

ARTICLES

GEORGE M. FOSTER
Department of Anthropology
University of California, Berkeley

On the Origin of Humoral Medicine in Latin America

For the past half-century humoral medicine has been recognized by anthropologists to be the most important and widespread ethnomedical system in Latin America. While most scholars believe this system is largely a simplified folk variant of classical Greek and Persian humoral pathology, a small minority—particularly Audrey Butt Colson and Alfredo López Austin—argues for a New World origin. In this paper the author supports the former hypothesis by tracing the well-documented history of classical medicine from Greece and Persia to Latin America, where it was disseminated via formal medical education, hospitals and missionary orders, home medical guides and pharmacies. The fallacies in the arguments of Colson and López Austin are also pointed out.

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In Latin America the most widespread ethnomedical system conforms to an equilibrium model. Foods, medicinal remedies, and other substances are believed marked both by (usually) unchanging Hot and Cold' metaphorical qualities, and by fluctuating thermal temperatures that reflect environmental exposures of the moment. Health is thought to depend on maintenance in the body of a temperature balance, an equilibrium constantly threatened by the metaphorical and thermal forces to which it is exposed. An excess of metaphorical and/or thermal hot or cold insults, which upset this equilibrium, leads to illness, which is treated by therapies that conform to the "principle of opposites," that is, a Hot remedy for a cold illness or a Cold remedy for a hot illness. This ethnomedical system, widely known as the "Hot-Cold syndrome," the "Hot-Cold dichotomy," or, more appropriately, "humoral pathology," has been described for almost all mainland Spanish-American countries. It is also found in Brazil, Haiti, Puerto Rico, Trinidad and Tobago, the American Southwest, and the Philippines.² Beyond wide geographical distribution, the most notable characteristic of this system is its essential homogeneity: Hot and Cold humoral values, health equated with a bodily temperature equilibrium, and adherence to the principle of opposites in therapies.

Although humoral beliefs and practices were noted in Peru as far back as 1877 (Squier 1877:58-59)³ and were there described in some detail in 1922 (Valdizán and Maldonado 1922:1:102), the anthropological history of humoral medicine begins with the Chan Kom, Yucatan, data of Robert Redfield and Alfonso Villa Rojas. Redfield speculated as to whether the Hot-Cold syndrome is European or American in origin, marshaling evidence to support both positions but subscribing to neither (Redfield 1934:59; Redfield and Villa Rojas 1934:161-163, 372). Until the 1950s, anthropologists paid little attention to the Hot-Cold syndrome, although a few noted that foods and medicinal herbs are so classified.⁴ I encountered the trait among the Popoloca of Veracruz, Mexico, in 1941 and in Tzintzuntzan, Michoacán, Mexico, in 1945-46, but failed to realize the significance of my data, dismissing Hot-Cold beliefs in Tzintzuntzan as "little more than a mild superstition," and erroneously assuming the trait to be of Mexican Indian origin (Foster and Ospina 1948:51).

However, after visiting Andean countries in 1947 and 1948, I realized that the Hot-Cold dichotomy is widespread in Spanish America. Consequently, when in 1949 I began a year of research in Spain on the background of Spanish-American culture, the Hot-Cold syndrome was on my list of questions to be investigated. There I found that this belief system appeared never to have played a significant role in Spanish popular medicine (Foster 1953:215). More important than this discovery was my introduction by Julio Caro Baroja to Graeco-Roman-Perisian-Arab medicine. The evidence in classical medical sources, Spanish medical books published before and after the discovery of America, and colonial New World medical accounts convinced me that contemporary humoral medicine in Latin America is a simplified Spanish "establishment" medicine of the Conquest and post-Conquest period that via a variety of routes has filtered down to the popular level. John Rowe and I first advanced this hypothesis in a brief article in 1951 (Foster and Rowe 1951), and two years later I elaborated upon it in a more comprehensive treatment of relationships between Spanish and Spanish-American popular medicine (Foster 1953).

Since that time most anthropologists whose research has included the Hot-Cold syndrome have assumed an Old World origin.⁵ A few have suggested that an indigenous New World dichotomous world view that included hot and cold concepts may help to explain the rapid assimilation into Native American societies of foreign medical beliefs and practices. William Madsen, for example, writing about mid-20th century humoral medicine in the Valley of Mexico, points out that "the Hippocratic system was intimately compatible with the ancient Aztec concept of the universe ordered on a system of balancing opposites. This compatibility . . . undoubtedly favored the acceptance of the Hippocratic system by the Indians" (W. Madsen 1955:138).⁶

Other authors, without questioning the Old World origin of the humoral medicine described in ethnographic accounts, consider the possibility of parallel pre-Conquest indigenous Hot-Cold beliefs in the New World. Adams and Rubel, in a comprehensive survey of Middle American medical beliefs and practices, accept a Hippocratic origin but note that

Because of the selective way in which the hot-cold distinction has survived and the wet-dry humors have been lost over the years, and because some such hot-cold distinction may have originated in Yucatan (Redfield and Villa, 1934,

p. 372), the presence of an indigenous counterpart cannot be wholly eliminated. (Adams and Rubel 1967:342)

Similarly, Kelly, finding humoral beliefs and practices well developed among the mestizo inhabitants of the Laguna district of north central Mexico, recognizes "a bare possibility that, at the time of the Discovery, the concept of 'hot' and 'cold' existed among native peoples" (Kelly 1965:119). She bases this statement on the Hot-Cold data found in Sahagún and the Badianus Codex. But she concludes, as have other writers, that these sources have been "contaminated" by Spanish influence and hence cannot provide proof of pre-Conquest Hot-Cold beliefs.

