

Ayurveda in the age of biomedicine:
Discursive asymmetries and counter-strategies

by

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A dissertation submitted in partial fulfillment
of the requirements for the degree of
Doctor of Philosophy
(Anthropology)
in The University of Michigan
2009

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For my wife Cassie

Thank you so much

Acknowledgements

I have a great deal to be thankful for as I sit down to write these acknowledgments. I would first like to acknowledge the debt of gratitude that I owe to the American Institute of Indian Studies for funding my fieldwork, and I want to thank the staff in both Chicago and Delhi for their expert and professional support of my research and my family's travel and stay in India. I also want to thank Laurie Marx, the University of Michigan Anthropology Graduate Coordinator, who has always been a ready and willing source of advice and support for me and the other graduate students of the Department of Anthropology.

I want to thank the great kindness and generosity of the Ayurveda practitioners in Kerala. There were many doctors who contributed to this dissertation but I will mention only a few. I have thanked them all personally but in order to respect their anonymity I will use initials in these acknowledgments. Thank you Dr. S. K., Dr. P. P., Dr. R. N., Dr. V., Dr. A. V., Dr. R. G. N., Dr. V. N., Dr. S. K. N., Dr. V. M. N., Dr. N. R. P., Dr. K. M. G., Dr. T. M., Dr. S. N., and Dr. V. P.

I would also like to thank the staff and students of some of the institutional locations of my research: the Linguistics, Botany, and Biotechnology Departments at the University of Kerala, the Government Ayurveda College in Triruvananthapuram, Panchakasturi Ayurveda College, the Arya Vaidya Sala, Oushadi, the Tropical

Botanic Garden and Research Institute, and the Triruvananthapuram branch of the Kerala State Archives.

Our dear friends greatly enriched our lives during our time in Kerala. My family and I would like to thank Balan, Lekha, Ammu, and Seema, and Pradap, Krishna, and the boys (the “Vava”-s). I also want to thank my friends Preema, Rajaekharan, Rajan, Rajish, and Srikumar for many wonderful conversations.

I have been very lucky to have tremendous models of scholarship throughout my graduate career. This has been certainly true of the members of my Committee, Judith Irvine, Webb Keane, Bruce Mannheim, and Thomas Trautmann. I hope that this dissertation is a reflection of how fruitful has been my time with them. I want to especially thank the Chair of my Committee, Judith Irvine, and the Cognate member, Thomas Trautmann, both of whom have read and commented on multiple drafts of this dissertation and have given indispensable advice and encouragement all along the way. I would also like to thank a number of other scholars who have been important and helpful to me throughout this process: A. P. Andrews Kutty, Martha Alibali, Catherine Allen, Paul Brodwin, Mollie Callahan, Sharad Chari, Katherine Chen, Jocelyn Chua, Frank Cody, Eva-Marie Dubuisson, Joseph Elder, Chris Garces, Richard Grinker, Alf Hildebeitel, Dan Klopp, Joel Kuipers, Nita Kumar, Jonathan Larson, Mitchell Nathan, Valentina Pagliai, Holly Peters-Golden, Lee Schlesinger, Mark Sicoli, John Thiels, and Philip Zarrilli. I owe a tremendous debt of gratitude to V. K. Bindhu, Donald Davis, Rich Freeman, and V. R. Prabodhachandran Nayar for their generous and artful Malayalam instruction and for their scholarly guidance through the process of researching Kerala society and history.

My parents Russell and Kathy Wolfgram and my in-laws Alan and Ellen Vierthaler and Richard Lombard have provided me with love and support throughout this process and over the years. I could not have accomplished this without them. I wish my dad was still around to see me finish this degree.

I owe so much to my wife Cassie and our two children Avi and Maliya. They have always brought me more joy than I can put into words. Thank you Avi for paling around Kerala with me and for being my best buddy. Thank you Maliya for all the little “writing breaks” and for being such a special person. And thank you Cassie for accompanying and supporting me all along this journey and for being the best part of my life for over ten years now. Thank you for always supporting me and for taking great care of our children during this time. Having moved twice for my graduate education, lived in London and India, and endured my difficult schedule as a graduate student and then as a researcher and dissertator, this dissertation is as much Cassie’s as it is my own, which is why I have chosen to dedicate it to her with all of my love.

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Prefatory Note: Transcripts and Orthography

Transcription conventions:

all-capitalized text is English in the original

parentheses bracket the the author's comments

ellipses mark an approximately half-second pause

underlined text marks the author's emphasis

interrogatives are marked as usual

@ marks laughter and <@ @> brackets laughing speech

<dis dis> brackets a disfluency or false start

In my transliteration of Malayalam speech I have taken a middle road between a strict adherence to the sound quality of the speech and a representation of the text in a way that would be coherent to a native speaker of Malayalam. My use of diacritics is adapted from the *Malayalam Lexicon* (Kunjan Pillai, ed. 1965) using the Gandhari Unicode font developed by the University of Washington's Early Buddhist Manuscripts Project.

Abstract

Since the beginning of the British colonial enterprise in India the representation of the relationship between Western biomedicine and Ayurveda has been based on a fundamental epistemological asymmetry. However much Ayurveda was represented in Orientalist literature as accurate, poetic, useful, scholarly, or interesting, it could never occupy with authority the privileged place of the scientific that was central to the rhetoric of colonial rationality. In postcolonial India the practice of Ayurveda, its textual and intellectual production, socialization, treatment, public health education, scientific debate, research, and pharmaceutical commerce, all take place in the shadow of this biomedical hegemony. This dissertation analyzes the historical contingencies of this asymmetry, its instantiation in the discursive practices of contemporary Ayurveda practitioners, and the counter-strategies developed and deployed in the context of Ayurveda's scientific modernization and institutionalization. First, I describe the textual codification of this asymmetrical disciplinary alignment in the genre of British colonial compendia of materia medica, and the efforts of anti-colonial apologists to regiment the two disciplines as separate yet equal approaches to a unified human body, an ideology which I call *medical parallelism*. Next, I describe the social effects of this ideology at Ayurveda institutions in Kerala, focusing in particular on how Ayurveda's disciplinary boundaries are organized by practices of pedagogy, displays of expertise, and

scientific debate. Lastly, I describe the current transformations of Ayurveda's disciplinary boundaries through the commodification and globalization of Ayurveda drugs. My analysis throughout the dissertation focuses on the production, ideologization, and institutionalization of discursive action, which, I argue, effect the stabilization of the function of linguistic reference as a medium of ideological signs. This stabilization of ideological reference, I argue, is a semiotic condition of the macro-historical processes of Ayurveda's modernization, institutionalization, and commodification. Thus, this dissertation demonstrates an approach to history that centers on the discourse-pragmatic underpinnings of large-scale social change. In the conclusion of this dissertation I address this discourse-pragmatic analysis of Ayurveda's postcolonial history to the challenge of formulating a critical discourse of modernity that can account for the diversity of the kinds of experiences and historical processes often glossed as "modernization."

PART I: HISTORIES

Chapter 1

Between the languages of Ayurveda

Ayurveda in the age of biomedicine

This dissertation is about the role of linguistic action—conversations, speeches, classroom interactions, and a myriad of textual productions—in the historical and contemporary modernization of the South Asian medical practice called Ayurveda. Ayurveda, one of India’s indigenous and historically ancient medical sciences, is based on a three-part humor-like system of pathology called the *tridoṣa*. I hedge on the word “humor” because, as we shall see, the interpretation of the *tridoṣa* as bodily humors, however appropriate that translation may be (Zimmermann 1989), is problematic in the case of contemporary practice of Ayurveda that I encountered during my fieldwork in Kerala.

This dissertation is a study of what has been called “modern Ayurveda” (Wujastyk & Smith, eds. 2008), that is, the practice of Ayurveda in contemporary India, particularly under the conditions of Western-style professionalization and institutionalization. In this modern and postcolonial context, while the concept of the *tridoṣa* maintains a family resemblance to its classical construal, it will be made clear throughout this dissertation that the Ayurveda conception of the body is the focus of a great deal of creativity and historically novel interpretation. What were once

humors are now also neural-hormones, energies, metaphysical powers, organ systems, physiological processes, or concepts, depending on the context and the goals of the translation and interpretation.

The classical representation of Ayurveda (Zimmermann 1987) describes a body of fluids in a state of constant dynamic interaction and transformation, both within the body and between the body and its environment. It is the disequilibrium, aggravation, and displacement of these fluids, or humors, that causes pathology. The word for these humors, *doṣa*, of which there are three, *vāta*, *pitta*, and *kapha*, simply means “a fault” in Sanskrit and in many of the Indian vernaculars (including the Kerala vernacular of Malayalam). The basis of the Ayurveda pathology is what Francis Zimmermann has characterized as an “ecological theme,” in which the essential qualities of the patient’s environment, particularly the soil, imbue plants, animals, and people with a collection of material dispositions. Ayurveda doctors prescribe the consumption of plant, animal, and mineral substances, the essential qualities of which counteract the debilitating effects of a disequilibrium and aggravation among the *doṣa*.

While isolated instances of the *doṣa* vocabulary can be found in the *Atharvavēda* (see Chapter 3), the most convincing case for the antiquity of the *doṣa* is argued by Kenneth Zysk (1991), that the rudiments of the theory were developed by wandering heterodox Buddhist ascetic healers, and later codified into a medical doctrine as monastic orders were formed and spread throughout South Asia and

elsewhere (800-100 BCE).¹ This process of codification and later, Hinduization, culminated in the “great three” (*br̥hat-trayī*) classical Sanskrit texts of Ayurveda, *Carakasamhitā* (c. 300-200 BCE), *Suśrutasamhitā* (c. 200-100 BCE), and *Aṣṭāṅgahṛdaya* (c. 600 CE).²

Kerala, the place of my fieldwork on this modernization process, is known by scholars, patients, and practitioners to have the most robust tradition of Ayurveda in the subcontinent. Practitioners include both lineage-trained healers (*vaidya*) and college-educated degree-holding doctors (or some combination of both), and they practice in small private village or urban clinics, public and private hospitals and medical colleges, and tourist resorts. There is also a great deal of research being conducted in Kerala by biotechnologists, botanists, pharmacologists, and biomedical doctors on the scientific efficacy of Ayurveda drugs. In spite of the well-known robustness of the Kerala tradition, I sensed early on in my interactions with *vaidya* a discernable insecurity and defensiveness about their science, and especially about its relationship to biomedicine. Ayurveda was often represented as Ayurveda vis-à-vis biomedicine, and I observed the repeated attempt to both argue and apologize for the various differences between the systems. I make the case in this dissertation that this

¹ The history of the spread of Ayurveda into Kerala is outside the purview of this dissertation. However, local scholars and *vaidya* would often reference the importance of the spread of monastic Buddhism, especially because of the unique importance of the *Aṣṭāṅgahṛdaya* in Kerala, which is written by the Buddhist Vāgbhaṭa.

² The dates of these texts represent the earliest possible composition of the core text which is based on a survey of the literature and other evidence by Dominik Wujastyk (1998 [2001]). For both *Carakasamhitā* and *Suśrutasamhitā* there is evidence that the texts were subsequently redacted. The texts available today date from the sixth and seventh centuries CE.

discourse of *Ayurveda apologetics* is a response to the effects of biomedical hegemony in contemporary India.

The fieldwork for this dissertation is based on 27 months I spent, starting June 2004, living in Kerala's capital city of Triruvananthapuram with my wife and son. The major sites of my fieldwork included the Triruvananthapuram Government Ayurveda College and the Ayurveda clinics and hospitals, pharmacies and drug manufacturing firms, labs and research centers, and other colleges and Ayurveda-related institutions located within the city and its rural hinterland. I also made extended and repeated trips to Ayurveda institutions elsewhere in Kerala, such as to the government Ayurveda pharmacy in Tṛṣūr and to an Ayurveda college and hospital called the Arya Vaidya Sala in Kōttakkaḷ. My goal was to develop detailed accounts of a selection of Ayurveda institutions and practitioners, and still be able to provide a general picture of the great diversity of institutions, practitioners, and texts that characterize modern Ayurveda in Kerala.

The evidence for this account is based on a triangulation of (1) ethnographic materials such as notes from observations, audio recorded interviews, and photographs, (2) audio recordings of naturalistic interactions such as doctor-patient consultations, classroom instruction, informal conversations between doctors, and public health speeches and television and radio broadcasts, and (3) texts collected from libraries and archives and published by Ayurveda institutions and practitioners. I started seriously studying Malayalam about six months prior to my arrival in Kerala and I continued throughout my fieldwork. My main Malayalam teacher in Kerala, Dr. V. K. Bindu, was a research scholar in the University of Kerala's Department of

Linguistics. I continued to work with Dr. Bindu after my formal training was completed. Together, we spent countless hours reading the texts and transcribing and analyzing the audio recordings that I had collected. Our co-reading relationship developed to the point where she could tell when I understood the surface meaning of a text, but was missing the text's deeper cultural meaning or presupposed knowledge. So, most, if not all of the insights in this dissertation regarding the organization of Ayurveda discourse in Malayalam emerged out of my interactions with my teacher. This project of Malayalam textual analysis is a coequal part of this dissertation which was conducted alongside the ethnographic fieldwork and historical research.

In the remainder of this introduction I frame the main contributions to this dissertation in terms of three broad themes: one, the specific problem of Ayurveda's post-colonial revivalism and modernization; two, the critical analysis of colonial and post-colonial discourse as a problem of South Asian historiography; and three, a discourse-pragmatic theory of macro-historical change, particularly focusing on those kinds of change broadly labeled as modernization, institutionalization, rationalization, and commodification. This first theme is the most historically and ethnographically situated, and is primarily of interest to post-colonial historians and anthropologists of medicine in South Asia, particularly those interested in the indigenous medical traditions. I argue that doctors use language and produce text in ways that manage the relationship between their science and biomedicine, and that this boundary maintenance work is an important part of Ayurveda's postcolonial modernization and institutionalization. By way of introducing this first theme I now

turn to a description of the basics of the sociolinguistic scene for postcolonial Ayurveda in Kerala.

A sociolinguistics of Ayurvedic medical knowledge

“The languages of Ayurveda,” (*āyurvēdattinu bhāṣakal*)—I learned early on in my fieldwork that the school-educated Ayurveda practitioners (*vaidya*) in Kerala did not appreciate this framing of my project that pluralized their science’s linguistic repertoire. “There is only one language of Ayurveda,” they retorted, “Sanskrit!” As a student of Malayalam it turned out that I would be poorly qualified to investigate this unified language of Ayurveda. The authoritative Sanskrit texts, or *śāstra*, include the three “compendia” (*saṃhitā*) by Caraka, Suśruta, and Vāgbhata. There are also written in Sanskrit many authoritative “commentaries” (*vyākhyāna*) on these three *śāstra*, as well as specialized texts which delve deeply into specific fields of Ayurveda.

Knowing full well the importance of Sanskrit and of these particular genres and texts I was still left feeling somewhat dumbfounded by the sociolinguistic “erasure” accomplished by this conflation of Sanskrit and Ayurveda (Gal and Irvine 1995; Irvine and Gal 2000). However, language ideologies are often, perhaps always, Janus faced. Ideologies tend to mystify, obfuscate, and hide from view certain social and linguistic conditions, yet at one and the same time, they clarify and make cogent statements about other aspects of the sociolinguistic scene. Language ideologies—ideologies generally—have this cognitively double-faced quality on account of the fact that they are produced and circulated in the context of social

practice. An ideology is always *a sign for* some particular socially located person, whose social practices, motivations, and beliefs are always situated within a highly particular network of social and material relations. An ideological proposition that seems necessary, true, and obvious from one social position or in the context of one particular mode of practice, from another socially situated perspective, may seem patently false, misguided, or simply trivial.

My decision to pluralize was not based on any newfangled social theory or disciplinary preoccupation with multiplicity as such. Since the colonial period there has been a truly monumental diversification of the kinds of texts used to represent Ayurveda. For my pre-fieldwork survey of the English medium literature I spent three months in the British Library consulting these texts, and many more in the libraries and archives in Thiruvananthapuram. All the major Sanskrit texts of the Ayurveda corpus had been translated into English in the colonial period, and retranslated several times since. There are also many new genres that constitute a mountain of text including materia medica, pharmacopoeia, regional floras, histories, scientific journal articles, textbooks, monographs, and government reports. In addition to the Malayalam translations of the classical texts and Western scientific genres, the history of scientific composition in Malayalam includes “commentaries on śāstra” (*vyākhyāna*) and medicinal plant “collections” (*nighaṇṭu*). There are also collections of Malayalam folk tales, such as the “*Iatihīyamāla*” (Garland of Stories), which retell popular tales about famous Kerala vaidya. Also, with the explosion of a kind of cultural print capitalism in Kerala, there are many new Malayalam publishing houses, each releasing its own set of Ayurveda related texts, such as biographies of

famous vaidya, monographs, encyclopedias, dictionaries, and pamphlets. Many of these new genres represent Ayurveda by employing Western scientific knowledge, terminology, and style.

Clearly, from my perspective, there is not one language of Ayurveda, Sanskrit, but rather a great diversification of translation and trans-genre appropriation and embedding of textual knowledge. At the time, however, unlike the vaidya who chastised my pluralization, my own perspective was not conditioned by the modes of practice that characterize modern institutionalized Ayurveda in Kerala, acquired mainly in university settings and practiced in modernized clinics and hospitals. So, a sociolinguistics of Ayurvedic medical knowledge requires an account of both the practices of translation and generic diversification, as well as the production of practices and ideologies that represent these intertextual and interdisciplinary representations as not truly a part of Ayurveda.

The defense and manipulation of Ayurveda's disciplinary boundaries, especially its boundary with biomedicine, is a major problem for the postcolonial modernization and professionalization of Ayurveda. The first anthropologist to draw attention to the role of Western biomedicine in the 20th century revival of Ayurveda was Charles Leslie,³ who documented the processes and ideologies of the professionalization of Ayurveda, such as occurred with the development of

³ There are a number of terms employed in the literature for Ayurveda's "other." Charles Leslie (1976) used the term "cosmopolitan medicine." The Ayurveda apologetics literature in English often uses the term "Western medicine," which during the anti-colonial nationalist movement was thought to be less biased than the terms "modern medicine" and "scientific medicine." The terms "Allopathy" and "English" medicine are commonly used in Malayalam. I employ these Malayalam terms, especially "Allopathy," as well as the term found in the title of this dissertation, "biomedicine," which is common to the social science of medicine literature. I refer to the historically Western sciences, such as biology, physics, chemistry, and so on, as the "cosmopolitan sciences."

professional organizations like the All India Ayurveda Conference and the institutionalization of Ayurveda education into Western-style colleges with bureaucratic and scientific accoutrements. His approach was to highlight the contradictions and ambivalence associated with the project of Ayurveda revivalism. For example, Leslie pointed out that even the staunchest advocates of a pure Ayurveda based solely on the codified texts felt that "... they have to prove the value of Ayurveda using the language of modern science" (1976:85-5). The so-called *śuddha* or pure Ayurvedists argued that Ayurveda was already complete and perfect, itself the historical progenitor of Western biomedicine, and that the state should sponsor a program of Ayurveda education based purely on the Sanskrit texts.

Throughout the mid to late 1940s interim period of the transition from colonial rule, Jawaharlal Nehru and other prominent nationalists projected "science" as the epistemology that would align India with the modern and developed world. Later in independent India, "Scientific socialism" became a state-sponsored ideology that focused the government's interventions into the economy, language policy, agriculture, rural development, education, and health care (Chatterjee 1986). As a consequence of this state centralized proliferation of technical discourse, for many of the nationalist elite, "science" became a key sign of modernity in postcolonial India (Prakash 1990).

On the other hand, Western style scientific modernity was not the only colonial meta-narrative co-opted by the anti-colonial nationalists. British and German Orientalists identified much value in the Indian traditions of linguistics, mathematics, astronomy, logic, and medicine, although they remained conflicted

about the place of this knowledge in the modernization of India (Trautmann 1997). In these disciplines India was able to assert the prestige of first discovery for many fundamental concepts and methods over their Western counterparts. The Indian sciences, it turned out, were scientific long before the Western sciences and thus, a revival of this knowledge was of paramount importance to the identity and authority of the emerging Indian nation. The anti-colonial and post-independence nationalist movements adopted this Orientalist stance toward ancient Indian knowledge, which became the focus of intense investigation and ultimately state-sponsored institutionalization. While advocates of Ayurveda purism continued to argue for an alternative nationalist future, in 1946 the Interim Government convened a “panel of experts” to conduct a study of Ayurveda, Unani, and Western medical paradigms to see if they could be integrated into a singular system, an “Indian medicine,” which would be both economically viable and based on “modern scientific principles.” On the basis of the similarities between Ayurveda and Allopathy the medical revivalists established that indigenous medicine was in fact equally scientific vis-à-vis biomedicine and thus, that a synthesis could be accomplished on scientific grounds (Government of India Report 1948).

Leslie’s main intervention was to center medical pluralism as an object of study, specifically by foregrounding the processes of medical syncretism between indigenous and biomedicines (e.g., Leslie 1992). This was a radical insight when Leslie first documented the project of Ayurveda revivalism in the early 1970s. Anthropologists of that day had uncritically accepted a purist ideology of Western medical hegemony in India, assuming that plural medical systems were abnormal,

historical survivals of a premodern culture. Leslie's counter-critique framed some key questions about the history and practice of Ayurveda that continue to motivate a great deal of productive inquiry. Almost every anthropologist of Ayurveda has had to deal with the syncretic nature of modern Ayurveda and the plural context of healing in India, and there are many excellent works which analyze specific syncretic projects (e.g., Naraindas 2006) and plural systems (e.g., Nordstrom 1988). Also, Jean Langford's excellent monograph (2002) provides us with an ethnographically detailed account about how various doctors, differently positioned, inhabit and contest the hegemonic discourses of Ayurveda purism and modernity.⁴ Leslie understood the asymmetrical nature of the relationship between Ayurveda and biomedicine, and thus, his work anticipated many of the events and social movements of the 21st century Ayurveda. These include medical tourism (Langford 2002), the New Age movement (Zimmermann 1992), pharmaceutical industrialization and biotechnology (Banerjee 2002), and the globalization of Ayurveda knowledge (Alter, ed. 1995). These discourses and macro-historical trends evidence the ongoing dynamic between purist and modernist representations of Ayurveda, and its relationship to biomedicine.

Some of the Ayurveda doctors I encountered in Kerala knew something about the anthropology of Ayurveda, and a few had even read some of Leslie's work.

⁴ One major difference between Langford's research and my own project is the institutional focus of my work, which was in part located in places like Ayurveda colleges, research centers, drug factories, and scientific conferences. She found her description of these institutions to be ethnographically thin and she argued that the institutions themselves were simply performative. I found the performativity of the institutional activities that I observed to be more consequential than Langford did in the context of her own fieldwork.

These doctors however had a very particular interpretation of medical syncretism. I will refer to this interpretation throughout this dissertation as the *ideology of medical parallelism*. One Ayurveda doctor had a master's degree in anthropology from a European university. He explained to a group of Ayurvedic doctors at a scientific conference how Leslie was the first to describe how "Ayurveda has two minds. They are separate, the modern and the traditional." When he said this he gripped with each hand the sides of his skull, diagramming Ayurveda's split personality. It occurred to me that Leslie would likely be pleased with how his work is now being used by Ayurveda doctors as a strategy for negotiating their science's relationship with biomedicine. However, talk of the "syncretism" or "mixing" of Ayurveda and biomedicine, especially using the words themselves, is taboo in many situations, particularly in the Ayurveda colleges. "Miśra āyurveda," is the "mixed course" that was institutionalized shortly after independence, and many doctors trained at the Ayurveda colleges in Kerala will argue vociferously, often defensively, that there is no mixing of the systems today. Ayurveda has become encephalized, with tradition and modernity separated as two sides of the same brain. The metaphor implies both separation and unity. The systems are held apart as they are held together. Thus, historically and in contemporary Ayurveda colleges, some of the content of biomedicine is taught alongside the Ayurveda instruction, but they are rigorously regimented as parallel approaches.

Not that syncretic projects or medical practices were absent from my observations in Kerala. *Far from it*. Such a finding would certainly fly in the face of what has been documented since Leslie's work about postcolonial Ayurveda.

However, I found that syncretic projects such as the use of western anatomy and physiology or diagnostic procedures are understood in terms of the ideology of medical parallelism. As professional healers, Ayurveda doctors are trained to use the best tools and concepts at their disposal, and this certainly includes a great deal of biomedicine. At the same time, however, at least in Kerala, Ayurvedic doctors would separate those Western influences in the realms of medical theory and diagnosis from the properly Ayurvedic domain of treatment. So, while it is certainly possible to interpret the influence of biomedicine in modern Ayurveda as part of a process of medical syncretism or mixing or even of the decline of the system, the college educated doctors I met in Kerala do not agree with that interpretation. They vehemently object, in fact. For them, such scientific concepts and tools are signs of medical parallelism, i.e., that the two systems are employed as distinctive yet compatible modalities of healing. I will argue that the regimentation of these medical systems into parallel approaches is one of the major strategies developed to counteract the asymmetrical organization of the disciplines that was developed and reified in the colonial, anti-colonial nationalist, and postcolonial periods.

There is a danger, however, of overstating the hegemony of biomedicine in India. While biomedical hegemony vis-à-vis the Indian medical systems seems obvious to contemporary observers it is clear that in early 19th century British India, efforts to educate Indians in biomedicine were coolly received at best (Kumar 1998), and efforts to impose a biomedical regime of practice on the Indian populace, for example through vaccination programs, were highly problematic and hard-fought

struggles on the part of colonial health officials (Arnold 1993).⁵ The Kerala social historian K. N. Paniker (2002) describes with stark statistics the inability of colonial medicine to service even a small fraction of the population, particularly the non-elite and those in the rural areas. In contrast, Ayurveda and other indigenous medical practitioners were stationed in both rural and urban India, and they could cater to patients of diverse class and community backgrounds. In spite of this sparse and ineffective showing of colonial medicine, Paniker argues, “Yet, a sense of insecurity gripped the minds of indigenous practitioners, as they envisioned an unequal confrontation with western medicine” (Pp. 10-11).

Paniker’s representation of colonial biomedical hegemony appears to be a reversal of the Subaltern Studies Collective formula, “dominance without hegemony” (Guha 1997), in which the colonial and later nationalist elite secured political and coercive domination over the Indian populace without ever establishing ideological hegemony. In the case of the relationship between Western and Indian medicine, the colonial medical establishment was never able to assert anything like a unified coercive power or domination; yet, at the same time, some Ayurveda practitioners seem to have accepted, partially no doubt, the unmarked and hegemonic status of biomedicine. In fact, the revival of Indian medicine was in large part motivated by the clearheaded understanding on the part of some traditional practitioners that the relationship between these two systems was not equal, and that it never would be equal without a state-sponsored revival and institutionalization.

⁵Gary Hausman (1996) has documented some aspects of this struggle in the context of the relationship between British colonial and Tamil Siddha medicine.

There was also a heightened anti-colonial consciousness among practitioners that Ayurveda education and clinical practice had declined a great deal on account of the hostile stance of the colonial state. The revival that ensued, Paniker argues, is characterized by a critical approach to modernity, incorporating some aspects of biomedicine and professionalization, while excluding others. This dissertation presents a number of detailed case studies of such medical bricolage, supporting much of Paniker's claim that the project of Ayurveda revivalism involves a highly critical and selective approach to modernity.

