁶³

These linguistic skills were portrayed as scholarly in nature through the image of a book. In the preface to *Harmonia*, Judah captures the readers' imagination by describing his late father's collection of Latin and vernacular books.⁶⁴ In a separate booklet, *Theriaca Coelestis Wallichia* (1714), Judah recalls that these "Jewish and medical books, together with all other writings from my father..." were burnt in the fire that raged through the ghetto in 1711.⁶⁵

Judah's presentation of *Harmonia Wallichia Medica* (and himself) constantly revolves around the memory of his late father Abraham, the great Jewish communal physician. Although Abraham Wallich penned only the treatise on smallpox, he is the central figure of the whole publication.⁶⁶ The title page promotes the entire text as Abraham's work, brought to press by his son Judah, the text's editor. Johann Schudt (d. 1722), a Frankfurt-born Christian Hebraist, who knew Judah first-hand, also referred to the book in similar terms, identifying it primarily with Abraham.⁶⁷ The work is referred to in this manner even today in antiquarian catalogues.⁶⁸ The book thus exemplifies the familial nature of the physician's practice and the active role of sons in promoting their fathers' (and their own) legacies.⁶⁹ It combines text as a token of medical scholarship with the tradition of *moving the lips of those that are sleeping* (Sg 7:10)—that is, publishing the words of the deceased with a commemorative subtext.

There was much to remember and celebrate. Abraham Wallich's path to a salaried position in the Frankfurt Jewish community required him not only to bring to the table his expertise and former experience, but also to establish a household and procure residential rights. Abraham, born in Metz, received his medical degree from the University of Padua in 1655. After a brief return to his hometown, he moved to Frankfurt am Main.⁷⁰ He married Hanel (d. 1671), the daughter of a local senior physician, Abraham Hellen (d. 1675), who had lost his heir in 1654. Hellen was affected by the tightening of age restrictions on the practice of medicine in the Jewish ghetto (*Judengasse*).⁷¹ By marrying his daughter to Wallich, he secured his occupational legacy, and enabled the newcomer to join a physician's household and the Jewish community. After initial setbacks, Abraham Wallich was granted a license to

The article was published in *Isis* 133.2 (2022).

practise in October 1657,⁷² and he served as ghetto physician until his death in 1693.⁷³ He had three of his sons sent to Padua, a token of Abraham's true success: Isaac graduated in 1683 (the very year *The Treasure of Life* was published), Naftali Hirsch and Judah Leib in 1692,⁷⁴ less than a year before their father's death.⁷⁵ The latter then attempted to take over his father's place, also by building on his late father's reputation as *Harmonia Wallichia Medica* suggests.⁷⁶

The only stark difference in Zahalon's and Wallich's careers thus revolves around their relation to the rabbinic occupation. As Robert Bonfil emphasized, the commonality of Jewish physician-rabbis in the Italian society had its social and economic reasons.⁷⁷ Similarly, their scarcity in Central Europe reflects the adherence to the local sociology of medical and rabbinic occupations rather than a cultural choice. These occupations were generally separated in Central Europe, where the complex communal institutions offered salaried positions to physicians and rabbis, with clear definitions of their roles.⁷⁸ The divides between occupations, however, were not absolute. Another Isaac Wallich,⁷⁹ a distant relative and a graduate from Halle (1703), became a rabbi in Metz.⁸⁰ Judah Leib Bingen-Ansbach (d. 1714) earned a medical degree from the University of Padua but served as a rabbinical judge (*dayan*) in Frankfurt and oversaw its Jewish hospital (*hekdesch*) free of charge. His medical license was renewed shortly after the death of Abraham Hellen, although Bingen-Ansbach subsequently left for Mainz, where he presided over the Jewish court and served as the head of a yeshiva.⁸¹

In Frankfurt, the position of Jewish physicians was further subjected to the communal authority by an ordinance issued in 1656, which granted foreign physicians a residence permit upon renouncing any aspirations to attain leading communal positions.⁸² These limitations put on physicians' work, along with the strategies of obtaining residential permits and establishing households, mirrored the policies imposed on the Christian physicians by the Central European municipal bodies.⁸³

The comparison of *The Treasure of Life* to *Harmonia Wallichia Medica* suggests that the Ashkenazi learned physicians did not differ from their Italian counterparts in skills and capabilities. They, nevertheless, differed in their manner of communication, reflecting the varied social aspects of medical work, shaped by the local municipal and, in some cases, Jewish communal oversight. These pressures and developments certainly informed their publication strategies, the choices of genre, and thus the audiences which the Jewish physicians tried to engage, such as the educated Jewish men of

The article was published in *Isis* 133.2 (2022).

Zahalon's international market and Judah Wallich's Jewish communities remembering the good work of his father.

Translating experience

Underneath these differences, Zahalon's *The Treasure of Life* and Wallich's treatise on smallpox shared the methods of composition. They both derive from an interaction with a single source text. Their works began with notes made in the margins of the studied text—*Praxis medica* in Zahalon's case and *The Treasure of Life* in Wallich's case. These marginalia were then integrated into drafts, together with other sources, and subsequently translated and polished in multiple rounds of editing. Judah hinted at this common practice in his preface to *Harmonia*, when referring to his father's library, which contained “compositions more expensive than gold, even the finest (cf. Ps 19:11), in a f[oreign] l[anguage] and Latin, *scattered and dispersed* (Est 3:8) *here and there* (2 Kings 4:35), which he expanded with his comments, notes, and signs.”⁸⁴ The same practices were at work when Zahalon redefined *morbilli* and when Wallich disputed his definition. Likewise, similar expertise was invested in their review of the therapies for smallpox and measles.

Their personal input translated into anecdotes,⁸⁵ aphorisms,⁸⁶ commentaries, and cases.⁸⁷ They attest to the rising importance of experience, even if they did not result in any systematic collections of observations.⁸⁸ These micro-narratives were enabled by dynamics of recording the *experiential* and the *experimentum* (in Hebrew *nisayon*), which as Katherine Park explained included manipulation of the subject. The trial-and-error format produced comments that either confirmed or rejected the studied matter.⁸⁹ For example, when Zahalon, translating Rivière, stated: “Some [argue] that [lentils] are harmful because they restrict and hinder the outward movement of blood. But in the books of some great physicians, it is [stated] that lentil solutions are beneficial in this condition.”⁹⁰ Wallich reached the same conclusion by different means: “From the experience (*be-ha-nisayon* [*sic*]) lentil solutions are beneficial in this condition.”⁹¹ The conflict invited an intervention, namely, the inclusion of the physician's own experience.

These pockets of experiential wisdom, however, proved to be difficult to translate. Many of them were omitted; those that remained were modified. Perusing and adapting the text, the reader—the

The article was published in *Isis* 133.2 (2022).

translator with a pen in his hands—grappled with questions at the heart of learned medicine and its practical application: How could the physician relate to the particular observations of another physician? How could he derive a generalization from an individual observation? And how could he process the generally accepted for use in particular cases?⁹² The analysis of two micro-narratives—a cautionary tale concerning diet and the uses of a *curatio* written by Amato Lusitano (d. 1568)—outline the limits of the transmissibility of empirical knowledge on one hand but showcase its adaptability on the other. In the process of reworking, the narratives lost their epistemic dimension to acquire new functions.

In cases of smallpox and measles, patients were instructed to avoid food that might increase the ebullition of blood; in particular, salted and seasoned food was strictly prohibited.⁹³ Zahalon expounded on this rule by recounting the fate of a boy who failed to follow this dietary regimen, stating:

I saw one boy who was mildly sick with this disease (smallpox). His mother gave him a salted fish, in vernacular called *tuna* (?*mynh*/טנינה), so that [the boy] would eat something. But he put himself in danger as [the fish] dried out his tongue like a tree as well as [his] throat. [Consequently,] the fever increased and [the boy] died. So, [the patient] should be very careful about this, and stay away from honey, and should not drink wine at first, until the bad signs of the fever abate. Then he may drink [only] a bit of watered-down wine.⁹⁴

This tale validates a more general point. Zahalon, an eyewitness to the boy's unfortunate death and an expert in medicine, connected his death with diet, thus proving the veracity of the suggested regimen. The anecdote appears also in Wallich's book. However, in his retelling, the focus shifts from the issue of diet to the question of authority:

As we have [already] surmised, many mothers take pity on their children—that is, they give their children whatever they desire, out of compassion. But this compassion brings great responsibility, as surmised from several cases of negligence resulting from it. There was the case of a boy who ate a salted fish given to him by his mother, [served] so that the boy would eat something. But this put the patient in danger; his tongue dried up like a tree and so did [his] throat from the magnitude of the fever. And this boy died within twenty-four hours. For that reason, be very cautious not to give them (patients) anything that harms the sick. Everything you do should be in compliance with the physician's assistance and inquiry. Then you will be fine, and so will the sick.⁹⁵

Here, Wallich is less preoccupied with the medical effects of consuming salted food than with the hierarchy between the physician, the patient, and other healers and carers. Indeed, women's negligence (*ha-hitrashlut ha-nashim* [*sic*]), and of midwives in particular, is a recurring theme in *Harmonia*.⁹⁶ Wallich's rhetoric thus embraced the language of the medical marketplace, where competition drove

The article was published in *Isis* 133.2 (2022).

the need to set one occupation apart from the other, as Nimrod Zinger has noted.⁹⁷ Yet it also accorded the duty of oversight to the physician appointed to serve the Jewish community.