None of these authors seriously doubts the Old World origin of contemporary humoral medicine in Latin America. All are concerned with a problem in acculturation: how and why did European humoral medicine come to dominate popular medicine in post-Conquest America? Hence, on the basis of overwhelming agreement among anthropologists who have researched Latin American humoral medicine, it would appear that the question of origin is not in doubt. This is not so. Two anthropologists—Audrey Butt Colson and Alfredo López Austin—argue determinedly for an American origin of the Hot-Cold syndrome. A third—Alfonso Ortiz—while limiting his remarks to Tewa Pueblo in New Mexico, writes, "I think that the very pervasiveness of the system of [Hot-Cold] classification, running as it does through social and spiritual categories, games, minerals, and diseases, as well as plants and animals, argues overwhelmingly against a Spanish origin" (Ortiz 1969:179). And Joseph Bastien, while recognizing that Greek humoral pathology "apparently influenced Andean ethnophysiology" (Bastien 1985:596), feels it quite possible that the humoral variant he finds among the people he studies—the Qollahuaya Quechua of Bolivia—is indigenous in origin (Bastien 1985:607). Again, two of the three anonymous reviewers of my paper, "The Validating Role of Humoral Theory in Traditional Spanish-American Therapeutics" (Foster 1988), asked that readers be cautioned that there is disagreement about the origin of the system in the Americas. Hence, it seems timely to review arguments and evidence.

The Problem

Which of the two contending views about origins—Old World or New World—is best supported by historical and comparative ethnographic data? Is the contemporary humoral medicine described by anthropologists in Indian, mestizo, and creole communities in the Americas (and in the West Indies and the Philippines) a simplified form of classical humoral theory and practice, which was brought to the New World by Spaniards and Portuguese following the Conquest? Or is humoral medicine in the Americas an indigenous culture trait that after half a millennium of European influences remains so vigorous that it is still the primary source not only of Indian but also of mestizo-creole-urban popular medical practice?

The question is *not* the possible existence of pre-Conquest Aztec beliefs about heat and cold associated with deities such as the rain god Tlaloc. Nor does it have to do with obvious indigenous elements in contemporary use (e.g., a great

many indigenous remedies and disease concepts such as *susto*, *chincual*, and *chipi*). The question is whether the all-embracing theory that binds together the disparate elements of popular medical practice throughout this vast area—Hot and Cold illnesses treated according to the “principle of opposites” with Cold and Hot remedies—is essentially classical humoral or largely Native American in origin.

A third possibility seems highly unlikely: that contemporary humoral medicine has a dual origin, Native American for Indian groups and Spanish-Portuguese for mestizo-creole populations. If this were the case we would expect significant differences among the humoral forms of the two populations, since it is unlikely that two such distinct sources would produce identical products. Yet similarity, and not difference, is what the comparative picture shows, so much so that unless an author is specific, it is usually impossible to identify the cultural-linguistic affiliation of the group studied.⁷

In making the case for an Old World origin for contemporary Latin American humoral medicine, the argument must fulfill two requirements—one positive, the other negative. First, not only must the routes by which classical humoral medicine reached the Americas be shown, but the fact that it did arrive must be demonstrated. Moreover, the processes by which Conquest and post-Conquest classical medicine—the medicine of physicians, philosophers, and botanists—became part of the folk domain must be shown. Second, the case for indigenous American origin must be shown to be less satisfactory as an explanation for all medical aspects of the problem than the Old World origin. Conversely, it is incumbent upon proponents of a New World origin to show why the Old World evidence is unsatisfactory, and why their hypothesis is the more economical of the two.

I base my case for an Old World origin on a comparative ethnographic-historical model. I compare Latin American humoral pathology with its contemporary Asian counterparts, stressing the similarities and probable common origin for all such systems. I then review the historical evidence that shows how Hippocratic-Galenic-Persian medicine became, via the Arabs, orthodox medicine in western Europe, and was brought to the New World by Spaniards and Portuguese, taught there in medical schools until the early 19th century, and diffused to a popular level through the ministrations of religious and medical personnel in hospitals and elsewhere, through pharmacies, and through home care manuals (*receitarios*). I next adduce ethnographic evidence that further argues against a New World origin: absence in Native American sources both of a spelled-out “principle of opposites” and of formal degrees of intensity of humoral values, two features basic to humoral medicine; a preponderance of Spanish (Portuguese in Brazil) terms for both illnesses and therapies in Latin American popular medicine; and occasional use of Spanish terms for Hot and Cold by speakers of Indian languages, but no use of Indian terms by Spanish speakers. Finally, I summarize the arguments of Colson and López Austin, the principal protagonists of an American origin, and point out the flaws in their cases. In addition to the sources cited at the end of this article, I draw upon ethnomedical data from Tzintzuntzan, Michoacán, Mexico, a Spanish-speaking mestizo village where I have carried out research since 1945.

Humoral Medicine: The Comparative Picture

Although binary opposition is perhaps a universal characteristic of human thought (cf. Leach 1967), a systematic binary structure underlying an equilibrium

model to explain health, illness, and curing is by no means universal. Medical historians recognize three major humoral traditions: the Hippocratic-Galenic of ancient Greece, the Ayurvedic of India, and the Chinese. The three systems, although far from identical, are strikingly similar when contrasted to the ethnomedical systems of Africa, northern Asia, Oceania, Australia, and (I maintain) indigenous North and South America. All three are what I have described as “naturalistic”: they represent special cases of protoscientific, philosophical, cosmological views of the universe. (Foster 1976).

