

Mercury was to be taken internally, with undoubted dramatic effect, for even when applied externally it produced mouth sores, deterioration of the teeth and bones, and extreme sweating and salivation.³⁴ Indeed, reporting that it had caused fever and severe diarrhea for those who had ingested it, the Protomedicato moved to prohibit the use of Soft Mercury until it could be investigated further.³⁵ For this purpose, it assembled a panel of five doctors and four apothecaries who were asked to give their opinion of the medicine and of the recipe used to make it. Four of the doctors admitted that Soft Mercury did have use as a medicine, but all five agreed that extreme caution and great care were needed, as it was, without doubt, a poison.³⁶ The apothecaries generally agreed that the recipe used by Don Joseph was not acceptable, and according to the testimony of one of the doctors, “el mercurio dulce cuya recepta a bisto y leydo no la ha hallado en ningun autor quimico.”³⁷ In end the Audiencia determined that “no se puede permitir el uso de dicha recepta porque la mayor parte de dichos medicos y boticarios lo declaran assi.”³⁸ Despite the negative ruling, the case is telling for a number of reasons. First, it shows that alchemical preparations of mercury had entered Mexico by 1683, and that doctors and apothecaries were well aware of its uses. The discussion of mercury as a poison, further, reflects the same arguments for and against its use in Europe: although most recognized mercury’s poisonous properties, some argued that these could be separated out, while others claimed that the best way to cure a poison was to counteract it with another poison. Finally, the doctor’s reference to “chemical authors” shows an awareness of this genre and the fact that these works would have been consulted when evaluating the recipe.

In addition to the alchemical substances used to prepare medicines were a number of chemical medicines made from alchemical techniques. These techniques, particularly distillation, required specialized apparatus and equipment that had not been necessary or even desirable for Galenic preparations. Palacios’s work set out in detail the kinds of equipment that a chemical pharmacist would need, including a still with specialized flasks in which to carry out different types of distillation, sand and water baths which would serve to heat mixtures more slowly and carefully, and glass rather than earthenware vessels, which again allowed more careful control of heat. Although few apothecaries had all the equipment recommended by Palacios, there is evidence to suggest that by 1725 all pharmacists generally owned at least one still, and most owned several. Doña Manuela, for example, owned equipment which included one large still valued at fifty pesos and two smaller ones values at twenty and ten pesos respectively. Records also indicate that by 1732, Don Joseph Calderón owned one glass still and four others, “dos chicos y dos grandes.” In this way, the *rebótica* of the pharmacy increasingly resembled the chemical laboratory and may have provided the space and means through which alchemical techniques were able to survive despite its decreasing popularity at court in the late seventeenth and early eighteenth centuries.

Finally, the medications given to Doña Michaela demonstrate that chemical medicines were indeed prescribed for patients. Of the twenty-four different medicines given to her over the course of her treatment for leg paralysis, only eight came from the traditional Galenic pharmacopoeia (Table 8). The other sixteen were prepared through chemical means, with eleven distilled and five burned to make a “calx” from which were prepared various “salts.” The distilled medicines consisted of three spirits and eight different types of waters. Despite the widespread use of