In Kerala today, patients do not assume that allopathic medicine is necessarily the best or most effective brand in all cases. Many will approach a vaidya at the onset of their symptoms or after being diagnosed and unsuccessfully treated by an allopath, homeopath, or other traditional practitioner. Perhaps this is because of the much flaunted robustness of the Kerala tradition. The tradition in Kerala is well-known, and it is true that all of the major clinics where I conducted research also hosted doctors from other areas of India who had come to Kerala to have an "authentic Ayurveda experience." However, I also suspect that the historians and anthropologists of Ayurveda following Leslie, although probably not Leslie himself, have uncritically accepted too much of the narrative of Ayurveda's decline put forward by colonial and post-colonial apologists. Knowledge has been lost, to be sure, but the postcolonial revival of Ayurveda in Kerala is ongoing. Many of the practitioners I encountered recognize the challenges that Ayurveda faces, yet at the same time, they found their medicine to be both effective and in keeping with modern scientific principles.

A discourse-level analysis of institutional Ayurveda talk and text production reveals the creativity involved in the practices of medical bricolage. This is an important counterpoint to the Hindu conservative and nationalist narrative of Ayurveda's decline. Scholars of Ayurveda, Indians and Westerners alike, historians and anthropologists alike, must be ever careful not to inhabit this narrative uncritically.⁶ As we shall see, the incorporation of Western science and Allopathic diagnostic procedures into the Ayurveda curriculum is often ideologized, not as a sign of Ayurveda's lack, and not as a sign of a medical synthesis, but rather as a sign of the parallelism of the two disciplines as equal approaches to the amelioration of suffering.

In the next section, I position my project in relationship to the dominant historiography of colonial India, in particular considering those approaches which employ the methods of colonial discourse analysis. This second theme of the dissertation re-frames the case of Ayurveda's modernization as an example of a broader problem in South Asian historiography, the critical discourse analysis of colonial and post-colonial textual materials. The analysis of colonial discourse, I argue, has been primarily limited to a critique of the text's referential content. However, this content only makes a difference, socially and materially, through the process of textual production and circulation. The dissertation models an approach to colonial discourse analysis that incorporates the material and social relations of text. This second broader theme will be of relevance to anthropologists and

⁶ Lawrence Cohen's critique of the international scholars at an Ayurveda conference in Bombay illustrates the ease with which such scholars can become complicit in this narrative (1995:337-343).

historians interested in the post-colonial charter of contemporary India, and to scholars who are interested in colonial discourse studies in various contexts.

Colonial discourse analysis

In one sense, this dissertation can be understood as a restudy of Ayurveda discourse from the disciplinary perspective of linguistic and semiotic anthropology. What would this perspective offer to this work of reanalysis that was not available to Leslie and to the tradition of research that followed, or more broadly, to the historiography of British and postcolonial India? I offer the remainder of this dissertation as part of my answer to this question. But first, it will be important to acknowledge that the project of colonial discourse analysis has relied upon a particular orientation to text which highlights one aspect of ideology, the cognitive, while downplaying other important aspects, such as the material and social relations of the production of ideological discourse itself. I view this bias as an unfortunate limitation to the critical analysis of Ayurveda and South Asian history.

The work of the French philosopher Michel Foucault (1980), so important to the recent history of medical anthropology, found its way to South Asian studies via the appropriation of Edward Said's concept of Orientalism (1978) by the Subaltern Studies Collective (e.g., Guha, ed. 1997), the so called Chicago School (e.g., Dirks 2001), and a strand of Indological self-criticism exemplified by Ronald Inden's work *Imagining India* (2000 [1990]). These related historiographic approaches have contributed a great deal to our understanding of colonial and postcolonial Indian history and historiography. However, I would like to distinguish my own method of

appropriating and interpreting Orientalist and later Nationalist textual sources. I follow Thomas Trautmann (1997), who has argued that a concept of Orientalist discourse which draws too heavily on Foucault's diffusive (i.e., capillary) conception of power tends to unnecessarily under-specify historical relations and responsibilities. This approach obfuscates rather than clarifies the relations of power. The ethical problem posed by this theorization of power is that historical responsibility—as well, the responsibility of the historian to make an accounting of that history—is displaced from the realm of human actors (their social actions and relations) onto a universe of un-locatable discourse.

What does this approach to power illuminate? What does it leave unanalyzed? Gyan Prakash, a founding member of the Subaltern Studies Collective, has written a provocative book on the idea of science as a sign of Indian modernity. The analysis is a meta-narrative of meta-narrative, for which he provides a great deal of textual and other historical evidence to support his claim that the concept of “science” is an ideological sign used by anti-colonial nationalists and others to theorize an emergent form of Indian modernity. The argument accomplishes a sweeping account of this ideological sign by freely appropriating texts from various regional and historical contexts. It is clear that Prakash's juxtaposition and critical discourse analysis of these texts has illuminated something of the creative and complex process of theorization which the British and Indian scientific elite undertook in the framing of their own activity.

What about that activity? Prakash dismisses it on page 7: “The history of different scientific disciplines, while relevant, is not my central concern; the main

object of my interest is science's cultural authority as a legitimating sign of rationality and progress" (1999:7). Historical action is thus displaced from the scientists and their institutions to a corpus of texts which is taken to represent science as a discourse. Foucault's influence is palpable. Texts, the productions of the British and Indian elite, are read on the level of reference for the omnipresent workings of knowledge-and-power. This analysis depends upon a kind of *fictive materiality*. In Prakash's treatment, science, as a concept, is fundamentally about the issues of colonial politics, economics, and the social relations between and among the colonizers and the colonized. However, the analysis neglects the material and social relations of the production of science as an ideology, that is, the scientists, their social networks, and their institutions.

Power, in my view, is not located mainly or primarily on the referential level of text, and thus, historical analysis (even intellectual and literary history or the history of science) cannot be limited to a purely hermeneutic account. In treating text as data that can be read on the level of reference, i.e., hermeneutically, colonial discourse analysis has left unanalyzed how such texts came to be in the first place and why they matter. To be sure, text mediated ideological production is an exercise of power, but in addition to the "meaning" of the text we must always inquire about the social relations and other material conditions that had to come into existence in order for the particular meanings of the text to make a difference. Prakash documents with plenty of evidence that the concept of science is deployed in various contexts as an ideological sign of a novel kind of Indian modernity. However, this sign and its encompassing meta-narrative are produced by particular social actors

who are themselves the ones invested in the social effectiveness of such ideologies of scientific authority. Thus, I hope to take up Prakash's provocative theorization of science as a sign of Indian modernity, but to do so with reference to the history of Ayurveda as a scientific institution in colonial and postcolonial India. This project will be less about the interpretation of text, and more about tracing the life-histories of bits of discourse as they are appropriated and circulated. Another goal of the approach I am advocating is to expose the material and social relations which are the conditions of the production and circulation of text. This intertextual history, I argue, is organized on a fundamental level by the everyday linguistic practices of doctors, scientists, and other social actors.

Introduced in the next section, the third and final overarching theme of this dissertation considers the case of Ayurveda's modernization on a broader level, as a kind of macro-historical change that is actualized in social interactions and by the situated production of texts. The structure of this argument must be inter-scalar, juxtaposing macro-historical narrative and the analysis of situated social interactions and textual productions. Furthermore, some amount of abstraction away from the ethnographic and historical particulars is required to theorize the role of situated action in macro-historical change. I argue that certain genres of institutional discourse—on account of the constituent processes that I describe below—have the effect of stabilizing the inherently indeterminate character of ideological reference, and that this stabilization is an important condition of large-scale institutional change. This last theme will be of interest to the group of scholars investigating language in society and/or culture, such as linguistic anthropologists, historians and

sociologists of language, and sociolinguists. It is also my hope that the discourse-pragmatic theory of history modeled in this dissertation might also be of relevance to historians of various stripes, historical anthropologists, and philosophers of history. I now turn to a discussion of the character of linguistic action as a medium of historical change.

Institutional discourse genres

“Utterances and their types, that is, speech genres, are the drive belts *from* the history of society *to* the history of language” (emphases mine, Bakhtin 1986:65). The literary theorist Mikhail Bakhtin has given us a compelling metaphor of the relationship between language and cultural history. Heterodox ideological discourses permeate the use of language as speakers and writers engage in the practical activity of utterance production. Creativity of this sort is mediated by culturally and historically emergent types of utterance production, the speech genres (also see Hanks 1987). I would be interested to know if the original Russian version of the quote above also implies the one way directionality of the English translation, “*from* the history of society *to* the history of language.” It is clear from a larger reading of his corpus that Bakhtin was also alive to the possibility that the drive belts might be reversed. On the other hand, while his conception of genre was quite broad, his analysis of particular instances of language use often focused on creative literary genres such as the novel. With the benefit of a broader account of institutional modes of activity we can ask the question: when does a speech genre become a medium of historical and institutional change? The question is important

because it helps us to distinguish between institutionally efficacious speech genres, and other genres which are either inefficacious or not linked with institutional goals and social relations. We can also distinguish between genres that are involved in the regulation and reproduction of the institution, and those which are involved in the process of bringing the institution into existence. Both kinds of discourse genres are important and featured in this dissertation, but it is the latter type, the creative and path-breaking type of talk which I hope to foreground as key part of a discourse-pragmatic theory of history.

I define the concept of an *institutional discourse genre* as any type of linguistic action which is institutionally located and the goals of which are linked with the goals of the institution and its participants. Institutional discourse is certainly not a novel area of inquiry. Erving Goffman (1961) was probably the first to provide a detailed account of how social relations are structured through the micro-politics of talk and interaction in institutional contexts. The tradition of Conversation Analysis, “CA,” that followed (reviewed by Goodwin & Heritage 1990), drawing also from ethnomethodology, has documented and elaborated our understanding of institutional discourse by providing detailed turn-by-turn sequential analyses of talk in various institutional settings. A paradigm genre of institutional discourse in this literature is the “gate-keeping encounter” (Erickson & Shultz 1982), which is a type of occasion staged to manage access to the institution. Intake interviews at medical institutions, counseling and admissions interviews at educational institutions, and employment interviews of various kinds are all

examples of gate-keeping encounters that have been scrutinized with the tools of the “conversation analysis” approach (e.g., Drew & Heritage, eds. 1992).

The conversation analyses of gate-keeping encounters and other genres of institutional discourse are compelling because they are able to link socially significant consequences—access to needed services, accrediting institutions, and positions of leadership and power—to empirically documented micro-features of social interaction. Graham Button’s analysis (1992) of the formal interview process for the principal position at a prestigious British high school, for example, shows how the interviewers employ the sequential features of the talk, that answers must necessarily be preceded by questions, as a resource for objectively evaluating and comparing the applicants. This brief transcript is illustrative (pp. 215-16):

(Transcript 1-1: First question/response pair of an education job interview)

- P: ... thank you Madam Chairman (.) Huhrm (.) What sort of sty::le do you see
(.) yourself as- as a le::ader of- of (.) a- a team of teachers
(0.5)
- C: D’you mean how w’d I get other people to do it
(1.5)
Well er:: (0.5) mpt I think there are two ways of approaching tea::m teaching
(0.5) hh it can either be a school-based philosophy ...

The candidate responded to the initial question, which was about leadership style, with a request for clarification. In this formal style of interviewing, the same questions are asked in the same manner to all the applicants, and no prompting or clarification is allowed. The interviewers enforce this discursive procedure by not responding to questions following the interviewer question. Notice that C’s attempt at clarification was followed by what must have been a noticeably awkward 1.5 second pause during the interviewer’s turn-slot. Then, with no clear idea of what the

questions was about, C took a stab at the answer by discussing his philosophy of team teaching, which is how the candidate understood the question, rather than discussing his leadership style (the apparent topic of the question). In short, answers are made to follow from questions. This rule is enforced by the interviewers. Button argues that this mandatory sequencing of the talk is used as a means of authorizing the gate-keeping encounter as an objective procedure for evaluating applicants, what Button calls the “interview orthodoxy.”

I find this approach to institutional discourse persuasive yet highly limited. Following Harold Garfinkel’s project of ethnomethodology (1967), the assumption of this kind of analysis is that participants base their contributions on their own analysis of the talk and its co-occurring visual cues that occur in the preceding turns. All that is necessary to participate in an interaction is communicated in the talk itself. Thus, the transcript, and no other sociological and historical kinds of evidence, is taken as the relevant data for analyzing the social significance of the interaction. This approach seems to work best for discourse genres that have already undergone a significant process of institutionalization. In such cases, the historically contingent nature of the genre and its relationship to the goals of the institution had already been established as part of the natural order of institutional life. The sequential order and other discursive procedures, the participant roles, the appropriate affective styles and linguistic registers, dress and other indicators of role relations, the procedures for producing text and evaluating discursive contributions, the arrangement of the physical space of the encounter—all of these procedures and social conditions of this genre were already established and regularized prior to C’s unsuccessful attempt to

follow a question with another question. The social effectiveness of the gate-keeping interview was historically over-determined, the fact of which, ironically, permits an ahistorical text-centered analysis.

By incorporating an historical approach to institutional discourse genres it becomes clear that the social and ideological effects of talk at institutional occasions are not always over-determined in this way. Early on in my research, prior to arriving in India, I spent three months sitting in the British Library in London consulting British colonial compendia of Indian materia medica. In spite of the mountain of text that constitutes this genre I was surprised at how difficult and uncertain seemed the work of identifying and scientifically studying Indian medicinal plants. Simple acts of reference to equate a drug used in the Ayurveda system with a scientifically known medicinal plant were indeterminate at best. This archive is full of communications attempting to organize the institutional conditions necessary to stabilize these acts of reference. Much of this effort to institutionalize was infrastructural in nature. What was needed were, among other things, medicinal plant gardens with plants in various stages of the life-cycle which had grown from seeds of scientifically classified plants, scientific drawings of medicinal plants and herbarium sheets, archives, the means of labeling, storing, and transporting plant samples, the land and labor to cultivate the large quantity of medicinal plants required for clinical research, laboratory equipment and compounding facilities, and hospital beds and patients. Few drugs were ever created from this process during the colonial period. What was interesting, however, is that institutions were brought

into existence, institutions which were themselves historically significant establishments for colonial and postcolonial science.

The indeterminate character of reference is a condition of institutional discourse genres, particularly those involved in the creation of institutions as opposed to those involved in the regulation of already existing institutions. From variously pragmatist and post-positivist positions the philosophers Jacques Derrida (1986 [1982]), Willard van Orman Quine (1960) and Nelson Goodman (1969) have argued that reference, particularly cross-linguistic reference, must be understood in terms of a principle of indeterminacy.⁷ I argue that a major ideological move accomplished by translation is to stabilize this indeterminacy by projecting of relationships of equivalence and inequivalence—or translatability and untranslatability—between discourse units.

I want to be clear that I am not taking the position of pan-indeterminacy. Rather, I argue that indeterminacy is a feature of institutional discursive genres that are located in particular historical contexts. It is this historically contingent indeterminacy which is one of the key motivations for the formation of institutions. I argue that institutional forms of social organization and material infrastructure effect

⁷ Derrida has demonstrated that assumptions of the determinate nature of translation cannot be maintained without a fundamental reification “presuppos[ing] that one can know in the final analysis how to determine rigorously the unity and identity of a language” (p. 173). Quine has shown how the indeterminate scope and specificity of deixis poses a problem for a determinate view of cross-linguistic reference. How does the linguist determine, for example, the meaning of the word “gavagai” uttered by a speaker of a foreign language who is pointing to a rabbit running by? The sensible translation would be “rabbit,” but because of the indeterminacy of deixis multiple other translations are imaginable, such as “food,” “undetached rabbit parts,” “let’s hunt,” “temporary rabbit stage,” and so on. Judgments of “reasonable” or “sensible” translation and reference are themselves based on ideological conventions. Goodman, for example, has argued that any two objects can be called “similar” (or different) because the criteria for comparison draw selectively from the qualities of the objects and are thus a matter of social convention.

the stabilization of reference, and vice versa: it is by activity mediated through innovative institutional discourse genres that social actors create institutions to stabilize their reference.

How, then, is reference accomplished at all? A discourse-pragmatic theory of history requires a philosophy of language which can account for the relationship between names for things.⁸ Saul Kripke (1980 [1972]) argued that the relationship between a name and the thing it identifies in the world is established through a “primal baptism,” the original act of naming. This relationship is *necessary* in that it is not dependent on theories or discoveries about the object which occur after its original institutionalization. The material stuff we call “gold,” for example, has remained designated thusly no matter how our knowledge of it has changed historically from alchemical to biochemical conceptions of materiality. Furthermore, Kripke showed how we can imagine other “possible worlds” in which people use the word “gold” to refer to some other class of material entities, for example, what we call pyrite or fools gold, but that this state of affairs does not change the meaning of the word “gold” (either for us, or for the twin Earth dwellers).

Hilary Putnam (1975) further developed Kripke’s theory of reference with a key intervention, the anthropological significance of which has yet to be fully realized. He argued that the meaning of natural kind terms is established by a

⁸ The classical characterization of this relationship following from Russell and Frege holds that a word identifies its object by virtue of its meaning. “Meaning,” in this technical sense, is the set of characteristics about the things identified which can be said to be true of them (i.e., its definite descriptors). While truth conditional semantics has been useful in understanding a certain limited set of linguistic categories, American analytical philosophers such as Saul Kripke, Hilary Putnam, Willard van Orman Quine have pointed out that the descriptivist position lacks the ability to handle major classes of language, including names and natural kind terms.

linguistic division of labor. The historical chain linking the word “gold” to its material designations is reconstructed by experts of various kinds, chemists, miners, metallurgists, craftsmen, and gold dealers. These experts are trained with the techniques necessary to identify and authenticate “real gold,” that is, the same materiality as the stuff called “gold” at the primal baptism. Non-expert speakers have to trust this linguistic division of labor to determine the baptismal chain of their own gold-stuff, the gold of their wedding rings for example. Putnam argued that nonexpert speakers acquire natural kind terms along with a set of stereotypical characteristics (gold, for example, is a hard metal that is yellowish in color).⁹⁻¹⁰

Acts of reference and translation require the institutionalization of a linguistic division of labor, which is the organization of institutional infrastructures and social relations required to stabilize the ideological effects of referential discursive practice.

⁹ Our stereotypic associations are often inadequate, such as in the case of “fools gold”—which falsely satisfies our stereotype of gold—or in the case of “white gold”—which is actually gold but it does not satisfy our stereotypic associations (according to Wikipedia white gold is a gold-based alloy). In such cases when the stereotypic associations of a term are unhelpful, non-expert speakers must trust the linguistic division of labor to authenticate the term’s material extension (as I did in searching Wikipedia, or as I would be required to if I were to ever actually purchase white gold).

¹⁰ In addition to Putnam’s hypothesis of the linguistic division of labor he hypothesized that non-expert speakers have an essentialist conception of natural kinds, so that they will trust essential characteristics over external and superficial characteristics in the determination of a designation. In other words, what the baptizer christens in the original baptism is the object’s essence, not its ostensible qualities. Research in psychology has shown how children as early as three years privilege the hidden essential criteria over observable characteristics (Gelman & Coley 1991). It also shows how these children already have a nascent concept of a linguistic division of labor in that they defer to the experimenter’s authority. However, these studies often assume an exclusively epistemological conception of expertise—the experimenter knows more than the child—which does not account for the social and semiotic aspects of displays of expertise. It is my hope that the study of pharmaceutical production in anthropology can contribute to a sociolinguistic conception of expertise and thus develop the concept of a linguistic division of labor as an organizing principle of social differentiation. In the future there may be more opportunity for a critical interdisciplinary discussion between psychologists and anthropologists around the cognitive prerequisites for a linguistic division of labor, and vice versa, the social conditions of this cognition.

What are the social, ideological, and semiotic conditions of particular institutional discourse genres which facilitate this institutional change? I will draw on the work of linguistic anthropologists and philosophers of language to argue that there are at least three social-semiotic qualities of speech genres by which institutionally situated actors accomplish historical change. These three qualities are intertextuality, diagrammatic ideologization, and institutional felicity conditions, which I address in turn as they relate to a discourse-centered theory of history.

Intertextuality. Institutional discourse genres are intertextual modes of action. A theoretical approach to the intertextual character of talk and text production emerged out of the work of a group of anthropologists represented in the edited volume *Natural Histories of Discourse* (Silverstein & Urban, eds. 1996). The approach developed by this group involves tracking bits of discourse through their life histories of text-creation (i.e., entextualization), which has drawn attention to both the role of language as a medium of social relations, as well as to the polyvocality of instances of authorship. Entextualization is the process by which actors appropriate (or decontextualize) prior interactions, experiences, utterances, and texts and then reformulate and employ them to create emergent discursive productions in novel contexts of use (Bauman & Briggs 1990; Silverstein & Urban 1996). Social interactions in institutional settings are thus not rigorously bounded by their occasions in terms of the production and interpretation of talk and in terms of their social effects. Rather, institutional discourse incorporates past interactions and is itself oriented toward future possible incorporations. This first and key point about

institutional discourse genres does not conform well with an ethnomethodological approach to institutional discourse, which requires that all sociologically meaningful information be publicly available within the spatial and temporal boundaries of the occasion itself.

Intertextual patterning can itself also become an ideological sign with important social and material effects. The semantic structure of translation, for example, may be particularly well-suited for this kind of ideological work. Translation, broadly stated, is an instance of communication across difference. As Roman Jakobson (1959 [1987]) has neatly put it the *difference* can be between (1) units of the same code (e.g., dictionary definitions), (2) units in different codes (e.g., literature translations), or (3) units in two distinct semiotic modes (e.g., speech written into text). In Jakobson's structuralist semiotic terms, translation involves the construction of a meta-linguistic equivalence between two discourse units, where the message composed in the original language is re-coded into the linguistic materials of the translated language. The commodification of Indian drugs in the colonial and postcolonial period required a translation of Ayurveda knowledge into the language of English technoscience. There is, thus, a homology between the asymmetrical structure of translation and the process of pharmaceutical commodification. Just as Ayurveda is translated into cosmopolitan science, so also Ayurveda drugs follow that path on their way to the biomedical pharmaceutical market. The intertextual patterning instantiated in the practice of translation is itself an iconic sign of the asymmetry between the disciplines. The process of projecting ideological values

upon these intertextual patterns has been theorized under the rubric of language ideologies.

Diagrammatic ideologizing. The intertextual patterning of institutional discourse genres is a process of indexical signification in which the stylizations of institutional talk and text are linked with typifications of particular institutions, persons, and ideologies. Thus, ideologies of language are formed when discursive patterns are coupled with social and ideological values—and they are always so coupled. Susan Gal and Judith Irvine (1995; Irvine and Gal 2000) have argued that such indexical links are ideologized through a three-part semiotic process, starting with the *iconization* of the indexical sign, which involves its reconfiguration and interpretation as an iconic relation.¹¹ Next, *fractal recursivity* is the projection of an indexical link between levels of social action. The processes iconization and fractal recursivity entail the third semiotic process which is the *erasure* of sociolinguistic diversity that does not fit the ideological paradigm. Gal and Irvine have argued that language ideologies are a central principle of sociolinguistic differentiation. So, considering an example that I have already mentioned, Sanskrit is represented by some practitioners as being the natural, best, only medium of Ayurveda knowledge. This is a recursive projection of a disciplinary boundary onto a linguistic boundary, which is viewed as an essential truth rather than a social convention, and which disregards and thus, occludes the linguistic and genre diversity of historical and contemporary Ayurveda. In this dissertation we will be looking at how such

¹¹ Irvine (2004) has pointed out that the process of iconization, following Peirce's language, could be called rehmatisation "rhematization."

disciplinary boundaries are created and conferred with ideological values through the act of boundary-crossing linguistic practices such as translation. I argue that institutional discourse genres involve the ideologizing of the patterned intertextual characteristics of the talk, and that it is through this process that boundary transcending practices are actually discursive realizations and entailments of social boundaries.

A more fine-grained attention to the structure of the iconization is valuable for this project (see Mannheim 1999). As I describe below, the patterned linkages between texts, for example, between Ayurveda sources of knowledge and their embedding within colonial compendia of materia medica, is a *diagrammatic icon* of the asymmetrical relationship between the disciplines. The texts and their indexical connections form a pattern which is taken as an ideological sign. A diagram formed in this way is perhaps particularly compelling as an ideological sign because it is the indexical patterns of social action, that are learned, habituated, and contingent on the actors' social motivations and conditions, which form the semiotic basis for projections of ideological and social values. For example, in Chapter 3 I describe how the indexical link between Ayurveda concepts and their scientific translations is ideologized as a diagram of the structure of Ayurveda's history. The fact that these translations were possible at all was an effect of the labor of doctors, scientists, and government officials, yet the translations are not taken as signs of that labor, but rather as signs of the objective state of Ayurveda's history. This diagrammatic icon, then, was used to authorize the institutionalization process that produced the conditions of its own signification. Thus, institutional discourse genres mediate

intertextual talk and text productions, the indexical patterns of which are ideologized with social, ideological, and disciplinary values. Next, I will discuss how action mediated in this way can have significant historical and institutional consequences.

Institutional felicity conditions. Action mediated by institutional discourse genres must produce the social and material conditions of its own felicity (Austin 1961). That this is the case can be seen by looking at situations when the felicity conditions were not met. Moments before the naming of the new ship The Queen Elizabeth a man charges the stage. Taking the champagne from the official he smashes the bottle on the bow of the boat and utters “Generalissimo Stalin!” It seems obvious that we would not, from that moment onward, be obliged to refer to the ship thusly. Why was this act unsuccessful? The philosopher of language John Austin (1961) has argued that in this example the Stalinist baptism violated what he called *preparatory felicity conditions*. The usurper did not have the authority of a duly recognized office to conduct a baptism, and thus, while a baptism-like event did occur it did not have its desired effect. I believe that Austin’s concept of felicity conditions is far more important to the analysis of institutionally situated discourse than is commonly recognized, in large part because such conditions of felicitous discursive action can themselves become the focus of social action.

Acts of reference, I have argued, may be inherently unstable if felicity conditions are not institutionalized. For some institutional discourse genres it is indeed the case that the acts of reference are relatively stable and the social effects of the action are socially over-determined. For other institutional discourse genres, reference is inherently unstable and the social goals of the talk and text production

are relatively indeterminate. This is not a characteristic of the genre itself but rather an effect of the relationship between the genre and its historical context. So, anyone with the skills and the necessary material conditions to produce inter-lingual text can translate, but not all translations will be accepted by the institutional community and even those that are accepted may not entail their desired social effects. I will describe in Chapter 3 how the translation of Ayurveda anatomy into the categories of biomedicine in the early 20th century required about two decades of institutional work for it to be accepted by the Ayurveda community and by the government officials who controlled the purse strings of the Ayurveda Department. Yet, at the same time, this translation was also a key and necessary component of the modernization of the Ayurveda college syllabus. Thus, the translation presupposed particular social and material conditions, and at the same time, it also authorized the mobilization of resources into institutional formations. Institutional discourse genres manifest a dual relationship with the institutions of which they are a part, both “presupposing” and “entailing” institutional formations (Silverstein 1976).¹² The trick to understanding the historical implications of this dual relationship is that presupposed felicity conditions have to be put into place through social action. This type of institutionalization is also an effect of institutional discursive practice.

Now that I have outlined some of the characteristics of the institutional discourse genre as a key concept of my analysis and as a mechanism of social change in the context of Ayurveda’s colonial and postcolonial modernization, it will be

¹² Clifford Geertz (1973) has described this dual relationship as the “models of” and “models for” action which are communicated by cultural symbols.

helpful to briefly foreshadow my argument in terms of the other key concept of my analysis, modernity.