Medical beliefs and practices in all three systems are based on the concept of elements, each with an associated quality. In ancient Greece four were recognized: fire (heat), air (cold), earth (dry), and water (moist). In India a fifth element, ether, was added, while in China the fourth and fifth elements (or agents or phases) were wood and metal. In Greece by the 5th century B.C., Alcmaeon of Croton had made explicit the idea of bodily humors, four fluids that moved more or less freely through the more solid tissues of the body: blood, which flows from wounds; phlegm, which drips from noses and is coughed up with colds; and yellow bile, or vomit. The fourth fluid, black bile, corresponds to no equally obvious body product, but its existence was essential to the symmetry of the system.

Each fluid (or humor) was believed to be marked by a “complexion,” which derived from each of two opposing pairs of the qualities of the elements: blood, Hot and Moist (phlegm); Cold and Moist; yellow bile (or “cholera”); Hot and Dry; and black bile (or “melancholy”). Cold and Dry, Health said Alcmaeon, was a condition of *eucrasia*, of equilibrium or balance, the proper mixing of the humors, while illness resulted from *dyscrasia*, an upset in this equilibrium, sometimes, but not necessarily, caused by an excess of heat or cold.

Similar but not identical views prevailed in India and China. In the Ayurvedic system there are but three humors, or *dosha* (hence the expression *tridosha* system): phlegm, or mucus; bile, or gall; and wind, or flatulence. In China, although specialists refer to the system as “humoral” (e.g., E. Anderson 1980:237), specific humors are less clearly identified. Usually they are considered to be the four qualities of Hot, Cold, Wet, and Dry. These qualities were (and are) associated with the concepts of yin (Cold and Moist) and yang (Hot and Dry). All three systems also resemble each other in their adherence to the concept of an essence, a “life-breath,” a “subtle influence” known in Greece as *pneuma* (hence “pneumatic medicine”), in China as *chhi*, and in India as *prana* (Needham and Lu 1969:259).

In their classic forms Greek, Ayurvedic, and Chinese humoral medicine all postulate that foods, medicinal remedies, and other substances are characterized by pairs of metaphoric values or qualities: Hot or Cold, paired with Wet or Dry. To illustrate, in the Canon of the famous Persian physician Avicenna (980–1037), barley is Cold and Dry, squash Cold and Wet, sesame seed Hot and Wet, and cloves Hot and Dry. Etiological views in all three systems also are essentially the same. The human body is subject to metaphoric insults (Hot and Cold), principally from food and drink, and to natural thermal insults (also hot and cold) from environmental exposure to sun, rain, and cold air. These insults cause illness by upsetting the normal body equilibrium, a hot-cold (and, in classical forms, wet-dry) balance of temperature and humidity. By judiciously balancing food and drink intake and avoiding excessive exposure to the elements, people hope to

avoid illness. When they fail in their efforts and fall ill, therapy is based upon, or rationalized in terms of, the "principle of opposites": a Hot remedy for an illness caused by, or marked by, an excess of cold, and a Cold remedy for illness caused by, or marked by, an excess of heat.

While we cannot identify the precise point of origin of humoral medicine, it is clear that it occurred someplace between Greece and India several centuries prior to the time of Christ. By the time of Hippocrates in the 5th century B.C., the essential outlines of what has just been summarized were quite well developed in Greece. The early dating of Indian sources is less certain, but humoral medicine appears to have taken form at about the same time as in Greece.

Humoral medicine appears somewhat later in China. Although the yin/yang concept had developed by the 6th century B.C. (Needham and Lu 1969:258), China's great medical classic, the *Huang-Ti-Nei-Ching* ("The Yellow Emperor's Classic of Internal Medicine") of a century or two before Christ says nothing of Hot and Cold foods, herbs, and humoral treatment (Veith 1966). Similarly, China's second early classic medical text, the *Nan-Ching* of about A.D. 100, while speaking of cold and heat in the context of yin and yang, does not really address humoral medicine (Unschuld 1986). The *Nan-Ching*, for example, does not talk about humoral values of food, a basic element in other humoral systems. Evidence like this leads Eugene Anderson to suggest that humoral medicine is intrusive to China and entered sometime between A.D. 200 and 500, after centuries of concern with duality and balance that paved the way for acceptance of new ideas (E. Anderson 1984:757).*

For present purposes the precise locus of origin of humoral theory is unimportant. What is important is the fact that the three major Old World humoral systems are found within a continuous geographical area across which cultural influences have continually diffused since well before the time of Christ. This fact strongly argues against independent development of key concepts. The emergence at about the same time of very similar protoscientific-philosophical concepts of the world and all within it indicate a common cultural basis that was in place well before the time of Christ.

The Diffusion of Greek Humoral Medicine

During the past two millennia the three humoral systems have followed rather different courses. Ayurveda became the principal medicine of India, Nepal, and Sri Lanka, with influences radiating eastward into Burma and, to some extent, Malaysia. Chinese medicine diffused to Korea and Japan, and southward into Thailand and adjacent areas, where it shared the field with Ayurveda and Greek humoral pathology, intrusive with the Moslem eastern expansion following the death of Mohammed. Ayurveda and traditional Chinese medicine continue to be very important not only as the basis of a great deal of popular medicine but also as a literate tradition, formally taught in government-supported schools in India, Nepal, and China.