TABLE 8 Doña Michaela's prescriptions, January–October 1778

Date	Medicine	Translation
January 1778	Pulvis Margaritos	Powdered Pearls
	Syrupus Florum Tunicae	Tunic Flower Syrup
	Aqua Borraginis	Borage Water
6 March 1778	Aqua Hysterica	Hysteric Water
	Sal Malba	Salt of Mallow
June 1778	Cuerno de Ciervo	Deer Antler
	Cinamomo Cith.	Cinnamon
	Aqua Pulvis Coralli Preparado	Water of Powdered Prepared Coral
23 June 1778	Emplastrum Diaphoreticum Minsicht	Diaphoretic Poultice of Minsicht
	Emplastrum Antipodragicum	Antipodragicum Poultice
	Aqua Reginae Hungariae	Camphorated Water of the Queen of Hungary
	Camphorata	
	Spiritus Vini Camphorata	Camphorated Wine Spirit
	Cuerno de Ciervo Liquido Succinato	Liquid Deer Antler with Amber
	Oleum Lumbricorum	Worm Oil
	Pulvis Coralli Preparado	Powdered Prepared Coral
23 July 1778	Extractus Aqua Meliz Patriz	Extract of Water of Melon
	Spiritus Rosarum	Rose Spirit
	Laudanum Liquido	Liquid Laudanum
8 September 1778	Aqua Vita Mulierum	Water of Life for Women
	Laudanum Liquido	Liquid Laudanum
	Spiritus Volatil	Volatile Spirit
	Aqua de la Reina de España	Water of the Queen of Spain
6 October 1778	Aqua de Chicoria	Chicory Water
	Syrupus Florum Tunicae	Tunica Flower Syrup
23 October 1778	Sal Absinthi	Salt of Wormwood
	Coralli Preparado	Prepared Coral
No Date	Pulvis Cephalico	Powder for the Head
	Sal Volatil	Volatile Salt
	Aqua Chicoria	Chicory Water
	Sal Absinthij	Salt of Wormwood
	Aqua Mellis	Water of Melon
No Date	Aceite de Comer	Olive Oil
No Date	Pulvis Coralli	Powdered Coral
	Cuerno de Ciervo	Deer Antoler
	Aqua Cinnamomo	Cinnamon Water
	Aqua Thericalis	Theriac Water
	Theriac Celestial	Celestial Theriac
	Pulvis Dissentericus Optimus	Optimum Dysentery Powder
No Date	Sal Cardui Benedicti	Salt of Cardo Santo Herb

Source: "Autos que sobre cantidad de pesos procedidas de varias curaciones sigue Don Manuel del Castillo Maestro de Pharmacopea en esta corte contra Don Bartholomé Martos del Comerio de ella" Civil, Legajo 143, 2ª Pte., Expediente 9/19.

chymiatry in her treatment, however, most of the medicines used to cure her paralysis were said to act in ways consistent with Galenic humoral medicine: they dissolved humors that had become too thick, they “softened” tumors, they absorbed acidic humors and excited those that had become too lethargic. Thus Doña Michaela’s prescriptions demonstrate the chemico-Galenic compromise in practice.

Doña Michaela’s treatment began on March 6, 1778 with a prescription that included six grains of Salt of Mallow and ten drops of Hysteric Water, both of which demonstrate the use of salt medicines which did not exist in treatments of Don Bernabé’s time. Salt of Mallow was only one of the three different “vegetable” salts that Doña Michaela was given on at least six different occasions. The other two, Salt of Cardo Santo and Salt of Wormwood, were prepared in the same way as the Salt of Mallow, and all were important in dissolving thick humors (Palacios 387). According to Palacios, most vegetable salts were alkaline substances produced through calcination. In this method, the leaves, branches, and wood of the trees were burned and their ash dried in an oven before undergoing a series of purification processes. First, it was passed through a sieve in order to separate out the “carbon” particles. Next, it was heated in a large earthenware pan until it was very white. Then, in a glass flask, the white ash was mixed with water and heated over a mild fire until it had “well impregnated the salt,” then filtered, treated with bleach, and heated in a glass flask until all the liquid evaporated. Finally, the purified material, now a fixed alkaline salt, was left to crystallize in a cool spot.

The Hysteric Water employed even more complex salts. Taken internally, Hysteric Water treated illnesses of “thick and cold humors,” including hysteric illnesses, convulsive movements, epileptic fits, involuntary trembling, and palsy (paralysis) (Palacios 350). It was composed of a number of different herbs including saffron, sage, marjoram, and lavender (and many others) and three different salts: Volatile Salt of Amber, Salt of Tartar, and Spirit of Sal Ammoniac. Once the herbs and salts had been mixed together, they were placed in a tightly-sealed flask and stored in manure (considered a natural heat source) for two days, after which the mixture inside was strained and the product kept for use.