Toward a critical linguistic anthropology of modernity

The histories, struggles, practices, ideologies, discourses, social relations, institutions, and types of persons represented in my analysis are part of a larger story of India's complex experience and theorization of its own postcolonial modernity.

The discourse practices that I describe in this dissertation take place in the context of rationally calculated institutions, and I will argue that it was these discursive practices that were an important factor in the historical process of Ayurveda's institutional rationalization. It is likely that the discourse-pragmatic theory of history described above and demonstrated below will be particularly useful in analyzing the rationalization process of similar institutions in different cultural and historical contexts.

There are three specific forms of rationalization that I will address in this dissertation. First is the process of bureaucratic rationalization (Weber 1978 [1968]), which is exemplified by the Ayurveda College as a planned and regimented institution designed for the socialization of new doctors and the conduct of research on Ayurveda. Chapters 2-5 trace the history of this institution in colonial India and its social organization and pedagogy in the contemporary postcolonial context. The second rationalization process that I consider is the self-conscious rationalization of time which, along with bureaucratic rationalization, has also been characterized as a distinctly modern phenomenon (Habermas 1987). Chapter 2 deals with this process

at length, focusing particularly on the role of the translation of the Ayurveda body as a diagrammatic icon of Ayurveda's multiplex histories. The third mode of rationalization is economic rationalization (Marx 1977) in the form of processes of pharmaceutical commodification, which I deal with at length in the sixth chapter of the dissertation. Max Weber, Karl Marx, and to a lesser extent, Jürgen Habermas, tended to view these processes in terms of apocalyptic pronouncements of the dramatic and unified effects of modernity and capitalism. My approach will be to consider these forms of rationalization not as unified characteristics of the modern epoch, but rather as dynamic and emergent effects of situated discursive practice, effects that are inherently open to contestation and complexity. Throughout this dissertation I model an approach to history that foregrounds the discourse-pragmatics of social action, and I conclude the dissertation (Ch. 7) by reframing my approach as a critical intervention into the anthropology of modernity.

I now turn to an intertextual analysis of compendia of colonial materia medica which, I argue, was employed by doctors and scientists to mediate the asymmetrical alignment of the disciplines.

Chapter 2

The entextualization of colonial materia medica

The regional compendium of materia medica was the genre through which the British attempted to comprehend the great diversity of indigenous healing practices that they encountered in colonial South Asia. Collected within their pages is information regarding the valuable medicinal plants of the colony, including their synonyms, medicinal qualities, methods of pharmaceutical preparation, botanical classifications, and descriptions of their habitat, geographical distribution, and biological variation. Below I describe the history of this genre from the perspective of the intertextual processes of citation, translation, and scientific baptism used to extract Ayurvedic knowledge and embed it within the cosmopolitan pharmacopoeia. Then, I describe the discursive counterstrategies developed to counteract this asymmetrical organization of the disciplines. The focus in this chapter will be on how the alignment between the disciplines is represented and institutionally instantiated through interdiscursive patterning. I argue that an asymmetrical disciplinary alignment was entailed by this patterning of the genre and its counter responses, which were themselves modes of linguistic practice with significant ideological and institutional effects. The historical analysis below is thus presented as an exemplification of the role of institutional discourse genres as mediators of historical change, a theme that will run throughout the chapters of this dissertation.

Ultimately, it is my goal to demonstrate and theorize a way of understanding language that foregrounds its role in large-scale historical change.

Asymmetrical citation

For Indian knowledge to be of use to the European scientific establishment the information about a plant's medicinal uses in the classical and folk systems of medicine had to be translated into English scientific language. The process of cross disciplinary translation meant that colonial compendia of materia medica were fundamentally comparative in structure, reporting in the English language of science the Indian knowledge of medicine juxtaposed with its Western scientific interpretation. In one of the first of the British tradition of colonial materia medica,¹³ *Materia Indica: Or, Some Account of those Articles which are Employed by the Hindoos and Other Eastern Nations, in their Medicine, Arts, and Agriculture* (1826), Whitelaw Ainslie, the Superintending Surgeon of Madras, described the unique burden of colonial materia medica as a “combining link betwixt the materia medica of Europe and that of Asia” (p. x) and as a translation of the “extremely clumsy and unscientific” Indian formulae into their “English garb” (p. 2). Ainslie's text is structured so as to situate the Indian medicinal plants within the master-narrative of

¹³ *Materia Indica* was originally published by the Madras Government Press as a single volume in 1813 under the title *Materia Medica of Hindustan, an Artisan's and Agriculturist's Nomenclature*. This text is often referenced as the earliest materia medica in the British tradition. Prior to the publication of Ainslie's first edition, the only Orientalist text available on Indian materia medica was a small catalog written by John Fleming, which was published first as the 11th volume of the *Asiatick Researches* and then as an independent volume in 1810. Fleming's and Ainslie's accounts are similar in terms of the intertextual and narrative features that I discuss below, except that Ainslie's comprehensive study went on to become the benchmark for future work, which is why I chose to focus on the text in the present analysis.

European colonial and scientific expansion. For example, his account of a plant known to him and his colleagues as “Indian Aloe,” and to his Tamil consultants as “Kattalay” (perhaps, *kāṭṭōli*), describes the plant’s journey to India with the Portuguese from the Island of Socotra, its prevalence in other European colonial holdings and treated protectorates, its mention in European colonial botanical and travel literature, and the value of the drug for European inhabitants of tropical climates like India’s, where the prolonged residency required of colonial service might lead to the increase of bile disorders.

Unlike many of his contemporaries, Ainslie had a fond and respectful opinion of the *vaidya* whom he consulted, and he understood well the potential value of incorporating their knowledge into the pharmacopoeia of the West. His juxtaposition of the two traditions as different perspectives on the same medicinal plant was a first step in this process. However, juxtapositions often mask subtle asymmetries.

Consider the citation style which structures the relationship between Western and Indian medicine, again from Ainslie’s account of “Indian Aloe:”

The native practitioners of India prescribe it in nearly the same doses that we do; from five to twelve grains as a purge; and like some of the ancient medical writers, suppose it to be less hurtful to the stomach than any other cathartic. “Ideoque omnibus catharticiis aloë miscenda est”. (Vide cels. Lib. ii. Cap. 12). They also apply it externally round the eye, in cases of chronic ophthalmia. The Tamool doctors administer it, when tasted, in certain bowel affections to which women are subject after lying-in. Dr. Paris recommends aloes, in conjunction with assafoetida, as a purgative in dyspepsia of old people (p. 10).

“The native practitioners of India ...” and “The Tamool doctors ...” are generalized reporting frames used to embed knowledge known to Ainslie through specific Indian

language accounts and through consultations with publicly known Indian doctors. In contrast, he mentions Dr. Paris by name as a European medical authority, and he directly cites a classical Latin text with quotation marks and a parenthetical reference. In a homologous vein, the subaltern historian Dipesh Chakravarty (1992) argues that one symptom of a Eurocentric bias in the writing of Indian history is an “asymmetry of ignorance.” All historians, while required to credit the authorship of European sources of knowledge, are not equally obliged regarding the Indian sources; “Indians believe...,” “According to Hindu mythology...,” and other overly generalized reporting frames are sufficient. In contrast, Indian historians writing in the Subcontinent cannot report European authorities in the same manner and still remain credible. It is also true that an audience of Europeans may be less qualified to evaluate Indian sources. Rather than document these sources, however, which would place them on a comparable level with European sources, Indian knowledge is underspecified to a degree that equals its near total erasure. Similarly, the citation style of colonial *materia medica* entails an epistemological asymmetry between Indian language and English scientific accounts of Indian medicine.¹⁴ We shall see how this asymmetrical pattern of text-artifact inscription results in the marginalization of India’s knowledge about its own material resources from the historically accumulating scientific literature.

¹⁴ Prior to the 17th century European doctors in India tended to treat their local counterparts as more or less equal interlocutors, specifically referencing them as authoritative sources of knowledge. For example, the Portuguese physician Dr. Garcoa da Orta (1563) describes a treatment for diseases of the kidneys and bladder which he acquired from, the “Gentio [Hindu] physician of Sultan Bahadur, King of Cambay” (reproduced in Harrison 2001:45). This type of citational specificity is basically absent from the writings of the later British *materia medica* chroniclers.

In recognition of his seminal contribution to the European knowledge of Indian medicine, later authors cite Ainslie's work, as well as some of the European authorities that he himself cited, but the individuals and Indian language accounts that formed the basis of his knowledge of Indian medicine became decontextualized from that record. This was the case in the first official government authorized pharmaceutical text, *The Bengal Pharmacopoeia* (O'Shaughanessy, ed. 1841 [1844]). Dr. William O'Shaughanessy, an Assistant Surgeon in the Bengal Army and Professor of Chemistry and Materia Medica in the Medical College of Calcutta, compiled the dispensary by drawing from the published works of various prominent European botanical and medical writers such as Ainslie. For instance, of the oil prepared from the "Malacca bean," O'Shaughanessy reports "Ainslie adds that *the Hindus generally deem it a valuable medicine in scrofulous, venereal, and leprous affections*" (emphasis added, p. 280).

In 1865, the independent institutional and regional pharmacopoeial committees throughout the United Kingdom were unified into a single committee with legal powers to issue guidelines for professional pharmaceutical practice. The *British Pharmacopoeia* (BP 1865) which was published by the Committee became the benchmark by which ideal pharmaceutical practice was evaluated both in the metropole and in the colonies. Shortly after, O'Shaughanessy became the Chairman of a committee of experts in India charged with the task of formulating a colonial version of the *BP*. As a nodal point in the history of the European engagement with Indian medicine, the *Pharmacopoeia of India* (Waring, ed. 1868) issued by this committee illustrates the cumulative effect of asymmetrical citation to

decontextualize Indian sources of knowledge while at the same time appropriating Indian medicines. Unlike colonial *materia medica*, which became more and more citationally specified as it expanded, the pharmaceutical dictates of the *BP* and its colonial counterpart tended to be written in an authorless objectivist reportage voice. In fact, in the *Pharmacopoeia of India* it is almost impossible to determine even obliquely from the text itself what Indian knowledge was employed in the construction of the prescriptions. To whom can we attribute the following reports of medicinal knowledge? – “Water in which it [Mastich Tree] has been boiled *is said* to be useful ...” (p. 58), “It [Arabic Gum] *has also been found* effectual in restoring the tone of the stomach ...” (p. 137), “In constitutional debility ... it [Hemidesmus] *has been employed* with single benefit” (p. 140). The emphasis that I have added underscores the authorless and commonly passive voice employed throughout the text to delineate the medicinal properties and therapeutic uses of the plants. Backed up by the accumulated scientific literature these pharmaceutical guidelines carry the anonymous voice of objective scientific truth.

Empirical translation

The differential citation strategy employed to organize colonial *materia medica* was underscored by a variety of highly stereotypic representations of Indian knowledge expressed throughout the literature. Perhaps the most enduring and pernicious of the stereotypes was a representation of Indian knowledge as empirical, devoid of theory,

in opposition to the theoretical sciences of the West.¹⁵ As described by Trautmann (1997) the Orientalists of the late 18th and early 19th centuries such as Sir William Jones had a sincere interest and appreciation for the Indian sciences, including medicine, astronomy, mathematics, and so on, although they believed that the Indian versions were at a lower stage of development than Western knowledge. However, following a highly public debate about the role of English in Indian scientific education between the Orientalist John Tytler and the Anglican missionary and colonial civil-servant Charles E. Trevelyan, by the 1830s, the tide had shifted away from the Orientalist stance toward Indian knowledge, to a more Eurocentric and Anglophile approach to colonial education and administration (part of this debate is compiled in Trevelyan 1838). The last nail in the coffin, marking the end of the influence of Orientalism in British colonial policy, is often taken to be the publication of the utilitarian T. B. Macaulay's *Minute on Indian Education* (1972 [1835]), which appears to be the most condescending statement about Indian knowledge ever penned by a colonial intellectual, negatively contrasting Indian philosophy, literature, and science vis-à-vis their European counterparts.

The colonial materia medica chroniclers from the mid-19th century onward followed this highly negative construal of Indian knowledge. For example, Dr. R. H. Irvine (1848), the Civil Surgeon of Patna about two decades after the publication of Ainslie's account, provides a cogent commentary about the goals and difficulties of

¹⁵ In terms of the role of this dichotomy in the history of Western philosophy, Hegel, in the posthumously published *Lectures on the Philosophy of History* (1890), surveys the world's knowledge traditions, including India's, and concludes that philosophy (i.e., theory) is the exclusive purview of the West.

colonial materia medica. Although the tone is especially condescending, more so than other authors, his representation of the asymmetry between Western/scientific and Indian/empirical knowledge typifies a remarkably consistent and historically durable ideology:

Divided into such branches [the study of sensible qualities, theories of action, applications, etc.] is Materia Medica studied in all the schools of civilized countries. In Patna, however, as in other parts of India, the Materia Medica of the Native practitioners is formed on empiricism, superstition, and licentiousness. The result of the empiricism is the general and successful application of very numerous simple remedies; the results of the superstition and licentiousness are frequent death; and in very constant and numerous instances premature loss of virility. The Natives unacquainted with chemistry never consider the medicinal powers of natural bodies as connected with that science. From this they lose the great advantage of being able to extract the peculiar principles constituting the efficiency of many bulky and inconvenient substances p. 1).

The distinction between civilized and uncivilized nations is here coded in terms of contrasting epistemologies of materia medica. Irvine describes the rational and scientific approach to the study and use of medicinal plants, the objects of which are the “peculiar principles constituting the efficiency.” The isolated and extracted essences of Western materia medica are starkly contrasted to the “many bulky and inconvenient substances” employed in Patna and throughout India. In constructing this opposition, Irvine situates his materia medica firmly within the rational approaches to chemistry and pharmacology which had experienced progressive development throughout the first half of the 19th century, increasingly displacing the object of study from the whole plant to the hidden alkaloids, steroids, and other chemical types which were revealed to lie within.

From the mid-19th century onward there was a gradual shift in the materia medica literature away from narratives of colonial expansion toward those of chemical isolates. Irvine's statement, however, is more reflective of colonial science's potential for ideological hubris than its actual ability to develop and industrialize effective drugs along the lines of rational pharmacology. The material conditions for even modest pharmaceutical research were not readily available to most scientists residing in the colony, including scientifically organized botanical gardens, regional flora and herbarium sheets, and the laboratory equipment necessary for the extraction and analysis of chemical constituents. In fact, although there was progress in pharmaceutical chemistry throughout the 19th century in isolating and analyzing simple alkaloids and other chemical types, the quinine alkaloid being the most famous case, the tools for analyzing complex chemical structures were not available until the early 20th century. Cosmopolitan scientists knew even less at the time about the chemistry of human physiology.¹⁶ Prior to the 1932 edition of the *British Pharmacopoeia*, where we see a tremendous influx of chemical isolate drugs, the tincture was the tried-and-true method used in the United Kingdom to concentrate the active constituents of plant materials (Paton 1963). Although 19th-century colonial literature on materia medica was remarkably ineffective at achieving its own stated goals, its asymmetrical reorganization of knowledge has had

¹⁶ The technological and conceptual difficulties in the application of chemistry to the practical problems of human pathology which persisted throughout the 19th and early 20th centuries are detailed from a scientific historiographical perspective in the contributions to *Chemistry in the Service of Medicine* (Poynter, ed. 1963).

profound effects in postcolonial India where, as I discuss in the sixth chapter of this dissertation, these texts now serve as resources for biotechnological research.

In the cases when Indian drugs were found to be effective, Irvine and other authors argued that this is the natural result of empirical investigations accumulated through centuries of trial-and-error. It was the empirical nature of the Indian botanical knowledge which researchers like Irvine and others hoped to study from the epistemologically superior perspective of Western science.¹⁷ So, the asymmetrical structure of colonial writings on materia medica had the dual effect of marginalizing Indian knowledge in the scientific record and also of representing that knowledge as purely empirical, devoid of any systematic or theoretical character. It is not true, however, that the materia medica of India lacks a theoretical underpinning, or that colonial scientists in India were entirely unaware of it. Ayurveda practitioners and Indian language accounts of materia medica use the *tridoṣa* and *dravyaguṇa* theories to explain the medicinal quality of particular plants and their effects on the patient. The *tridoṣa* theory in particular is so important that its absence from a manuscript is grounds enough to exclude it from the Ayurveda

¹⁷ Another example of the empiricalization of Indian medicine from Irvine's time which dealt mainly with Persian sources was John Martin Honigberger's account of the materia medica of the Punjab and Kashmir (1852). Notice his representation of Indian medicine as static, defective, religious, and full of "absurd theories," yet at the same time discourse-pragmatically useful when appropriated by the Westerner: "It is impossible to entertain any high opinion of the healing art of the Mahomedan doctors, derived from the ancient Greeks and Egyptians ... or, that of the Hindoos; for, they have made little progress beyond that defective medical science which is found in their old manuscripts. Their directions for the treatment of patients, contain little else than extravagance and superstitions – to which the Hindoos, whose system is the most ancient, add *astrology*. As the religion stands in the way of every attempt at improvement, there is but little hope that they will ever make much progress in medicine, or, relinquish their absurd theories; and nothing remains for us, but to pity those who are doomed still to continue in darkness. Yet, we ought not entirely to disregard old works, but to select, as I have done, such portions as appear useful" (pp. iiv-iv)

canon, and conversely, its nominal presence has been used to project the disciplinary contiguity of Ayurveda as far back as the *Atharvavēda* (circa 1200 BCE) and even the *Ṛgvēda* (circa 1500 BCE) .

In representing Indian knowledge as merely empirical at best (and elsewhere as drenched in “superstition”), the materia medica chroniclers of the colonial period had to selectively edit their information. In an effort to represent the nature and extent of *The Materia Medica of the Hindus*, Uday Chand Dutt (1877) culled from the Sanskrit medical works information about the medicinal plants available in the Royal Botanical Garden in Calcutta. With the help of the Superintendent, Dr. George King, the specimens collected from local Ayurveda doctors were identified with their scientific name by comparing them to the known plants growing in the garden. In his translation of the Ayurveda knowledge about these plants Dutt systematically edited out the theoretical portions of the text, justified thusly:

In describing the general properties of individual [medicinal plant] articles I have not followed the Sanskrit texts literally. Sanskrit writers, under this head, after recounting their sensible properties, enter into minute details regarding their cooling or heating effects on the system, and their special influence on the humours which are supposed to support the machinery of life, namely, air, bile, phlegm, and blood. These details are not so much the result of observation and experience as the outcome of an erroneous system of pathology and therapeutics. I have, therefore, selected for notice such portions of the text as relate to the practical use of the drugs and their tangible effects on the system (pp. iiv-iiv).

The representation of Ayurveda materia medica as purely practical knowledge requires the willful neglect of the *tridoṣa* and *dravyagūṇa* theories upon which the system is based. Dutt’s text, a loose translation drawing from the canonical Sanskrit texts, had to systematically occlude these theories in order to represent Ayurveda as a

form of strictly empirical knowledge. It is clear that Dutt and his European colleagues did not think of Ayurveda pharmacology as a scientific theory. However, instead of critically examining the theoretical propositions of Indian science head-on, the materia medica chroniclers selectively occluded this material through highly selective translations. Dutt cites specific Sanskrit texts in support of his empiricalized representation of Ayurveda. Then, this translation was taken by subsequent European authors as the authoritative account of “Hindu medicine.” In effect, within the genre of colonial materia medica, Dutt’s empiricalized translation ended up taking the place of the Indian language accounts.¹⁸

Telescopic baptism

Telescopic baptism is the use of scientific tools and procedures to isolate and extract the chemical constitutions that are hidden within the raw plant materials of Ayurveda drugs and to confer upon these extracted constitutions new scientific names through the act of “primal baptism” (Kripke 1980 [1972]). This was the used by William Dymock, who in 1884 published his first book-length compendium of materia medica called *The Vegetable Materia Medica of Western India*, which later developed

¹⁸ Another example of an empiricalized translation of Indian medicine which includes Persian and Urdu sources is Rustomjee Naserwanjee Khory’s *The Bombay Materia Medica and their Therapeutics* (1887), which extracted from the literature the pharmaceutical formulae and juxtaposed them with their attested or observed physiological effects. In the expanded edition of this text titled *Materia Medica of India and Their Therapeutics* (Khory & Katrak 1903), the empirical nature of Indian medical knowledge is explained thus: “... by long experience and natural intelligence, some of these indigenous practitioners have succeeded in securing a fair amount of skill in treating their patients. They make use of drugs which have been proved by ages of experience to really possess marked therapeutic virtues (p. v).” Keeping with the times, the 1903 edition added scientific baptismal narratives – “to show the principle ones [chemical constituents] on which the properties of the various drugs depend” (p. vii). Outside the vogue set by Dutt, Khory, and others, Narendranath Sengupta (1911-14) published a famous translation of Ayurveda materia medica which employed the language and theory of Ayurveda while omitting Western pharmacology altogether.

into *Pharmacographia Indica*, a multi-author and multi-volume account that became the basis of colonial materia medica in the first half of the 20th century (Dymock, Warden, & Hooper 1889-93). The role the plant had played in the colonial narrative of scientific expansion, as well as its uses in the Indian system of medicine, were prefaced as part of the drug's "History." Dymock relies upon and cites explicitly Dutt's empiricalized translation for his account of the use of the plant in Ayurveda. However, the centerpieces of the text are the narratives of telescopic extraction and **baptism**. Of *Alstonia scholaris* Dymock narrates:

In 1875 Jobst and Hesse exhausted the powdered bark with petroleum ether, and then extracted, by boiling in alcohol, the salt of an alkaloid, which they called *Ditamine*. After the evaporation of the alcohol, it was precipitated by carbonate of sodium and dissolved by ether, from which it is removed by shaking it with acetic acid. Ditamine as again isolated from the acetate forms an amorphous and somewhat crystalline, bitterish powder of decidedly alkalous character; the bark yields about 0.02 per cent. of it (p. 410).

As Dymock continues his narrative we learn how Jobst and Hesse isolated, named, and described the chemical formulae for five other alkaloids (Echicaoutchin, Echicerin, Echitin, Echitein, and Echiretin), as well as how Hesse identified the chemical formula for Ditamine by an analysis of its platinochloride ($C^1 H^1 NO^2$). Dymock's narrative records a set of telescopic baptismal events where technoscientific designations were assigned to the alkaloids extracted from a plant used in the Ayurvedic system of medicine, known in Sanskrit as *saptaparna* and synonyms, and variously in the vernaculars. Telescopic baptism shifts the object of knowledge from the whole plant, that is, the historical object of Ayurveda, to the technoscientific essences that lie within. Thus, together with asymmetrical citation

and empiricalized translation, telescopic baptism is part of the process of cross-disciplinary knowledge alienation. Telescopic baptism marks the rupture that occurs as a drug is fully extracted from the Ayurveda system and incorporated into the regime of technoscience.

Drugs employed in Ayurveda would be re-baptized with scientific sounding Latinate designations as part of their incorporation into the *BP*. A plant-drug known in Sanskrit as *Sarpagandha*, for example, was referred to in the 1865 *BP* as “Serpentaria,” which in the subsequent edition in 1867 was modified to meet the Latinate terminological standard, “Serpentariæ Radix.” Later on down the chain of telescopic baptism, an alkaloid was extracted and dubbed “Reserpine,” which is currently used as an effective treatment for hypertension by Allopathic practitioners in India. Similarly, O’Shaughanessy (1841) describes a “bitter principle” called “Aloesin” as the “most remarkable constituent” of *Mushābhir*, the Hindi designation for *Aloe indica* Royle. This principle was incorporated into the 1885 *BP* with the more standard alkaloid designation morphology “Aloin,” which was Latinized as “Aloinum” in the 1898 *BP*. On the first round, a drug is incorporated into the *BP* using its designation in the scientific literature, which is modified to fit the Latinate pharmaceutical standard in the subsequent edition after the successful passage of an interceding trial period. What was once a familiar plant to the patients and healers of India’s local pharmaceutical markets has become a strange technoscientific artifact bearing a designation with an equally strange Latinate morphology.

Discursive asymmetries and disciplinary alignments

The discursive patterning of the colonial materia medica instantiated in text (i.e., entextualized) an asymmetrical alignment of the disciplines. Something along the lines of what Foucault described in *The Order of Things* (1971), in this literature, Ayurveda is categorized, ordered, and discursively reconstituted on the basis of cosmopolitan science. However, each of the three interdiscursive patterns that I have described entailed their own form of erasure, and these processes of erasure affected not only the epistemological representations of the disciplines but also their social and material relations as well.

First, asymmetrical citation erases the representation of the social relations involved in the extraction of Indian knowledge. Because of the asymmetrical structure of citation within the genre, Ayurveda textual sources and the social relations between colonial physicians and their consultants were progressively disembedded from the literature. In this way European accounts and not the expert Indian testimony and textual sources upon which these accounts were based became the authoritative sources of knowledge. The reporting frames of Indian sources of knowledge became progressively overgeneralized and in many cases, Indian authorship was occluded entirely. Thus, the interdiscursive patterning of colonial materia medica texts erased the social relations of its own production so that European authors could claim scientific authority over Indian knowledge.

Second, empiricalized translation further disembedded Indian authority over their own medicinal plant resources by representing Indian knowledge as empirical rather than scientific. Ayurveda's own theory was selectively edited out in the

process of translation. What was allowed to remain was only the record of the medicinal plant treatments and the signs, symptoms and diseases which they were used to ameliorate. This entextualization entailed an epistemological asymmetry between colonial science and its object of knowledge, Ayurveda (i.e., the *vaidya* know not what they know). Empirically effective yet devoid of a scientific theory of that effectiveness, empiricalized translation allowed colonial scientists to represent Ayurveda as both *effective* and *unscientific*. The empiricalization of Ayurveda has proved to be a remarkably durable ideology because it was appropriated by later Ayurveda apologetics, and because it continues to underlie the pharmaco-capitalist project to develop pharmaceuticals based on indigenous knowledge.

Third, telescopic baptism erases the material object, the Ayurveda drug itself. This interdiscursive practice displaces the object of knowledge from the rough, green, sensuous, and materially complex Indian drug onto the chemical constituents situated within. Telescopic baptism strips away the drug's coarse materiality and its signification as an Ayurveda drug and object of Indian knowledge. Even before these new materialities were fully understood with the benefit of modern biotechnology and chemical analysis the drugs were renamed with Latinate scientific designations. The cumulative effect of these three interdiscursive processes was to re-frame India's medicinal plant resources as the exclusive purview of colonial scientific knowledge and exploitation.

The entextualization of colonial *materia medica* is a good example of what I have called an institutional discourse genre. The intertextual patterning and ideologization of the genre which I have discussed required a great deal of social and

institutional support to be able to act as an authoritative and effective extraction of Indian knowledge. Social relations between colonial scientists and local experts, between colonial scientists and scientists in the metropole, and between colonial scientists and colonial government bureaucrats are among the necessary social conditions that had to be organized in order for these intertextual patterns to be effective. This effectiveness is also based on the institutionalization of scientific botanical gardens in the colony, as well as the organization of the means of collecting, transporting, and archiving medicinal plant samples, and publishing and circulating text throughout the subcontinent and the metropole, as well as the leisure time on the part of colonial scientists to do research and writing. All of these social and material relations had to be put in place in order for the genre of colonial compendia of materia medica to have institutional effects.