Wallich imbued the tale with new meaning without appropriating it. By erasing the observer's identity, on the one hand he stripped it of its experiential aspect and, on the other, transformed it into a commonplace. This shift did not constitute a challenge, because it was already ingrained in the original tale. Zahalon's observation was an offshoot of an accepted dietary recommendation. The story did not seek to contradict, but rather to confirm and support.

Experience-based content, in the form of an observation or other case-like formats, mostly addressed issues omitted from the theoretical discussion.⁹⁸ It was intended to exemplify, to justify the course of actions, to provide particularity, nuance, and refinement. Rivière, aware of the genre's strengths, cited a *curatio* by Amato Lusitano (d. 1568), the famed Jewish physician of Portuguese origin, "word for word... so that novices may see in which cases the treatment (against smallpox) is the most varied."⁹⁹ Rivière's goal was pedagogic, exhausting the genre's strength in exemplifying and narrating the therapeutic process, and suggesting practical steps without elevating them into rules or fixed guidelines.¹⁰⁰ Later in the text, the reader is thus informed how the use of coolers and thickeners healed a boy, the son of an Ottoman Jewish trader active in Ancona, whose skin had flayed from his entire body within two days of the sudden eruption of pustules.

In this case, Zahalon omitted from his rendition most of the details (as well as Rivière's intention in citing it). He merely instructs the reader to "take rose or chicory syrups, endive or violet with their solutions; anoint the [surface] outside the liver with ointment from sandalwood; eat cooling foods," in order to make the blood thick.¹⁰¹ There is no mention of the patient's identity nor of the condition that afflicted him. Zahalon generalized the content by disassociating the remedy from the actual case; in a similar way, the editors of an early incunabula reduced Gentile da Foligno's (d. 1348) famous *consilium* on snake-bites to its remedy.¹⁰² In this extract, Zahalon still conveyed some medical knowledge to his readers, yet by erasing the case's narrative quality, its organizing element, he compromised the remedy's applicability.

Curiously, the passages that Zahalon omitted appear in Wallich's treatise on smallpox. In other words, although Wallich used Zahalon's Hebrew text, he must have been aware of Zahalon's "hidden"

The article was published in *Isis* 133.2 (2022).

source (i.e. Rivière's *Praxis medica*) and its use of Lusitano's *curatio*. Wallich described the case of a boy whose pustules perforated the skin, causing the skin to flay from his entire body within two days. According to his account, he decided to use blood thickeners, the same ingredients that appear in Zahalon's abridged remedy, but he also added recipes for a bath and a powder to be applied later.¹⁰³ These passages appear neither in Zahalon's *The Treasure of Life* nor in Rivière's *Praxis medica*. Yet they do appear in Amato Lusitano's original case.

The re-emergence of Lusitano's *curatio* in Wallich's treatise may suggest that he accessed *Praxis medica* while reading Zahalon's book, identified the duly cited case and subsequently consulted Lusitano's *Centuriae*, where Wallich could have found the case in greater detail. Lusitano's text, however, reached Wallich with high likelihood via another work, Burnet's *Thesaurus medicinae practicae*.¹⁰⁴ Indeed, another case included in this same text block is drawn from the same compendium: Burnet, duly noting his sources, extracted this other case from Rivière's collection of observations, first printed in 1646. Rivière recounted there how he cured the son of the councillor at the Court of Auditors, Monsieur Grasset, whose smallpox had been accompanied by persistent diarrhoea.¹⁰⁵ Burnet erased the identities of all patients, and Wallich subsequently re-inhabited these observations, presenting them as "some cases [*ma'asot*] that happened to me here in [5]437 (=c. 1677) [concerning] some children cured by my hand."¹⁰⁶

Rivière included observations to illustrate particular aspects of therapy. Zahalon omitted them from his translation, limiting the number of voices and particularities in his text. Wallich, by contrast, included case narratives but used them for a different purpose—to bolster his authority. He made himself the hero of the tale by slightly dramatizing the otherwise faithful translations. Wallich's remedy against smallpox with diarrhoea arrives at the last moment, a successful intervention "after other physicians [had] made [the boy] remedies, and not a single one helped."¹⁰⁷ Lusitano's *contra que sic orsus sum* is transformed into Wallich's "and in this way I went against [the pustules]," making the recipes that follow the climactic peak of the case.¹⁰⁸ He referred to these cases as *ma'asot*, meaning stories, although in medical parlance this term can be identified with *historia*, knowledge derived from perception and observation.¹⁰⁹ The choice of terminology thus quite accurately reflects the oscillation between perception and fiction, which both relied on the power of narration.

The article was published in *Isis* 133.2 (2022).

This appropriation of others' experiences starkly contrasts with the rest of the treatise. Throughout the text, Wallich drew a line between general *practica* and Zahalon's observations, never directly stepping into his shoes. Yet in reproducing the observations from *Thesaurus medicinae practicae*, he abandoned this tendency. With no further information available to shed light on the composition, we can only conjecture as to the reasons for this.

Judah Wallich edited the text and had it printed years after Abraham's passing. It contained ten sections, whereas Zahalon's chapter on smallpox and measles contained only six. One of the Wallichs thus expanded the text to include four more sections, none of which add any new medical information. These passages either address how the readers (patients) should relate to physicians¹¹⁰ or sub-divide Zahalon's text.¹¹¹ The treatise's organization is, therefore, not grounded in the content but in the editorial programme. Moreover, Judah's text is also divided into ten chapters, ten being the numerical value of *yud*, the first letter of his name. Judah also used the very same Hebrew phrase that he ascribed to his father. "I went against [the disease]," which originates from Lusitano's *curatio*, forms a verse in one of Judah's poems. This poem, which describes healing a boy from Hanau during the epidemic of autumn 1699,¹¹² demonstrates similarities to the two smallpox observations in terms of design and content. Finally, Judah Wallich also used excerpts from Burnet's *Thesaurus* in the first part of the book. Did Abraham then note on the margins Lusitano's case, missing in Zahalon's work but present in Rivière's *Praxis medica*, and did Judah expand the note into a full observation later?

In any case, the systematic modification of anecdotes, cases, and other experiential remarks attest to the shared concepts of knowledge and experience that guided these physicians' additions and revisions. On occasion, the changes, however, aimed to preserve the epistemic value of the passages and thus resulted in far wider textual modifications, as the case of bloodletting illustrates.

Divided by bloodletting

"[B]lood should be drawn even if the child cries. Better the child cries a little than [its] mother and father forever,"¹¹³ asserted one Eastern European Jewish physician. His aphorism displays the tensions inherent to the subject of bloodletting children. Bloodletting, a popular therapeutic and preventive measure in adults, was not uniformly accepted as therapy in children. Its therapeutic application

The article was published in *Isis* 133.2 (2022).

required the agreement of both family members and the physician in charge of determining the therapy, as well as the skills of a surgeon who specialized in bloodletting.¹¹⁴ Its use thus often reveals more than the theoretical attitude towards the child's body. It also illuminates some practicalities of therapy, such as the physician's involvement (or the lack thereof) in caring for the child's physical wellbeing. Both Zahalon and Wallich saw bloodletting as a legitimate therapy, but disagreed on the conditions for its application. These different attitudes, as I will show, do not reflect their personal preferences, but their alliances with the more regional practices of bloodletting and their scholarly justification.