Greek humoral medicine has diffused far more widely: under the Moslems, eastward through Iran, Afghanistan, Pakistan, India, Bangladesh, Malaysia, and parts of Indonesia, and westward to Europe, Latin America, and the Philippines. In India it is known as *Unani* ("Ionian") medicine and, like Ayurveda, it is for-

mally supported by the Indian government in Unani training centers. Unani medicine is the popular medical choice of millions of people, not only in much of South Asia but also in all the eastern Asian countries with important Moslem populations. Even in countries where Unani medicine is not taught in government schools, it continues as a literate tradition through the work of *hakims* and *hombers* who have access to classical Arab texts (see Centlivres 1985 for an ethnographic account in northern Afghanistan, for example.)

The routes by which Hippocratic medicine reached Latin America are well documented and dated. Greek medical treatises were preserved in the great Library at Alexandria, founded in the 3rd century B.C. It was here that Galen (ca. A.D. 130-200), whose works served as the West's greatest authority on medicine for nearly 1,500 years, acquired his vast knowledge. Through Byzantine civilization, Galen's knowledge was transmitted to Eastern Christians and Moslems. fleeing Edessa in Mesopotamia in A.D. 489, Nestorian Christians settled at Gundê Shâpûr in southwest Persia where, beginning in the 6th century, classical humoral texts were translated first into Syriac and then Arabic. Here, too, Ayurveda came into contact with Greek medicine, with mutual influences that have not, however, been well worked out (Campbell 1926:46). During the latter half of the 8th century Moslem Baghdad replaced Persia as the center of translation, and it was here that the greatest physicians of the Eastern Caliphate carried Hippocratic medicine to its highest development.

Humoral medicine then accompanied the Moslems as they pushed west along the southern Mediterranean coast to enter Europe through Sicily and Spain. There the medical legacy of classical Greece and Islam became generally known to medieval European Christian physicians through Latin translations—often badly done—of Arabic manuscripts, many of which, of course, were in turn drawn from Syriac translations of the original Greek. Toledo, after the expulsion of the Moors in 1085, Salerno (Sicily), and Monte Casino (Italy) were the principal centers of translation. Not until the mid-15th century did Greek copies of the original medical works begin to appear in western Europe. The Latin translations of these manuscripts, while far more accurate than those drawn from the Arabic, appeared on the scene too late to replace the Arabic sources as the main influence on European medicine.⁹ In this way the ancient doctrine of humors became the basis of medieval Christian medicine, and it remained dominant in Europe—even in as remote a place as Iceland (Larsen 1931)—until the 17th century.¹⁰ From the writings of Christian physicians during this half millennium we see that Hippocrates, Aristotle, Galen, and Avicenna and other Moslem physicians were the principal sources of medical theory and practice, with humoral doctrine remaining essentially unchanged.

Humoral Medicine in the New World

Humoral medicine reached the New World at a sophisticated, intellectual level and not as part of popular culture. The concepts of Hot, Cold, Wet, and Dry appear never to have been a significant part of Spanish ethnomedical practice; they appear to have been confined to the educated classes, above all to the clergy and physicians.¹¹ And it was the former, particularly as members of religious orders, who for three centuries played the major role in transmitting humoral concepts to

physicians.

o Corbo (ecclesiastico) Corbo veno termino de de jcculicaphone ecclesiastico sobra Quedado vai (cove), greeco o sol ecclesiastico.

Indian and mestizo populations in the New World. The scholastic philosophy of the clergy, writes Francisco Guerra,

followed punctiliously the Thomistic dogmas established by Thomas Aquinas in the thirteenth century, and it is well known that Catholic theology remained immutable throughout the three centuries of colonial rule. It is logical, therefore, to expect the medical doctrines transferred to Spanish America to follow the same lines, and understandable that most of the medical treatises of Mexico and Peru during that period were written by friars whose texts reflected Galenic and Hippocratic doctrines, inasmuch as Thomistic theory had elaborated on unaltered Aristotelian analogies. *Thus medical science in Spanish America relied on humoral pathology and invariably followed the ancient tradition in all its wisdom and errors as it stood at the beginning of the Renaissance.* [Guerra 1969:180-181, emphasis added]¹²

The medical works Guerra has in mind include, among others, such books as Francisco Bravo's *Opera medicinalia*, 1570; Alonso López de Hinojoso's *Suma y recopilación de cirugía*, 1578; Juan de Cárdenas's *Problemas y secretos maravillosos*, 1591; Agustín Farfán's *Tractado breve de medicina*, 1579; Juan de Barrios' *Verdadera medicina, cirugía y astrología*, 1607; Gregorio López's *Tesoro de medicina*, 1674; Agustín de Vetancurt's *Teatro mexicano*, 1698; and, without doubt the most influential of all, at least in transmitting humoral ideas far and wide, Juan de Esteyneffer's *Florilegio medicinal*, 1712 (Anzures y Bolaños 1978). To these medical works, all published in Mexico City, must be added Francisco Hernández's great medical catalogue of the plants of New Spain, part of which was first known as Francisco Ximénez's *Quatro libros de la naturaleza, y virtudes de las plantas* (1615).