One point of this analysis, then, is that the disciplinary asymmetry between Ayurveda and biomedicine did not come into existence historically as an “objective condition” apart from the processes of interaction and text production that produced the genre of colonial compendia of materia medica. Pierre Bourdieu (1977; 1991 [1999]) has argued that objective conditions such as class relations, in our case, disciplinary relations, are imposed upon a unified linguistic market. Thus, the interactions of speakers are not the coordination of individuals but of objective social classes. His critique is useful as a counterpoint to the ethnomethodological approach to social asymmetry (e.g., Drew & Heritage, eds. 1992), which assumes that all the information necessary to understand and participate in an interaction must be publicly available on the occasion of the interaction in the form of talk or in the

public visual-tactile signs. It is true that ethnomethodology and its offshoot, conversation analysis, are methodologically “occasionalist,” yet, at the same time, Bourdieu’s approach tends to reify the objective nature of the historical and macro-sociological conditions which ethnomethodology excludes from the analysis. So, in my view, both approaches are methodologically extremist in that they each privilege one scale of social action over all others. This neglects the inter-scalar nature of historical change. The discourse-centered approach to disciplinary asymmetry modeled in this dissertation suggests that the analysis of a disciplinary organization of practice requires attention to both the micro-production of disciplinarity, as well as the ways in which this disciplinarity presupposes and is based upon histories of social interaction.

In the final part of this dissertation I will address the contemporary manifestation of this process of institutionalization, particularly concerning the role of biotechnology in the commodification of Ayurveda drugs. For now, it will be enough to recognize how the genre of colonial materia medica provided a textual instantiation of the relationship between the medical knowledge of the colonizer and the colonized. That colonial materia medica’s strategies of asymmetrical citation, empiricalized translation, and telescopic baptism were both extractive and demeaning to Ayurveda was not lost upon the Ayurveda apologists who worked during the high nationalist fervor of the early 20th century. Next I describe two modes of the anti-colonial juxtaposition of biomedicine and Ayurveda which developed in that period.

Counterstrategies: anti-colonial juxtapositions

It was against the asymmetrical and extractive nature of cosmopolitan science's relationship with Ayurveda that apologists developed two alternative methods of structuring the relationship between the disciplines. One method involves the application of the tools of cosmopolitan science *to prove* the insights found in Ayurvedic texts and practiced by contemporary vaidya. In contrast, the other method involves the neutral juxtaposition of the two systems as separate-but-equal approaches to a common set of human pathologies.¹⁹ I describe some of the socio-material and ideological conditions that organize a stable and harmonious juxtaposition of the two parallel theories about the materiality of Ayurveda medicinal plants. The first of these cultural conditions that I will examine involves the cultural authority of Western science to establish Ayurveda's legitimacy.

Asymmetrical juxtapositions

The scientific validation of Indian knowledge has been the ideological platform for a variety of prominent nationalist movements such as the Arya Samaj and the work of Swami Vivekananda (Prakash 1999), and continues to be deployed in cultural projects that focus on India's ancient "scientific heritage" (*śāstra paitṛka*). An interesting example of this strategy in the nationalist materia medica literature is Kartick Chandra Bose's *Pharmacopoeia Indica: Being a Collection of Vegetable, Mineral, and Animal Drugs in Common Use in India* (1932). I am uncertain as to

¹⁹ It occurred to me that another logically possible method would be to invert the structure of juxtaposition by using the *tridoṣa* pathology to explain the action of chemical isolates. However, I have not yet found a sustained application of this approach to materia medica.

whether Bose had any training in Ayurveda, but he makes clear in his introductory notes that he had clinical experience with Ayurveda drugs (probably as an Allopathic practitioner), Sanskrit scholarship, and his own pharmacological laboratory to conduct some of the experiments reported in the book. At first glance, the categories, contents of description, and their organization seem identical to the colonial genre of materia medica. The difference lies in the intertextual specificity used to embed Indian medicinal plant knowledge: namely, complete descriptions of complex preparations with Sanskrit glosses and specific textual citations. Bose's text reintroduces Indian sources of knowledge into the genre of scientific materia medica, the presence of which had been occluded in the past century by the genre's asymmetrical structure of entextualization.

The ideological significance of this textual re-embedding was not lost upon the great Ayurveda apologist Mahamahopadhyaya Kaviraj Saraswathi Gananath Sen of Calcutta, who wrote in the Foreward to Bose's text (1932):

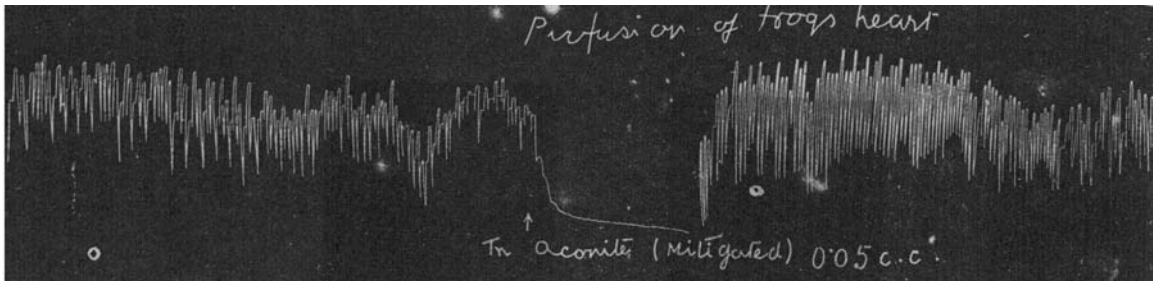
However great may be the value of pharmacological experiments the results obtained by them vary widely according to the methods and subjects employed.... Findings *in vivo* especially in morbid conditions very often differ considerably from results obtained *in vitro* under artificially induced conditions which are seldom normal. The final acid test therefore should be that of clinical experience [as Dr. Bose has done] (p. 1).

As to the compound formulae quoted under many drugs, I may add confidently that I have found most of them very effective therapeutic agents and many of them can be employed by my brother practitioners to relieve suffering humanity. Perhaps the scientific mania of finding the so-called active principles – often active in different ways – has helped to retard rather than advance our progress in the field of therapeutics and it is high time we looked back into our old treasuries. Not that the finding of active principles is of no use but the natural

combinations of these found in the whole drugs are not to be overlooked and their use should not be considered unscientific (p. 2).

Gananath Sen questions the authority of cosmopolitan science using its own criterion, scientific rationality! He argues that the results produced by the methodological constraints of pharmacological experiments and clinical trials are unpredictable, “vary[ing] widely according to the methods and subjects employed.” Furthermore, the active principles themselves were not reliable enough for clinical practice because they seem to be active variously under different conditions. The goal of questioning the scientific credentials of rational pharmacology was not so much as to undermine it, but rather to create a space for one of the key epistemological bases of Indian knowledge: *anubhava* (experience). Clinical experience, his own experience, Dr. Bose’s, and that recorded in the “old treasuries” (i.e., codified knowledge or *sāstra*) was viewed as far more effective and reliable in actual clinical practice than the rationalized techniques and chemical isolates employed in biomedicine. Gananath Sen’s use of the term “experience” suggests an epistemological alternative to Eurocentric scientific rationality which is practical, scientific, and rooted in Indian culture and history.

The downside of this strategy is that it implicitly accepts the empiricalized representation of Ayurveda which underlies the asymmetrical textual juxtaposition of Indian and Western knowledge. Although Indian knowledge is construed as being equally valid, it is the chemical and physiological theory of cosmopolitan science and not their Ayurvedic counterparts which are used to explain the clinical effects of Indian drugs.



(Photo 2-1: “Note the effect of mitigated aconite in making irregular heart regular,” Appendix, p. 36)

In an experiment reported in the Appendix (pp. 31-38), Bose used a myograph (see Photo 2-1) to chart the rhythmicity, tonicity, and amplitude of contraction of the heart-muscle tissue of anesthetized frogs, comparing the application of purified and un-purified aconite. The drug is known as *amṛta* in Ayurveda, and is used as a *rasāyana* (revitalizing tonic). “Purification” (*śodhana*) is done to remove the toxic effects of the drug, in this case, by soaking the material in cow’s urine. Bose found that the purified aconite restored the failing cardiac functions, whereas the unpurified form had a toxic effect, thus co-opting the tools of technoscience to legitimate the Ayurvedic practices of drug purification and of using *amṛta* as a *rasāyana*. Empirical knowledge, ideologically valued as such, is legitimated not on its own terms but on those of cosmopolitan science, visually displayed by the myograph readings reproduced in the text.

The emergence of parallel sciences

An alternative textual strategy which developed out of the early 20th-century nationalist movement emphasized the neutral juxtaposition of Western and Indian science as parallel conceptions of materiality. In an effort to popularize inexpensive

Indian substitutes for the drugs prescribed in the *BP*, Dr. K. M. Nadkarni, well-known for his textbooks on Western therapeutics and diagnosis, published *Indian Plants and Drugs with their Medical Properties and Uses* (1908). The book was addressed to the practitioners of biomedicine in India, and to the “educated public” who might use the prescriptions to treat minor illnesses (p. xxv-xxvi). In the expanded version of the text titled *Indian Materia Medica* (1927) published 19 years later and still 5 years before Bose’s text (1932), Nadkarni tells the story of his conversion to Indian medicine with explicitly nationalistic language. Nadkarni was motivated to write the book on account of the rise of “*Swadeshi*” (patriotic) spirit after the 1905 partition of Bengal coupled with a troubling awareness that his impoverished compatriots could not afford costly foreign medicines. Shortly after the book’s initial publication in 1908 the nationalist tide in Bengal began to wane. Nadkarni describes the difficulty at that time of selling the remaining copies and complains bitterly about the lack of patriotic spirit among his fellow practitioners of biomedicine in India. According to Nadkarni, then, the nationalist tide rose again in response to the enactment of the Montagu-Chelmsford Reforms in 1919. The sales of the book skyrocketed and Nadkarni and his son, A. K. Nadkarni, set to work on updating the book.

It was in the context of the awakening of his nationalist consciousness that Nadkarni dreamed that someday the *Indian Materia Medica* might be studied “side by side” with the *BP* by the students and practitioners of the Indian medical profession (p. xxix-xxxiii). Like K. C. Bose’s *Pharmacopoeia Indica* (1932), the drugs’ uses in the cosmopolitan school are presented on the basis of their chemical

constituents and their physiological effects, which are followed by some pharmaceutical formulations used in the Indian systems of medicine. The texts are also similar in that they both lack any account of the medicines in terms of Ayurveda theory (although Nadkarni prefaced a brief summary of the *tridoṣa*). However, the story of the *Indian Materia Medica* takes a major turn when it was posthumously edited and republished by the original author's son, K. M. Nadkarni. In the post-independence edition (Nadkarni & Nadkarni 1976 [1954]), following the description of the “chemical constituents,” in separate sections on Ayurveda and Siddha, and on Unani, the drug's different uses, qualities, and effects are presented in the vocabulary of those systems.²⁰

The different approaches to the same drug are presented separately: none of them are used to explain the other. In contrast with the original motivations for publishing the text, Nadkarni the Younger's version of *Indian Materia Medica* argues for a unified system of Indian medicine incorporating the best of all systems, including homeopathy. The differences between the juxtaposed systems were construed largely as terminological variations on an underlying unity. This idea was in vogue at the time and, until the publication of *The Report of the Shuddha Ayurvedic Education Committee* in 1963, a “mixed course” was taught in many of the Government Ayurveda Colleges throughout the country. As I describe in Chapters 3 & 4, it was in the context of a reaction against this “mixed course” that an ideology of medical parallelism was developed and applied to institutionalized Ayurvedic

²⁰ In my readings of the materia medica literature I have not found any commentary on the sequential order of the juxtaposition of cosmopolitan and Indian knowledge. I have also not found any cases where Indian knowledge is placed first.

education. Thus, the asymmetrical strategy of textual juxtaposition developed by Nadkarni the Elder in an anti-colonial nationalist context was made parallel by his son in the context of a newly independent and socialist India. At this point the text was also re-ideologized as a tool for synthesizing all the systems into a centrally planned and administered hybrid called “Indian medicine.”

This act of re-entextualization makes clear that juxtaposition as a semiotic mode is ideologically underdetermined on a fundamental level. Just as the perception of “similarity” requires a set of conventionalized criteria of comparison (Goodman 1972), the spatial or temporal proximity of two or more signs requires an ideological frame to recognize and interpret this quality of *being next to*. The interpretive frame shifted once again in postcolonial India as medical parallelism was adopted as the institutional ideology of the Ayurveda colleges. It was in this context that the strategy of neutral juxtaposition was deployed as a tool for holding apart the systems as distinctive yet equal approaches to the considerable health concerns of the Indian nation-state.

The textual organization of medical parallelism

Myself lacking an ideological frame for recognizing and interpreting the neutral juxtaposition of scientific paradigms, I recall the sense of frustration and pointlessness that consumed the start of my fieldwork as I found myself attempting to memorize an encyclopedic catalog of two seemingly unrelated sets of drug terminology. Dr. Thomas, a Roman Catholic trained in the Thiruvananthapuram Ayurveda College, is the senior doctor at a hospital set up by the Church. Introduced

by a mutual acquaintance, I would walk the short distance from my house to Dr. Thomas' hospital in the afternoons after my Malayalam class. At the time, my knowledge of Malayalam and Ayurveda was only minimally passable, but I was anxious to start my research in earnest. However, Dr. Thomas assured me that I would be unable to understand the practice of Ayurveda in his clinic without a proper "course" in the Ayurvedic approach to medicinal plants.

Our textbook was a two-volume compendium of medicinal plants written in Malayalam titled *Auṣadha Sasyaññal* (*Medicinal Plants*, Nēśamaṇi 2001 [1985]).²¹ The author, Dr. S. Nēśamaṇi, is a scholar and practitioner at the Ayurveda Research Institute associated with the Thiruvananthapuram Ayurveda College, where the book is used as a textbook and research tool. My task was similar to that of the students at the College, although on a comparatively modest scale. I was to study a selection of the most common medicinal plants and commit their particulars to memory. First in the textbook is listed the "chemical constituents" (*rāsaghaṭakaññal*), which is followed by the "rasa and other qualities in Ayurveda" (*rasādiguṇaññal āyurvēdattil*), and then a list of the plant's "medicinal qualities" (*auṣadhaguṇam*).

With Dr. Thomas' direction I created a notebook following the parallel structure of the textbook. First in my notes were the "chemical constituents," which he instructed me to study with flashcards and rote memorization. Consider the

²¹ The publisher, the State Institute of Languages, is a Government of Kerala institution that facilitates "language development" (*bhāṣa vikaṣana*) by a robust effort to publish and circulate at low-cost vernacular scientific scholarship and scientific translation literature. To my knowledge, *Auṣadha Sasyaññal* is the only "dictionary" (*nighaṇṭu*) written in Malayāḷam that juxtaposes Ayurvedic and Western pharmacologies.

linguistic features in the textbook account of *Guggulu* used to represent its alkaloid constituents:

Chemical constituents

The gum, resin, and light oil taken from the stem are the most important components. Of these the gum is believed to be guggulu [itself] and is used generally as a medicine. In it there is a bitter substance. In the fragrant material of its sap are contained Myrcene, Daimyrcene, and Polymyrcene.

rāsaghaṭakaṅṅaḷ

tāṭiyil ninnetukkunna paśa, resin, laghutailaṃ ivayāṅṅu gugguluvile pradha ghaṭakaṅṅaḷ. itil paśayāṅṅu gugguluvāyi vyavahariccuvarunnatuṃ auśadhaṅṅaḷkkāyi parakke upayōgikkunnatuṃ. itil oru kypupadārthavumuṅṅū. Itinre karayilulla sugandavastuvil mirsin (Myrcene), ḍaimirsin [Daimyrcene], pōḷimirsin [Polymyrcene] iva atanniyirikkunnu (pp. 215-218).²²

You will notice that I have underlined the forms with locative case markings (-il), and the two main verbs “to take” (*eṭukkuka*) and “to contain” (*aṭannuku*).

These features structure a telescopic hierarchy of encompassment with the technoscientific alkaloid designations, Myrcene, Daimyrcene, and Polymyrcene, situated at the most interior level. We can follow the series of locative relationships as they telescope down from the grossest to the finest level of materiality:

²² Parentheses and English spelling of “Myrcene” are from the original. My own comments are included within angle brackets.

1. *Guggulu sasyam* (Guggulu plant)
2. *taṭi* (woody portion of the plant)
3. *paṣa* (gum extracted from the woody portion)
4. *kypū-padārtha* (bitter substance extracted from the gum)
5. *kaṛa* (sap extracted from the bitter substance)
6. *suganda-vastu* (fragrant material extracted from the sap)
7. Myrcene, Daimyrcene, and Polymyrcene (compounds extracted from the fragrant material)

From the coarse and sensuous plant, through multiple stages of material refinement, Guggulu's "chemical constituents" are represented as enveloped within a series of encompassing material states.

Dr. Thomas was careful to maintain the boundary between these "chemical constituents" and his own science. "That's not Ayurveda ... that is how they say it in Allopathy."²³ I remember well my teacher's irritated tone and grimace, and dismissive hand-gesture.²⁴ The critical undertone of Dr. Thomas' remarks displayed an ambivalent stance indicative of the postcolonial situation of both expert familiarity with and distrust of Western knowledge. Homi Bhabha (1994) considers this ambivalence to stem from the mimetic structure of postcolonial modernity in India. But ambivalent mimicry, in our case, the incorporation of technoscience, is only half of Ayurveda's postcolonial character. The other half consist of the insights of the "seers" (*ṛṣi*) codified as "science" (*śāstra*) and practiced in contemporary India on the basis of "medical experience" (*vaidya-anubhava*). This half is also conceived

²³ atū āyurvēda alla ... alloptathy-il aññane paṛayānuṭṭū

²⁴ In terms of morphology, Dr. Thomas' gesture was an over handed pursed-hand followed by a five finger extension toward lateral space. It is an emblem in Malayāḷam that commonly co-occurs with the word *cuma*, which is normally translated into English as "simply." The gesture and word are deployed in a great variety of conversational contexts to mark the speaker's ambivalent or critical stance toward the social situation.

as modern, scientific, rational, and true. To aid my understanding and retention of this Ayurvedic side, Dr. Thomas and I would ingest samples of the drugs and try to sense their *rasa*, *guṇa*, and *vīrya* (recognizing the *vipāka* required more advanced training). In studying *Guggulu*, for example, he encouraged me to taste and “feel the bitter, pungent, and sweet *rasa*.”²⁵

The final part of our textbook, below the two juxtaposed systems, is a list of diseases which the drug ameliorates, including categories particular to Ayurveda such as *vātarōga* together with cross-disciplinary conditions such as pain, obesity, and boils. So, against the asymmetrical alignment of Ayurveda and technoscience, this text juxtaposes the two systems as equal approaches to a set of human pathologies. This compartmental organization of the disciplines is an institutional instantiation of the postcolonial imperative to not mimic too closely, or rather, to mimic only in its proper place. “There is no MIXING” (*MIX onnum illa*), Dr. Thomas explained to me, “In our science there is one *guṇa* ... in Allopathy there is another *guṇa* ... both are different ... you need to study both, but only one is Ayurveda.”²⁶

In the textbook and in my teacher’s meta-commentary, technoscience is held at bay even as it is incorporated into the conceptualization of the *materia medica*, a process that in the following chapter we will examine in the context of the history of the Thiruvananthapuram Ayurveda College.

²⁵ *tiktam kaṭu maduram ennum tōnnuka*

²⁶ *nammute sāstrattil oru guṇam unṭu ... allopathy-il vēre guṇam unṭu ... runṭum vyatyaṣam ... nī runṭum paṭhikkaṇam pakṣe onum āyurēda āṇu*

PART II: INSTITUTIONALIZATIONS

Chapter 3

Encompassing the biomedical body

The colonial crisis of the Ayurveda body

In 1836 at Fort William Medical College in Calcutta the sound of cannon fire marked the completion of the first dissection of a human cadaver by a group of Indian students. Jean Langford (2002) has argued that this historic dissection signaled the close of a brief experiment in the colonial sponsorship of the Native Medical Institution, where Ayurveda and biomedicine were studied side-by-side. The moment marked a sea-change in colonial pedagogy away from Orientalism to the more antagonistic stance toward Indian knowledge laid out the previous year in T. B. Macaulay's *Minute on Indian Education* (1972 [1835]). As Langford has explained, the dissection for the first time enlisted Indians as the co-knowers of the Western medical body (2002:5-6).

In this chapter I will discuss the Ayurvedic response to the challenge posed by the interior gaze of the human body that was commemorated on that day. In *The Birth of the Clinic: An Archaeology of Medical Perception* (1975 [1973]) Foucault tells a similar story of the production of the internal bodily gaze and the language of medical rationality which occurred in 18th century Europe, before the revolutionary expansion of the medical sciences in the 19th century. Foucault argued that the

production of the body as an object of knowledge is a condition of medical rationality as a discourse. If this insight seems obvious now it is only because of Foucault's prescient analysis. On the other hand, I am skeptical that the discourse of medical rationality can be viewed as a historical afterthought, a kind of secondary rationalization of an already materialized object. Furthermore, his insistence on the separation of the materialities of visualization and the materialities of discourse does not square with the historical particulars of the incorporation of the Western body into modern Ayurveda institutions. If we frame the unit of linguistic practice in terms of its social and material conditions, and not just in terms of its capacity to refer, we can tell a story about the inter-relationship between medical rationality as an ideology, medical discourse, and the production of a body as a particular kind of object to be visualized and manipulated. The gaze, to be sure, is not a product of language as pure reference, but rather of language as a form of institutional practice, which itself I will argue entails various material relations of visualization.

The disciplinary codification of Foucault's rational gaze, Western anatomy and physiology, is now studied by the students of the Ayurveda colleges throughout India that follow the National Syllabus. At the Ayurveda colleges in Kerala that I observed, students in white lab coats dissect cadavers as their predecessors did at Fort William more than a century and a half before. They also have the benefit of anatomical charts, models, and the most current edition of English textbooks such as the famed *Gray's Anatomy*. While discussing this curriculum with the Director of Ayurveda Education in Kerala I wanted to ask him if he felt the teaching of two systems together did any harm to Ayurveda, perhaps on account of contradictions

between the two systems, or maybe because of the superior scientific prestige of allopathic medicine. “When you teach Ayurveda and Allopathy together,²⁷” he interrupted, “[We] don’t teach them together ... not even a little bit together.” I had heard this line before so I decided to challenge him, “But I have seen modern anatomy and physiology there.” “But there is only one body,” he responded “For that body there are two interpretations ... Ayurveda and Allopathy ... We teach them separately” (*rantumāyittū paṭippikkum*). The underlined text is an adverbial suffix attached to the numerical form *raṅṅū* (two), which I rendered into English as “separately,” but could more literally be translated as “as two,” that is, “We teach them as two” parallel yet equally scientific interpretations of a singular and universal human body.

A. K. Ramanujan (1990a) has commented on the Western origins of such universalism in Indian thought. In fact, this concept of a universal human body that mediates Ayurveda’s dual curriculum sits quite uncomfortably with the Ayurveda concept of “bodily constitutions” (*prakṛti*). In the classical tradition a patient’s constitution is a result of the predominance of one of the three bodily humors (*doṣa*) and its relationship with the subordinate *doṣa*. *Prakṛti*, while translated as “constitution,” is a dynamic concept rather than a static typology. However,

²⁷ The transcript of this conversation is based on my notes (MW, my initials; DAE, Director of Ayurveda Education):

MW: āyurvēdavum allopathiyum orumiccū paṭippikkumppō!
 DAE: orumiccū paṭippikkumilla ... orumiccū onnumilla
 MW: ādhunika anatomy physiology ennum nān aviṭe kaṅṅu
 DAE: pukṣē oru śārīraṃ mātramēyullū
 ā śārīrattinū raṅṅū vyākhyānaṃ uṅṅū
 āyurvēdavum allopathiyum ... rantumāyittū paṭippikkum

characterizations of *prakṛti* in English which are oriented toward Westerners such as tourists and Oriental health aficionados represent the three predominances of *prakṛti*—*vātaprakṛti*, *pittaprakṛti*, and *kaphaprakṛti*—as permanent body types more or less parallel to the Western concept of the three somatotypes: ectomorphic, endomorphic, and mesomorphic.²⁸ New Age websites offer *prakṛti* tests where you can compute your body type as an Ayurvedic doctor might. However, excepting the few consultations I observed with European tourists, Ayurveda doctors did not typically treat *prakṛti* as an immutable characteristic of the patient. On several occasions, for example, I was diagnosed as *vāta prakṛti* by different doctors with whom I was working. This diagnosis was always framed to me as contingent upon other conditions such as climate and the time of the day, which might affect the relationship between my currently dominant and subordinate constitutions. So, it is important to recognize that the body of Ayurveda is fundamentally contingent in a dynamical rather than typological sense. *Prakṛti*, along with other conditions such as “country” (*dēśa*), “climate” (*ṛtu*), and “race” (*jāti*), are contingencies, the configuration of which can often dramatically affect treatment in Ayurveda.

How did the contingent, dynamic, and polymorphous bodies of Ayurveda come to be unified and construed as the same as the body of biomedicine? Certainly a bifurcation has occurred between this unified body of Ayurveda research and university pedagogy and the plural bodies of Ayurveda as theorized in the classical corpus and as practiced, at least implicitly, by many of Ayurveda’s contemporary

²⁸ The basis of this tripartite bodily typology in European medicine was developed by the German psychiatrist Ernst Kretschmer (1925).

practitioners. I will address this problem by considering the translation of the anatomical lexicons of the two sciences, and the institutional conditions necessary for such translations to make a difference in the practice and education of Ayurveda.

The famous Italian proverb “translators are traitors” (*traduttori traditori*) indicates a view of translation as a radically transformative and perhaps dangerous linguistic practice. Ayurveda apologists in the 19th and 20th centuries understood the transformative power of translation yet, as we shall see, it was only in the postcolonial period that the translation of Ayurveda became traitorous. Ideologies of translation involve ideological projections in which some Ayurveda medical terms are conceptualized as *the same as* the categories of Western science, whereas others are believed to be *untranslatable*. However, such projections of equivalence and the production of the grounds of similarity upon which they are based are historically contingent. The modernized—i.e., translated—curriculum was put into practice for a brief time after independence at the Thiruvananthapuram Ayurveda College, and elsewhere throughout the subcontinent. However, the conditions of similarity of Ayurveda’s translation ended up both devaluing Ayurveda as a science and marginalizing its medical niche vis-à-vis biomedicine. The purist vision of Ayurveda, marginalized in the previous decades, became a central ideology of Ayurveda institutional practice (formalized into government policy by the work of the Shuddha Ayurveda Education Committee in 1963). The Ayurveda body became untranslatable, and translation itself became traitorous, or at least highly trivial. The case that this chapter investigates foregrounds the use of translation in organizing and enacting large-scale institutional change.

Walter Benjamin (1969) has famously argued that the “task of the translator” is to use language to encompass and incorporate the meanings of the source language. “While a poet’s words endure in his own language, even the worst translation is destined to become part of the growth of its own language and eventually to be absorbed by its renewal” (1969:73). The act of translation stretches and tortures the target language in the process of encompassing the senses and the categories of the source text. The idea that it is the language of the translation that is transformed by the process of encompassment, and not the original, has been a useful one for theorizing literary translation. In the case of the translation of the Ayurveda body, however, it is the Sanskrit categories, the source material, and not the target language of the biomedical body that was transformed by the task of the translator. This counterintuitive effect of the translation was due to the extremely asymmetrical relationship between Ayurveda and Sanskrit on the one hand, and international biomedicine and the English scientific language on the other. I will argue that the encompassment of the Western body in translation occasioned a subtle yet profound transformation of the object-language of Ayurveda. As we shall see, this transformation in the language of bodily reference was also part of the process of creating medical institutions designed to produce that body through research, treatment, and pedagogy.