Zahalon expressed much affinity with Rivière in discussing bloodletting in children. He mostly followed Rivière's text, updating it to reflect practices performed in Italy:

[...] If the ebullition of blood [is accompanied] by the corruption of [healthy] blood (*hefsed hadam*), bloodletting is beneficial. And some say it is permitted to let blood from three- or four-year-old children, but not in a child *nursed at its mother's breasts* (Song 8:1). And we customarily use [*anu nohagim*] *sanguisuga* (leeches).¹¹⁵
If the child is big, and the symptoms are bad, including confusion, blood should be drawn twice. If there is strength in [the patient] after [the pustules] erupted, [it may be repeated] if the fever is high between the fourth and the ninth day [of the disease].¹¹⁶

Wallich, writing in Frankfurt, however, diverged in this passage on a number of points, underlined in the following text:

[...] If the ebullition of blood [is accompanied] by the corruption of [healthy] blood (*hefsed hadam*), bloodletting is beneficial. And customarily it is [executed] on four- or five-year-old children, but not in a child *nursed at its mother's breasts*. And according to most, as it is written, *zanguizuga*, in the [language of] A[shkenaz] *iglin blut zoyg[e]rs* (leeches), are used. If the child is big, and the symptoms are bad, including confusion, blood should be drawn twice, if there is strength in [the patient] after [the pustules] erupted, before the fourth day [of the disease] and if the fever is high.¹¹⁷

This brief passage deviates from Zahalon's (and Rivière's) text in three main ways: the first concerns the child's age; the second, the role that the physician played in the application of bloodletting; and the third, its timing.

There was no consensus over the appropriate age of bloodletting children. Learned physicians, however, were well aware of Galen's opinion that it was not a measure suitable for children younger than fourteen due to their unstable nature.¹¹⁸ According to Galen, children's pervasive transpiration, together with their warm and moist constitutions, accounted for sudden changes of humours.¹¹⁹ Parts of

The article was published in *Isis* 133.2 (2022).

this argumentation were still maintained by Rivière but to a different end—to chastise the “Parisians” and their legitimisation of bloodletting children that were still breast-fed:

[...P]hlebotomy is necessary in dangerous smallpox, in which corruptive ebullition may happen, so that the tender age of children does not hinder it. It has grown into a custom to let blood in four-year-old and not rarely three-year-old [children]. The physicians of Paris do not abstain from venesection of children at a tender age and when they are still breast-fed. But their tender nature, the light nourishment of milk, and copious transpiration through skin hardly allow it, and neither can this new license to let blood be justified by any support from the wise authors.¹²⁰

The rebuke, omitted from Zahalon’s adaptation, addressed approaches such as those of Gui Patin (d. 1672), a graduate of the medical faculty of Paris and later its dean. His support for bleeding nursing children was disseminated in his commentary on Galen’s *On Bloodletting*, conveniently appended to the thirty editions of Philbert Guibert’s French medical bestseller, *Toutes les oeuvres de Philbert Guybert*, printed between 1633 and 1678.¹²¹ Patin argued:

Practice today obviously shows the contrary [to Galen’s teaching]; one draws blood from many children who are not more than two or three months [old], who nevertheless are doing well and recover easily. It is common to bleed a one-, two-, or three-year-old [child]. You may see a child of only five months tortured by great and frequent convulsions, on whom two small leeches, [applied] one on each arm, each [drawing] one ounce of blood, could be lifesaving.¹²²

Similarly, Antoine Fueldez (d. 1650), active in Rodez in southern France, explained that Galen’s prohibition made sense in ancient times. However, the practices and methods available in Fueldez’s own lifetime facilitated safer results in children younger than fourteen years.¹²³ Based on his own practice, Fueldez counselled the application of simple cups in the first year of the child’s life and the use of scarification in patients who had reached fifteen months; he was willing to consider venesection in four-year-old children.¹²⁴

Neither did Rivière argue against the bloodletting as such. His opinion illustrates the acceptance of such practices, which were not resolved in a big scholarly debate. Bloodletting children seeped into the writings of Italian, Spanish, and later French physicians from the late sixteenth century.¹²⁵ Only in France, however, physicians discussed the minimum age, in reaction to the scholarly attempts to legitimise the practice of therapeutic bloodletting in nursing children.

East of France, however, physicians rarely discussed the subject. Many works on smallpox and measles do not mention bloodletting among therapies. Other suggested a higher age limit. For example, Alexander Seitz (d. 1545) allowed bloodletting at the age of six.¹²⁶ Gregor Horst (d. 1636), in his widely

The article was published in *Isis* 133.2 (2022).

circulated treatise on smallpox, permitted seven- or eight-year-old children to be assessed for the procedure.¹²⁷ Wallich, slightly raising the suitable age to five-year-olds, thus seems to emulate the apprehension about the therapy's necessity in very young children.

The instruction concerning the timing of bloodletting reveal the same geographical divide. Physicians across Europe agreed that the optimal stage for bloodletting (if deemed necessary) was the four-day window between the onset of the fever and the eruption of pustules.¹²⁸ Such application was rooted in the principle of revulsive bloodletting. The blood should be drawn away from the affected area, in the cases of smallpox and measles away from the heart, thus preventing the accumulation of corrupted matter in the organ.¹²⁹ Physicians advised placing leeches or cups, scarifying shoulders and thighs, backs and buttocks, in order to promote the movement of blood “from centre to circumference.”¹³⁰ In this way, they aimed to manipulate the corrupted matter in the blood and facilitate its elimination through the skin. But when applied later, bloodletting could have promoted the spread of the disease throughout the body.¹³¹

By the seventeenth century, the latter view was customary only in Central and Eastern Europe. Horst did not consider any other option than early-stage bloodletting, and neither did the Jewish author of the Yiddish regimen published in 1613.¹³² Sennert allowed bloodletting only early on, although in general he deemed it unnecessary in the case of children.¹³³ A similar sentiment was expressed in popular books throughout the first half of the eighteenth century, which called to include “a considerate physician” to assess whether bloodletting was appropriate at all.¹³⁴

Rivière and Zahalon, however, advised that blood should be drawn even between day four and nine of the disease in problematic cases.¹³⁵ Zahalon's passage on bloodletting reads:

If the bloodletting is in question, on account of the child's tenderness, or [the pustules] have already erupted because the fourth day has passed, and thus the suitable time for bloodletting has passed, it is possible to let blood from the shoulders with cups [*kupi*] or by cutting the skin on the thighs [followed] by cupping. And one may no doubt do so even during the state of the disease, as it aids the natural movement to expel [the corrupted matter] from the inside out.¹³⁶

Wallich reformulated Zahalon's words entirely, siding with the Central and Eastern European views:

In bloodletting, certainly some doubts arise, whether to bleed by leeches or by cups [*kupi*]—that is, *shrep[fin]* (Ger. *schröpfen*) in the [language] of A[shkenaz]—because sometimes the suitable time for bloodletting has passed, the fourth day has passed, and [the pustules] have already erupted. So, one fears to let blood, [and proceeds] only if [the pustules] do not stand high filled [with pus] and are hardly discernible. [Then] one should let blood either by leeches or cupping *shrep[fin]* to quicken

The article was published in *Isis* 133.2 (2022).

the expulsion [of the corrupted matter] and ease nature's burden. And using *shrep[ffin]*, one shall let blood twice, in accordance with the excess and the ebullition of blood.¹³⁷

Wallich again highlighted the problematic notion of drawing blood after the eruption of pustules. However, by permitting the practice even after the fourth day if skin eruptions were not properly visible, he classified Zahalon's practice within the realm of the acceptable, albeit far from recommended.

The differing attitude towards bloodletting across Europe did not go unnoticed. Even lay readers of German medical books could have encounter different bloodletting regimens in the translations of French works.¹³⁸ Figures such as Wallich encountered diverse therapeutical regimens in books as well as through their travels. Only in the late-seventeenth and early-eighteenth centuries, German physicians began to openly and directly engage with these differences. Johann Helfrich Jüngken (d. 1726), the town physician in Frankfurt who was active during Judah Wallich's lifetime, interpreted the discrepancies between famed authors of *practicae*, in contemporary fashion, through the prism of climate.¹³⁹ Reading Gaspar Caldera de Heredia (d. 1668)¹⁴⁰ and Rivière, Jüngken argued that the warm climates in Spain, France, and Italy made bloodletting safer and thus more common. Warmth was believed to inhibit the loss of natural heat that resulted from opening a vein. Therefore, those living in warmer climates could tolerate venesection more easily and its practice posed less of a danger to them. Although Jüngken did not oppose the practice of bloodletting as such, he *ex silentio* considered it less suited to his German patients in cases of acute disease.

