

Mission, pharmacy and international drug transfer in colonial times

Dr. Sabine Anagnostou

Institut für Geschichte der Pharmazie, Philipps-Universität Marburg, Germany

The Christian mission was deeply involved in the European expansion in early modern times. Both the Spanish Crown as well as the Portuguese kingdom had obliged themselves to support the propagation of Christian faith and the conversion of the natives in their overseas colonies. While many orders, first the Franciscans and Dominicans, were engaged in the spread of the gospel it doubtlessly was the Society of Jesus – recently founded in 1540 – who dominated the Christian mission from the late 16th century until their expulsion of the colonies in 1759 and 1767.

In this period, they established an elaborate world-wide network of drug transfer that did not remain without impressive influences on the *materiae medicae* of many different countries. In the following we will give a survey about the development and the structure of this unique network, and present the main results of this the international drug transfer on the pharmacy.

The medical and pharmaceutical supply in the missions, specifically in Spanish-America, was mostly poor, especially in those far away from the centres of civilization. A pharmaceutical supply was, of course, essential for the missionaries themselves. Therefore, the Jesuits established pharmacies in their colleges in the centres of civilization to provide remedies for those living there. Moved by the principles of Christian charity, however, the Jesuits expanded to supplying the poor and the citizens of the urban centres and eventually large surrounding regions with their skilfully prepared medicines and by this the pharmacies developed into main centres of pharmaceutical supply.

The Jesuit pharmacies often were the only pharmacies of the urban centres. There was, for example, the famous Jesuit pharmacy of San Miguel in Santiago de Chile founded around 1613 that was especially highly estimated under the direction of the German pharmacist Joseph Zeitler (1724–1789).¹

The chronicle of the colleges reports²: “The Jesuits ran a public pharmacy at the backside of the college. It was the best pharmacy of the whole kingdom and also distributed remedies to the population for just prices.”

¹ See Sabine ANAGNOSTOU / Michael MÜLLER: Joseph Zeitler – Auf den Spuren eines bayerischen Apothekers in Chile. In: *Geschichte der Pharmazie* 56 (2004), p. 16–23.

² Archivo Nacional Histórico de Chile, Jesuitas, Vol. 39, fol. 177^v: „Tenían también los Regulares su Botica Pública a espaldas del mismo colegio, que era la mejor surtida que había en el Reino,

That the pharmacy indeed was well equipped proves an impressive inventory that contains nearly thousand drugs, simples as well as compositions of European and American origin.³

The European drugs were ordered from Europe or brought by Jesuits arriving in the missions. Zeitler, for example, received many European vegetable and mineral drugs, compositions like theriac as well as instruments and vessels from Munich like his correspondence and different lists show.⁴ But the Jesuits did not only rely on the consignments from Europe, they also explored their surroundings for genuine drugs of the mission countries. Therefore, Zeitler possessed an impressive knowledge about genuine American drugs including their indigenous names which he used in his pharmacy, for example *Corocoro* (*Geranium core-core* Steud.), *Carricillo* (*Calystegia sepium* [L.] R. Br.) and *Dichillo* (*Mulinum spinosum* Pers.).⁵

Owed to the centralistic organisation of the order the apothecaries of the different colleges were in close contact with each other and exchanged scientific information and necessary drugs. Zeitler and the Jesuit pharmacist José Rojo in Lima intensely corresponded with each other as well as with their colleagues Andreas Lechner (*1726) in Quito and Georg Schultz (1723–1767) in Mexico City. There were also close connections to the Jesuit pharmacies in Córdoba where the famous Jesuit apothecary Heinrich Peschke (1672–1729) had worked before, and in Concepción, where Zeitler himself had supported the organisation in the years from 1751 to 1753. The famous Jesuit pharmacy in Buenos Aires participated in these activities as well.⁶ These close connections led into the development of an elaborate network of medical supply in the missions of Spanish-America.⁷

Evidently, the Jesuits colleges in Manila in the Philippines participated in this exchange of drugs and pharmaceutical knowledge as well. The manual *Remedios faciles para diferentes enfermedades* (Manila 1712) by the famous German Jesuit Pablo Clain (1652–1717) – his German name was Paul Klein – contains several American drugs, for example *Chenopodium ambrosioides*, mentioned under the Aztec name ‘Epazotl’.

formada para ellos mismos, de cuyos medicamentos también gozaba el público por justos precios.”

