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Pharmacy Price-Lists as a New Type of Documentary Source for Research into Historical Artists' Materials: The Münchner Taxenprojekt

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It is well known from historical pharmaceutical research that pharmacists in medieval and early Renaissance times supplied not only medicines and basic pharmaceuticals, but also materials for daily use, such as sweets, soap, tea and writing materials (Fig. 5.1). However, their function as traders of artists’ materials has been largely overlooked until now. In his *Il libro dell’arte* (written perhaps in the 1390s), the Florentine, Cennino Cennini recommended the purchase of pigments from the pharmacy (‘da’ speziali’), because there they could be obtained in a much better quality than if one were to make them oneself.1 German documentary sources of a similar period, such as the Strasbourg Manuscript (Germany, early 15th century)2 or the *Liber illuministarum* (Germany, 1450–1512),3 often contain statements which indicate that pharmacists stocked artists’ materials in Germany also.4 Valentin Boltz von Ruffach, for example, writing in 1549, recommended his readers to buy *Mirram* (myrrh), *Moler Lac* (red lake), *galitzen stein* (white vitriol, ZnSO₄·7H₂O), *Munnian* (mummy), and *Wysser bolus* (white bole) from the pharmacy; *victriol* (green vitriol, FeSO₄·7H₂O) or *oger gäl* (yellow ochre) could have been bought from the grocery store as well.5

There are two reasons why the pharmacists were predestined for this task: first, many painting materials, such as lead white (basic lead carbonate, 2PbCO₃·Pb(OH)₂) or gum arabic, were basic pharmaceuticals and had to be stocked in every pharmacy anyway. Secondly, many pigments, such as realgar or orpiment (orange and yellow arsenic sulfides, AsS or As₄S₄ and As₂S₃ respectively), are toxic so that strict measures were taken to ensure that they were only sold by trained pharmacists. For example, the pharmacy regulation of Passau (Bavaria) expressly forbade the sale of lead white, orpiment, verdigris (copper acetates of variable composition) and other such materials by grocers (*Materialisten*).6 Occasionally, an exception was made and a grocer was permitted to trade in these materials; however, this was always under the strict supervision of a pharmacist. It was only from about 1800 onwards that shops specialising in artists’ materials took over this function from the pharmacy, at least in the large cities.

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Figure 5.1 Scene from a medieval pharmacy, from O. Brunfels, *Reformation der Apotecken*, Strasbourg 1536,7 Library of the University of Erlangen-Nürnberg.
One of the few surviving inventories of historical pharmacies – the inventory of the only pharmacy in Kolberg (Kolobrzeg, Poland) from 1589 – lists, for example, more than 100 kg of Braunrotz (brown ochre), 29 kg of Citrina wie est (lead-based yellow in different shades), 4.8 kg of Lazur opt. (azurite), 225 g of Lapis Lazuli (azurite or perhaps ultramarine), 105 g of Lacca Rubra durcheinander (different red lakes) and several hundred pieces of gold and silver leaf, as well as Twist Goldt (Zwischgold, the English ‘party gold’, a leaf made of gold and silver beaten together). It is remarkable that this pharmacy in a small and unimportant town like Kolberg provided absolutely everything that a contemporary painter required. Furthermore, the surprisingly large quantity of materials stocked and the prices given in various currencies also indicate just how large an investment a pharmacist had to make.

The pharmacist probably only prepared pharmaceutical products, not the artists’ materials, except for black iron-gall ink. He therefore had to buy them. If he did not live in a town located on one of the larger trading routes, he would have to travel to one of the twice-yearly trade fairs in a city such as Frankfurt, Leipzig, Antwerp or Strasbourg. The catalogue from the rankfurt trade fair of 1582 gives a detailed description of the goods available to the pharmacist. Included in the abundance of raw materials (simplicia) and pharmaceutical preparations (composita) are also pigments and binding media, which were usually offered in different qualities. For example, there was a malle, locally made lead white (Cerussa), a lead white from the Netherlands (Cerussa Antwerpiana) and another from Venice (Cerussa Veneta) (fig. 5.2). This type of cheap product was offered by the hundredweight, which might explain the large amounts stocked by the pharmacies. On the other hand, expensive products, such as azurite (the blue mineral basic copper carbonate, 2CuCO₃·Cu(OH)₂), were also sold by the pound in the wholesale trade.

According to the Edict of Salerno issued by Emperor Frederick II in the early 13th century, German pharmacies were obliged to make public the prices of all their products in the form of so-called taxae. These price-lists were released by the relevant town council. Handwritten taxae were passed on from town to town where they served the local medicus or a member of the Collegium pharmaceuticum as an aid for formulations and as a model for their own taxa. From 1552 onwards they were also printed. Their validity was usually limited to the town in which they were issued and, because Germany was split at that time into many small principalities, free cities and Hanseatic cities, this led to the appearance of a large number of taxae. To date, we have been able to confirm the existence of more than 300 German taxae dated between 1443, the year of issue of the first Viennese taxa, and 1800; the existence of a further 163 taxae is known.