The act of bloodletting itself is transformed in Zahalon's and Wallich's texts. Wallich never portrayed himself applying cups or leeches, usually performed by specialists (barber-surgeons). Zahalon, on the other hand, recounted instances in which he performed bloodletting himself. These differing divisions of the physician's work are imprinted in the adaptation of Rivière's warning against the ignorant surgeon. Rivière warned that such a practitioner may cut so deep as to endanger the child. Both Zahalon and Wallich copied this passage and expounded on it further to reach different conclusions. In *The Treasure of Life*, the warning is followed by Zahalon's endorsement of the practice in general (the underlined sections mark the additions to Rivière's translation):

Heed must be taken that the artisan (barber-surgeon), when letting the blood from the shoulders or the thighs, does not cut deep but makes [only] minute cuts, so that he does not cut capillaries underneath the skin and [thus] avoids the ebullition of blood. And I witnessed (*ve-ra'iti ani be-*

The article was published in *Isis* 133.2 (2022).

nisayon in [5]433 [since creation] (i.e., in 1673) that this disease had been spreading in Rome, but the children from whose shoulders I had drawn blood survived, t[hank] G[od]. Before the [treatment], one may move the upper body a bit, stimulate it a little using the hand or a soft piece of cloth, or a dry cup without [drawing any] blood.¹⁴¹

Wallich supplanted Zahalon's remark with his own, very different observation:

Heed must be taken that the artisan letting blood from the shoulders or the thighs does not cut deep but makes minute cuts, so that he does not cut capillaries underneath the skin. Thus, he avoids the ebullition of blood. And I have seen [this] on many occasions in bloodletting with cups. The artisan makes cuts so rough that children die on account of great [blood loss]. Therefore, be careful as [mentioned] above.¹⁴²

Wallich supplanted Zahalon's observation with his own message, reiterating Rivière's warning from his own perspective. He thus not only confirmed the validity of the warning but also subtly refuted Zahalon's involvement in bloodletting by distancing himself from the actual application of this therapy. The Frankfurt medical ordinances indeed related to cupping as the business of barber-surgeons.¹⁴³ The ordinances, nevertheless, did not regulate the interaction of Jewish physicians with barbers, in contrast to apothecaries. Neither does the Jewish communal minute book (*pinkas kahal*), which includes occasional reports on physicians' obligations within the Jewish community, address bloodletting.¹⁴⁴ It is thus unclear whether this division of labour promoted by Wallich was enforced in the Jewish ghetto. Nonetheless, Wallich's phrasing suggests that the physicians in Frankfurt incorporated the distinction between physicians and surgeons into the occupational self-image which they constructed.

Conclusion

The medical occupation required physicians to balance the thin line between theory and practice, between the widely shared frameworks of knowledge at the heart of the physician's universally recognised expertise and its application or justification in more local settings. Translations and adaptations—such as those of Zahalon and Wallich—enable historians to approximate where such thinly drawn lines existed across wider geographies and communities of practice. These lines are less accidental and more reflective of the scholarly methods which physicians employed while working with text. They are reflective of physicians' understanding of knowledge, its applicability, and its translatability.

A comparative reading of the chapters on smallpox and measles penned by Rivière, Zahalon, and Wallich reveals the limits of translatability of medical knowledge. But the learned authors did not fail to translate one another's practical experiences; they evaluated their relevance for their own practice and their own readers. These textual moments, which elicited some work on phrasing and content, thus allow a glimpse into the medical practice, emphasizing the importance of its local and regional dimensions. The university, which stands in the historiography of the Jews and medicine as an equaliser of expertise, was but one factor that shaped the medical occupations of Jews in Italy and north of the Alps. As shown above, Zahalon and Wallich, both graduates from Italian universities, adhered to the same medical theories and resolved to apply different therapies, each following the practices accepted in his regional circles.

Their reworking of Rivière's *Praxis medica*, nevertheless, not only allows us to spot the processes of differentiation among Jewish learned practitioners. The respective "textual" transformations of a Latin medical book into different Hebrew works adopted common scholarly methods of composing, studying, and receiving texts, which allow historians to observe a much wider phenomenon—namely, that the dissemination of a medical bestseller, such as Rivière's *Praxis medica*, drove the unification of knowledge and to some degree its particularisation at the same time, as both processes were inherent to early modern medical thinking. Through the adaptation of knowledge to more local contexts, the case of these physicians corroborates that the purview of one expert ended where another's domain of practice began, and thus reveals the truly perpetual necessity for translating medical knowledge across geographies and communities of readers and patients.

¹ Jacob Zahalon, *The Treasure of Life* [Hebrew: *Otzar ha-ḥayim*] (Venice: Vendramin, 1683). The only earlier preserved medical book penned by a Jewish physician and printed during his lifetime is *The Rescuer of Seeking* [Hebrew: *Moshia' ḥosim*] by Abraham Yagel (d. 1623), a pocket-sized plague tract. Cf. Yagel, *The Rescuer of Seeking* (Venice: Di Gara, 1587).

² See Yohanan Petrovsky-Shtern, "The Master of an Evil Name: Hillel Ba'al Shem and His 'Sefer ha-Ḥeshek'," *Association of Jewish Studies Review*, 2004, 28:223, n. 28, 224. See also David de Silva's use of Zahalon, in Iris Idelson-Shein, "Of Wombs and Words: Migrating Misogynies in Early Modern Medical Literature in Latin and Hebrew," *AJS Review* (forthcoming).

³ Judah Leib Wallich, ed., *Harmonia Wallichia Medica* [Hebrew; Yiddish] (Frankfurt: Vust, 1700); on printing Jewish books in Frankfurt, see Herbert C. Zafren, "Hebrew Printing by and for Frankfurter Jews—to 1800," in *Jüdische Kultur in Frankfurt am Main von den Anfängen bis zur Gegenwart*, ed. Karl. E. Grözinger (Wiesbaden: Harrassowitz Verlag, 1997), pp. 231–271.

⁴ Iris Idelson-Shein, "Rabbis of the (Scientific) Revolution: Revealing the Hidden Corpus of Early Modern Translations Produced by Jewish Religious Thinkers," *American Historical Review* 2021, 126/1: 69–72 (54–81).

Note, the translation used was not the book's *edition princeps* (Paris, 1640; USTC 6040307), but the second expanded edition or any of its later reprints. Cf., Lazarus Rivière, *Praxis medicae*, Vol. I–II (Leuven: Huguetan, 1653). In the rest of the article, I refer only to the second volume, which contains the chapter on smallpox and measles on pp. 685–708. For a bibliographical list of Rivière's editions, though incomplete, see Louis Dulieu, "Lazare Rivière," *Revue d'histoire de la pharmacie*, 1966, 190, p. 210 (pp. 205–11); for a list of the English translated editions, see Elaine Leong, "Transformative Itineraries and Communities of Knowledge in Early Modern Europe: The Case of Lazare Rivière's 'The Practice of Physick,'" in *Civic Medicine*, ed. J. Andrew Mendelsohn, Annemarie Kinzelbach, Ruth Schilling (New York; London: Routledge, 2020), p. 274, n. 4 (pp. 256–79).

⁵ Hannah Murphy, "Skin and Disease in Early Modern Medicine: Jan Jessen's 'De cute et cutaneis affectibus' (1601)," *Bulletin of the History of Medicine* 2020, 94: 179–214; Paolo Savoia, "Nature or Artifice? Grafting in Early Modern Surgery and Agronomy," *Journal of the History of Medicine and Allied Sciences* 2017, 72:67–86; Elaine Leong and Alisha Rankin, "Testing Drugs and Trying Cures: Experiment and Medicine in Medieval and Early Modern Europe," *Bulletin of the History of Medicine* 2017, 91:157–187; Alisha Rankin, "On Anecdote and Antidotes: Poison Trials in Early Modern Europe," *Bulletin of the History of Medicine* 2017, 91: 274–302; Alix Cooper, "Homes and Households," in *The Cambridge History of Science*, Vol. 3, eds. by Katherine Park and Lorraine Daston (Cambridge: Cambridge University Press, 2006), pp. 224–237; Cynthia Klestinec, "Practical Experience in Anatomy," in *The Body as Object and Instrument of Knowledge. Embodied Empiricism in Early Modern Science*, eds. by Charles T. Wolfe and Ofer Gal (Dordrecht; New York: Springer, 2010), pp. 33–57.

⁶ Bruno Latour, *Reassembling the Social: An Introduction to Actor-Network-Theory* (Oxford: Oxford University Press, 2005), p. 166.