³ Archivo Nacional Histórico de Chile, Jesuitas, Vol. 7, 262^v–278^r.

⁴ Bayerisches Hauptstaatsarchiv, München, Jesuitica 598/1, fol. 8^r.

⁵ Concerning the identifications see Enrique LAVAL: *Botica de los jesuitas de Santiago*. Santiago 1953 (Biblioteca de Historia de la Medicina en Chile; 2), p. 84f., 100, 104.

⁶ Concerning the Jesuit pharmacy in Buenos Aires see Elena YEYATI / Ana María PERKINS DE PIACENTINO: *Las boticas en las misiones jesuítico-guaraníes del Virreynato del Río de la Plata*. In: 34. *Congressus Internationalis Historiae Pharmaciae*. Firenze, 20-23 Ottobre 1999. Acta. [S.l.] 2001, p. 264f.

⁷ Concerning the history of the pharmacy in Santiago de Chile see Enrique LAVAL: *Botica de los jesuitas de Santiago*. Santiago 1953 (Biblioteca de Historia de la Medicina en Chile; 2); José Luis VALVERDE: *Presencia de la Compañía de Jesus en el desarrollo de la farmacia*. Granada 1978, p. 97–101. Concerning the work of the Joseph Zeitler see Sabine ANAGNOSTOU / Michael MÜLLER: *Joseph Zeitler – Auf den Spuren eines bayerischen Apothekers in Chile*. In: *Geschichte der Pharmazie* 56 (2004), p. 16–23.

The botanical work by the pharmacist Joseph Kamel⁸ (1661–1706), who ran the Jesuit pharmacy in Manila, contains even several genuine American drugs and often mentions their medicinal virtues, for example Cacao-tree (*Theobroma cacao* L.), Maize (*Zea mays*), Zapotl (*Casimiroa edulis* Llave et Lex.), Achiotl (*Bixa orellana* L.), Pineapple (*Ananas comosus* [L.] Merr.), Peruvian balm (*Myroxylon balsamum* L. Harms. var. *pereirae*) and Mechoacanna (*Ipomoea jalapa* Pursh.).⁹ Kamel tried to get in touch with the famous apothecary Johann Steinhöffer (1664–1716) in Mexico, author of the well-known *Florilegio medicinal* (Mexico 1712). He was also integrated in the European scientific network around the celebrated English botanist and naturalist John Ray (1628–1705) who added Kamel's work *Herbarum aliarumque Stirpium in insula Luzone Philippinarum primaria nascentium Syllabus* as an appendix to the third volume of his *Historia plantarum* (1686–1704). Kamel was the first to describe the Saint Ignatius Bean (*Strychnos ignatii* Berg.) which soon became a popular medicinal drug in Europe.

The pharmacy of San Pablo in Lima developed into a main centre for the distribution of remedies within Spanish-America, to Chile, Paraguay, Potósi, La Plata, Quito and Panama and finally sent drugs, especially the celebrated Peruvian bark (*Cinchona spec.*), the American bezoar-stone and the so-called 'Roman tea' (*Chenopodium ambrosioides* L.) to Europe.¹⁰ The Jesuits evidently brought seeds of *Chenopodium ambrosioides* from Lima to Rome and cultivated them there in the garden of the Collegio Romano. From Rome it was distributed over Europe and became a surrogate for the Chinese tea for nearly two centuries long. As the Jesuits played an eminent role in introducing this plant into Europe, it carried the vernacular name 'Jesuits' tea'¹¹ or 'Roman tea'. By these activities in the common drug transfer, the medical supply by the Jesuits had entered international dimensions.¹²

⁸ A detailed study about the life and work of Joseph Kamel published Josef GICKELHORN / Renée GICKELHORN: Georg Joseph Kamel S.J. (1661–1706). Apotheker, Botaniker, Arzt und Naturforscher der Philippineninseln. Eutin (Holstein) 1954 (Veröffentlichungen der Internationalen Gesellschaft für Geschichte der Pharmazie, N. F.; 4).