Medical Education

Medical education as well as medical treatises also followed humoral doctrines. After pointing out that 15th- and 16th-century Spanish medical education was based largely on the teachings of Hippocrates, Galen, and Avicenna, with lesser contributions by the Persians Averroes and Rhazes, Somolinos d'Ardois continues, "This was the basis, and when we analyze the creation of medical studies in Mexico, toward the end of the [16th] century, we will find the same scheme with very slight variations" (Somolinos d'Ardois 1966:112). Although humoral concepts were taught by the late 1530s as part of classical education at the Colegio de Tlalolelo in Mexico City, where Sahagún began his immense work (Schindel 1968:97), formal medical education in the Americas came later. The first university *cátedra* ("chair") was the *Prima de Medicina*, established in 1580 in the *Real y Pontificia Universidad de México*, which had been founded in 1553. This was followed by the second chair, that of *Visperas* (so named because the lessons were read in the afternoon) in 1599 (Flores 1886-88.II:36-37). "The texts were always, in all this period, Hippocrates, Galen, and Avicenna, authors that were still cited by Dr. Bartolache in 1772 and that continued [to be used] much longer" (II:74), until well after Mexican Independence when, in 1833, the *Real y Pontificia Universidad* "extinguished itself" (Flores 1886-88.II:92). During these final years of *hipocratismo* the official text for the incumbent of the *Visperas* chair was a 1566 Latin publication of Hippocrates' work, augmented by

late 18th-century translations into Spanish (Izquierdo 1955:10). Consequently, as Izquierdo writes, "At the beginning of the nineteenth century the teaching and practice of medicine in New Spain continued to be subject, as in Spain, to the most racist tradition and to an excessive veneration for the ancients" (1955:7).

In Peru the first medical chair was not established until 1634, at the University of San Marcos in Lima. Here, as in Mexico, the content of the classes was based on the works of Hippocrates, Galen, and Avicenna (Lastres 1951:237-238). In 1690 a Chair entitled "Method of Galen" was established and, not surprisingly, "the *Articula* of Galen, a classic book that enjoyed great favor in the Middle Ages, was read" (Lastres 1951:239). As in Mexico, humoral teaching continued in Peru until the time of independence, while in Chile it was not abandoned until 1838 (Grebe et al. 1971:308).

The critical point to emerge from this discussion is that in the New World for three centuries following the Conquest, humoral concepts permeated the assumptions not only of physicians but of all educated and intellectual people, including especially members of the religious orders that ministered to the Indians. Humoral explanations of illness and humoral therapies were as much taken for granted as are the germ theory and antibiotics today. The problem, clearly, is not to demonstrate that humoral theories and practice became pervasive at elite levels in the New World. The problem is to show how humoral ideas, in simplified form, filtered down to the level of the folk—European, mestizo, and Indian alike—to become the single most important form of popular medicine in Latin America.

The "filtering down" model, from elite-scientific to popular culture, is hardly a novel idea; as applied both to medicine and to culture at large, it is a generally accepted principle. With respect to contemporary English popular medicine, for example, we read that "Modern English folk-medicine, like its continental counterparts, may be described, with certain significant reservations, as ancient scientific medicine, misunderstood and misinterpreted. *The science of one age becomes the superstition of the next*" (Grattan and Singer 1952:6, emphasis added). While one may wish to quarrel about the use of the term "superstition," the dynamic is evident. Hultin has noted the same process in the United States: "Many practices of modern folk medicine are indebted to eighteenth century scientific method with its poultices, potions, and plasters" (Hultin 1974:199). I have reported the humoral elements in the home medicine I knew as a child in the American Midwest (Foster 1979), and Helman (1978) has done the same thing—"feed a cold and starve a fever"—in the case of popular English remedies. Asian humoral systems reflect the same filtering-down process (e.g., Bromberger 1985; Centlivres 1985; Shalinsky 1980).

Our concern, then, is not whether scientific medicine can filter down to a popular level; rather, it is to demonstrate how this occurred in Latin America. At least four interrelated routes of transmission were involved: hospitals, the missionary orders, pharmacies, and home medical guides known as *receptarios*.

Hospitals and the Missionary Orders

Although some hospitals were established by civil authorities, the bulk of New World hospitals during the colonial period were founded and maintained by the missionary orders, such as the Franciscans, Dominicans, Augustinians, Jes-

uits, and Carmelites. The first on the mainland was the Hospital of Jesus in Mexico City, established by Hernán Cortés in 1522 (Guerra 1969:184). Civil authorities (instructed by the Spanish crown) also authorized the construction of the *Hospital Real de Indios*, which opened its doors to Indian patients in 1534, the same year in which the *Hospital Real para Españoles* was completed (González-Ulloa 1959:41). By the end of the 16th century in Mexico alone there were more than 150 hospitals, most established by religious orders or secular priests. This number had increased to 200 by the end of the 18th century. Lesser but significant numbers of hospitals were also established in Guatemala, New Granada (Colombia), and Peru (Guerra 1969:184).

Patients in hospitals, at least in cities, were in direct contact not only with religious personnel but also with physicians whose training, as we have seen, was purely humoral. "Licensed practitioners during these centuries [i.e., until Independence] divided their activities between private practice among the high class of Spaniard and Creole and the hospital wards for the sick poor and the Indians, who were regularly provided with *pharmacies and European drugs* and attended by the religious orders" (Guerra 1969:185, emphasis added). By attending the sick in hospitals, the friars brought

both a new religion and a new medical care to remote and primitive tribes at the padres' isolated adobe missions. The priests, friars, and missionaries also operated the many hospitals the Spaniards constructed. *So it was the clergy who were chiefly responsible for introducing and promulgating Spanish concepts of medicine among the natives and persuading them to accept alien standards.* [Schendel 1968:86, emphasis added]

Treatment of patients with European drugs from hospital pharmacies, under the supervision of physicians and members of the religious orders, was obviously one important way in which Indians and mestizos alike learned humoral therapies and principles. That this was a very important mode of diffusion is indicated by the fact that from 1768 to 1773 members of the Order of San Juan de Dios treated 130,000 patients in its 36 hospitals in Mexico, Guatemala, and the Spanish Antilles. These figures exclude the Order's 20 hospitals in Peru and its 11 in New Granada (Guerra 1969:184).