⁷ For the Judengasse in Frankfurt am Main, see Rotraud Ries, "Die Mitte des Metztes: zur zentralen Rolle Frankfurts für die Judenschaft in Reich (16.-18. Jahrhundert), in *Die Frankfurter Judengasse*, ed. Fritz Backhaus et al. (Frankfurt: Societäts-Verlag, 2006), pp. 118–130, pp. 306–313; Debra Kaplan, *The Patrons and Their Poor: Jewish Community and Public Charity in Early Modern Germany* (Philadelphia: University of Pennsylvania Press, 2020), esp. pp. 27–47. For Rome, see Serena Di Nepi, *Surviving the Ghetto. Towards a Social History of the Jewish Community in 16th-Century Rome* (Leiden; Boston: Brill, 2020), esp. 60–85; Francesca Bregoli, "The Jews of Italy (1650–1815), in *The Cambridge History of Judaism*, Vol. VII: The Early Modern World, 1500–1815, eds. by Jonathan Karp and Adam Sutcliffe (Cambridge: Cambridge University Press, 2017), p. 867.

⁸ Idelson-Shein, "Rabbis of the (Scientific) Revolution," 56.

⁹ *Ibid.*

¹⁰ For survey of unacknowledged translations in Jewish early modern translations, see database of Jewish translations that is currently under construction (online for public from 2024): *Online Database of Jewish Translations and Cultural Transfer in Early Modern Europe (JEWTECT)*, ed. Iris Idelson-Shein, Ahuvia Goren, Magdaléna Jánošíková, Tamir Karkason, and Yakov Z. Mayer: www.jewtact.com/database [Online; accessed 20 July 2021].

¹¹ Lola Ferre, "Un Un manuscrito sefardí de medicina en Estambul, s. XVII: El Canon de Avicena y otros textos (Manuscrito Fr 3172 de la Biblioteca Nacional de Israel)," *Miscelánea de Estudios Árabes y Hebraicos. Sección Hebreo* 2018, 67:71–72 (pp. 63–85); Tamás Visi, "Jewish Physicians in Late Medieval Ashkenaz," *Social History of Medicine* 2019, 110:1–21, esp. on pp. 10–11; Magdaléna Jánošíková, "Composing Hebrew Medical Literature in the Sixteenth Century: Medicine in the Life and Work of Eliezer Eilburg," Unpublished PhD dissertation (Queen University of London, 2019), p. 63.

¹² Abū Bakr Muḥammad ibn Zakarīyā Rāzī, *A Treatise on the Small-pox and Measles*, tr. William A. Greenhill (London: Adlard, 1848); Ibn-Sīnā, *Cannon IV*, fen 1, tr. 4 (consulted edition: Venice, 1595; Vol. 2, pp. 72–76).

¹³ In *De febribus*, Daniel Sennert (d. 1637) highlighted the lack of evidence for establishing the true causes of smallpox and measles. Franz de le Boë (d. 1672), an early proponent of the closed blood circuit and of chemical, rather than humoural, physiology, reframed the theory entirely as a series of chemical reactions with acid as its agent. Sennert's works have been identified as Zahalon's second major source, and Wallich also consulted de le Boë's work; yet neither of the two address the contentious point. See Daniel Sennert, *Epitome institutionum medicinae et libr[a] de febribus* (Amstelodami: apud Jodocum Janssonium, 1653), pp. 149, 161 (of *De Febribus*, separate pagination); Franz de la Boë, *Praxeos Medicae*, Vol. IV: *De Morbis Infantum* (Amsterdam: Abraham Wolfgang, 1674), pp. 132; 133–35; Wallich, *Harmonia*, 62; on Zahalon and Sennert, see Idelson-Shein, "Rabbis of the (Scientific) Revolution," pp. 69–70.

¹⁴ David B. Ruderman, "On the Diffusion of Scientific Knowledge within the Jewish Community: The Medical Textbook of Tobias Cohen," *Jewish Thought and Scientific Discovery in Early Modern Europe* (New Haven: Yale University Press, 1995), p. 233.

¹⁵ Zahalon, *Treasure*, p. 21r (column II).

¹⁶ *Ibid.*, 12r (column I), p. 12v (column I).

¹⁷ Wallich, *Harmonia*, pp. 57–58.

¹⁸ *Ibid.*, pp. 41–42 (poem).

¹⁹ *Niddah*, referring to a menstruating woman or menstrual blood, or a state of impurity by transference, has manifold significance in Jewish culture. On the early modern reception of *niddah* and smallpox, see David B. Ruderman, “Some Jewish Responses to Smallpox Prevention in the Late Eighteenth and Early Nineteenth Centuries: A New Perspective on the Modernization of European Jewry,” *Aleph*, 2002, 2:127–28.

²⁰ Some authors refute other theories, thus providing an overview of rivalling seventeenth-century concepts. Cf. Antonius Fuelledey, *Observations curieuses touchant la petite verole, vraye peste des petits enfans et le bezahar son antidote*. (Lyon: Huguettan, 1645), pp. 10–27; Gregor Horst, *Urschlechten oder Kinds-Blatter, wie auch Masern, Röteln, Rotesucht oder Kindsflecken* (Giessen: bey Casper Chemlin, 1624), pp. 4–5.

²¹ Cf. Thomas Sydenham, *Observationes medicae circa morborum acutorum historiam et curationem* (Geneve: de Tournes, 1683), pp. 295–304.

²² Rivière, *Praxis Medica* II, p. 686. All translations are mine, unless noted otherwise. The text in square brackets contains my additions, clarifying the meaning. The text in round brackets contains my editorial notes.

²³ On Zahalon’s readers and the presentation of his book, see Ruderman, “On the Diffusion of Scientific Knowledge within the Jewish Community,” pp. 233–234.

²⁴ Zahalon, *Treasure*, p. 11v (column I).

²⁵ *Rosalia* denoted one of many fevers accompanied by redness of skin, including measles (*morbilli*), St. Anthony’s fire (*eryspelas*), and scarlet fevers (*purpura*). Some writers used *rosalia* as a vernacular term identical with measles (*morbilli*); others treated it as a distinct phenomenon, also related to plagues. Cf. Antonius Portus, *De Peste* (Rome: apud Dominicum Basam, 1589), p. 192.

²⁶ Cf. Rivière, *Praxis Medica* II, p. 689.

²⁷ Guido Alfani, “Plague in Seventeenth-Century Europe and the Decline of Italy: An Epidemiological Hypothesis,” *Review of Economic History*, 2013, 17:412. For the presence of *yersinia pestis* in skeletal remains from Barletta, see Silvia Scasciamacchia et al., “Plague Epidemic in the Kingdom of Naples, 1656–1658,” *Emerging Infectious Diseases*, 2012, 18/1:186–188.

²⁸ Cf. Guido Alfani’s personal website at Bocconi University:

<http://didattica.unibocconi.eu/mypage/index.php?IdUte=49642&idr=19703&lingua=eng> [Online; accessed 10 March 2020]. On this source, see Alfani, “Prague in Seventeenth-Century Europe.”

²⁹ Pierina Ferrara, “Women in Times of Plague: Economic Conditions and Social Change in 17th Century Rome,” *Cidade Moderna*, 2015, 3/2:378.

³⁰ Zahalon, *Treasure*, p. 21r (column II).

³¹ Antonius Portus, *De Peste* (Rome: apud Dominicum Basam, 1589), p. 192; Samuel K. Cohn, *Cultures of Plague: Medical Thinking at the End of the Renaissance* (Oxford: Oxford University Press, 2012), pp. 62–65; idem, “Household and Plague in Early Modern Italy,” *The Journal of Interdisciplinary History*, 2007, 38/2:179.

³² On the distinction between epidemic and non-epidemic smallpox in the seventeenth century, see Sennert, *De febribus*, pp. 165–66; Rivière, *Praxis Medica* II, p. 691; on contagious smallpox and measles spread through seminaria, see Giorolamo Fracastoro, *De sympathia et antipathia rerum unus. De contagion et contagiosis morbis et curatione libri III* (Venice: Florentini, 1546), p. 39v (II, 2).

³³ Rivière, *Praxis Medica* II, p. 691.

³⁴ Zahalon, *Treasure*, p. 11v (column II).

³⁵ Although the work was printed in 1683, a manuscript was already available in 1675. See Sosland, p. 55. Zahalon was occupied with preparing *The Treasure of Sciences*, of which *The Treasure of Life* was the third volume, for a lengthy period. Its sixth part (the second part of *The Light of the Physicians/Or ha-rof'im*) was written in 1680. Cf. Ms in a private collection; consulted via digitized microfilm viewed at the National Library of Israel, Jerusalem; no. F 71971.