However, the phenomenon of the taxae is not limited to Germany. Italian cities, such as Venice, also issued an annual taxa. Even in those European countries in which taxae were probably not
originally issued officially, we have been able to confirm their existence. The reason for this probably lies in the fact that many German pharmacists, and also German brewers, worked in foreign countries. There they established their tried and trysty lists and then instructed the town officials in their usefulness. Taxae from Prague, Stockholm, Copenhagen, and St Petersburg are evidence of this. They are usually written in three languages: Latin, German, and the language of the country. In contrast, taxae do not appear to have been issued in England or France, apart from a few exceptions which are the result of private initiatives. For example, in the year 1625, the pharmacist Patrick Gordon of Aberdeen published the only taxa of Scotland. He stated in the preface that he wanted to introduce the taxa system, with which he had become acquainted in Germany and Italy, to the United Kingdom.13

The taxae are either structured alphabetically or divided systematically into various chapters (sectiones), such as mineralia or resinæ (Fig. 5.3). Pigments are usually spread over several sectiones. Only occasionally, as first found in the Lignitz taxa from 1568,14 is there a special chapter devoted to colores which contains all the materials that are known from the artist’s palette. The individual products are listed in Latin and in a German translation, latter usually in the local dialect, together with the price for the item. The use of Latin, the greatly standardised pharmaceutical language which remained essentially unchanged over the centuries, often provides a useful guideline for our research and helps us to decipher many regional peculiarities of the German designations.

The range of artists’ materials available, and also the prices, reflect the multitudinous trade associations of the individual towns as well as important historical events. For example, the available range of pigments was much smaller during the turmoil of the Thirty Years’ War (1618–48). Another, rather different, example is that the products from the New World clearly only established themselves very slowly in the pharmacies.16 Furthermore, the emergence of certain ‘new’ materials, such as copal resin or gamboge, can be followed in the taxae.

Occasionally, certain products, such as lead-based yellows, which did not have a pharmaceutical use and were only used as pigments, are not found in the taxae. Such taxae usually originate from large cities, such as Augsburg or Vienna. We assume that the Collegium pharmaceuticum of these cities must have ensured that only the products given in the local Pharmacopoea or Dispensatoria were listed in the taxae. This did not include the colores, because pigments were not necessary for the survival of the town and so their prices did not need to be fixed. Therefore, some few taxae are only of limited use to us. On the other hand, we know that, for example, at the end of the 18th century, the pigment Naples yellow (lead antimonate, theoretical formula Pb,Sb, O₃) was sold in the pharmacies in Vienna,15 although the Viennese taxa did not list this material.

Figure 5.3 Taxa of Leipzig from 1669: Chapter V, *vom Metallen/ Bergarten/ Farben* [of metals/ ores/ pigments] lists most of the pigments used by artists in the mid-17th century.12 Bayerische Staatsbibliothek, Munich.

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The evaluation of the prices of the individual products is a problem. The buying power of the currencies is not known, nor are we currently able to interconvert the currencies of individual towns. Therefore, we have decided to evaluate the individual materials by means of a relative price, which is currently referred to that of verdigris. Nevertheless, the prices are an especially interesting aspect of the *taxae*. For example, we can explain the infrequent use of ultramarine blue or orpiment by German painters at the time of Albrecht Dürer (1471–1528) by their high prices. It seems that the price determined the range of colours on the artist’s palette.\(^\text{18}\)

Although the *taxae* are an extremely important documentary source for research into historical artists’ materials as well as the history of pharmacy, they have hardly been examined systematically. Therefore, our current research project on *taxae*, the Münchner Taxenprojekt aims to make this documentary source available as completely as possible. Two approaches will be used: first, information discovered for the approximately 170 artists’ materials (i.e. pigments, dyes, binders and glues), as well as some other basic materials, will be gathered in a database and evaluated. Secondly, all printed *taxae* will be digitally filmed, which will allow experts from different disciplines to elucidate particular questions on those materials not evaluated by us. Both parts of the Münchner Taxenprojekt will be made available via the Internet. The project will provide a picture of artists’ materials traded at a certain location and at a certain time along with the Latin and German designations. Additionally, there will be a summary of the price development for the period between 1443 and 1800.

**Editor’s note**


**Notes and references**

10. Frankfurt (1582) *Catalogus Oder Register aller Apotheckischen Simplicien und Compositien so in den beyden Messen zu Frankfurt am Mayn durch die Materialisten/ Kaufleute/ Wirtzelträger und Kräutler/ auch durch die Apothecker daselbst verkauft werden*, Frankfurt.
14. Wittenberg (1568) *Apothecken Tax und ordnung aller Erzneien ... der Apothecken der Fürstlichen Stadt Lignitz*, Wittenberg.
15. Leipzig (1669) *E. E. Hochweisen Raths/ der Stadt*