⁹ Josephus CAMELUS: *Herbarum aliarumque Stirpium in insula Luzone Philippinarum primaria nascentium [...] Syllabus*. In: Joannes RAIUS [John RAY]: *Historia plantarum generalis*. Vol. 3. London (1704), Appendix p. 1–96, here p. 21, 33, 39, 54, 62, 69, 77.

¹⁰ Concerning the history of the Jesuit pharmacy of San Pablo in Lima see: Luis MARTÍN: *The intellectual conquest of Peru: The Jesuit College of San Pablo 1568–1767*. New York 1968, p. 97–118.

¹¹ The Yerba Maté, one of the most important commodities of the Jesuit reductions in Paraguay, was also called *Jesuits' tea*. See Rafael CARBONELL DE MASY: *Estrategias de desarrollo rural en los pueblos guaraníes (1609–1767)*. Con las colaboraciones indicadas de los Dres. Teresa Blumers y Ernesto A. J. Maeder. Barcelona 1992; p. 124–126.

¹² See Sabine ANAGNOSTOU: *Pharmazie auf internationaler Ebene – die Apotheke des Collegio Romano vom 16. bis 18. Jahrhundert*. In: *Geschichte der Pharmazie* 57 (2005), p. 57–63, here p. 60.



In the Portuguese empire a similar network of medical-supply was built up. In Brazil nearly every college maintained a pharmacy, often the only one in the community. There were pharmacies in Salvador da Bahia, Recife, São Paulo and Rio de Janeiro.¹³

In Goa, India, the pharmaceutical services were centralized in New Saint Paul's which provided remedies to every college in the Goan province. The colégio máximo definitely was an international centre of cross-cultural exchange and offered the Jesuits in transit to other provinces in the East the possibility for transporting drugs.¹⁴ Another important Jesuit pharmacy existed in Macau which supplied the infirmary of the college Saint Paul and the local people with remedies and medical services. The pharmacy annually received stocks from Goa.¹⁵

In Europe, the Jesuit pharmacies had already established a wide network covering, for example Spain, Portugal, Italy, Germany, Austria, Hungaria, Bohemia and Moravia. The main centre of the European system, however, was Rome where the pharmacy of the Collegio Romano had turned into an international centre for sending and receiving medicinal drugs to and from the overseas missions. From there European compositions like the famous Roman theriac were sold all over Europe and found their way into many Jesuit pharmacies in the missions, for example into the pharmacy of San Miguel in Santiago de Chile. Beyond that, exotic drugs were distributed from Rome all over the world. The Fever bark, for example, was sent from Rome all over Europe by the Jesuits and finally even introduced to Asia.¹⁶

From Goa arrived the precious *Piedra de Goa* or *Lapis de Goa*, in the Collegio Romano, an artificial panacea created by the Jesuit Gaspar António, apothecary in the pharmacy of Saint Paul in Goa, in the middle of the 17th century which even found its way into the Jesuit pharmacies in Iberoamerica.¹⁷ From Manila came the Saint Ignatius bean and was sent to the overseas pharmacies in America as well, for example to Chile. On the other hand it also belonged to the simples of the pharmacy in Macau. The Jesuits also brought Araroba (from

¹³ See Serafim LEITE: Serviços de saúde da Companhia de Jesus no Brasil. In: Brotéria 54 (1952), p. 386–403.

¹⁴ See Dauril ALDEN: The Making of an Enterprise. The Society of Jesus in Portugal, Its empire, and beyond 1540–1750. Stanford CA 1996, p. 338.

¹⁵ See Ana Maria AMARO: The influence of Chinese pharmacopeia in the prescriptions of the Jesuit dispensaries. In: John W. WITEK / Michel REIS (Eds.): Religion and Culture. An international Symposium commemorating the fourth centenary of the University College of St. Paul. Macau 1999, p. 111–129.