³⁶ The title establishes the terminological equivalents for smallpox and measles. It states in full: *The Tractate on Fevers in Children Young and Old, Called "Varioli" and "Morbilli," in the L[anguage of] A[shkenaz] Called "Urschlechten rub[e]l[l]is" and "Redlin."* There are multiple terminological equivalents for smallpox and measles in German. *Pocken* and *Blättern* were the most common terms. Cf. Tobias Cohen, *The Work of Tobias* [Hebrew: *Ma'ase Tuvia*] (Venice: Bragadin, 1708), p. 141. Wallich adopted the term *urschlechten rublis* (short form, *rublis*) for smallpox by combining its other German name, *urschlechten*, with the local Yiddish term *rofl'es*. *Rofles/roflis*, moreover, evoke the Latin adjective meaning reddish, *rubellus* (as in *de Urschlechten rubellis*). *Redlin*, for *morbilli*, is derived from *Röteln*. Although today the term denotes rubeola, at the time it was used synonymously with *Massern*. Cf. DWB [online], “urschlacht, -schlecht, -schlicht;” “röte 2a, krakheit mit roten hautausschlag.”

³⁷ Wallich, *Harmonia*, p. 50. The terms in brackets added by the author of this article.

³⁸ Harry Friedenwald, “The Use of Hebrew Language in Medical Literature,” p. 99. I thank Iris Idelson-Shein for bringing this information to my attention.

³⁹ Zahalon, *Treasure*, p. ii; Wallich, *Harmonia*, pp. 65–67.

⁴⁰ Jacob Zahalon, *Precious Pearls* [Hebrew: *Margaliot tovot*] (Venice: Morosini 1665), pp. 5r–7v; Wallich, *Harmonia*, pp. 68–72. Judah Wallich added a colophon at the end of the prayer dated 23 Sivan [5]460 (= 10 June 1700), Frankfurt am Main. For the autograph of Zahalon’s prayer, see St. Petersburg, Institute of Oriental Manuscripts, the Russian Academy of Sciences, Ms. B 270 (NLI no. F 53415), pp. 4v–6v.

⁴¹ Kottek, “On Dr. J. L. Wallach,” p. 158.

⁴² *Ibid.*

⁴³ Cf. the ground-breaking studies by David B. Ruderman in *Jewish Thought and Scientific Discovery in Early Modern Europe* and David B. Ruderman, *Kabbalah, Magic, and Science: The Cultural Universe of a Sixteenth Century Jewish Physician* (Cambridge, Mass.; London: Harvard University Press, 1988).

⁴⁴ Sharon T. Strochia, *Forgotten Healers: Women and the Pursuit of Health in Late Renaissance Italy* (Cambridge, Mass.; London: Harvard University Press, 2019), p. 4.

⁴⁵ See Robert Bonfil, *Rabbi and Jewish Communities in Renaissance Italy* (New York, Littman Library, 1990), pp. 160–162.

⁴⁶ Giuseppe Sermoneta, “Pour une histoire du Thomisme juif,” in *Aquinas and Problems of his Time*, ed. Gerard Verbeke and Daniel Verhelst (Leuven; The Hague: Leuven University Press; Martinus Nijhoff, 1976), pp. 130–35; Mauro Zonta, *La filosofia antica nel Medioevo ebraico: La traduzioni ebraiche medievali dei testi filosofici antichi* (Brescia: Paideia, 2001), p. 233; Mauro Zonta, *Hebrew Scholasticism in the Fifteenth Century: A History and Source Book* (Dordrecht: Springer, 2006), pp. 9–13, 24–30.

⁴⁷ Abdelkader Modena and Edgardo Morpurgo, *Medici e chirurghi ebrei dottorati e licenziati nell’Università di Padova dal 1617 al 1816* (Bologna: Forni, 1967).

⁴⁸ Cf. Gianfranco Miletto, *La biblioteca di Avraham Ben David Portaleone secondo l’inventario della sua eredità* (Firenze: Olschki, 2013); see also Camillo Jaghel, a convert and censor, and his son Ciro, in Joseph R. Hacker and Adam Shear, *The Hebrew Book in Early Modern Italy* (Philadelphia: University of Pennsylvania Press, 2011), 147–149.

⁴⁹ Andrew Berns, *The Bible and Natural Philosophy in Renaissance Italy: Jewish and Christian Physicians in Search of Truth* (Cambridge: Cambridge University Press, 2015).

⁵⁰ *The Treasure of Sciences (Otzar ha-hokhmot)* is partially preserved in autograph manuscripts: for volume 1, see The Russian State Library, Ms. Guenzburg 804 (NLI. no. F 47925); for volume 2, *The Treasure of Sky (Otzar ha-shamayimah)*, see Budapest, Library of the Hungarian Academy of Science, Ms. Kaufmann A 293v (NLI. no. F 14715); for *The Light of Physicians (Or ha-rof’im)*, volumes 5 and 6, National Library of Israel, Jerusalem, microfilm no. F 71971. It has not been ascertained what constitutes vol. 4.

⁵¹ Idelson-Shein, “Rabbis of the (Scientific) Revolution,” 69–70; and Daniel Sennert, *Institutionum Medicinae Libri V* (Wittenberg: Zacharias Schürer, 1611), book IV, pp. 705–801.

⁵² The book contains: Judah’s work on ten diseases and their spiritual and bodily causes (pp. 9–41); and the treatise on smallpox and measles attributed to his late father Abraham (pp. 49–64). The rest of the book comprises medical ephemera and occasional literature. It includes two of Judah’s poems (p. 8; pp. 41–42), thematizing his medical practice; two brief regimens of health (pp. 44–48), one in Hebrew and one in Latin; the admonitions (pp. 65–67) from *Treasure*; the physician’s prayer (pp. 68–72) taken from *Precious Pearls*; and a list of medicaments and their pricing found in apothecaries in Frankfurt (pp. 73–112).

⁵³ Ruderman, *Scientific Discovery*, pp. 233–235.

⁵⁴ Cf. Alessandro Massaria, *Practica medica* (Venice: Trevisan Bertolotti, 1613), p. 499.

⁵⁵ Cf. *Nugæ venales, sive, thesaurus ridendi & jocandi* (London: [s. n.], 1642), pp. 241–244.

⁵⁶ I have consulted several printed tax lists from seventeenth-century Frankfurt. Wallich’s pricing, however, seems to be his own. Cf. The City of Frankfurt, “Valor sive taxatio medicamentorum, tam simplicium, quam compositorum, quae in Officinis Francofurtanis prostant,” in *Reformation oder Erneuerte Ordnung der Statt Franckfurt am Mayn, die Pflege der Gesundheit betreffend* (Frankfurt: Johann Bringern, 1612), pp. 29–79; *ibid.* (Frankfurt: Caspar Röteln, 1643), pp. 25–94; *ibid.* (Frankfurt: Thomas Matthias Götzen, 1656), pp. 27–111; *ibid.*, (Frankfurt: Johann David Zunnern, 1687), pp. 27–184.

⁵⁷ For Latin terms, recipes, and full passages, see Wallich, *Harmonia*, title page, pp. 11, 14, 17, 19, 21, 24, 26, 27, 29, 32, 34, 35, 39–41, 44–46, 59, 60, 72.

⁵⁸ On content, see Nimrod Zinger, “‘Who Knows What the Cause Is?’ ‘Natural’ and ‘Unnatural’ Causes for Illness in the Writings of Ba’alei Shem, Doctors and Patients Among German Jews in the Eighteenth Century,” in *The Jewish Body: Corporeality, Society, and Identity in the Renaissance and Early Modern Period*, ed. Maria Diemling and Giuseppe Veltri (Leiden: Brill, 2009), pp. 145–147.

⁵⁹ Thomas Burnet, *Thesaurus medicinae practicae*, (London: Boulter, 1673); in 1678, 1697, 1698, the text was reprinted in Geneva; in 1681–1687 and 1694 in Venice. This text, its location, and its role in Wallich’s treatise are addressed in the last section of this article.

⁶⁰ Frankfurt, The City Archive, FR StAF, Med., Akte 250, Bl. 53r–v. Treue, “Zwischen jüdischer Tradition und christlicher Universität,” 388 (Treue mentioned English by mistake).

⁶¹ On the interplay between Yiddish, German, and Hebrew, see Marion Aptroot, "Writing 'Jewish' not 'German': Functional Writing Styles and the Symbolic Function of Yiddish in Early Modern Ashkenaz," *Leo Baeck Institute Year Book*, 2010, 55:115–128.

⁶² For the use of German language in Judah's *Danckfest*, see Rachel L. Greenblatt, "On Jewish Prague in the Age of Schudt's Frankfurt: The Two Towns in Celebration on the Birth of an Heir to the Habsburg Throne (1716)," *Frankfurter Judaistische Beiträge*, 2015, 40:242–243 (pp. 239–258).