*From Palace Pathasala to Government Ayurveda College*²⁹

The institutionalization of Ayurvedic education in the form of Western-style colleges occurred as part of the process of the professionalizing and credentialing medical practitioners in late colonial India. A traditional school, or *pathasala*, was formed in 1890 by the Palace Vaidyan of the Princely State of Travancore, Parameswaran Muthathu. There is little record of the Pathasala curriculum but it very likely followed the traditional model of Ayurveda education, which involved an apprenticeship with a *guru*, i.e, Muthathu himself and the other appointed teachers, and the in-depth study and memorization of classical Sanskrit verses. So, this was actually a continuation of the traditional mode of instruction.

The formation of the Pathasala was significant, however, because it was the first time that the Princely State had taken responsibility for the socialization of Ayurveda practitioners.³⁰ In 1891, the year following the establishment of the Pathasala, a group of Ayurveda doctors asked the government to order the Medical Department to accept medical certificates issued by “Native Physicians.” The response from the Darbar Physician was unambiguous:

I do not see how members of the medical Department can possibly be asked to grant the medical certificates to government servants who place themselves under what are called Native Physicians, and as for accepting the certificates of the latter it appears to me out of the question, as, from my knowledge of them, they are an irresponsible set

²⁹ The archive of the Travancore Pathasala and Ayurveda Department, and of the Triruvananthapuram Government Ayurveda College, is located at the Triruvananthapuram branch of the Kerala State Archives.

³⁰ An account of the early history of the Pathasala is described in General Section, Bundle 172, File No.II-7, Reorganization of Ayurveda Patasala Vol.II., Petition submitted to Government from the teachers of the Pathasala by the Superintendent, 1918.

of individuals, and have no professional education whatsoever.... As government has a medical Department, I am very strongly of opinion that from its members, and those only, should certificates be accepted.³¹

The government sponsorship of Ayurveda education and the subsequent rebuttal of the Western medical establishment was the start of a long process which resulted in the post-independence formation of Ayurveda colleges in Kerala on the model of Western-style universities. The Darbar Physician's response explicitly references the lack of professional socialization among native physicians. Each lineage practiced its own brand of Ayurveda, and besides the guru's permission to practice, there were no authentications of expertise.

The subsequent institutionalization of Ayurveda education involved the fixing of admission requirements, fees, exams, and the awarding of certificates and titles for passing the final exam. It also involved the institutionalization of the guru-disciple relationship in the form of apprenticeships in the government hospital. A democratization of admissions was also required, so that women, Muslims, and non-caste Hindus could also study. Each of these steps toward professionalization were difficult to accomplish and often expensive. However, the most contentious and hard-fought struggle around the institutionalization of Ayurveda education involved the standardization and modernization of the curriculum. In the early 20th century, the main curriculum debate centered on the degree to which Pathasala students should learn Western anatomy and physiology along with their Ayurveda studies.

³¹Cover Files, file number 15807, bundle 128, Letter written by the Darbar physician to the Dewan, 5 October, 1891

In 1939 the Director of Ayurveda for the princely state of Travancore, G. N. Narayanan Mooss, and the Principal of the Ayurveda College, K. P. Sankara Pillai, proposed “some slight alterations” in the college syllabus which incorporated modern courses such as surgery, anatomy, physiology, hygiene, bacteriology, and medical jurisprudence. The longtime lecturer at the College, Assistant Surgeon K. Kesavan Pillai, had written a Malayalam translation of *Gray’s Anatomy of the Human Body* (Lewis, ed. 1918) titled *Pratyakṣaśārīraṃ* (Visible Anatomy, 1923), which would be used as a textbook for the new syllabus. The proposal included a list of well-known medical school English textbooks such as *Anatomy, Descriptive and Applied* by Henry Gray, Mustafi’s *Practical Anatomy*, Daniel John Cunningham’s three volume *Manual of Practical Anatomy*, William Dobinson Halliburton’s *Physiology*, and the *Manual of Bacteriology* by Robert Muir and James Ritchie.³² The study of practical anatomy would involve the postmortem dissection of human corpses.³³ The 1939 syllabus was really a formalization of the scientific enhancement of the college curriculum which had been ongoing since the first Director of Ayurveda, K. Shankara Menon, proposed the first major reorganization of the traditional school (or *pathasala*) under his administration in 1918.³⁴

³² All of these textbooks were very popular and had gone through multiple editions by the time of the proposal. They represent the state of the art in medical education literature. The only exception is the text by Mustafi, which appears to have been published in Calcutta, but I could not find any other information about the text or the author. The proposal does not list the particular editions that they were requesting.

³³ Local Government Administration, bundle 206, file number 4274, 1939, Honorary director of Ayurveda to the chief Secretary to Government, 15 May 1939.

³⁴ General Section, bundle 172, File number II-17, 1918, Vol.I, Re-organisation of the Ayurved, K. Sankara Menon. No.2803 Inspector of the Ayurveda Department to the Chief Secretary, 13 March 1929.

Shankara Menon shared with other apologists the position that while “The fundamental principles of Ayurveda are fixed, unfailing and universal” (p. i), the current state of the science and especially its practitioners are fundamentally degraded. In his proposal to revamp the Pathasala he characterized the students’ knowledge as consisting of “a few exaggerated notions of an imaginary world like the proverbial land of the lotus eaters,” and the Pathasala as “dreamy life” where the students’ “fond fantasies are carefully nurtured” (p. 2). The Director’s proposal was to incorporate into the curriculum of the school courses on modern physiology, anatomy, biology, hygiene, organic chemistry, and bacteriology, which would “enable an intelligent student to understand the real meaning of the essential principles of Ayurveda based upon the natural properties of the irreducible, elemental, protoplasmic cells of living bodies” (p. 4).³⁵ Western science, in Shankara Menon’s vision of a modern Ayurveda, was identified as a hermeneutic key for understanding the true significance of the eternal insights of Ayurveda. His proposal to modernize the curriculum also included a request for dissection equipment and English textbooks.³⁶

He also requested Government to order the Durbar Physician to permit students of the Pathasala to attend postmortem examinations at the Government General Hospital, and that the government should sponsor a permanent lecturer

³⁵ "A scheme for the expansion of the Ayurvedic Pathasala into an Ayurvedic College" by Ayurveda Director K. Sankara Menon (18 December 1917).

³⁶ General Section, bundle 172, File number II-17, 1918, Vol.I, Re-organisation of the Ayurveda Patasala (K. Sankara Menon), No.1163. Director of Ayurveda to Chief Secretary to Government, 4 October 1918.

position for a “competent medical man” to teach modern anatomy and physiology. While the curriculum was accepted, and some money was allotted for books, the Durbar Physician objected to the presence of Pathasala students in the hospital, and the government declined to sponsor the needed dissection and teaching equipment. It was because of this lukewarm sponsorship of the modernization of Ayurveda during tough economic times that Shankara Menon would often find crafty ways to bind the hands of Government. For example, he was able to turn a few days’ sick leave by some of the Pathasala staff into a “health crisis,” for which he contracted a homeopathic doctor as an emergency “stopgap measure” to lecture on modern anatomy and physiology. The lecturer position had remained vacant since its approval. Although the contract was terminated and Shankara Menon was reprimanded by the Dewan, the strategy did result in the first introduction of a lecturer dedicated to the teaching of Western science in the Pathasala. In fact, the post was filled shortly after by its intended incumbent, and Shankara Menon was able to have the Government Secretary recognize the post as a permanent position to be refilled upon vacancy.

So, the fact that the material conditions necessary to produce a biomedical body were available at the College in 1939 was the result of a hard-fought struggle by previous teachers and administrators to set up the material conditions for the scientific study of human anatomy.³⁷ These included articulated skeletons, anatomical charts and models, dissection kits, tables, wash basins, the corpses

³⁷ General Section, bundle 172, File number II-17, 1918, Vol.I, Re-organisation of the Ayurveda Patasala (K. Sankara Menon), No.1163. Director of Ayurveda to Chief Secretary, 4 October 1918.

themselves, and especially, a permanent lectureship at the college staffed by a qualified surgeon.

The 1939 revisions of the syllabus had a powerful opponent, P. Venkiteswara Sastri, who was a retired Principal of the College and a major advocate of *śuddha* or pure Ayurveda in Kerala. He argued that the introduction of so many English textbooks into the College would “completely Anglicize the syllabus of Vedic Medicine” (p. 1), “... convert[ing] Hindu Ayurveda into an alien science” (p. 4). He argued that the current syllabus, based on the *Āṣṭāṅgahṛdaya*, had worked well so far with minor supplements from Western anatomy and physiology. The syllabus should not be changed.³⁸

L. A. Ravi Varma, an ophthalmic surgeon at the Government Hospital who was also trained in Sanskrit and Ayurveda, objected to the proposed syllabus for similar reasons that the wholesale introduction of Western textbooks would diminish Indian medicine. However, he argued:

... it is both possible and desirable to ‘adapt’ some of the more useful and less dangerous of the Western system to suit the needs, genius and capacity of Ayurveda. This, however, cannot be done by the importation of textbooks or even by direct ‘adaptation’ of Western teachings. It is essential to bring all new teachings in a manner calculated to suit the genius of Ayurveda that as to merge with its fundamental teachings to form into a homogeneous whole.... Such ‘adaptation’ can be done by those conversant with both systems (p. 3).³⁹

³⁸ Local Government Administration, File number 1479, P. Venkiteswara Sastri to the Dewan of Travancore. 9 June 1939.

³⁹ Local Government Administration, File number 5319, 1939, Honorary Director of Ayurveda to Chief Secretary, 7 July 1939.

Ravi Varma joined the Ayurveda Director and College Principal in formulating a syllabus based on these principles. Western textbooks and postmortem dissection would make clear the “real meaning underlying the Eastern texts” (p. 2). Similarly, he argued that the Ayurveda *tridoṣa* doctrine falls under the category of Western physiology, which “may be brought together and presented as a single whole” (p. 3).

As an example he discusses the “digestive function” described in Ayurveda as *jaṭharāgni*, which Suśruta equates with a “cooking expression” (or *pacana-prabhāva*) of a secretion called *pitta*. Ravi Varma renders his comparison of the two approaches as a translation:

The modern physiology and the enzyme-actions it elaborates may here be utilized to demonstrate the ‘Pachana’ proper as well and is to elucidate the function, thereby equating pitta content with enzyme content of the new thought (p. 3).

Ravi Varma was already working on the research necessary to make these correlations in 1928 when he was involved in planning an Ayurveda Research Institute. At that point, still in its early stages, the Institute was constituted entirely of the volunteer labor of interested government scientists and doctors, who conducted research off the clock in their established labs and clinics. “To decipher the original texts and equate the sense into modern technical terminology,”⁴⁰ Ravi Varma and a senior physician at the Government Ayurvedic Hospital conducted a critical reading of *śāstra* in the light of the Indian and European Orientalist literature and in contrast with the categories of biomedicine and science.

⁴⁰ Local Administrative Files III 1931, bundle 161, fNo. 1343. Ayurveda Department, Reorganization of Department Vol. I., No. 15403 of 28 Office of the administrative Board, Medical Services to Chief Secretary to Government (Cs. P.N. Krishna Pillai) 2 November 1928. [Extracts from Proceedings of the Administrative Board, Medical Services, 29 October 1928]

The syllabus spearheaded by Ravi Varma was accepted by the Dewan over the objections of the self-proclaimed champion of *śuddha* Ayurveda, Venkiteswara Sastri. In contrast with the original proposal, Ravi Varma's method guarded against the wholesale appropriation of Western science. Rather, he planned to design a curriculum that would blend the two together on the basis of Ayurveda concepts, which in fact he believed restored and made clear the true meaning of the original Ayurveda. I call this intertextual strategy *salvage translation*. Next, I will describe the work of Vaidyaratna P. S. Varier, who is in large part responsible for fine-tuning this use of translation as a mode of disciplinary modernization.

Translation against time



(Photo 3-1: Vaidyaratna P. S. Varier)⁴¹

The title *Vaidyaratnam* (Jewel of Medicine) was bestowed upon P. S. Varier by the British Government in India. He is well known in Kerala for his work to revitalize Ayurveda, a mission which he institutionalized at an Ayurveda College and Hospital. Like Ravi Varma, Varier's medical training in many ways embodied the tension

⁴¹ This portrait is taken from the front matter of P. S. Varier's text *Bṛhaccharira* (1941[1988]).

between traditional and modernist conceptions of India which characterized the national awakening of the early 20th century. His training started in 1885 when he was around the age of 16 under the Palace Vaidyan in the Eastern Branch of the Zamorin of Calicut in Kōṭṭykkal (central Kerala). After his teacher's death, Varier went on to study for four years under a famous Brahman Aṣṭhavaidyan, Apphan Moosad of Kutṭanchery. There he lived with his teacher following the prescribed *brahamachariya* regimen of meager subsistence, rigorous study, and service to his *guru*. After a year of worship at a famous temple for the God of Medicine, *Dhanvantari*, having received his teacher's blessing on his deathbed, Varier started a three-year apprenticeship with his ophthalmologist, Dr. V. Varghese. From him Varier learned basic surgical operations, and especially human anatomy on occasions of postmortem examination. Varier also learned English at this time and continued to study biomedicine with the aid of Dr. Varghese's textbooks.

With his dual training completed, in 1902 Varier created a small pharmacy and clinic which he called the Arya Vaidya Sala (Abode of Aryan Medicine). The institution has become famous for its efforts to revitalize Ayurveda, which eventually succeeded in adopting traditional formulae to the modern methods of industrial production, quality control, and product packaging. He founded a college at the Arya Vaidya Sala in 1917, for which he eventually developed scientifically enhanced Ayurveda syllabi (on P. S. Varier's biography see Paniker 2002; Raghava Varier 2002).



(Photo 3-2: Archway of the Arya Vaidya Sala)

His translation of biomedicine anatomical concepts was a fundamental aspect of his project to create a critically modernist Ayurveda at the Arya Vaidya Sala; one that was both enhanced by Western science yet grounded in the language and theory passed down from the original Seers. In an often reproduced statement of this vision titled “*Āyurvēdatatvaññal*” (Ayurveda Principles, 1922), Varier described the value of translating Ayurveda into biomedicine as a means of recapturing lost knowledge. Such a salvage translation was necessary, according to Varier, because of the gradual loss of the science on account of the lack of great sages in the degraded modern times and, especially, because of foreign invasions. Varier argued that it was because of this process of historical degeneration that the knowledge of Ayurveda of his time was incomplete and, in some cases, mistaken. However, he explains that all is not lost:

For this reason [of historical decline], it has become very difficult to collect books regarding practical knowledge and especially the knowledge of anatomy. However it should be possible to identify and remedy most of the mistakes with ease. With that, we will be able to ensure again the correct understanding of these theories in their minute detail. A few scholars who are completely admitted to both Western medicine and Eastern science have come forward with permanent interest and concern. Because of this, some parts not available in

carakka, susruta, vṛddhavāgbhaṭa, and vāgbhaṭa are now available also.⁴²

The temporal logic of Dr. Varier's project evaded me for some time after reading and rereading this important text: how could the lost theories and concepts of Ayurveda that are absent from the classical texts be restored with the help of biomedicine?

The time of gods and the time of man



(Photo 3-3: Dr. Ayyappan in his clinic)

My first insight into the cultural organization of time in Ayurveda was given to me by Dr. Ayyappan, one of my dearest teachers. He was a retired professor at the Government Ayurveda College who had built with his family a small clinic in downtown Thiruvananthapuram and a posh Ayurveda resort off of Kovallam Beach. We were discussing Ayurveda's three-part pathological theory known as the *tridoṣa*.

⁴² itunimittam, prāyōgikamāya jñānam, pratyēkiccuṃ śarīrabhāgattilluḷḷa jñānam, sambādikkuvan īvaka granthaññalekkoṇṭṭū ippōḷ vaḷare prayāsamāyumuṃ tīrnnirikkunnu. enkilumuṃ mikka terrukaloṃ eḷuppattil kaṇuṇṇiṭṭikkānum pariharikkānum kaḷiyunnavayānū. atōṭokūṭi pracīnasiddhāntīññalentennu sūkṣmamāyimanassilākkuvānum vīṇṭumuṃ urappikkuvānum sādikkukayumuṃ ceyyumuṃ. pakṣē pāścātyavaidyattilumuṃ, payrastyasāstrattilumuṃ savvasammatamāya pāṇḍiyamuḷḷa cilar sthīrōtsāhattoduṃ anukanbābuddhiyōṭumuṃ kūṭi itinnu purappetaṇam. entennu veccāl carakka, susruta, vṛddhavāgbhaṭa, vāgbhaṭa īvaka granthaññil kūṭṭukūṭāṭt cila bhagaññal innum namukku kiṭṭunnuṇṭū.

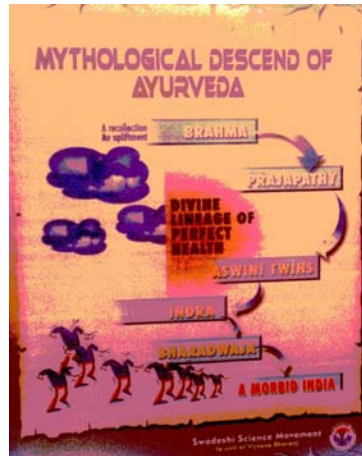
I asked him if the system was established by the Vedic period (the first Veda dates to c. 1500 BCE), and if so, in what form. It was in this time before the Vedas, Dr. Ayyappan explained, that Ayurveda was brought into existence in its complete and perfect form as a *sankalpa* or “mental conception” in the mind of the Hindu creator, Lord Brahmāvü.⁴³ He added, “Look in the *Atharvavēda* (one of the four Vedas). There you will discover the word *tridhātu*. The meaning of that word is the *tridoṣa* theory. Then of course our science was in existence at that time.”⁴⁴

The localization of sacred knowledge, which originates outside of time, within the temporal sequence of history is a major problem of Indian intellectual history, particularly concerning *śāstric* knowledge (Trautmann 1995). Dr. Ayyappan uses translation here to textually anchor his divinely authored science within the Vedic past. In fact, there is a reference in the *Atharvavēda* to the *tridhātu*, or “three tissues,” although the term’s physiological exegesis is not available in the text or elsewhere in the Vedic corpus (Krishnankutty Varier 2005:12). This translation of the classical period *tridoṣa* and the *Atharvavēda* period *tridhātu* conflates centuries of history, and involves a clever metonymic back-projection of the whole of what is presently known of the science onto its translated part. Dr. Ayyappan’s historical reasoning takes up the lexical parallelism between modern Ayurveda and

⁴³ Richardson Freeman (1993) provides a detailed analysis of the Sanskrit concept of *sankalpa* in the context of the Teyyam ritualized possession performance tradition of Northern Kerala. Central to the concept in the Indian philosophical tradition is that the process of thinking can have material effects, as is the case when the mental focus of the Teyyam performer is believed to materialize the deity’s presence in the dancer’s body. Similarly, this is the case with Ayurveda, also a *sankalpa*, which was materialized as a thought in the mind of God.

⁴⁴ atharvavēdayil nōkkaṇaṃ ... tridhātu enṇū vākkū kāṇuṃ ... ā WORD-enṇre artham tridoṣamānū ... pinne tirccayāyittuṃ nammuṭe śāstraṃ aṇṇū uṇṭāyirunnu

Atharvavēdaic medicine as a sign of a deep disciplinary contiguity through time. This translation supports the nationalist historiographic concept of a Hindu golden age when divine knowledge was perfectly transmitted from teacher to disciple, which subsequently began to decline on account of human laziness and ignorance, and the vicissitudes of history, that is, the Muslim invasions and European colonialism.



(Photo 3-4: “Mythological descend of Ayurveda”)

This Hinduized conception of time is diagrammed in the poster “Mythological descend of Ayurveda” (see Photo 3-4), which was part of an exhibition and scientific conference in 2004 which was sponsored by the Swadeshi Science Movement. They are a right-leaning group linked with the Hindu nationalist political party, Bharatiya Janata Party (Indian Peoples Party), which is dedicated to the revival of Hindu scientific heritage. The poster diagrams the origin of Ayurveda with Brahma and its transmission to Prajāpathi and so on until it descends out of the clouds to “A morbid India.” In the Hindu conception of time morbidity is particularly of the “final epoch” (*kāliyuga*) in which the human condition is morally and physically degraded. Although Mircea Eliade (1957) has famously characterized the *yuga*-s as cyclical, repetitive, and thus anti-historical, the conception of time in the modern Ayurveda

texts that I studied emphasizes a diachronic devolution from a more perfect state. This perfect state in the mind of God is historically located sometime before the first *Veda*. Ayurveda entered history with its transmission to humans and subsequent loss and degeneration. Thus, time itself is a sign of this increasingly degraded quality of human knowledge and experience.

After checking the Atharvavēda reference I returned to Dr. Ayyappan's office with my critique of his translation: more or less, "It is not likely that the reference to the *tridhātu* in the *Atharvavēda* represents the complex and subtle analysis involved in the *tridoṣa* theory of today." He agreed, explaining that it was during the Vedas that culture first appeared in India in its "scientific form" (*śāstrarūpa*) and that that was the context in which Ayurveda first developed. He paused and looked at me across his desk as if he was confused by what he had just said.

The idea that Ayurveda concepts developed over time is a staple of the modernist/realist historiography of Indian medicine. In both nationalist and Marxist historiographies the linear and progressive structure of Ayurveda's historical narrative is itself taken as a sign of the presence of science in pre-colonial India (for an excellent critique of this position see Engler 2003). The possibility of a synthesis of Indian and biomedicine was in part based upon this ideologization of time. For example, in the Report of the Committee on Indigenous Systems of Medicine (1948) a number of the Scientific Memoranda argue that, in contrast with contemporary indigenous medicine which is static and canonized (or worse, a kind of quackery), the ancient Seers engaged in scientific techniques such as clinical experimentation, meditation, introspection, and debate. Ayurveda was not like other forms of sacred

knowledge. It was not frozen or timeless but rather the result of a dynamic scientific process starting with the Ṛgvedā and continuing through the Samhitas. The contemporary practice of indigenous medicine was conceived as a fall from the scientific method employed by the Seers; a method that the scientific synthesis was attempting to reinvigorate. Social historians argue similarly that changes in the meaning of concepts over time are evidence for proto-scientific communities, which were quashed by the rise of brahmanical superstition (e.g., Chattopadhyaya 1977).

How could Ayurveda have developed gradually over time like other sciences and at the same time devolved from divine perfection over that same period? Dr. Ayyappan and I had hit upon a fracture in the nationalist narrative of Ayurveda history. Both progressive and the regressive vectors of time are fundamental to Ayurveda's discourse of medical modernity. The contradiction between the two structures of time is only apparent in contexts of hyper-rationalized discourse, such as occurs in the framing of Ayurveda to an American anthropologist like myself. He asked my opinion so I talked about how different cultures have different conceptions of time and that the structure of modern history and the structure of *śāstra* were also different cultures of time. "That is not correct. Our analysis is the problem. We need to study the history correctly."⁴⁵ He then called his wife, also a retired professor at the college, who confirmed his opinion that it was during the Vedas that culture arrived in its scientific form and that, thus, the Ayurveda theory must have also developed at that time.

⁴⁵ atū śari alla ... nammuṭe yukti atānū praśnaṃ ... caritraṃ śarikkūṃ paṭhikkaṇaṃ

My culturalist conception of time was dismissed out of hand, but his deferral to his wife only served to reinstate the contradiction. Locating a primitive form of Ayurveda at the dawn of Indian civilization implies a subsequent historical development, and this is antithetical to the divine narrative of Ayurveda's descent from God to the sages. It was our own ignorance of the history, however, not a problem in the structure of the history itself which was the source of this contradiction. I want to be careful to point out again that it was my methodology that produced the contradiction (one that we both recognized once it was produced). Interestingly, *caritra*, history, refers to both conceptions of time and history without any sense of contradiction. *Rāmāyanacaritraṃ*, the Story of Lord Rama, is *caritra*, and so is *Āyurvēdacaritraṃ*, a realist intellectual history of Ayurveda published by the Arya Vaidya Sala (Krishnankutty Varier 1980 [2002]). In fact, the concept of "Ayurveda *caritra*," for Hindu, Christian, and Muslim vaidya alike, refers to both the story of the mythological dissent of Ayurveda, as well as to the modernist/realist intellectual-cum-literary history of Ayurveda.

In Ayurveda apologetic discourse, a discourse which I had occasioned with my questioning of Dr. Ayyappan, one way to rationalize this apparent contradiction is to periodize history into the Vedic and pre-Vedic Time of the Gods *caritra* and the subsequent Time of Man *caritra*. For example, *Ayurveda Legends*⁴⁶ (*āyurvēda itihāsam*) (Sreekumari Amma, ed. 2002 [1985]), is a Malayalam Ayurveda history published and used as a textbook in the Thiruvananthapuram Ayurveda College. The

⁴⁶ Again the term "legend" does not imply falsehood such as is sometimes the case with other genres like *katha* (story).

text uses a three-part periodization attributed to Gananath Sen; “eternity” (*anantaṃ*, lit. “without end”) is the time before the period attested in the Vedas and the period of modern recorded history, which are the subject matter of the textbook. Another periodization that accomplishes much the same effect is to locate recorded history within the most recent cycle of cosmological rebirth, such as is done in a history published by a Hindu nationalist science organization titled *My India’s Last Birth History* (*enṛre bhārattinṛre pūrvajanma caritraṃ*) (Gopalakrishnan n.d.). Both strategies locate the time of the gods before the time of history. These two examples periodize time in ways that reconcile a notion of sacred time, as a sequence of devolving epochs, with a modernist conception of history as linear progress. Dr. Ayyappan’s historiography as well projects a deep temporal contiguity of Ayurveda, deep into the time of the gods. I later realized that this method of locating the sacred knowledge of Ayurveda in history is part of the puzzle for understanding how Ayurveda concepts were translated, and how those translations were ideologized to have institutional effects.

The nationalist appropriation of anti-classicalism

Understanding the back-projection of Ayurveda deep into the Vedic past helps to explain how Dr. Varier came to believe that the translation of Ayurveda into biomedicine was the key to salvaging lost knowledge. The framing of Ayurveda as biomedicine’s past was part of a nationalist response to the teleological narratives of Enlightenment historiography, which often assumed without question that Classical-

Period Greece was the home of the world's first rational system of medicine.⁴⁷ In the Third Anniversary Discourse of the Asiatic Society Of Bengal Sir William Jones radically re-imagined India's relationship to the West by suggesting that Sanskrit, Latin, and English were all related to some more ancient common ancestor (1786 [1824]). In this instance the colonizer became the kin of the colonized. Thomas Trautmann (1992) argues that this civilizational kinship caused a "time crisis" in which the chronology outlined in the Bible became too crowded with events to cope with the new ethnological evidence. However, on account of their truly expansive conception of time, the time crisis on the Indian side had nothing to do with an overcrowding of history. Rather, their anxiety centered on the problem of the order of Indian versus Western civilizations. Who begat whom? We shall see that in the later days of the burgeoning anti-colonial nationalist movement this question was far more than an ivory tower fascination.