In northern Mexico it was the Jesuits who were most prominent in their medical work: "Perhaps more important than any of the Jesuit missionary's other non-religious functions was his performance in the role of physician to the Spaniards and Indians who resided in his mission district" (Treutlein 1940:120). Continuing, Treutlein observes, "The effort expended by the missionaries in healing sick Indians was considered by them to be almost as important a part of their duties as looking after the Indians' souls" (1940:128). The most famous of the Jesuit missionaries, at least in a medical context, was the Moravian Johannes Steinhöffer, who arrived in Mexico in 1697 and who, prior to his death in 1716 in Sonora, acquired great fame for his knowledge of illnesses and remedies. Under his Spanish name, Juan de Esteyneffer, he wrote the most influential of all home medical guides, the *receptarios* upon which people depended who lived far from medical help. Esteyneffer's *Florilegio medicinal* appeared first in Mexico City in 1712 and such was its success that later editions were published in 1719 (Amsterdam), 1729 (Madrid), 1755 (Madrid), and 1887 (again Mexico), not counting the scholarly and annotated edition of 1978 (Anzures y Bolaños 1978:17-24).

Popular Receptarios

Despite its size—more than 650 pages of text in the 1978 edition—the *Florilegio medicinal* was clearly intended to be a home medical guide, as its subtitle shows: *Of All Illnesses, Drawn from Various and Classical Authors, for the Good of the Poor, and For Those Who Lack Doctors, in Particular for the Remote Provinces. Where the Missionaries of the Company of Jesus Administer.* Esteyneffer explains illness in humoral terms, and the therapies and remedies he prescribes follow the classical principle of opposites: bleeding, cupping, leeching, purging, suppositories, plasters, and the like, and a wide variety of herbal, animal, and mineral remedies, including many drawn from indigenous pharmacopoeias, of which about 50 carry Nahuatl names (Anzures y Bolaños 1978:53-54). The similarities between Esteyneffer's account and the popular medical systems described in Mexico and Latin America are so marked that ever since I encountered the work many years ago, I have always felt it *must* have played a major role in making humoral medicine common knowledge in Latin America. That this indeed has happened is clear from Anzures y Bolaños's 1975 encounter with a *curandera* in the Sierra de Juárez, Oaxaca, who "in order to cure consulted a very old book. I went to this place and, to my surprise, the book was the *Florilegio medicinal*" (1979:742).

Probably the earliest work that can be classified as a *receptario* is Fray Agustín Farfán's *Tractado breve de chirugía (Brief Treatise on Surgery and the Understanding and Cures of Some of the Illnesses that Commonly Occur in this Land)*, first published in Mexico in 1579 and significantly revised in 1592, 1604, and 1610. Drawing heavily on Galen, the first part deals with anatomy. The second part is directed to the problems one might expect on frontiers: wounds, ulcers, body sores, and the like. The third section is the *receptario* proper, prescriptions for the most common illnesses recognized at the time. That the work was intended as a *receptario* is indicated by Farfán's comments: "As I have said, I have not written for doctors, but rather for those who are far from cities and large towns, where always there are [doctors]" (Farfán 1579:235).

Like Esteyneffer, Farfán incorporated into the *receptario* section of his volume many items from Mexican pharmacopoeias, often justifying them in humoral terms, for example, *copal* "for a cold pain," *apazote* "removes cold," and castor oil "purges very well thick humors" (Comas 1954).

More often than not, *receptarios* fell into the category of fugitive literature, or they were copied and recopied in manuscript form. One 26-page example was published in Sonoma (north of San Francisco) in 1838, when there were said to be only two physicians in all California. Title page and content are identical to a 1797 Puebla, Mexico, *receptario* (Lopez de Lowther and Warren 1954).

Some of the most interesting information on *receptarios* is found in Volume III of the classic *La medicina popular peruana* (Valdizán and Maldonado 1922). These authors point out that not only during the colonial period but also down to the time they wrote, both the absence of physicians on haciendas and the (poor) quality of the few available made it essential to have other resources.

In modern times we have noted that on many haciendas a medical encyclopedia is a required item, at times the only one, in the library; and we have noted that in not a few haciendas the *hacendatado*, possessing knowledge more or less in-

complete provided by such encyclopedias, is responsible for the medical care of his workers. [1922:III:110]

Valdizán and Maldonado reproduce two hacienda *recetarios*. The first, *Recetario eficaz para las familias: medicamentos caseros (Effective Recetario for Families: Home Remedies)* is a 250-page manuscript in late 18th- or early 19th-century script (III:107-316). Illustrating the extent to which major colonial works were known among educated people, the *recetario* draws heavily on an unidentified manuscript of Padre Bernabé Cobo's famous *Historia del nuevo mundo*, written in 1653 but not published until 1890-93, assigning identical humoral values to simples as does Cobo. The second *recetario* reproduced by Valdizán and Maldonado, *El médico verdadero (The True Physician)*, is also in manuscript form, dated 1777 (III:419-487). This *recetario* describes remedies for many illnesses, including a number that are commonly recorded in ethnographic accounts, such as *angurria*, *almorranas*, *curros* and *pujos*, *apostemas*, *erisipela*, *empacho*, *incordio*, *jaqueca*, *lobanillos*, *sarna*, *tabarillo*, and *tiricia*. The section called "Virtues of some vegetables and other herbs with which man sustains himself from [the time when] he begins to live" is clearly copied from classical works, since Galen, Pliny, Dioscorides, and later authorities are cited, and Wet and Dry qualities are given as well as Hot and Cold.