⁶³ Judah Leib Wallich referred to English anatomist Thomas Willis (d. 1675) as a Dutch physician. Willis never practiced medicine outside of England. Wallich articulated Willis' concept of fever, suggesting that he was acquainted with *Diatribae duae medico-philosophicae*, which was printed in the Hague in 1659. It is, however, more likely that he read it in a Dutch translation by Steven Blankaart (d. 1704), *Nieuwe verhandeling van de koorsen*. This edition indeed omits Willis' place of origin from its title page. See Thomas Willis, *Diatribae duae medico-philosophicae quarum prior agit de fermentatione, [...] de febribus* (Haag: apud A. Vlacq, 1659); Willis, *Nieuwe verhandeling van de koorsen* (Amsterdam: Jan ten Hoorn, 1681); Wallich, *Harmonia*, p. 47.

⁶⁴ Wallich, *Harmonia*, p. 3.

⁶⁵ Judah Leib Wallich, *Tzori ha-shamayima order Theriaca Coelestis Wallichia, r[otze] l[omar] des guten herlichen himlischen theriaqm* (Frankfurt/Hanau: Vust?, after 1711).

⁶⁶ Wallich, *Harmonia*, pp. 3, 9.

⁶⁷ Johann Jakob Schudt, *Jüdische Merckwürdigkeiten* (Frankfurt: Lamm, 1714), p. 402.

⁶⁸ E.g. "Fishburn Books, Judaica list, June 2020," no. 2 [online, accessed 15 June 2020]:

<https://www.fishburnbooks.com/catalogues/pdfs/JudaicaJune2020.pdf>. I would like to thank Brad Sabin Hill for bringing this latest advertisement to my attention.

⁶⁹ On collective authorships among rabbis (the influence of their fathers and teachers), see Jean Baumgarten, "The Printing of Yiddish Books in Frankfurt-on-the-Main (17th and 18th Centuries): L'impression de livres yiddish à Frankfort aux XVIIe et XVIIIe siècles," *Bulletin du Centre de recherche français à Jérusalem*, 2009, 20:5; on physicians printing their fathers' works, see Alix Cooper, "House and Household," *The Cambridge History of Science*. Volume 3, ed. Katherine Park, Lorraine Daston (Cambridge: Cambridge University Press, 20), p. 237.

⁷⁰ Wolfgang Treue, "Zwischen jüdischer Tradition und christlicher Universität: Die Akademisierung der jüdischen Ärzteschaft in Frankfurt am Main in der Frühen Neuzeit," *Würzburger medizinhistorische Mitteilungen*, 1998, 17:388 (pp. 375–397); idem, "Lebensbedingungen jüdischer Ärzte in Frankfurt am Main während des Spätmittelalters und der Frühen Neuzeit," *Medizin Gesellschaft und Geschichte*, 1998, 17:46–47 (pp. 9–55).

⁷¹ The son of Abraham Hellen, Isaac Hellen, who graduated from the University of Padua, died in 1654. The 1656 ordinance mentions that physicians should refrain from practicing after reaching the age of sixty. National Library of Israel, Jerusalem, Ms. Heb. 2°662 (*Pinkas/The Communal Book of Frankfurt/Main*), fol. 113v; Shlomo Ettliger *Ele Toldot*, Vol. III: *Lebensbeschreibung aller frankfurter jüdischen Ärzte* (LBI, MF 536; digitized Ms), no. 32, 33 [online:

http://digipres.cjh.org:1801/delivery/DeliveryManagerServlet?dps_pid=IE3517892].

⁷² Treue, "Zwischen jüdischer Tradition und christlicher Universität," p. 388.

⁷³ *Ibid.*, pp. 387–389.

⁷⁴ Modena, *Medici e chirurghi ebrei dottorati e licenziati*, nos. 97, 117, 118.

⁷⁵ National Library of Israel, Jerusalem, Ms. Heb. 4°1092 (*Memorbuch of the Jewish community in Frankfurt/Main*), fol. 43r.

⁷⁶ His whereabouts still require archival research. He was also active in Hanau, suggesting that his position in Frankfurt was unstable.

⁷⁷ See Robert Bonfil, *Rabbi and Jewish Communities in Renaissance Italy* (New York, Littman Library, 1990), pp. 160–162.

⁷⁸ On the communal leadership and institutions, see Stefan Litt, ed., *Jüdische Gemeindestatuten aus dem aschkenasischen Kulturraum, 1650–1850* (Göttingen: Vandenhoeck, 2014), pp. 53–84, 466–501; Stefan Litt and Rahel Blum, "The Situation of Frankfurt's Jewish Community around 1700 (1675 Stefan 1711)," *Frankfurter Judaistische Beiträge*, 2015, 40:223–238.

⁷⁹ Treue, "Zwischen jüdischer Tradition und christlicher Universität," p. 389.

⁸⁰ I thank Edward Reichmann for directing my attention to this "other" Isaac Wallich, not identical with Abraham's son Isaac Wallich. Cf. Asher Salah, *La République des Lettres: Rabbins, Ecrivains et Médecins Juifs en Italie au XVIIIe Siècle* (Leiden; Boston, 2007), p. 667.

⁸¹ Ettliger *Ele Toldot*, no. 40.

⁸² Marcus Horoviz, "Jüdische Aerzte in Frankfurt," *Beilage zum Jahresbericht der israelitische Religionsschule* (1886), 27; National Library of Israel, Jerusalem, Ms. Heb. 2°662 (*Pinkas/The Communal Book of Frankfurt/Main*), fol. 113v.

⁸³ Cf. Hannah Murphy, *A New Order of Medicine: The Rise of Physicians in Reformation Nuremberg* (Pittsburgh: University of Pittsburgh Press, 2019), pp. 53–54.

⁸⁴ Wallich, *Harmonia*, p. 3.

⁸⁵ Peter Dear, “Narratives, Anecdotes, and Experiments: Turning Experience into Science in the Seventeenth Century,” in *The Literary Structure of Scientific Argument: Historical Studies*, ed. Peter Dear (Philadelphia: The University of Pennsylvania Press, 1991), p. 162 (pp. 135–163); Gianna Pomata, “The Medical Case Narrative: Distant Reading of an Epistemic Genre,” *Literature and Medicine* 2014, 32/1:1–23 (esp. pp. 11–14).

⁸⁶ Volker Hess, “Der Aphorismus als Wissentechnik. Das Beispiel der ‘meteorologischen Medizin’ des frühen 18. Jahrhunderts,” *Medizinhistorisches Journal* 2020, 55/2:102–131.

⁸⁷ Gianna Pomata, “Observation Rising: Birth of an Epistemic Genre, 1500–1650,” *Histories of Scientific Observation*, ed. Lorraine Daston and Elizabeth Lunback (Chicago: University of Chicago Press, 2011), pp. 45–80; eadem, “Sharing Cases: The Observations in Early Modern Medicine,” *Early Science and Medicine*, 2010, 15:193–236; eadem, “‘Praxis Historialis’: The Uses of ‘Historia’ in Early Modern Medicine,” in *Historia: Empiricism and Erudition in Early Modern Europe*, ed. Gianna Pomata and Nancy G. Siraisi (Cambridge: MIT Press, 2005), pp. 105–46.

⁸⁸ Eadem, “Observation Rising.”

⁸⁹ Katherine Park, “Observation in the Margins, 500–1500,” in *Histories of Scientific Observation*, p. 20.

⁹⁰ Zahalon, *Treasure*, p. 12r (column II).

⁹¹ Wallich, *Harmonia*, p. 56.

⁹² On the relations between records of practice and their applicability in further research, see works of Volker Hess and J. Andrew Mendelsohn. Volker Hess and J. Andrew Mendelsohn, “Case and Series: Medical Knowledge and Paper Technology, 1600–1900,” *History of Science* 2010, 48:287–314; Hess, “Der Aphorismus als Wissentechnik;” J. Andrew Mendelsohn, “The World on a Page: Making a General Observation in the Eighteenth Century,” in *Histories of Scientific Observation*, pp. 396–420.

⁹³ Rivière, *Praxis medica* II, pp. 698–699.

⁹⁴ Zahalon, *Treasure*, p. 12r (column I).

⁹⁵ Wallich, *Harmonia*, pp. 55–56.

⁹⁶ *Ibid.*, p. 13. Zinger attributes the discouragement to Abraham Wallich. It is my reading that Judah refers to his father only when citing the recipes against vertigo (not the whole chapter). Cf. Nimrod Zinger, “‘Unto Their Assembly, Mine Honor, Be Not Thou United’: Tuviya Cohen and the Medical Market Place in The Early Modern Period,” *Korot*, 2009–2010, 20:74. On Judah’s poem, see Wallich, *Harmonia*, pp. 9–10; Kottek, “On Dr. J. L. Wallach,” pp. 160–163; an abridged English translation can be found in Zinger, “Unto Their Assembly,” pp. 75–6.