Jones and European Orientalism generally are credited by various nationalist Ayurveda scholars as being responsible for the translation of the *tridoṣa* categories—*vāta*, *pitta*, and *kapha*—as "wind," "bile" and "phlegm."⁴⁸ Some historians in the European classicalist tradition took this translation as evidence for the influence of the Greek humoral theory in India. The translation of the three-part Ayurveda system into the four-part Greek system was thus construed as an *asymmetrical time-*

⁴⁷ "Hellenophilia"—that is what David Pingree (1992) has termed the Greek bias in the history of science, which he argues continues to be a serious obstacle to the comparative study of scientific traditions.

⁴⁸ I have not yet encountered any reference to Jones' translation of the *tridoṣa*. This method of translating Ayurveda pathology is common in Sanskrit and vernacular dictionaries, although I do not believe Jones himself ever compiled one.

coded diffusion toward India. A German scholar named Haas (reviewed by Krishnankutty Varier 2005), advocate of the so-called “German school,” is often credited as being the most odious proponent of this argument. The argument requires that key texts such as *Carakasamhitā* and *Susrutasamhitā* be identified with an absurdly late date, between the 10th and 16th centuries A.D.

In the early to mid-19th century, however, Orientalist medical historians were already working to destabilize the privileged status granted to Hippocratic medicine. For example, after returning from medical service in the Bengal Army, John Forbes Royal delivered in 1837 a series of lectures in his capacity as Professor of Materia Medica at King’s College. He argued for the superior antiquity of Indian medicine vis-à-vis the Greek and for the indigenous and independent development of a rational system of therapeutics within India.⁴⁹

The advocates of both the purist and scientifically enhanced approaches to Ayurveda objected strenuously to the translation of the *tridoṣa* as the three bodily humors and to the direction of the translation from Greece to India. They took up this Orientalist response to classicalism both by critiquing the literal quality of the *tridoṣa*’s translation and by inverting its original time-coding. A *śuddha* Ayurveda apologist, Shiv Sharma (1929 [1983]) argued that whatever one makes of the similarity between the two systems, the Ayurveda *doṣa* are referenced as early as the *Ṛgvēda* so it must be the later Greek culture which is indebted to India, not vice

⁴⁹ Another important author of the Orientalist critique of medical classicalism was Thomas A. Wise, who, like Royal, was a member of the Bengal medical service, after which he returned to Edinburgh to practice medicine and write up his historical research. His two-volume *Review of the History of Medicine* (1867) argued for the antiquity of Indian medicine and its influence on the European classical medical tradition.

versa. Interestingly, the critical discourse about the *tridoṣa* translation is perhaps even more important to the modernist position because it represents the theory as the central principle of the science, on the basis of which Western concepts and practices can be integrated. For example, in *An Address on Hindu Medicine* delivered in 1916 at the founding of Benares Hindu University, Gananath Sen (2002 [1916]) argued that the Greeks, having borrowed the categories from the Vedic Seers, mistook for humors Ayurveda's complex *tridoṣa* theory.

The theory of *Vayu*, *Pitta*, and *Kapha* was also a great discovery, which unfortunately has been misunderstood by Western scholars judging by the wrong mercenary translations, rendering these terms as 'Wind, Bile and Phlegm'. The proper explanation of this theory will take up a treatise by itself but let me observe here in passing that the word *Vayu*, does not imply 'Wind' in the Ayurvedic literature, but comprehends all the phenomena which come under the functions of life—or to be more explicit—functions of life as manifested through cell-development in general and through the central and sympathetic Nervous Systems in particular; that the word *Pitta* does not essentially mean 'Bile' but signifies the functions of metabolism and thermogenesis or heat production comprehending in its scope, the process of digestion, metabolism, coloration of the blood and formation of various secretions and excretions which are either the means or the ends of tissue-combustion; and that the word *Kapha* does not mean 'Phlegm' and is used primarily to imply the functions of cooling and preservation (thermo-taxis or heat regulation) and secondarily the production (and products) of the various preservative fluids, e.g., Mucus, Synovia, etc., which are the manifest forms of that function (p. 13).

It must be remembered that the theory of *Vayu*, *Pitta*, and *Kapha* is not the same as the old exploded humoural theory of the Greek and Roman Physicians who, though they borrowed the idea from Ayurveda, failed to grasp the true meaning of the theory. I am convinced that the truth and value of the Ayurvedic theory can be verified (p. 14).

That is, the *doṣa* were mistranslated. Important, here, is the distinctions between gross and subtle, and lay and śāstric, interpretations of the *tridoṣa*

constituents. The translation of the terms in their gross and lay interpretations highlights a similarity between the *tridoṣa* and the Greek theory of bodily humors. Keep in mind that Gananath Sen was a key advocate for the modernization of Ayurveda, and the institution at which he was speaking, the Benares Hindu University, has played a central role in the modernist institutionalization and professionalization of the science. Whereas Shiv Sharma was a purist about Ayurveda generally, Gananath Sen (the modernist) was a purist also but in the limited regard of Ayurveda's core principles, the *tridoṣa*. It is this subtle and conceptually sophisticated interpretation of the *tridoṣa*, encompassing organ systems and dynamic physiological processes, that was projected backward onto the Vedic past.

The textual anchoring of Ayurveda in the early Vedic period, a time closer to the most perfect creation, was a strategy used by these nationalist historiographers to invert the time-coding of Indian-Greek civilizational exchanges. Biomedicine was thus construed by nationalist apologists as Ayurveda's long departed self, which had finally returned home to India via British colonialism. As Gananath Sen explains, “[Ayurveda] often conquers by striking cures many foreign rivals who, by the way, are only its alienated offsprings” (p. 3).

Salvage translation as an insitutional ideological move

As Ayurveda's own long departed child, biomedicine was believed to have retained or rediscovered certain knowledge which was lost in India on account of its historical tribulations. Dr. Varier proposed that the comparative study of the two systems

could be used as a method to salvage that lost knowledge. Dr. Varier used his dual training in the two systems to construct artful translations of anatomical terminology.

He translated, for example, Ayurveda's *tridhātu* categories which are a three-part condensation of the *pañcamahābhūta*, the five constituent elements of the Ayurveda cosmology. The *tridhātu* constituents—*valāsa* (*pr̥thivi* [earth] & *jala* [water]), *māyu* (*tējas* [fire]), and *vāyu* (*vāyu* [wind] & *ākāśa* [ether])—correspond to the three vitiated *doṣa* (*kapha*, *pitta*, and *vāta*). The *tridhātu* are the material substrate that constitutes all the anatomical structures and physiological processes of the body. However, and this is key, they are never manifested in their pure form. Rather, the *tridhātu*, unrealized as such, appear as the particular named structures of the body. *Valāsa-dhātu* functions as the bodily superstructure, *māyu-dhātu* supports the digestive function, and *vāyu-dhātu* supports the circulatory function and the life force. Dr. Varier explains:

Fortunately the above said principles [of the *tridhātu*] and the most recent embryological scientific theory of Westerners are uniting together. Therefore, Ectodermic (*bāhyabaliṣṭha*), Endodermic (*āntarabaliṣṭha*), and Mesodermic (*maddhyamabaliṣṭha*) are the three cells, ordered in Ayurveda as *vāyu*, *māyu*, and *valāsa*, these three tissues (*dhātu*) become created as the important body parts themselves.⁵⁰

⁵⁰ Bhagyavaśal p̥ścātyanmāruṭē ervaṃ putiya bhrūṇaśāstrasiddhāntavum mēlparañña tatvaññaḷum tammil yōjicirikkunnumuṇṭū. enñineyennāl bāhyabaliṣṭha (Ectodermic) āntarabaliṣṭha (Endodermic), maddhyamabaliṣṭha (Mesodermic) enna mūnnukalakaḷare, kramēṇa āyurvvedattile vāyu, māyu, valāsa enñi dhātukkḷkkū prādhānyamuḷḷa dēhām śaṇṇalettneyākṇnu sṛṣṭhikkunnaṭū.

(Table 3-1: Diagram of P. S. Varier's *dhātu* translation)

<u><i>bhūta</i></u> (elements)	<u><i>dhātu</i></u> (tissue)	<u><i>doṣa</i></u> (pathology)	<u><i>karma</i></u> (action)	<u>Allopathic</u> <u>translation</u>
<i>pr̥thivi; jala</i> (earth; water)	<i>valāsa</i>	<i>kapha</i>	structure	mesoderm
<i>tējas</i> (fire)	<i>māyu</i>	<i>pitta</i>	digestive	endoderm
<i>vāyu; ākāśa</i> (wind; ether)	<i>vāyu</i>	<i>vāta</i>	circulation; life-force	ectoderm

The functional characteristics of the Ayurveda *tridhātu*, according to Varier, were similar enough to project a relationship of semantic equivalence to the three cellular structures of Western embryology. As described by Western science, across the lifecycle these embryonic *dhātu*-s develop into the anatomical structures of the mature body, which themselves share the nascent properties of the organism's tissues in their embryological stage. Just as the three cellular structures precede the anatomical structures of the mature human body, the translation of these cellular structures into the *tridhātu* represents Ayurveda as having historically preconceived the body of biomedicine. Note how the projection of equivalence between the two terminological sets is at the same time a projection of equivalent bodies. The *tridhātu* and their embryological counterparts are construed in translation as different names for the same anatomical categories. Ultimately, Dr. Varier used this equivalence to back-up his claim that the developmental trajectory and anatomico-physiological makeup of this unified body is conceived in different yet equally compelling ways by the two systems.



(Photo 3-5: Diagram of fetus with Sanskrit translations of the anatomical parts, p. 152)

अलोपथिकानाम्	संस्कृत	अलोपथिकानाम्	संस्कृत
अलोपथिकानाम्	Primary blood cell	अलोपथिकानाम्	Primary auditory ossicles of the ear
अलोपथिकानाम्	Primitive sheath of nerve	अलोपथिकानाम्	Mesencephalon
अलोपथिकानाम्	Circumferential lamella of the bone	अलोपथिकानाम्	Primitive jugular vein
अलोपथिकानाम्	Primary ossicle	अलोपथिकानाम्	Primitive digestive tube
अलोपथिकानाम्	Bone spiracle	अलोपथिकानाम्	Primitive head vein
अलोपथिकानाम्	Diaphragm	अलोपथिकानाम्	Primitive labial groove
अलोपथिकानाम्	Primary oocyte	अलोपथिकानाम्	Protoderm
अलोपथिकानाम्	Primary germ cell	अलोपथिकानाम्	P. excretory duct
अलोपथिकानाम्	Spermatocyte	अलोपथिकानाम्	Genocyst
अलोपथिकानाम्	Fertilised ovum	अलोपथिकानाम्	Helix of the external ear
अलोपथिकानाम्	Primitive aorta	अलोपथिकानाम्	Marginal layer of epycnium
अलोपथिकानाम्	Amniotic vesicle	अलोपथिकानाम्	Primitive atrium
अलोपथिकानाम्	Primitive segment	अलोपथिकानाम्	Lung of fetus
अलोपथिकानाम्	Do or homodermic aorta	अलोपथिकानाम्	Flap like valve of epycnium
अलोपथिकानाम्	Splanchnic plexus	अलोपथिकानाम्	Muscle layer of epycnium
अलोपथिकानाम्	Primitive cartilage	अलोपथिकानाम्	Uteral plate
अलोपथिकानाम्	Primitive cerebral vesicle	अलोपथिकानाम्	Ramus perforans of cranium
अलोपथिकानाम्	Primordial ovum	अलोपथिकानाम्	Prostatic portion of urethra
अलोपथिकानाम्	Primitive costal arch	अलोपथिकानाम्	Prism
अलोपथिकानाम्	Stomachum	अलोपथिकानाम्	Diaphragm
अलोपथिकानाम्	Organ of Jacobson	अलोपथिकानाम्	Preanal
अलोपथिकानाम्	Primitive palate	अलोपथिकानाम्	Buttack
अलोपथिकानाम्	Primitive Neuroglial cell	अलोपथिकानाम्	Foot anal furrow
अलोपथिकानाम्	Primitive nerve	अलोपथिकानाम्	Branch presentation
अलोपथिकानाम्	Endment of eye	अलोपथिकानाम्	Plexus of nerves or blood vessels
अलोपथिकानाम्	Mesophren of wall of body	अलोपथिकानाम्	Leino renal ligament
अलोपथिकानाम्	Primitive falx cerebri	अलोपथिकानाम्	Spleen

(Photo 3-6: Glossary of Sanskrit translations of Allopathic anatomical terms, p. 162)

Using this method of salvage translation, Varier developed scientifically enhanced Ayurveda textbooks for the students at the Arya Vaidya Sala. For example, *Bṛhaccharīra* (1941[1988]) is a Sanskrit textbook on Systematic Anatomy, in which Varier coined new Sanskrit terms for the structures and processes described by Western science (for example, recall the Sanskrit coinage for the word “mesodermic,” *maddhyama-baliṣṭha*). The strategy of salvage translation was further taken-up by the Principals and Administrators of Ayurveda institutions throughout Kerala. We have already seen how Ravi Varma used this strategy of salvage translation to codify in the College syllabus his vision of the relationship between Ayurveda and biomedicine. A dear friend of the like-minded Varier, Ravi Varma wrote the English Foreward to *Bṛhaccharira*, where he described the lost Ayurveda treatises attesting to the past excellence in the field of anatomy, known today only from references in other Sanskrit works or through obscure Orientalist bibliographic catalogs. Ravi Varma argued that in replacing this lost wing of

Ayurveda, Dr. Varier caused the “imported teachings [to] mingle freely and well with the ancient teachings so as to make a harmonious whole, wherein, the new incorporations will appear more as applications or deliberations of the older teachings than a new and alien importation” (Ravi Varma 1941 [1988]:ii).

Once the broad coordination of the Ayurvedic and Western conceptions of the body had been articulated by Varier, Ravi Varma, and other Ayurveda apologists, many of the translations between the anatomical categories of the two sciences became relatively unproblematic. For example the seven dhātu-s of Ayurveda anatomy, *rasa* (gastric acid), *rakta* (blood), *māṃsa* (muscle), *mēdas* (fat), *asthi* (bone), *majja* (marrow), and *śukra* (semen) are treated as more or less equivalent in Ravi Varma’s Malayalam anatomy textbook which he wrote for the students of the College (Ravi Varma 1947). Under each heading are located *sāstra* characterizations in the form of Sanskrit *śloka* (verse), as well as summaries of the relevant claims of Western science.

The points of disjuncture of these coordinated disciplinary bodies require more creative interpretations of the criteria of similarity between the two systems. The *tridoṣa* and other concepts like the *ojas* (vital fluid), *mala* (undigested food toxins) and *srotas* (or bodily channels) do not fit well with the Western anatomical understanding of the body. Unlike blood and flesh and fat, their material manifestations in the body of Western science are less than certain. For example, *ojas* is a concept in Ayurveda which is represented in classical accounts as a fluid substance that permeates the body and causes an appearance of health and life vitality. Doctors in Kerala sometimes use the English word “glaze” to describe the

concept, referring to the vibrant and shiny appearance of glazed ceramics (the metaphor is doubly appropriate because of the liquid quality of pottery glaze). *Ojas* also has more subtle qualities, as it is the medium of psychical energy (*prāṇa*) and thus, ultimately, of the soul (*atma*). *Ojas* is a fundamental concept of Ayurveda, and especially of rejuvenation therapy (*rasāyana cikitsā*), which is oriented toward the reinstatement of lost vitality. There is no apparent or unproblematic correlation between *ojas* and anything in western anatomy or physiology. However, the observable characteristics of *ojas* itself, as well as the symptoms of its increase and decrease in the body, are well described in *śāstra*. Ravi Varma argued that the decrease of *ojas*, causing weakness (*kṣīṇa*), and its increase, causing prosperity and increased vigor (*vṛddhi*), are the same effects described of the hormone adrenaline. In addition to the physiological effects of adrenaline, *ojas* is described in *śāstra* as having a red and yellow color, which according to Ravi Varma is the same color as the chromaffin cells of the adrenal glands where adrenaline is produced. The physiological and anatomical localization of *ojas* is reminiscent of Ravi Varma's translation of *pitta* as a gastric enzyme, which he employed a little less than a decade before as ideological assurance that the modernization of the curriculum was indeed scientifically feasible. Now, in 1947 at the dawn of Indian independence, he employed the same style of salvage translation to develop a textbook for a new "mixed course" at the Thiruvananthapuram Ayurveda College.

While Ravi Varma was writing his textbook in Kerala, the Committee on Indigenous Systems of Medicine was convened in Delhi in October 1946 by the Central Ministry of Health. The goals of this committee were to establish whether or

not Ayurveda and Unanni could be integrated with biomedicine on scientific grounds, and to provide curriculum recommendations for Ayurveda colleges throughout the new nationstate. The Interim Minister of Health, Ghaznafar Ali Khan, states in his address to the Committee:

I hope, you, gentlemen, will strive to work out, not only a system of medicine and of medical relief of the most extensive nature, but one based on rational lines, capable of proof and verification, and thus of general acceptance. The heritage of India coupled with the discoveries of the West should produce a system, universal in its application and general in its benefits. India, which has contributed so greatly to many sciences, may yet again enrich the world with a system of medicine, effective, inexpensive, and yet rational and therefore acceptable (Government of India 1948:6).

He concludes his remarks by urging the Committee to “carry on research and inquiry, conduct experiments and test clinically, and standardize and systematize our medical knowledge” (p. 6). In his statement there is a great amount of idealism about the power of science to solve the considerable problems of the emerging nation-state, but also to package ancient Indian knowledge in a form that will “enrich the world” because it is “rational and therefore acceptable.”

The voices of many detractors of a mixed course are registered in the report. Some Indian and British Allopathic doctors argued that the philosophies of the systems were too different to be integrated, or that the Indian systems were not based on “scientific principles” (pp. 289-91), or that a unified synthesis would lead to “mental confusion” among medical students (pp. 265-5). Such critics proposed that “traditional practitioners” could be retrained as public health workers. On the other hand, purist Ayurveda and Unani practitioners were critical of the Committee’s plans and motivations. These ancient systems were already scientific in a way that

biomedicine had neither achieved, nor had the methods to evaluate properly. However, purists of both varieties, Allopathic and Ayurvedic, were unable to overcome the arguments, political will, and the history of institutionalization and entextualization that supported the nationalist synthetic project.⁵¹

Among the many others who testified in support of a mixed course, the Principal of the Ayurveda College at Benares Hindu University, Dr. A. Pathak, argued that the possibility of the translation of the *tridoṣa* was itself a sign of Ayurveda's scientific status, and thus, of the feasibility of a synthesis with biomedicine. Like his Kerala contemporaries, he localized the *tridoṣa* and their sub-varieties within the western anatomical body, and provided clever ad hoc explanations for incongruent cases.⁵² For example, based on his translation of *śāstra*, he argued that the *doṣa* sub-variety *ranjaka pitta* “resides in the liver, spleen, and stomach” and “imparts redness to the ... blood.” Blood production was known on the basis of Western science to occur in bone marrow, not in the liver, spleen, or stomach, but Pathak argues:

No doubt, before the fifth month of foetal [fetal] life, blood is formed in the liver and spleen. Also when there is great demand for more blood in pernicious anaemia, small islands of myeloid [bone marrow] tissue may develop in the liver and possibly in the spleen. Thus extra-medullary [outside of the bone marrow] blood formation may occur in abnormal conditions, though we do not know up to what extent (p. 211).

⁵¹ Recall from Chapter 2 how Nadkarni the Younger (1976 [1954]) re-entextualized his father's *Indian Materia Medica* as a means of unifying the various systems of medicine in India.

⁵² The proponents of the modernization of Ayurveda often translate concepts somewhat differently, but they employ the same methods and ideologize their projects similarly. For example, in contrast with Ravi Varma (*Ojas* = adrenaline), Pathak argued based on the same criteria as Ravi Varma, i.e., variations in activity level, that *pitta* might be adrenaline (p. 212).

By adjusting the conditions of similarity Pathak was able to make a compelling translation based on a rather tenuous localization of Ayurvedic knowledge within the anatomy of the Western body. Similarly, untranslatability, as a sign of medical difference, can be established by again manipulating the criteria of comparison. In spite of the fact that Dr. Pathak and his colleagues were everywhere attempting to posit an equivalence between Ayurveda and biomedicine, when it came to metaphysics and to mind, the Sanskrit “cannot be compared” because it is “untranslatable,” “misleading,” and often “hides unknown principles” (p. 213).

There is yet another difficulty [in understanding the doctrines of Ayurveda] and that is of incorrect or inappropriate or misleading translations of words used in a technical way.... The *Prakriti* of the *Sankhyas* [a school of philosophical monism] is not the matter pure and simple of the modern science. It is the basis of all objective existence and gives rise not only to the five elements of the material universe, but also to the psychological (p. 194).

But the *Prakriti* of the *Sankhyas* cannot be compared with matter—pure and simple. Though modern science also, going beyond the diversity of the elements is drifting towards one primary substance—materialistic monism—and adopts the theory of evolution to explain diversity of objects of our experience, it remains silent about minds, whereas the *Prakriti* of the *Sankhyas* gives rise not only to the five *Mahabhutas* [great elements] of the material universe but also to the psychological apparatus (p. 198).

The idea that monist philosophy is India’s “gift to the West” was most famously promulgated by Swami Vivekananda (collected in Vivekananda 1997) who argued that whereas the West’s influence was in the realm of technology, India excelled in philosophy and religion. In the case of Dr. Pathak’s written testimony to the Committee Ayurveda concepts were represented as untranslatable into Western science. Recall also how both the purist Shiv Sharma and the modernist Gannath Sen argued that the Ayurveda concept of the *tridoṣa* was often mistranslated by

Orientalists (as the Greek pathological categories). So, a nascent discourse of Ayurveda's untranslatability is evident throughout the first half of the 20th century, and even in the context of the high nationalist and modernist project of synthesizing indigenous and biomedicine.

There are two general semantic effects of Ayurveda's translation. First, we have seen how the institutional modernization of Ayurveda up until the implementation of the mixed course after independence tended to anatomicalize Ayurveda concepts. However, Ayurveda concepts such as the *tridoṣa* are often extensionally quite diversified, identifying anatomical structures, bodily fluids, energies, metaphysical powers, or concepts for networks of physiological processes. Yet, in translation they are rendered as anatomical structures and neuro-hormones. The discourse of Ayurveda's untranslatability is explicitly critical of this approach, often arguing that while there may be similarities between concepts, between *tridoṣa* and hormones for example, the Ayurveda concepts are dynamic, synthetic, holistic, and incorporate psychic and spiritual properties in addition to their material manifestations. Many doctors now argue that the *tridoṣa* are not material at all, but rather concepts which explain pathological dynamics within the body. My teacher Dr. Ayyappan, for example, would not categorize *ojas* as a tissue (*kala*), still less as a hormone, but rather as an "energy body" (*śaktikkaraṇam*) that emerges from optimal digestion and from the holistic interconnectedness of the organism. The discourse of Ayurveda's untranslatability tends to emphasize the fluid dynamic, conceptual, energistic, and metaphysical properties of Ayurveda that cannot be encompassed by biomedicine. The *srotas*, for example, were represented in the classical texts as

channels (*nadi*) in the body through which fluids and other vital essences circulated. Some of these channels could not be confirmed by the internal gaze of Western science, and they are now interpreted as the metabolic and organ systems. At the same time, the *srotas* never completely overlap with the body as conceived by biomedicine. Thus, the anatomical coordination of the disciplines is always only partially complete, and Ayurveda categories continue to be productive resources for creative disciplinary maintenance.

Translation and Temporality

In the case of the modernization of Ayurveda education in Kerala, translation was used to organize the relationship between late-colonial Ayurveda and biomedicine. In this process the history of the educational institution and the history of translation are co-implicated. In order for these translations to stick as authoritative statements of reality the institutional conditions of translation had to be organized; and vice versa, the translation served as authorization for advancing the agendas of educational modernization.

The semiotic features of translation as a type of linguistic activity entered into this work of ideological production. Recall Jakobson's (1987 [1959]) conception of translation as the projection of a metalinguistic parallelism between units of text. This cross-linguistic coupling entails an indexical link—that is, a meta-sign between the translation and original—and it is upon this higher-order sign relationship that the translators of Ayurveda and others predicate ideological values. Frederic Jameson (2003) has argued that the cultural organization of nationalist primordial

time requires a “comparatist perspective.” This point of view, he argues, emerged out of the contradiction between the nationalist elite’s impetus toward progress and their agrarian roots. Judith Irvine (2004) has reinterpreted Jameson’s position as a comment on the semiotic organization of temporality more generally. The comparatist perspective that is a condition of our awareness of time, like the deictic language of temporality itself, requires both a “now” and a “then,” as Irvine explains, “[T]emporalities must often – always? – come in pairs...” (p. 107). Translation, it seems, with its bifocal semiotic structure of metalinguistic parallelism is especially well suited for the ideological work of organizing cultural conceptions of time and the past. Thus, as part of an ideological strategy, translation’s binary projection of lexical equivalence clarifies and condenses the complexities and problems associated with disciplinary articulations.

So, in my view, translation is a discourse genre with real historical effects, the materialization of which both presupposed and entailed a dramatic process of educational institutionalization and modernization. One effect of this process was to universalize the human body and simultaneously, to regiment Ayurveda and biomedicine as parallel interpretations with points of similarity and difference. In postcolonial India the discourse of Ayurveda purism, which had been silenced during the nationalization of the curriculum, returned with a vengeance, and some of the more syncretistic translations and practices are now tabooed in modern Ayurveda institutions. However, the debate around these issues goes on. The contradiction set up between scientific modernity and Ayurveda purism, that is, between translatable and untranslatable bodies, is a durable tension under which contemporary Ayurveda

practitioners work, especially those who are situated at the institutions of socialization and intellectual production. In the following chapter I will discuss the ideological implications of the discourse of Ayurveda's untranslatability, and the socialization and display of expertise at the Ayurveda colleges in Kerala.

Chapter 4

Displaying Ayurveda expertise in the age of biomedicine

The ambivalence of Ayurveda purism

The ideological conflict between a purist framing of Ayurveda based on *śāstra* and a scientifically enhanced approach to its education and practice is at root a debate about the boundary between Ayurveda and its disciplinary other, biomedicine. This ideological tension and the need to constantly maintain and adjust this boundary are fundamental to the historical processes of modernization and institutionalization.

The debate had been temporarily closed when the national Ayurveda curriculum was introduced after independence which had unified the two systems into a coherent “Indian medicine.” With the formation of the State of Kerala in 1952 the new government took over the *Pathasala* from the erstwhile Princely State of Travancore, transforming it into the Thiruvananthapuram Government Ayurveda College. The integrated “mixed course” was instituted in 1955 and terminated in 1961, shortly before the publication of the Report of Shuddha Ayurveda Education Committee in 1963. My teacher, Dr. Ayyappan, was part of the post-independence integrated medicine class at the Ayurveda College. It should be clear from the archival evidence presented in the preceding chapter that the pre-independence course had already undergone several decades of professionalization and modernization, particularly concerning the introduction of Western anatomy and physiology into the

curriculum. However, Dr. Ayyappan characterized the pre-independence course, which his father had passed to secure a license, as pure *śuddha* Ayurveda, based solely on the *śāstra*. He made clear that although he himself had studied the mixed course so that he could get a job in the post-independence medical bureaucracy, his real knowledge of Ayurveda was acquired through his lineage.

The first-year of the mixed course focused on the fundamental principles of the two integrated disciplines. Allopathic topics, “anatomy,” “physiology,” and “materia medica” were taught in the morning in English, and the parallel Ayurveda topics (*viṣaya*) were taught in the afternoon in Malayalam, “*śarīraṃ*,” “*śarīra-kriya*” and “*dravya-vijñāna*.” The second year focused on diagnosis, organized in the same parallel structure:

Allopathy diagnosis/English medium/morning instruction::

Ayurveda diagnosis/Malayalam medium/afternoon instruction.