In sum, *recetarios* in printed and manuscript form were widely available during the colonial period. Based on or at least reflecting classical humoral principles, they constituted one important avenue of transmission of humoral theory and therapy to New World populations.

The Role of Pharmacies

A significant difference between traditional medicine in Latin America and in tribal societies elsewhere is that in much of the former the pharmacy has been a major medical resource since the 16th century. From the earliest days, pharmacies were essential to physicians for the medicines they prescribed not only for their wealthy patients but also for the poor in hospitals. Many pharmacies, of course, were based in hospitals. Although the first chair of pharmacy in Mexico was not established until 1833 (Flores 1886-88:III:453), supervised pharmaceutical training through the apprentice system began much earlier. Beginners (in Mexico) studied as apprentices for four years, were required to learn Latin, and were examined in pharmacy by the *Real Tribunal del Protomédico* to obtain the degree of *Maestro* (Flores 1886-88:II:321). Flores reports that in 1804 there were 51 pharmacies in the Mexican provinces, not counting those in the City of Mexico (1886-88:II:330). Pharmacies carried mercurials and other minerals, as well as Spanish oils and herbs. They also stocked items drawn from pre-Conquest medicine such as opossum tails, *tolache*, and *epazote* (1886-88:II:381-382).

The relationship between pharmacies and popular medicine is made abundantly clear by comparing the remedies listed in the 1770 "Inventory" of the Botica del Colegio de San Pablo, in Lima (Valdizán and Maldonado 1922:III:106) with those described in contemporary ethnographic accounts. To draw on my Tzintzuntzan data, the following contemporary items are found in the 1770 inventory: rose oil, watermelon and melon seeds, ash bark, borage, sweet mar-

joram, *doradilla*, *malva*, *ilanitén*, tamarind, coral, *pimpinela*, scotch broom, mineral lime, *valerian*, broad beans, *chamomile*, watercress, *toronjil*, fennel, *altamisa*, *apio*, *palo balsamo*, *hojásén*, *peonía*, *parsley*, *zaragatona*, and many other items.¹³ "The 'Inventory,'" say Valdizán and Maldonado, "demonstrates, better than the most prolix and eloquent discourse could do, the association in contemporary medical folk lore of ideas and customs that originated in the remote times of the Inca Empire with ideas and customs that . . . our conquistadores brought to America" (III:3). The 1878 inventory of a Jesuit *botica* in Santiago de Chile tells the same story (Laval 1953).

Ethnographic evidence from Tzintzuntzan permits us to look at this association from the other end of the line of transmission. There, my oldest informants (now in their eighties) cannot remember when pharmacies in Pátzcuaro, ten miles away, were not routinely patronized for medical advice and medicine. Today in Pátzcuaro the first class *Farmacia Moderna* has on its shelves, by way of museum exhibit, more than 100 century-old porcelain jars with traditional pharmaceutical labels, many of classical humoral remedies. Elderly informants in Tzintzuntzan recognize about a fourth of these items. A great many other remedies in my file also are humoral pharmacy products of an earlier time: a variety of balsam oils, *antiflogístin*, belladonna plasters, zinc powder, ether capsules, and the like. The intimate contact with pharmacies by generations of urban and many rural people in Latin America, as well as the pattern whereby the pharmacist prescribes as well as dispenses, certainly accounts for some of the transmission of humoral medical knowledge to the population at large.

Further Evidence

To summarize to this point, it is clear that among pharmacies, *recetarios*, hospitals, and the ministrations of physicians and members of missionary orders, there were ample avenues whereby humoral knowledge reached Latin American populations at large. That this knowledge did indeed reach Latin America is further demonstrated by evidence that has been little if at all cited in the ethnographic record. Before citing this evidence, it is essential to restate a point already made: the remarkable homogeneity of humoral medicine in all Latin America, in the Caribbean, and in the Philippines. The same equilibrium model of health, the same Hot-Cold classificatory system, the same names of illnesses, the same remedies and therapies are all found throughout this immense area.

This is not surprising, because all of these countries (with the exception of Brazil) were Spanish colonies for two to four centuries. All were subject to the same massive cultural impact that brought to them a common language, a common religion, a common political system, a common educational philosophy, domestic animals, new crops, the wheel, and many other items of material culture. Spanish America and the Philippines are not, of course, Spain, but the similarities are striking, and the profound imprint of Spanish culture is everywhere apparent. In the face of this common pattern, it is unreasonable to suppose that humoral beliefs and practices—demonstrably a major item in the cultural baggage of the Spaniards—became, like so many other aspects of Spanish culture, a part of post-Conquest New World culture, Indian and Spanish alike?

Now let us consider specific classical medicine and contemporary popular medicine parallels.

The Principle of Opposites. Anthropologists who have studied Latin American popular medicine always summarize therapies in terms of "the principle of opposites," that is, a Cold remedy for a Hot illness and a Hot remedy for a Cold illness. Where do we first find a clear statement of this principle? Certainly not in Sahagún, nor in the de la Cruz-Badianus Manuscript. Accepting an Old World origin, we find it where we would expect it: first in the Hippocratic Corpus and later in the Canon of Avicenna, among many other places. After stating that health is a state in which the four humors—blood, phlegm, yellow bile, and black bile—are in the correct proportion to each other, both in strength and quantity, and well mixed, Hippocrates continues:

Disorders caused by overeating are cured by fasting; those caused by starvation are cured by feeding up. Diseases caused by exertion are cured by rest; those caused by indolence are cured by exertion. To put it briefly: *the physician should treat disease by the principle of opposition to the cause of the disease.* [Chadwick and Mann 1950:208, emphasis added]

Avicenna states the principle in more modern terms:

An error in eating or drinking any of the medicinal nutrients is to be corrected according to the digestion and maturation thereof, and the person must be protected from the intemperament which is likely to arise. To effect this, one takes the contrary substance until the digestion is completed. Thus, if the ailment was cold (e.g., cucumber, gourd), temper it with the opposite (e.g., onions, leek). If the ailment was hot, temper it with the opposite (e.g., cucumber, purslane). [Gruner 1970:395]

And, with respect to theory underlying practice, "Once one knows the quality [i.e., Hot, Cold, Moist, Dry] of the malady, the appropriate medicine is that whose quality is exactly the opposite" (Gruner 1970:463, emphasis added).