⁹⁷ Zinger, “Unto Their Assembly,” esp. pp. 74, 76.

⁹⁸ Dear, “Narratives, Anecdotes, and Experiments,” p. 162.

⁹⁹ Rivière, *Praxis medica* II, pp. 700–701; Cf. Amatus Lusitanus, *Curationum medicinalium centuriae, duae tertia et quarta [...]* (Lyon: Rouillé, 1565), III, p. 18.

¹⁰⁰ Pomata, “Observation Rising,” p. 50.

¹⁰¹ Zahalon, *Treasure*, p. 12r (column II).

¹⁰² Lynn Thorndike, “A Case of Snake-Bite from the Consilia of Gentile da Foligno,” *Medical History*, 1961, 5/1:90–95. I thank Andrew Mendelsohn for bringing this article to my attention.

¹⁰³ Wallich, *Harmonia*, p. 58.

¹⁰⁴ Burnet, *Thesaurus* II, pp. 619–620.

¹⁰⁵ Lazar Rivière, *Observationes medicae et curationes insignes, quibus accesserunt observationes ab aliis communicatae* (Paris: Piquet, 1646) C II, p. 2. For this article, I consulted the London edition printed in the same year (C II, 2 on pp. 122–23).

¹⁰⁶ Wallich, *Harmonia*, p. 47.

¹⁰⁷ *Ibid.*

¹⁰⁸ *Ibid.*

¹⁰⁹ Pomata, “Praxis Historialis,” pp. 111–114.

¹¹⁰ Cf. Question/section no. 5: Shall a physician prepare remedies for patients whose prognosis is death? (p. 64); question no. 6: Can [the patient] heal on his own (i.e., without remedies)? (p. 64).

¹¹¹ Question no. 8: Shall a physician prepare remedies to support individual organs? (p. 72); question no. 9: If so, when and where should [the remedies] be applied? (p. 73).

¹¹² Wallich, *Harmonia*, pp. 41–42.

¹¹³ As Idelson-Shein has shown, this book is a translation of Curio’s *De Conservanda Bona Valetudine* (Frankfurt: 1556) and possibly of another unknown source. In Curo’s regimen, there is no chapter on smallpox. It thus likely originates from another source. Cf. anonymous, *Path to the Tree of Life* [Yiddish: *Sefer derekh etz ha-hayim*], 50v (chapter 85); Iris Idelson-Shein, “Not to Need Another Nation: Motivations for Translation in the Paratexts of Early Modern Hebrew and Yiddish Translations,” [forthcoming]; {***}

¹¹⁴ Evelyn Lincoln, “Curating the Renaissance Body,” *Word and Image*, 2001, 17/1–2:53; Caroline Castiglione, *Accounting for Affection: Mothering and Politics in Early Modern Rome* (Basingstoke: Palgrave Macmillan, 2015), pp. 115–25.

¹¹⁵ Zahalon, *Treasure*, p. 12r (column I).

¹¹⁶ *Ibid.*

¹¹⁷ Wallich, *Harmonia*, p. 46.

¹¹⁸ Karl Gottlob Kühn, ed., *Claudii Galeni Opera Omnia* (reprint: Hildesheim: G. Olms 1964–1965), IX p. 290.

¹¹⁹ On Galen and bloodletting children, see Peter Brain, *Galen on Bloodletting: A Study of the Origins, Development and Validity of his Opinions, with a Translation of the Three Works* (Cambridge: Cambridge University Press, 1986), pp. 87, 131–132, 146.

¹²⁰ Rivière, *Praxis medica* II, pp. 696–97.

¹²¹ Patin’s support was published in an appendix to *Les œuvres charitables de Philibert Guybert*. After Guibert’s death in 1633, the revised edition, *Toutes les oeuvres de Philibert Guybert*, included three works with Patin’s commentaries. One of them was Galen’s *On Bloodletting*, translated from Greek to French by Louis Savot (Paris, 1603). See Philippe Albou, “Histoire des ‘Oeuvres charitables’ de Philibert Guybert,” *Histoire des sciences médicales*, 1998, 32/1:17, 23–24.

¹²² The edition consulted is Philibert Guibert, *Toutes les oeuvres de Philibert Guybert* (Lyon: Jean Hugué, 1667), pp. 643–644.

¹²³ *Ibid.*, pp. 69–70.

¹²⁴ *Ibid.*, pp. 73, 109.

¹²⁵ E.g., see Giovanni Battista Susio, *Trattato di m. Giovanni Battista Susio, che sia gioueuole rimedio il trarre del sangue nelle volgari Veruole, Ferse, et Pettechie* (Venice: Sanese, 1571), pp. 102–103; Fernando de Valdés, *De Utilitate venae sectionis in variolis ac aliis affectibus puerorum* (Seville, 1583); François Mauriceau, *Traité des maladies des femmes grosses et de celles qui sont nouvellement accouchées* (Paris: Charles Coignard, 1668), p. 516–517.

¹²⁶ Alexander Seitz, *Eyn nutzlicher Tractat von der Aderlaß* (Landshut: Weißenburger, 1520), chpt. xxvii.

¹²⁷ Horst, *Urschlechten*, p. 20.

¹²⁸ Rivière, *Praxis medica* II, p. 695; Zahalon, *Treasure*, p. 12r; Wallich, *Harmonia*, p. 55.

¹²⁹ For the review of discussions on revulsion and derivation, see Karin Ekholm, “Anatomy, Bloodletting and Emblems: Interpreting the Title-Page of Nathaniel Highmore’s ‘Disquisition’ (1651),” in *Observing the World through Images: Diagrams and Figures in the Early-Modern Art and Sciences*, ed. Nicholas Jardine and Isla Fay (Leiden: Brill, 2014), esp. pp. 102–105.

¹³⁰ Rivière, *Praxis medica* II, p. 696.

¹³¹ Pedro Gil-Sotres, “Derivation and Revulsion: The Theory and Practice of Medieval Phlebotomy,” in *Practical Medicine from Salerno to the Black Death*, ed. Luis García Ballester et al. (Cambridge: Cambridge University Press, 1994), pp. 110–155.

¹³² Horst, *Urschlechten*, p. 20; *The Path to the Tree of Life*, p. 50v.

¹³³ Daniel Sennert, *Epitome Institutionum Medicinae et Libr. de Febribus* (Amsterdam: Jansson, 1653), p. 171 (of *De Febribus*).

¹³⁴ Ann. *Vade Mecum Medicum. To iest Krotkie, y doświadczone sposoby leczenia chorob rozmaitych [...]* (Częstochowa: Druk. Jásney Gory Częstochowskiej, 1721), p. 319.

¹³⁵ Rivière, *Praxis medica* II, p. 696.

¹³⁶ Zahalon, *Treasure*, p. 12r (column I).

¹³⁷ Wallich, *Harmonia*, p. 56.

¹³⁸ Antoine Fuellez, *Fleissige Anmerkungen von den Urschlechten oder Kinder-Blattern* (Frankfurt am Main/Hanau: Le Blon; Aubry, 1656).

¹³⁹ Johann Helfrich Jüngken, *Wohlunterrichtender sorgfältiger Medicus welcher nach denen Grund-Reguln so aus d. Heutigen Anatomie u. Chymies [...]* (Wittenberg: Johann Nicolas Andrea Seel, 1729), pp. 340–342. See also the work of a Prague physician, Johann Franz Löw von Erlsfeld, *Partus medicus multo labore à Leone in lucem editus seu Tractatus novissimus de variolis et morbillis* (Nuremberg: Ziegerus; Lehmannus, 1699), pp. 122–126. This explanation circulated already earlier, although not in the context of smallpox and measles. Cf. Walther Hermann Ryff, *Spiegel der Gesundheit* (Frankfurt am Main: Egenolff, 1574), pp. 162–163.

¹⁴⁰ Cf. Gaspar Caldera de Heredia, *Tribunal medicum, magicum et politicum* (Lyon: Elsevirius, 1658), p. 311.

¹⁴¹ *Ibid.*, p. 12r (column I). He reiterates this point on p. 12v (column I).

¹⁴² Wallich, *Harmonia*, p. 57.

¹⁴³ Cf. n. 57.

¹⁴⁴ National Library of Israel, Jerusalem, Ms. Heb. 2.662, fol. 113v.