The third and fourth years included practical training at the Ayurveda College Hospital, as well as classes such as “Bacteriology,” “Pathology,” “Gynecology,” and “Midwifery.” I asked him if the two disciplines were “related” (*sambandika*) in the mix course, and he retorted in the future habitual tense, “They cannot be COORDINATED ... they are taught separately.”⁵³ I asked him why, then, was the mixed course terminated after only five years. “Aiyoo!,” he exclaimed, “After college for treatment Ayurveda just went as Allopathy” (*COLLEGE-inṅ śēṣaṃ cikitsakku Āyurvēda allopathiāyi poyi*). The verb form and adverbial suffix imply an accidental event, which might also be translated as “Ayurveda passed as Allopathy.”

⁵³ COORDINATE cayyan vāya ... allopathiyuṃ āyurēdavum pathikkum

As Dr. Ayyappan explained to me, “Vaidya gave Allopathic drugs without paying attention (lit. as if NEVERMINDING)” (*vaidyanmar NEVERMIND-āyittū Allopathi marunū koṭuttu*).

Thus, Dr. Ayyappan and the other doctors I knew in Kerala who were certified in the mixed course recalled how detrimental the curriculum was to Ayurveda because doctors trained in this way were more comfortable prescribing English medicines than conducting Ayurveda treatments. The criticism illustrates a fundamental problem regarding the relationship between these two systems. From the beginning of the anti-colonial nationalist movement the scientific status of traditional Indian medicine has been in part based on its correlation with scientific rationality, yet at the same time, this correlation based on the similarity between the two disciplines seriously threatens Ayurveda’s uniqueness as a distinctive system of healing. The solution to this problem, instantiated by the Shuddha Ayurveda Education Committee (1963), was to regiment (i.e., de-synthesize) the two systems as equally scientific and parallel approaches to unified human body.

In strident and polemical language the Report argues that no system of medicine is as fundamental or broad as Ayurveda’s concept of the *tridoṣa*, and that all other systems of medicine have a mother-daughter relationship to Ayurveda. The allopathic drugs which vaidya trained under the mixed course had taken to prescribing are themselves full of dangerous side effects. Ayurveda doctors can help their patients best by being equipped with the knowledge of Allopathic drugs, not for the purpose of prescribing them, but rather to aid in the management of their dangerous side effects. The future of medicine, they argued, was in the development

of the concepts of bodily constitution, which was evidenced by the vogue in biomedicine, including psychosomatic medicine, immunity, metabolism, and research on stress. They referred to these areas of cosmopolitan scientific inquiry as a “neo-Ayurvedic approach.” Furthermore, the Report objected to as biased and unjustifiable the use of the terms “modern medicine” and “scientific medicine” to refer to only the Western tradition, vis-à-vis Ayurveda, which they argue was scientifically superior anyway.

There are several notable features of the curriculum revision. The degree of “Ayurvedacharya” would be awarded for the completion of a five year course, with an option for a subsequent year and a half of graduate research and training. The Report reversed the equal-treatment structure of the mixed course, which the Committee argued was in fact biased toward Allopathy. This reversal was against the wishes of the Third Five-Year Plan issued by the Planning Commission, which directed that the first year of the *śuddha* course should include a scientific “pre-Ayurveda course” (physics, chemistry, and biology), as well as Sanskrit and a list of Ayurveda topics such as “fundamental principles” (*padārtha vijñāna*) and philosophy (*darśana*). However, the *śuddha* Committee reinterpreted the direction of the Planning Commission in purist terms, stating that the new curriculum “should not include any subject of modern medicine or allied sciences in any form or language” (p. 2). The new focus would be on pure Ayurveda, instructed through the reading of the Sanskrit classics and new “subject wise” textbooks which would be published for the *śuddha* course. The medium of instruction would be the vernaculars, with an emphasis on Sanskrit reading comprehension.

While biomedicine and allied subjects were excluded as topics of instruction, the relationship between Western science and Ayurveda would be covered under the subject of “comparative medicine.” Three-hundred out of 700 marks on the final examination for the Ayurvedacharya degree would address the relationship of Ayurveda to systems of medicine, particularly biomedicine. Comparative medicine was allotted 300 lectures, whereas other important Ayurveda subjects such as diagnosis (*nidāna*) were allotted only 150 lectures. The chairman of the Committee, Mohanlal Vyas, explained that the “keeping out the modern medicine from the Ayurvedic course was never intended to mean a total exclusion of relevant and useful material which could be assimilated by Ayurveda, which was not inconsistent, with, and did not run counter to, the fundamental tenets of Ayurveda ...” (p. 16). In fact, the “mother-daughter relationship” between Ayurveda and the historically subsequent systems of medicine was something that “the students should be fully conversant with” (p. 9).

Thus, Ayurveda has always had an ambivalent relationship with biomedicine, even at the moment of the historical triumph of the *śuddha* course. The Committee had to battle with the authority of the Central Government Planning Commission to maintain a *śuddha* interpretation of the concept of *śuddha* Ayurveda. Yet, at the same time, a substantial amount of cosmopolitan knowledge was introduced into the course under the rubric of “comparative medicine.” However, the emphasis of the curriculum had changed from a mixed medical paradigm, to a pure medical paradigm which was totally separate yet parallel with biomedicine. There have been a number of changes in the course since its inception, most of which are the results of its

increasingly centralized administration.⁵⁴ Western anatomy and physiology are now part of the first-year instruction. Examinations and some instruction are English medium. The traditional titles conferred by the *śuddha* course have been changed to the Bachelor of Ayurvedic Medicine & Surgery (BAMS.) and the Medical Doctor of Ayurveda (M.D. Ay.). Ayurveda colleges have become a major site of pharmaceutical research and drug products development. However, the ideology of medical parallelism, established in the dialogue between purist and modernist discourses, has remained a stable feature of the Ayurveda colleges and research institutions. This is because the ideology authorizes institutional innovations such as incorporation of Cosmopolitan concepts and techniques, and in this way, medical parallelism is a central principle for negotiating Ayurveda's disciplinary boundaries.

In this chapter I describe the role of the ideology of medical parallelism in the Ayurveda colleges, and how the ideology is socialized and displayed as a distinctively Ayurvedic form of medical expertise. In addition to Sanskrit and Ayurveda scholarship, this ability to identify and communicate to unknowing patients and scientists the key points of disciplinary parallelism and difference is an indispensable skill required of both clinical practice and pharmaceutical research. First, I describe how medical difference is organized by an ideology of translation, and how this ideological process varies in terms of the practitioners' institutional locations vis-à-vis the margins and centers of the Ayurveda college as an institution.

⁵⁴ The government administration of indigenous medicine is under the Indian Ministry of Health and Family Welfare. The Department of Indian Systems of Medicine and Homoeopathy was established in 1995, and re-named the Department of Ayurveda, Yoga & Naturopathy, Unani, Siddha and Homoeopathy (AYUSH) in 2003.

Then, I describe and analyze how displays of expertise are organized and how the features of classroom discourse are involved in the socialization of this form of expertise and its ideological values.

Translatability and medical difference

Even among the doctors at the Ayurveda colleges who accepted the ideology of medical parallelism to be an uncontested truth there was a wide range of levels of commitment. Furthermore, there are also various possible cognitive stylizations regarding the ideology of medical parallelism's propositional content, including positivistic, pragmatic, and philosophical modes of interpretation. A serious consideration of this kind of ideological variation takes us to the very root of the concept of ideology itself.

How do you know when a belief is an ideology? For the Marxist theorist Terry Eagleton (1991) ideologies are context dependent, for example in the case of fascist rhetoric:

Fascism tends to have its own particular lexicon (*Lebensraum*, sacrifice, blood and soil), but what is primarily ideological about these terms is the power interests they serve and the political effects they generate. The general point, then, is that exactly the same piece of language may be ideological in one context and not in another; ideology is a function of the relations of an utterance to its social context (1991:9).

Certainly the general point that discourse can only be interpreted as political and can only have political effects in particular contexts is in line with the view of language as a form of social action developed in the recent history of linguistic anthropology. However, the diagnostic that Eagleton proposes—the criterion that an utterance or

belief can be meaningfully interpreted in a particular political context—requires a social theory of motivation which Eagleton himself only assumes. Fatalism, for example, may itself be politically neutral, yet if it is the belief of a subjugated people, it will have an adaptive political function. In all cases, Eagleton uses motivation as his diagnostic tool for distinguishing ideological and non-ideological relationships between words and contexts. My point is that Eagleton assumes and uses as a diagnostic that for which he should be at pains to provide analysis.⁵⁵

The lack of an explicit theorization of motivation is unfortunate because, I believe, this lapse has led Eagleton to assume without adequate evidence that ideologies will typically have a universalizing and naturalizing character. As cognition mediated by propositional language, i.e., as beliefs, ideologies can be communicated and understood by the members of the social group. However, not everyone will have equal commitment to this propositional content. For some people within a social group a particular ideology must in all circumstances be 100% true and they aggressively defend that truthfulness. There may be those who believe that the ideology is true but not necessarily that it must be true in all cases, or that the ideology is true but unimportant, or that the ideology is practically true (i.e., useful), or that the ideology is true but that the truth poses interesting philosophical problems. When asked, some will undoubtedly support the ideology but will be unwilling to defend it with much vigor.

⁵⁵ When Eagleton does explicitly discuss the problem of the motivational underpinnings of ideological discourse it is within a highly underspecified framework, which is more or less a recapitulation of the Marxist image of the class struggle. For example, he argues that ideological statements are “... powered by an *ulterior motive* bound up with the legitimation of certain interests in a power struggle” (emphasis mine, 1991:16).

Throughout my research, it was the professors and students at the Ayurveda College who were the most committed to the ideology of medical parallelism and who would take the time to explain to me the importance of maintaining the separateness of the disciplines. The post-graduate students doing research for their M.D. theses were particularly skilled at articulating the similarities and differences between the disciplines (the last section of this chapter analyzes a section of transcript from a graduate seminar which illustrates how this discourse is socialized). For example, I meet Dr. Ammu at the start of my research at the Triruvananthapuram Ayurveda College. My initial interview with her was the first formal interview of my research. I knew very little, at the time, about how to ask the questions that interested me about the relationship between Ayurveda and biomedicine. I had encountered in my readings of postcolonial Ayurveda literature several attempts to translate the *tridoṣa* so I asked her how she would render them into English scientific language. My question assumed that such a translation was possible and desirable. It did not take too long to find out that questions about these translations can elicit great irritation and defensiveness from college educated *vaidya*, “There is no mixing of Ayurveda...,” “Ayurveda cannot be translated...,” and even, “Don’t ask about that...” Looking back, I am amazed with how patiently Dr. Ammu explained to me that while some doctors and scientists had translated the *tridoṣa* into Allopathic categories that she did not believe that such translations were valid. As the basis of the Ayurveda theory, the *tridoṣa* was fundamentally different from biomedicine. It could not and should not be translated into any one thing located in the body. Her husband, also an M.D. student at the college, joined us as

Dr. Ammu was explaining this to me. He gave an example, “Some have said that *kapha* is mucus. Mucus is the stuff that comes out of your nose when you have a cold. *Kapha* is one of the three basic principles of Ayurveda. How could *Kapha* be mucus?!” [pointing with two fingers to his nostrils].

Whereas the translation of the *tridosha* was viewed as taboo, even ridiculous, at the Ayurveda College, the translation of disease categories and botanical terms were a standard and accepted part the pedagogy and institutional practice. Dr. Ammu’s research was on a herbal drug treatment for “dysfunctional uterine bleeding,” an abnormal menstrual cycle which, in biomedicine, is believed to be caused by hormonal imbalances. She viewed the parallel Ayurveda category, *asrgdara*, as an unproblematic equivalent of the concept in biomedicine. Also, she would without hesitation interchange the drug’s name in Malayalam, Sanskrit, and the scientific nomenclature. Whereas the disease itself, its diagnostic criteria, and the botanical terminology of the drug were the same across the disciplines, the treatments—hormone replacement therapy vs. a herbal drug—were markedly distinctive and ideologized as a sign of the natural and synthetic dichotomy of the disciplines. In a double-blind clinical trial she found the herbal drug to be more effective than hormone replacement therapy. Her interpretation of the data employed both Ayurveda and biomedicine, separately.

The ideology of medical parallelism is based on a dual discourse of both Ayurveda’s congruence with biomedicine and its fundamental and essential difference. The discourse of untranslatability is a strategy used to represent the points of essential difference between the disciplines, focusing in particular on the

tridoṣa theory and its relationship to Ayurveda treatments. Ayurveda doctors who work as clinicians insisted to me that all Ayurveda treatments must be based on an analysis of the patient's *doṣic* constitution. The doctors I worked with, for example, would only rarely recommend Allopathic medicines, and if they did, they would never analyze the effects of these drugs in terms of Ayurveda theory (as has been documented in the literature elsewhere, Langford 2002; Burghart 1988). Strange, however, was the fact that these same doctors tended to pre-translate their diagnosis into cosmopolitan categories. If they told the patients their diagnosis at all they used Allopathic categories and allopathic language. When I asked one doctor about the practice of pre-translation he explained to me that most patients do not have the background to understand Ayurveda disease categories and that his educated patients were more familiar from their school science classes with the Western medical categories. Thus, in order not to confuse his patients, he would only explain a diagnosis if the patient asked about it or challenged the effectiveness of his treatment, and if then, only with the categories of biomedicine.⁵⁶

College-educated doctors who work as clinicians, as opposed to researchers or teachers, tend to adopt a more pragmatic interpretation of medical parallelism when they leave college to start practice in government and private Ayurveda clinics and

⁵⁶ The original goal of my project was to document the different styles of clinical interaction and to compare linguistic and ethnographic data collected from traditional and modernized Ayurvedic clinics with Allopathic and Homeopathic institutions. I presumed that in each setting I would find markedly different speech practices, which I supposed might be important to the social organization of a pluralistic medical system. I also thought that patients might acquire this new way of talking about their illness as part of a socialization process. Upon observing doctor-patient interactions at several clinics, it became obvious that doctors do not use a special "Ayurvedic language" with their patients and, to my surprise, unless the patient requests it the doctor does not even discuss the diagnosis. In hindsight, my original proposal seems now to have been influenced a great deal by my interest in patients' rights.

hospitals. After graduation, Dr. Ammu and her husband entered government service as Ayurveda District Medical Officers. The work that they had done in pharmaceutical research was in the past. Daily, they consulted patients and supervised treatments in a government Ayurveda hospital that was near their home on the outskirts of the city. Dr. Ammu explained to me, quite excitedly, that now that she was actually practicing Ayurveda regularly, she was developing her skills in *nadi parīkṣa* (pulse diagnosis). I asked her if the *nadi* (channels) employed in pulse diagnosis were the same as the circulatory system mapped by Western anatomy. “I’m not sure. The *nadi* and *srotas* (also channels) are interpreted in some books as the organ and metabolic systems of Allopathy. My professors said that this was not correct but that there are some similarities. I don’t know the answer. I only focus on Ayurveda now.” I found that after entering clinical practice many young Ayurveda doctors make this shift from a positivistic and literal interpretation of medical parallelism to a more pragmatic interpretation. There is also a marked shift in voice. Dr. Ammu references her professors’ talk, rather than her own authority, which signals a subtle distancing from the ideology as it is communicated at the college. Whereas clinical practitioners become more pragmatic in their interpretation of medical parallelism, *vaidya* who become pharmaceutical researchers tend to employ the ideology in its positivistic frame as a mechanism for securing their identity as *vaidya* within cosmopolitan scientific institutions.

Dr. George is the only Ayurveda doctor working at a major government funded institute that specializes in botanical and pharmaceutical research. During my first visit to his office and on subsequent occasions, he emphasized to me that

although he worked as a scientist he was actually trained in Ayurveda, both in a modern Ayurveda college, as well as under a famous traditional vaidyan. He was emphatic on this point, “I am a vaidyan not a scientist....” In fact, he was a senior and widely respected member of the scientific staff at the institute. His colleagues, botanists, chemists, pharmacologists, and allopathic doctors, would often mention his presence at the Institute as a sign of the collaborative nature of their research, joining together cosmopolitan science and Ayurveda. Dr. George was the token vaidyan. However, his work did not involve the practice of Ayurveda. Rather, he was responsible for collecting pharmaceutical information from Kerala tribesmen, as well as from the folk doctors and poison specialists who practice in the Kerala countryside. He was also involved in the scientific development of this knowledge into pharmaceutical commodities. His thinking about the relationship between Ayurveda and biomedicine was very much organized by the ideology of medical parallelism. “Why should we translate Ayurveda into Allopathy? Only those who don’t have faith in their science attempt this.” As a respected yet marginal member of a scientific institution, his positivistic commitment to the ideology resembled the thinking of Ayurveda college graduate students and professors, much more than the pragmatic approach of clinical practitioners. I observed a few other college-educated doctors who labored as the token vaidya in cosmopolitan scientific institutions and they all shared this intense and positivistic view of the institutionally sanctioned ideology of the relationship between the disciplines. When it comes to medical parallelism such marginally positioned vaidya are often more Catholic than the Pope.

Dr. George had developed a clever strategy for shoring up his identity as a vaidya. The methodology of his research, consulting with tribal and folk doctors, he explained, is delineated in the *Carakasamhitā*, which advises doctors to consult forest dwellers about unknown medicinal plants. In collaboration with botanists, chemists, and pharmacologists, Dr. George was a lead research scientist on a project to develop a tribal medicine known as *ārōgya pacca* (green health). He explained to me some of his thinking about this research:

In Carakasamhita there are twenty *divya-auśadha* (or divine drugs). Now the plant SPECIES are unknown. They are said to be single drugs with various medicinal qualities. *Ārōgya pacca* is also that way. I don't know if it's true but I believe it may be a *divya-auśadha*.⁵⁷

This ideological framing clearly relates to Dr. George's institutional marginality as an isolated Ayurveda doctor practicing science at a pharmaceutical research institute. On the one hand, Ayurveda's fundamental principles are untranslatable and fundamentally different from those of biomedicine, yet on the other, he used a form of salvage translation to construe his technoscientific labor as a method for reconstituting the identity of one of Ayurveda's lost panaceas. Thus, Dr. George's ideological coding of his own scientific labor serves to secure his social identity as an Ayurveda doctor in the context of a kind of institutional marginality. Vaidya like Dr. Ammu—during her graduate school days—who conduct pharmaceutical research at the Ayurveda colleges also use translation to regiment the cosmopolitan and Ayurvedic sides of their activity. Their strong commitment toward the ideology of

⁵⁷ carakasamhitayil irupatū divyauśadha uṅṭū ... ippōḷ sasyattenre SPECIES ariyilla ... oru orramūlikkū phala guṇaṃ uṅṭū ennū paṛayunnu ... ārōgya paccavuṃ aṅṅane āṅṅū ... satyaṃ ennikkū ariyilla pukṣē oru divya-auśadha āyirikkam ennū viśvāsikkunnu.

medical parallelism, like that of the token vaidyan Dr. George, is motivated by their institutionally located project to construct a professional self.

This professional self sometimes changes as professors, researchers, and clinicians retire from government service, with pension in hand, to develop their own projects and interests in Ayurveda. I met some senior vaidya who, freed from their institutionally sanctioned responsibilities, and from the imperatives of producing a livelihood, tended to adopt a more philosophical and abstract attitude about Ayurveda and its relationship to biomedicine. I found this to be particularly true of college professors who, having spent their careers teaching students how to regiment the disciplines, upon departing the college, started to think more about the points of connection than the differences. Not that they were giving up on the ideology of medical parallelism. Rather, the ideological purism associated with the institutional center of the Ayurveda College was being replaced by a more philosophical cognitive style. For example, I met Dr. Shridharan four months before his retirement as a researcher and clinician at the Triruvanathapuram Government Ayurveda College. He had taught courses on Ayurveda pharmacology and worked as a clinical professor at the Ayurveda College Hospital. He also had written a textbook for the students of the college organized by the ideology of medical parallelism, which neutrally juxtaposed the approaches of both disciplines (Chapter 2 addresses the historical development of this textual organization of medical parallelism). “The comparative study of Ayurveda and Allopathy is very interesting,” he explained to me. “There is one interpretation of the *tridoṣa vata* which incorporates the Allopathic concept of the nervous system. Such interpretations are not very

important, just interesting to think about. Ayurveda is Ayurveda.” This more philosophical disposition fits well with the encompassing conception of Ayurveda which he developed upon retirement. After leaving the college, he started a herbal beauty care clinic with a friend, who was a businessman, and his wife, who was a cosmetologist. Thus, his work after retirement involved the development of Ayurveda and the expansion of its disciplinary boundaries to encompass a new regime of practice.

Individual differences in motivation, and thus, in ideological commitment, are sometimes analyzed from a psychological perspective in terms of differences in personality or intelligence. Psychological analyses such as these can tell us very little about the social nature of motivations, and more importantly, individual psychological traits are fundamentally contingent upon social conditions. A compelling example of the relationship between social and economic position and cognitive style can be found in Victor Turner’s (1967) description of Muchona the Hornet, an exceptionally intelligent and philosophically minded character who was Turner’s “interpreter of religion” during his work among the Ndembu. Muchona the Hornet was adopted as an adult from another tribe. Turner makes the point that his friend and the other intelligent and knowledgeable individuals that anthropologists encounter and rely upon during fieldwork— i.e., “the key informants”—share a quality of liminal social positioning. Muchona the Hornet was neither fully Ndembu, nor fully foreigner. As a marginal member of an Ndembu family, he was included in gift-giving, rituals, festivals, and so on, but his adopted kin would tend to draw on the resources of the more centrally located relations when they had to organize such

events. In a way, his marginal social positioning partially freed him from the labor to produce his own subsistence, in the same way that the academic class in western societies is supported by the state (Bourdieu 1990). As a liminal member of society and partially freed from the imperatives of production, he had both the proximity and the distance to study Ndembu rituals in great detail yet to be objective enough to interpret their significance to a foreign anthropologist. This example illustrates that there are social and economic conditions of cognitive style that influence the degree to which a particular person might be committed to a particular ideology or belief which they understand to be true.

I have argued that medical parallelism developed historically as response to the biomedical hegemony and asymmetrical alignment between the disciplines. The ideology creates and maintains a place for Ayurveda in the age of biomedical hegemony. However, the significance of that medical niche varies in terms of the practitioner's social location within the Ayurveda institution, and the kinds of practical labor associated with that positioning. All the individuals that I have discussed ostensibly believe this ideology to be true, but they vary dramatically in the intensity and orientation of their ideological commitments. I argue that the practitioners' social location vis-à-vis the margins and centers of the Ayurveda college as an institution is one of the main factors influencing their commitment to particular ideological positions. Whereas the ideology is a hard and fast rule for the professors and graduate students at the college, as well for vaidya who work in scientific institutions, practitioners who work in clinics find it to have a more practical significance, and some doctors nearing retirement consider the parallelism

of the disciplines to be of philosophical interest. In all these cases, the ideological commitments of Ayurveda doctors to medical parallelism vary in terms of the relative importance of articulating the similarities and differences between the disciplines in the context of their clinical, pharmaceutical, and intellectual practice. I now present an analysis of how the politics of similarity and difference structures the display of Ayurveda expertise vis-à-vis biomedicine.

The asymmetrical structure of displays of expertise in Ayurveda

This section contains a detailed analysis of a popular public-health Malayalam television program called Good Health. The transcripts that I will discuss are based on a recording of one broadcast that featured two experts, one a Lecturer at an Ayurveda college and research center whom I call Dr. Sīma and the other I call Dr. Indra, a Professor of Gynecology at a Cosmopolitan medical college. They were invited to give their different perspectives on practices to encourage a healthy pregnancy. The moderator, whom I call Jōthi, poses the questions to the experts that are designed to target areas of expertise that are stereotypically associated with the Ayurveda and Allopathic disciplines, respectively. So, for example, Dr. Sīma fields questions on topics like diet, clothing, bathing, and herbal drugs, whereas her allopathic colleague Dr. Indra fields questions on topics like *in vitro* organ development, exercise, bed rest, blood tests, vitamin supplements, and gestational diabetes.

The transcripts demonstrate a compelling example of the ideology of medical parallelism at work. I view the case as extreme and somewhat unique because it is

not common for Ayurveda and Allopathic experts to sit side-by-side and give comparative and contrastive testimony of their disciplines on a common topic. Medical parallelism, in fact, is often produced as a discourse in the absence of an Allopathic interlocutor. Allopathic doctors who are sympathetic to Ayurveda are often invited to Ayurveda conferences and to seminars in the colleges to give their testimony on the subject of their expertise, but they are not encouraged to relate their own knowledge to Ayurveda, unless they are also trained in Ayurveda or have read the classic texts in the original Sanskrit. Allopathic doctors often lecture on western anatomy and physiology in the Ayurveda colleges but, again, they are accountable only to the truth claims of their own science. In the case of the public health broadcast, however, the Allopathic interlocutor is present and her testimony highlights some contradictions with the testimony of the Ayurveda expert. This provides the context for a particularly compelling display of the politics of similarity and difference which underscore the ideology of medical parallelism.

The transcript below is part of Dr. Sīma's response to a question regarding the types of foods that a woman should eat to prevent miscarriage:

(Transcript 4-1: Dr. Sīma's doubt)

- 1 Dr. S cila taram bhakṣaṇa sādhanāṅgaḷ
(there are) a few types of food
- 2 āyurēdattilū aṅṅane paraunnatū .. allopathikkāran yōgikkū ennū
arīyilla
Ayurveda is saying it that way .. (I) do not know that allopathic folks agree (smiles and glances at Dr. Indra)
- 3 PINEAPPLE .. PAPAYA .. aṅṅane oru bhakṣaṇaṅgaḷ oru vākkū ennā
PINEAPPLE .. PAPAYA .. this way some foods are recommended

4 enrre pradhāna uddēśam ABORTION PREVENT ceyyānuḷḷu tane
 that is my important recommendation to PREVENT ABORTION (i.e.,
 miscarriage) itself

What explains Dr. Sīma’s deferral to her allopathic counterpart in Line 2? Dr. Sīma’s testimony defers in this way on five additional occasions during the 16 minute program, whereas Dr. Indra comments on Ayurveda only once and, as we shall see, the comment is framed as a non-serious and non-testimonial side-remark. Dr. Indra’s allopathic testimony is unified, centered, and authoritative because she is accountable only to her own discipline. The hegemony of biomedicine in colonial and post-colonial India has conferred it with an unmarked status. As an expert of this hegemonic system, Dr. Indra does not have to articulate her testimony vis-à-vis her Ayurvedic counterpart. Dr. Indra’s testimony stands on its own, without reference to Ayurveda or any other disciplinary traditions. In contrast, those like Dr. Sīma who testify to Ayurveda in this age of biomedicine do so under the conditions of an asymmetrical disciplinary alignment. Their testimony must account for both their own discipline and its relationship to biomedicine. Their testimony is thus fractured, decentered, and its authority is partially based on the criteria of biomedicine.