¹⁶ See Sabine ANAGNOSTOU: Pharmazie auf internationaler Ebene – die Apotheke des Collegio Romano vom 16. bis 18. Jahrhundert. In: Geschichte der Pharmazie 57 (2005), p. 57–63.

¹⁷ See Ana Maria AMARO: A famosa pedra Cordial de Goa ou de Gaspar António. In: Revista de Cultura 7/8 (1988/89), p. 87–108.

Andira araroba Aguiar), the so-called Ringworm-Powder or Goa-Powder, from Brazil to India.¹⁸

The Jesuit colleges in the missions and Europe often possessed gardens that fulfilled two functions. They supplied the pharmacists with healing plants and were places for botanical experiments like growing exotic plants in Europe and European plants in the mission countries. The *Hibiscus rosa-sinensis* L. from Asia, for example, was grown – probably for the first time – in Europe in the garden of the Collegio Romano by the Jesuit Giovanni Battista Ferrari (1584–1655), who also published the work *Flora overo cultura di fiori* (Rome 1638) about the culture of flowers, including exotic flowers which he received from his fellow Jesuits.¹⁹ On the other hand, in the gardens of the missions grew European healing plants like the Jesuit Anton Sepp, missionary in Paraguay, reported: “We have a wonderful, large garden [...] including a special garden with medicinal herbs for the sick as here are no physicians and pharmacists. [...] In the garden for medicinal plants I have mint, rosemary [...] and marjoram etc.”²⁰

The transfer of medicinal drugs and medicinal knowledge worked both ways, from Europe to the missions and from the missions to Europe. Studying the works of famous Jesuits, it becomes obvious that some Jesuits relied mostly on the traditional European materia medica, yet they included local remedies into their therapies. In the missions, especially those far from the urban centres, the Jesuits fulfilled the duties of both physicians and pharmacists. For their fellows some experienced Jesuits among them wrote medical-pharmaceutical manuals as the majority of the missionaries were not educated pharmacists. These manuals contained selections of remedies, special ‘missionary remedies’, that could be prepared from easily available European drugs as well as genuine drugs from the mission countries.²¹ Therefore, these handbooks reflect the exchange of different materiae medicae and their combination into a special ‘missionary materia medica’. They were often copied by hand or even printed and widespread, especially in the mission countries.

The once highly estimated medical anthology *Florilegio medicinal* by the apothecary Johann Steinhöffer, missionary in Mexico, reflects mostly the European materia medica and medical

¹⁸ See Alexander TSCHIRCH: Handbuch der Pharmakognosie. Bd. 2, Spezielle Pharmakognosie, 2. Abteilung. Leipzig 1917.

¹⁹ See Sabine ANAGNOSTOU: The international transfer of medicinal drugs by the Society of Jesus (sixteenth to eighteenth centuries) and connections with the work of Carolus Clusius. In: Florike EGMOND / Paul HOFTIJZER / Robert VISSER: Carolus Clusius: Towards a cultural history of a Renaissance naturalist. Amsterdam 2007, p. 293–312, here p. 307–309.

²⁰ Anton SEPP: RR. PP. Antonii Sepp und Antonii Böhm / Der Societät Jesu Priestern Teutscher Nation, deren der erstere aus Tyrol an der Etsche der ander aus Bayrn bürtig / Reißbeschreibung / wie dieselbe aus Hispanien in Paraquariam kommen. Nürnberg 1698, p. 226–228.

²¹ Concerning the meaning and the significance of ‘missionary remedies’ see Sabine ANAGNOSTOU: Missionsarzneien vom 16. bis 18. Jahrhundert – ein Forschungsansatz für die Entwicklung von Phytotherapeutika. In: Zeitschrift für Phytotherapie 26 (2005), p. 66–71.

concepts. Yet Steinhöffer recommended genuine Mexican drugs like the Gomilla de Sonora (resin from different species of *Burseraceae*), the Jicamilla (*Jatropha* spec. or *Pachyrrhizus erosus* Urb.), the Contrayerba (*Dorstenia* spec.) and the Maguey (*Agave* spec.).