Degrees of Intensity of Humoral Values. Since the time of Galen humoral medicine has recognized four degrees of intensity of humoral values: "If a drug is slightly heating, it is 'warm in the first degree'; if it is stronger, it is called 'warm in the second degree'; if still more heating, it is called 'warm in the third degree'; and if it disturbs the condition of the body, it is called 'warm in the fourth degree'" (Baas 1910:175). Formal grades of intensity have disappeared in Latin American humoral classifications, but informal degrees almost always are recognized. In contemporary Haiti, for example, two degrees of Heat (Warm, Very Hot) and three degrees of Cold (Cool, Quite Cold, Very Cold), plus Neutral, are recognized (Wiese 1976:196). In San Francisco Tecospa, Mexico, Madsen recorded two degrees of Heat and four of Cold, in addition to Temperate (W. Madsen 1955:125). Perhaps more common is the Tzintzuntzan pattern: Hot and Very Hot; Neutral; Cold and Very Cold. These are named categories; finer distinctions are usually present when one asks informants to distinguish relative strengths of items (e.g., honey versus crude brown sugar) that fall in the same semantic category. Recognized differences in intensity of humoral values in Latin America clearly reflect classical humoral medicine; the concept in Native American sources is weakly developed, if at all.

Names of Illnesses. As has previously been stressed, in discussing the origin of humoral elements in contemporary Latin American popular medicine, we are considering a total medical system and not simply a Hot-Cold dichotomy. The evidence of the names of illnesses and of therapies is therefore of importance. Here the evidence of European importation is overwhelming. Excluding Brazil and Portugal, the names of illnesses recorded in Spanish America by anthropologists during the past half-century are with few exceptions those we find in classical texts and *receptarios*: *curxos*, *torzón*, and *pufios* (diarrhea), *flama salada* (athlete's foot), *hazo frío* ("cold spleen"), *lombrices* (intestinal worms), *ahito* ("surfeit"), *empacho* ("indigestion"), *bilis* ("excessive bile"), *abhorrazmas* (hemorrhoids), *dolor de la hijada* ("pain in the flank"), *empaine* (ringworm), *sarna* (mange), *perrillas* (sties), *encordio* ("tumor in the groin"), *postemillas* ("tooth ulcers"), *alopiquio* (asthma), *frío en la matriz* ("cold womb," the common explanation for inability to conceive), and the like. A significant proportion of the names of illnesses encountered by anthropologists in Latin American communities come from Latin and Greek and hence have cognates in English and other European languages, such as *quemada*, *anquiritia* (strangury), *apendicitis*, *varicris*, *fiebre* (fever), *cólico*, *diarrea*, *diabetes*, *dolores asiáticos* (sciatica), *erisipela*, *hético* ("hectic" [fever]), *postemas* (apostemes), and many more. A few names, not surprisingly, represent the Arab contribution to Spanish medicine: *jaqueca* (migraine headache), *mezquino* (wart), *affombriillo* (German measles), and *algon-doncillo* (thrush, from *algodón*, cotton).

In contrast, the only named illnesses of obvious Aztec origin and found only in the Mesoamerican area are *chincual* (diaper rash), *jitote* (a kind of ringworm), and *chippil*, an anemic, feverish condition of recently weaned children, popularly attributed to envy of a yet unborn sibling and probably representing the protein deficiency often noted in preschool children in the developing world. Spanish—not Aztec—origin is obviously the only explanation for the distribution of the same or similar illness names over all of Spanish America.

Names of Therapies. When we turn to therapies the story is the same: Spanish-name therapies are found everywhere. As with the names of illnesses, the names of many therapies come from Latin or Greek, and hence have cognates in other European languages, such as *cataplasma* (cataplasm), *emplasto* (plaster), *fomento* (fomentation), *lavado* (lavage, i.e., enema), *sitigizizgo* (sinapism, i.e., mustard plaster), *sypozizgo* (suppository), *vomitivo* (vomitive), and many others. Other common Spanish-name therapies include *bilma* (Mexican variant for *bizma*, a specialized poultice), *cala*, *defensivo*, *frieza*, *parehe*, *pócima*, *sangría* (bleeding), *sanguijuela* (leech), *tapón*, *vapores*, and *ventosa* (cupping glass). In other words, the basic therapeutic techniques used in contemporary Spanish American popular medicine are the same ones found in classical Spanish medicine and are called by the same terms. Some of these therapies—bleeding and enemas, for example—were also known in the New World, but the fact remains that today, and throughout colonial history, they have been called by Spanish, and not Aztec, names.

Other Semantic Clues. Choice of terms for humoral qualities—Spanish *Caliente*, *Templado*, *Fresco*, and *Frío* versus indigenous words—also provides a clue as to humoral origins. It is reasonable to expect that Spanish speakers will use Spanish terms for expressing humoral values, while speakers of indigenous