Another type of salt, volatile salt, was used often in Doña Michaela’s treatment, as it was thought to “rarefy and excite” thick, sluggish humors that would be effective in curing and “afectos histéricos” (Palacios 345). Volatile Salt of Amber was prepared by taking amber “fragments” and distilling them in a well-sealed apparatus over a low fire. Spirit of Sal Ammoniac, also found in Hysteric Water, was produced by similarly distilling Sal Ammoniac (a neutral salt—see Multhauf, “Sal Ammoniac”) in water. In both cases, the distillate collected served “for all the hysterical illnesses,” convulsions, and “illnesses of the nerves” (Palacios 370–372, 456). Doña Michaela received other volatile salts on several more occasions, including Salt of Deer Antlers, which was prepared by distilling it with a variety of herbs (aromatic, cephalic, and cordial) and Water of the Queen of Hungary, a distilled medicine containing volatile Sal Ammoniac and used “specifically for hysterical infirmities” (Palacios 473, 345–46).

The next prescription contained another water, Cinnamon Water, in which the cinnamon was burned and then left to “digest” in wine, heated in a humid sand bath for three days. Afterwards, it was distilled and the distillate collected and used to strengthen the stomach, head, and heart, to aid in digestion, and to regulate the menstrual cycle (Palacios 344). Another water, Aqua Vita for Women, was

administered to Doña Michaela on September 8. This Aqua Vita consisted of a number of herbs, including cinnamon, cardamom, sage, mint, ginger, paper, mace, and spiced nuts, all ground up together and mixed with wine before being distilled. The medicine produced was almost exclusively for women. It was beneficial for all the “principal parts” of the body, but especially for the uterus because it regulated menstruation and induced labor during childbirth. As with the Water of the Queen of Hungary, adding camphor to the Aqua Vita for Women made it especially effective in curing illnesses related to hysteria.

Distillation could also be used to produce “spirits,” another type of medicine that was used to treat Doña Michaela’s paralysis. Spirits were usually comprised of the most volatile parts of a substance and thus required careful technique. For instance, Camphorated Wine Spirit, given to Doña Michaela on June 23, 1778, was made by first distilling vinegar to produce Agua Ardiente (Ardent Water), and then distilling the Agua Ardiente, boiling it until the “most subtle vapors” had been collected. Once camphor had been added to this Wine Spirit, it could be used for lethargy, apoplexy, and paralysis. To make a Volatile Spirit, which Doña Michaela was given on one occasion, required even more preparation. First, a mixture of mace, cinnamon, and the bark of orange and apple trees was mashed together in a mortar. Next, the simples were put in a cucurbit along with Sal Ammoniac and Tartar Salt, both of which had been crushed into powder. Then the apothecary poured Wine Spirit and Orange Blossom Water (both requiring prior distillation) over the dry ingredients, covered the cucurbit, and shook the ingredients, leaving it afterwards to digest for twelve to fifteen days, shaking again every three or four days. The mixture was then distilled in a dry sand bath until six ounces of liquid had been collected. Four drops of those six ounces were given to Doña Michaela on September 8, and it was “the best medicine there is for curing illnesses . . . caused by thick and viscous humors,” including the usual lethargy, paralysis, and apoplexy (Palacios 365).

Thus the content of Doña Michaela’s medicines leaves no doubt that her medicines were part of a major change that had taken place in the types of drugs and preparations used in pharmaceutical practice. Compared to Don Bernabé’s syrups and ointments, Doña Michaela’s waters, salts, and spirits were a different breed—yet the explanations as to how the medicines worked had not changed in any significant way, indicating that while medical practices may have changed, medical theory had not. This continuation of the humoral explanation of disease further illustrates the fact that Mexican pharmacy had made a compromise between the traditional Galenic and the new chemical medicine, adopting chemical practices without the chemical philosophy.

Conclusion

The gradual acceptance of chemical medicines into traditional *materia medica* was a key development for the history of western medicine and the history of chemistry, an idea that has been recognized and explained well by its historians. However, few have discussed the crucial impact that it would have had on the history of pharmacy. This paper has attempted to delineate some of the reasons for its adoption in the Spanish viceroyalty of Mexico, and to trace its effects on the medicines, equipment, and