Sigimund Aperger (1678–1772), missionary in Paraguay, composed the *Tratado breve de medicina* (18th c.), which mainly was based on the traditional European materia medica and medical concepts. But he also integrated several American medicinal plants into his therapies like contrayerba, Jaborandi (*Pilocarpus* spec.) and various species of *Philodendron* (*Philodendron* spec.).

The *Materia medica misionera* (18th c.) by the Jesuit Pedro Montenegro (1663–1728), however, is an herbal consisting of mainly American medicinal plants available in the Guarani missions of Paraguay, for example, the Yerba Maté (*Ilex paraguariensis* St. Hil.), Passionflower (*Passiflora* spec.), Contrayerba, Ceibo (*Erythrina* spec.) and the widespread panacea Aguaribay-balm (*Schinus molle* L. and other species of *Schinus*). Montenegro described and explained the American healing plants within the European medical-pharmaceutical paradigm and by this made them available for the European pharmacy.²² The above mentioned works of Kamel and Clain are examples for the same activities in the Asian missions.

As well as drugs were delivered to the far away missions, drugs from there were ordered by the pharmacies in the centres of civilization, a process that finally paved their way into the official materia medica of Europe and into the *materiae medicae* of other countries like the Philippines, India and China. The same process took place vice versa. By the medical-pharmaceutical activities, *materiae medicae* of different countries melted together and enriched each other.

An interesting example for the merge of American and European materia medica is the 'Brazilian theriac' created in the Jesuit pharmacy of the college in Salvador da Bahia. The Brazilian theriac actually was based on the recipe of the traditional Roman theriac. Yet European drugs were substituted by Brazilian medicinal plants that were said to have the same effects against poisons like the replaced European simples. So the Brazilian theriac contained, for example Jaborandi, Ipecacuanha (*Cephaelis ipecacuanha* [Brot.] A. Rich), Urucu (*Bixa orellana* L.) as well as Contrayerba and was regarded to be an efficacious remedy against many severe sicknesses just like the original Roman theriac. Fascinatingly enough, a

²² Concerning Pedro Montenegro and his work see Carmen MARTÍN MARTÍN / José Luis VALVERDE: *La farmacia en la América colonial: el arte de preparar medicamentos*. Granada 1995; and Sabine ANAGNOSTOU: *Jesuiten in Spanisch-Amerika als Übermittler von heilkundlichem Wissen*. Stuttgart 2000 (*Quellen und Studien zur Geschichte der Pharmazie*; 78), p. 259–329.

list of sources of supply names different remote missionary settlements (aldeias) and Jesuit pharmacies in Europe and Brazil reflecting the tightly woven international network.²³

During their intense missionary work between the 16th and 18th century, the Jesuits influenced the worldwide drug transfer significantly. Even though other orders might have contributed to the international drug exchange as well, none of them established a worldwide network of medical supply and none of them influenced the change of so many different *materiae medicae*. Of course, many commercial ways of drug transfer existed and of course the Jesuits' network was not one of the main systems. Yet the phenomenon of the global drug transfer by the Jesuits is fascinating as it was not at all the primary duty of these missionaries to establish an international drug transfer. The development can just be explained by the spirituality and the philosophy of the order combined with the special circumstances of the medical supply in the overseas missions.

For the modern pharmacy, the Jesuit pharmacy and its 'missionary remedies' is still interesting as the mentioned healing plants from the non-European countries might have high potential for the development of modern phytotherapeutics.

²³ See Sabine ANAGNOSTOU: Vom Römischen und Brasilianischen Theriak. In: Christoph FRIEDRICH / Sabine BERNSCHNEIDER-REIF (Hrsg.): *Rosarium litterarum. Beiträge zur Pharmazie- und Wissenschaftsgeschichte. Festschrift für Peter Dilg zum 65. Geburtstag.* Eschborn 2003, p. 17–32.