Consider this subsequent occasion when the moderator Jōthi asks Dr. Sīma a prototypically Ayurvedic question about dietary regulations (*pathya*) during pregnancy:

(Transcript 4-2: That's not what the Allopathy folks say)⁵⁸

- 1 J: entellāṃ bhakṣaṇa śerikkūṃ oru garbhiṇi kalikkāṃ .. entellāṃ kalikkārutū?
what are all the foods that a pregnant woman can eat .. what are all the foods that (she) should not eat?
- 2 S: ādhyaṃ māsaṅṅal pōṣaṇaṃ āhāraṃ .. atāyiyatū neyi pal kalikkān paṛayunnunṭū
in the first months nourishing food ... (I) am saying to eat ghee (clarified butter) and milk
- 3 neyi kalikkān ennū paṛayumpoḷ utene .. allopathikkāraṅ oru FAT unṭākkunnatū kalikkārutū @@@@
when saying to eat ghee at once .. Allopathy folks (say that you) should not eat that which makes FAT @@@@
- 4 pakṣē atū alla
but that is not (correct)
- 5 atreyuṃ adikūṃ vaḷare kalikkānuḷḷatū alla
(she) should not eat (ghee) too excessively
- 6 atū pōlē ilātatū neyi kaliccāluṃ FAT kūṭakaḷ onnum illa
if you don't eat ghee (excessively) like that, FAT will not increase even one bit
- 7 atinakattū CONTENT anusariccū āṅṅ .. atūṃ MEDICATED ghee āṅṅ paṛayunnatū .. atū veṛute kalikkān alla uddēśikkunnatū
it is on the basis of the content inside it .. (I) am saying that it is MEDICATED ghee .. (I) am recommending that it not be eaten without purpose

⁵⁸ Note that Dr. Sīma does not distinguish with pronouns her own authority as an Ayurveda Doctor and the authority of Ayurveda as a tradition. Malayalam lost its person and number verb terminations, which contrasts with the closest related Dravidian language Tamil, as well as with the Sanskrit derived languages of North India (Hindi, Bengali, etc.). Furthermore, unlike in English, Malayalam pronouns may be easily dropped in situations where authority or status distinctions might be usefully ambiguated. In Line 2 of this text the auxiliary and main verb forms “saying to eat” (*kalikkān paṛayunnunṭū*) lack any morphological or pronominal indicator of authorship. Pronouns would distinguish Dr. Sīma as the authoritative voice, whereas a variety of institutional and social noun forms could be used to ascribe authority to the tradition itself. The ambiguity allows Dr. Sīma to speak for the tradition as an authoritative expert without actually referencing *śāstra*. I have inserted English pronouns in parentheses to aid in the coherence of the English translation, but it is important to remember that they are actually omitted from the Malayalam which creates an effect of institutional-vocality.

8 aṅneyuḷḷa āhāraṅṅaḷ .. neyi .. pal upayōgikkunnu .. atṭ pōlē kūṭakaḷ
śraddhikkānuḷḷu bhakṣaṅṅaḷ
*foods which are this (purposeful) way .. ghee .. and using milk .. like
that there are many foods which require attention*

The consumption of clarified butter or ghee is a common prescription in Ayurveda used to build bodily strength and mass in preparation for taxing procedures, and in this case, to build up the woman's strength and to facilitate the fetus' development. Such points of incongruence question Ayurveda's scientific status yet they also provide an opportunity to accentuate the difference upon which Ayurveda's medical niche is based.

Note that the allopathic practitioner is not equally compelled to encompass her Ayurvedic colleagues' knowledge within her own testimony. The following transcript contains the only episode in which the experts directly address each other in conversation, as well as the only time the allopathic expert Dr. Indra speaks on the topic of Ayurveda. Jōthi asks Dr. Sīma about the specific issues to attend to when pregnant women take Ayurveda drugs. On Line 8 Dr. Sīma recommends a bitter *kaśaya* made from cow's milk for women in the second trimester. She continues this recommendation on Line 10 but is interrupted by Dr. Indra, "[kaśaya may be terribly] bitter .. dear doc[tor]." The overlap brackets illustrate that before Dr. Indra's interruption-turn is completed Dr. Sīma interjects that the bitter taste will pose no problem to the women because sweetness may be added. Both doctors laugh at the interaction.

(Transcript 4-3: Dr. Indra's interruption)

1 J: doctor poduve āyurēda marunnakaḷ garbhiṇi kaḷikkumpoḷ entellāṃ
kāryaṅṅaḷ średikkaṇaṃ .. ētū marunnakaḷ kaḷikkam?
*doctor generally when taking Ayurveda medicines what are all the
issues of which pregnant women must be careful .. which medicines
may (they) eat?*

(Gap Lines 2-7; S discusses herbal drug recommendations for the first trimester)

8 S: rundāmate TRIMESTER-il āṅṅu veṇḍatū koṭukkunnatū .. pal kaśayaṃ
koṭukkum .. kurumdothi
*in the second TRIMESTER that which is necessary may be given (to the
patient) .. milk kaśāya (decoction) can be given .. (also) kurumdothi*

9 J: mhum

10 S: [kaśaya sādhanam]
[kaśaya thing]

11 I: [kaśayaṃ bhaiyāṅkara] kaippū āyirikkaṭṭe .. doc[tore]
[kaśaya may be terribly] bitter .. dear doc[tor]

12 S: [alla pal] kaśayaṃ
ākkumpoḷ
*[no milk] .. when
making that kaśaya*

13 I: <@ alla .. alla @>
no .. no

14 S: madhura cērkkam .. doctor <@ kurpumilla @>
(she) may add sugar .. <@ no problem @> doctor

15 J: [ī allopathi marunnū āyurēda marunnū] orumiccu garbhiṇi kaḷikkān
pāṭilla?
[‘switching sides’ gesture]⁵⁹
*[these Allopathic and Ayurveda medicines], together the pregnant
woman cannot eat?*

⁵⁹ I have often observed this gesture in Ayurveda classrooms when professors negotiate the Allopathy to Ayurveda topic switch. The gesture crosses the lateral line of the body and the open palmed hand rotates from downward to upward from at the vertical line of the body, diagramming the switching of sides between the interpretations of the two systems.

- 16 S: COMPLICATIONS ullū CASE-illeṇēṅkil (?) RESTRICT ceyyaṇaṃ
in cases with COMPLICATIONS (we) should RESTRICT
- 17 ādharaṇa garbhīṇi bhāva .. pratyēka asukham illātātū garbhīṇi āṇēṅkil
āyurvēda marunnakaḷ kaḷiccālum mati ennuḷḷatāṇū
*for the experience of regular pregnancy .. if the pregnancy is without a
special illness it will be enough to take Ayurveda medicine*
- 18 J: (asks question to Dr. Sīma about the application of fatty oils when
bathing)

Again, this is the only occasion that Dr. Indra addresses the topic of Ayurveda. As an interruption, and not as an answer to a question from the moderator, Dr. Indra’s comment is not framed as expert testimony. I interpret the laughter and denial on Line 13 as a display of a non-serious stance toward her own interjection. The content of Dr. Indra’s remarks is itself common as opposed to expert knowledge. The extreme bitterness of *kaśāya* is a recurrent topic of conversation whenever it is ingested, and likewise, it is also common knowledge that pregnant women often have difficulty ingesting strong tasting foods. So, Dr. Indra’s only comment on things Ayurveda is framed as a commonsense contribution, more from the subjective perspective of a patient (perhaps also based on her own experience with pregnancy) than as a counterpoising expert.

Later on, when Jōthi segues from Dr. Sīma’s talk of “food medicines” and asks Dr. Indra to address nonfood (i.e., non-Ayurvedic) medicines, Dr. Indra does not draw a comparison or contrast with the preceding talk but rather testifies only to the allopathic vitamin recommendations. In contrast, Dr. Sīma on one occasion references Dr. Indra’s previous contribution about “organogenesis” to buttress a recommendation that intelligence enhancing Ayurveda drugs such as *bremi* can be

taken in the second and third trimesters to enhance the fetus' brain development. In Dr. Sīma's last turn-at-talk, the last turn of the occasion, she lays out a division of medical labor between Ayurveda and Allopathy:

(Transcript 4-4: Dr. Sīma's concluding advice)

- 1 J: aah .. doctor .. entāṇṅ gharbiniyāyrikkunnayullū stri
aah .. doctor .. for the women with ongoing pregnancy
- 2 ippoḷ gharbiniyāyrikkunna ullū strikkū .. striyotū entāṇṅ paryānuḷḷatū?
for the women now with an ongoing pregnancy .. what (advice) do you say to those women
- 3 S: āyurvēda āṇo allopathi āṇo ennū nokkāte ārogaṃ ullū kuṇu namuḍe tiercayum
if (you) try Ayurveda or Allopathy the healthy child is our only obligation (lit. our "of course")
- 4 atinū veṇḍa karyāṇṅal cayyuka nalatāṇṅ
for that it is good to do the necessary things
- 5 marunna .. roga āvasta onnumilleṅgil āyurveda riti torayuka
medicine .. if there is no illness situation use the Ayurveda method
- 6 pratēkica āsukham DIAGNOSE allopathi METHOD-um
DIAGNOSE special illnesses with the Allopathy METHOD
- 7 enniṭṭu pinne āyurvēda ceyyān nallatāṇṅ ennikkū parayaṇaṃ
do that and than it is good to do Ayurveda, that is what I want to say

In all regular pregnancies Ayurveda medicines should be used to increase the health of the mother and baby; if there is a particular problem allopathic methods of diagnosis should be used and then Ayurvedic methods of treatment on their own in most cases should suffice. Thus, even the use of allopathic style diagnostic procedures in Ayurveda contexts is seen as a sign of the parallelism of the two disciplines. This asymmetrical structure of Ayurveda testimony occurs in various contexts such as Ayurveda college classrooms, scientific conferences, and clinical

consultations. We see in these transcripts that time and time again Dr. Sīma's testimony is an account not only of Ayurveda alone, but also of its relationship with biomedicine. Between the two systems she highlights key points of difference, encompassment, and similarity, and uses allopathic medical knowledge to legitimate her own Ayurveda testimony. I have argued that this interactional asymmetry can be interpreted as a performative embodiment of the historically asymmetrical alignment between the disciplines. It is on account of this asymmetrical historical alignment and its acquisition-in-practice that Ayurveda and cosmopolitan scientists and doctors participate in the new medical economy on a profoundly unequal footing. The next section deals with the pedagogic practices which socialize Ayurveda doctors with the necessary skills to negotiate medical difference in this context.

Pedagogies of similarity and difference

Facility in the negotiation of disciplinary parallelism is an essential skill for Ayurveda doctors. In clinical practice the skill is necessary for the pre-translation of Ayurveda diagnosis, by which doctors regiment Ayurvedic and cosmopolitan knowledge in the context of doctor-patient consultations. Other physicians engage in public health education, pharmaceutical research, or they become Ayurveda college professors, all of which require the constant negotiation of medical parallelism. Classroom interactions at the Ayurveda colleges are one of the primary contexts in

which this ideology and the skills necessary to manage disciplinary boundaries are socialized.⁶⁰

Topic sequence and shift are particularly important in this process of socialization. The topic of a lecture, which may be staged on one occasion or span several days, is often focused on the functioning and treatment of specific diseases. Disease categories, as topics, facilitate comparison because they are believed to be equivalent across the disciplines, yet the interpretations and treatments of the diseases are distinctive. So, for example, in a lecture on the topic of cervical spondylosis delivered by the Principal of the Thiruvananthapuram Ayurveda College first, the Principal discussed the diagnosis of the disease, including its anatomical and physiological context, and then, he described the tridoṣic interpretation in Ayurveda and its treatment with herbal drugs (*auśdha*) and purification procedures (*pañcakarma*). On the cosmopolitan side, he employed English scientific anatomical terms while pointing to the cervical vertebrae of a doctor who volunteered to serve as a model. He made no reference whatsoever to biomedical treatments, only to biomedical diagnosis and pathology. On the Ayurveda side, he recited śāstric verses, to which the audience chimed in, and interpreted them using solely Ayurvedic concepts. For their exams students are required to memorize these verses

⁶⁰ I have a sizable corpus of audio recordings which I collected in Ayurveda college classrooms of various sorts. One of the most interesting aspects of these data are the patterns of code-switching which alternate between the Sanskrit recitation of text, the English literal translation of the text, and then a mixture of English and Malayalam for the interpretation of the meaning of the text. Ayurveda college teachers often use Malayalam to channel-check with the students and to encapsulate the interpretation in brief take-home points. So, code-switching is used to regiment the distinction between text, translation, and interpretation, and this regimentation relates both to ideologies of *śāstric* authority, as well as to the skills necessary to interpret and communicate *śāstra* to audiences such as educated patients and cosmopolitan scientists. I will develop this important area of investigation in future publications.

by heart and professors often asked them to recite the verses discussed in class using the classical metrical style (see Photo 4-1).



(Photo 4-1: Ayurveda college students memorize Sanskrit verses by walking to the cadence of the verse's meter)

Although both the allopathic and the Ayurvedic approaches to the disease were presented, the mode of comparison of the two systems was neutral juxtaposition. The two approaches are not evaluated against each other; they are placed side-by-side as separate approaches to a unified phenomenon. This topic sequence, from Allopathy to Ayurveda, is practiced by most of the teachers I observed at the Ayurveda College,⁶¹ and it resembles the structure of colonial and postcolonial works on materia medica. One teacher explained to me that she prefers that order because she believes that it helps the students to interpret the modern significance of Ayurveda, as if the first topic (biomedicine) is the context for the second topic (Ayurveda). This particular mapping of propositional content to the surrounding context resembles the argument provided by Ayurveda doctors for the pre-translation of Ayurveda diagnosis in the context of doctor-patient consultations. It was the

⁶¹ One doctor I observed taught Ayurveda first, arguing to me that at an Ayurveda College it is only appropriate that Ayurveda precedes Allopathy.

context of the prestige and widespread acceptance and knowledge of Allopathy among educated patients which some doctors argued was the reason they only employed English biomedical diagnostic terms during consultations.

One of the most startling features of the neutral juxtaposition of the two disciplines in classroom discourse was the seemingly unproblematic nature of the topic switch. In English, “on the Ayurveda side,” or in Malayalam, “in our science ...” (*namaluṭe śāstrattil*), are two of the common topic switches, often accompanied by a characteristic “switching sides” gesture (for a description of this gesture see Footnote 59). There is no statement of evaluation, comparison, or linking, simply a switch in topic. Neutral juxtaposition, while represented in classroom discourse as fairly unproblematic, takes place in the context of an asymmetrical alignment between the disciplines and it is preceded by a history of colonial pharmaceutical extraction and condescension. I now turn to a detailed analysis of a transcript of classroom discourse which occurred at a graduate seminar. Some of these students might one day become professors at Ayurveda colleges, and thus it is especially important that they understand how to negotiate Ayurveda’s fraught disciplinary boundary with biomedicine. I will examine one case in which a Professor of toxicology at the Thiruvananthapuram Ayurveda College used a trick question to demonstrated how easy it is for this boundary to be overtaken.

The graduate students of the Department of Agadatantra (toxicology) are in fact already doctors, having completed their training in Ayurveda colleges, and having done several years of clinical work after graduation. Postgraduate training involves specialization and original research in a particular subfield of Ayurveda.

Students who successfully defend their thesis are awarded the degree of Medical Doctor of Ayurveda (M. D. Ay.), which is the highest title sanctioned by the Government of India, and certifies the holder to teach courses in the medical colleges. Doctors who make the transition to college professors are required to address the problems posed by medical parallelism head-on in their own research. So, for the graduate students at the College, the ideology of medical parallelism is familiar indeed. In fact, it was these doctors who throughout my research took the time to underscore the importance of separating the two disciplines, even as their research incorporated the tools and concepts of technoscience. It is perhaps because their own professional practice might involve the socialization of novice doctors at Ayurveda colleges that their Professor would challenge them to think about the discipline of Ayurveda in new ways.

Toxicology in Ayurveda largely relates to the treatment of plant and animal “poisons” (*viṣa*), which in Kerala is a highly developed and esoteric field that draws heavily upon the non-śāstric “folk medicine” (*nāṭṭū-vaidya*) common in the Kerala countryside. On the occasion I present below the junior doctors were learning how to produce these Kerala-specific preparations under the supervision of one such traditionally trained doctor (Photo 4-2). Photos 4-3 and 4-4 picture the materials used to produce the drugs, labeled and arranged on the table.



(Photo 4-2: Three junior doctors consult a traditional vaidyar [right])



(Photo 4-3: The ingredients of the vaidyar's prescriptions are labeled and arranged on the table.)



(Photo 4-4: Three junior doctors and a laborer process the raw materials)

Periodically throughout the weeklong production process the students, teachers, and professors would meet to discuss their work. The transcript below is based on the audio recording I made from one of those classes. The two participants I will focus on are the Department Professor and Chair (Photo 4-5) and his seniormost student, who is from the northward neighboring State of Karnataka but is fluent in Malayalam (Photo 4-6). In this transcript the professor employs locatives and other forms (underlined) to intentionally misconstrue the topic of the conversation in terms of biomedicine. The trick causes the seniormost student to answer a question about Ayurveda using technoscientific criteria, a major violation of the ideology of medical

parallelism. The professor uses the seniormost student's gaffe to advise the students concerning the importance and difficulties of separating the two systems.



(Photo 4-5: The professor [left] and two teachers sitting at the head of the seminar table.)



(Photo 4-6: The seminar table. The seniormost student is sitting across the seminar table from the Professor looking to the right of the camera.)

(Transcript 4-5: Teaching the teachers; P: Professor; S: Student)

1 P: ī viṣahara dravyaṅṅaḷ ... PLANTS mātraṃ ... viṣaharamāyittuḷḷa herbs-ilū ... ellāṃ nammaḷ upayōgikkunnu
these antitoxic substances ... only the PLANTS ... we are using all of the herbs that are antitoxic.

2 itinellām viṣaharmāyittū pravartikkunna ēteṅkiluṃ oru COMMON INGREDIENT itinakattū uṅṅū.
among all of these whatever functions as an antitoxin there is a COMMON INGREDIENT inside of it.

3 oru .. oru CONTENT ellātiluṃ uṅṅū
there is a ... a CONTENT in all of them

4 COMMON-āyittuḷḷa ēteṅkiluṃ orenṅam uṅṅū
of whatever there is COMMON there is one number (item)

5 S: ētū INGREDIENTS?
which INGREDIENTS?

6 P: ippō nīlāmari ... vaḷare pradhānappetta onnāṅṅū
now nīlāmari ... is a very important one

(Gap; the Professor designates five additional medicinal plants)

27 P: ētāṅṅū EFFECTIVE?
which is EFFECTIVE? (Alpina galanda or vanda)

- 28 WHICH ONE IS MORE EFFECTIVE enna aññane cōdiccāl ...
ANSWER unṭō?
WHICH ONE IS MORE EFFECTIVE, if we asked it that way ... is there an ANSWER?
- 29 S: illa (“no,” which in this case does not imply disagreement) chemically this *Alpina galanda* contains this much of alkaloids and that is equal in snakebite management from poison ... that specimen does not contain this alkaloid [which is effective]
- 30 P: [atū ... atū] orikkalum paṛayān parrilla
[That ... that] can never say
- 31 aviṭeyāṅṅū nammūṭe MODERN SCIENCE-um āyurvēdavumāyi terrippōvunna sthalaṃ aviṭe āṅṅū
there is the place where our MODERN SCIENCE mistakenly goes as Ayurveda
- 32 S: śari saṛ
yes sir
- 33 P: ippō tanne ... oru PLANT eṭuttū ... <dis PLANT CHEMISTRY dis> ippō ērravum LATEST BOOK eṭuttū REFER ceyālum PLANT CHEMISTRY vēṇaṃ
now itself ... if you take a PLANT ... <dis PLANT CHEMISTRY dis> and if you REFER to the most RECENT BOOKS you need PLANT CHEMISTRY
- 34 atinakattū paṛayanna korē ALKALOID TOPICS marratū maṛiccatū
the inside (of recent books) has changed to many and various ALKALOID TOPICS
- 35 atrayē ivarū kaṇṭupiticcittullū
only that much they have discovered
- 36 itil kaṇṭupitikkāṭta entellāṃ sādhanam itinakattū unṭū
there is something else inside (the plant) in addition to what is discovered (in alkaloid research)
- 37 ellāṃ namukkū aṛiyāmō?
do we know everything?

- 38 ariyilla!
don't know!
- 39 appō ... itū vare ... kaṇṭupiṭicciṭṭillāṭṭa ētenkilum sādhanam āyirikkum
WORK ceyyunnatū
*then ... up to that ... whatever else that has not been discovered may be
the thing that is doing the WORK*
- 40 atū namukkū ariyilla
that we don't know
- 41 appō ... entatāṇṅū ennū paṛayān parrilla
then ... this is what we cannot say
- 42 pinne CHEMICAL CONSTITUTION-vaccū ī CONSTITUTION uḷḷa
sādhanam okke ī ACTION uṇṭākkum ennū paṛaṅṅalū ...
aṅṅaneyāṅṅenkil namukkū yātoru viṣamavum illā
*then according to (the theory of) CHEMICAL CONSTITUTION the
ACTION (of a plant-drug) is made by all of the parts of this
CONSTITUTION, if that is said it shouldn't cause us any worry*
- 43 nalla oru CHEMIST uṇṅenkilū nammaḷū paṛayunna sādhanam ... atū
pōlē COMBINE ceytū READY ākki sādhanam kayyil taruṃ
*if there is a good CHEMIST, the things we are saying (chemical
constituents) ... like that (the chemist) will COMBINE, make READY,
and put the thing in your hand*
- 44 S: what then is the common thing?
- 45 P: niṅṅaḷkkū ariyāmallō
you actually know it
- 46 nammaḷū ORANGE piḷiṅṅa JUICE kuṭiccālū ... atiēkkaḷum nalla
ORANGE-inrre maṇavum ... nalla TASTE-um aṅṅū
*if we squeeze an ORANGE and drink the JUICE ... there is a good
ORANGE smell ... and a good TASTE*
- 47 vāṅṅiccū kuṭiccālū ... CHEMICALLY SYNTHESIZED ... raṅṅum
raṅṅū ACTION allē
*if (we) buy and drink ... CHEMICALLY SYNTHESIZED ... for both
there is a different ACTION, isn't there?*
- 48 ini ī ORANGE JUICE-inrre CHEMISTRY entāṅṅū?
now what is the CHEMISTRY of this ORANGE JUICE?

- 49 atũ pōle avarũ ceytũ taruṃ
like that they (the chemists) will do (for us)
- 50 ORANGE JUICE kutticcō?
have (you) drunk ORANGE JUICE?
- 51 S: saṛ (sir) then how to compare these five things?
- 52 P: raṅṅũ PART-um ceyyaṇaṃ ... raṅṅũ PART-um ceyyaṇaṃ atā ñān
paraññatũ
do both parts ... do both parts, that is what I say
- 53 āyurvēda PART-um ceyyaṇaṃ ... MODERN PART-um ceyyaṇaṃ
do the Ayurveda PART ... do the MODERN PART
- 54 MODERN-il avar atinrre CHEMISTRY paṛayunnu
in the MODERN (part) they are saying its CHEMISTRY
- 55 inna ... inna ... innatupōluḷḷa PLANTS ... itil itilellāṃ SIMILAR āṅṅũ
ennũ paṛayaṭṭē
*these ... these ... the plants like these are ... in them there is something
SIMILAR, permit me to say that*
- 56 nammaḷ atinrre rasa guṇa vīrya vipāka prabhāvaññale ... atinrre
SIMILARITY kaṅṅupitikkanaṃ
*we should discover the SIMILARITY of their rasa, guṇa, vīrya, vipāka,
and prabhāva-s*
- 57 FIRST ... raṅṅũ mūnnũ kāryaṅṅaḷ ceyyāṅṅuṅṅũ
FIRST ... (we) need to do (consider) two or three things

In Lines 1-4 the Professor poses a question about the commonality between all the drugs used as snake venom antitoxins. I have underlined the locative case markings in Lines 2 and 3 which direct attention to the interior of the drugs. Also note on Line 4 the word “oreṇṇaṃ” (one number/item), as well as the preceding English words “COMMON INGREDIENT” and “CONTENT,” which imply a particulate entity contained within all the drugs. The Student takes up this technoscience framing of the question in Line 5, “ēṭũ INGREDIENTS?” (Which

INGREDIENTS?). Over the next 21 utterances, which I have omitted from the transcript, the Professor designates a set of five anti-toxic plants used in Ayurveda. The transcript picks-up on Line 27 and 28, where the Professor asked the students to contrast the effectiveness of two designated plants, *Alpina* and *vanda*. The Student, still interpreting the Professor's query as based in the genre of cosmopolitan science, states "illa chemically this *Alpina galanda* contains this much of alkaloids and that is equal in snakebite management from poison ... that specimen does not contain this alkaloid [which is effective]" (Line 29). This answer earns a stern rebuke from the Professor, "[That ... that] can never say; There is the place where our MODERN SCIENCE mistakenly goes as Ayurveda" (Lines 30-31), which is the first signal that the Professor's chemistry framing of the topic was meant as a *trick question*.

In taking-up the Professor's intentionally misconstrued framing of the talk, the Student has unwittingly answered a question about the functioning of Ayurveda drugs solely using a technoscientific criterion—a major violation of the norms of institutionalized medical parallelism. The Professor takes this as an opportunity to criticize the trend toward alkaloid research in recent Ayurveda textbooks, emphasizing the critical perspective Ayurveda apologists should take toward technoscientific authority (Lines 35-43). For example, Lines 34-38 read "There is something else inside (the plant) in addition to what is discovered (in alkaloid research); Do we know everything?; Don't know!" However, the Student persists in his original interpretation of the topic (Line 44). In Lines 45-50, the Professor again takes the opportunity to describe how to regiment the two systems, in this case using an orange juice metaphor that contrasts the natural "fresh squeezed" properties of

Ayurveda with the potent yet synthetic (Tang-like) properties of English or biomedicines. The sequence repeats itself, with the Student's question on Line 51 and the Professor's subsequent injunctions to "do both parts... (Line 52)," until on Lines 55-56, when the Professor finally lets the cat out of the bag. The similar thing, the common ingredient, the one item located within the five designated plants, about this the Professor explains "*we should discover the SIMILARITY of their rasa, guṇa, vīrya, vipāka, and prabhāva-s.*" Really, it was Ayurveda all along. As the seminar continues the Professor and his students do a survey of the Ayurveda categorizations of anti-toxic drugs to identify those statistically recurrent patterns.

The Professor's trick pedagogy in this instance exposes the difficulties of maintaining an ideology of medical parallelism. His use of the locative case marking and English and Malayalam nouns for particulate entities is a violation of Paul Grice's *Maxim of Manner*; to communicate in an appropriate style (1989). His atypical manner—atypical of Ayurveda talk—allowed the Professor to falsely ground the topic within the genre of technoscience, in which context the action of drugs is interpreted in terms of the plant's interior constituents. In setting up the seniormost student's repeated gaffes, the trick question provided three occasions for the Professor to socialize the students with strategies for carefully regimenting the two paradigms in their professional practice. In Line 56, when the Professor finally clarifies the goals of the seminar, he employs the genitive case marking (*-enrre*) which is typically associated with *dravya-guṇa* categories (underlined in the transcript). Ayurveda drugs *have* *rasa, guṇa, etc., inside* these drugs, are located their chemical constituents. Thus, trick questions are structurally metalinguistic. In

their resolution they direct the participants' attention back to the previous question and to its tricky presuppositions. Why assume that technoscientific knowledge explains the actions of Ayurvedic drugs? Just as in technoscience, so in Ayurveda—along these lines, the Professor goes on to illustrate that the antitoxic function of the medicinal plants can be analyzed with rigor and systematicity.

Toward the cutting edge

In their research, and potentially in their future as Ayurveda college professors, the professional practice of these junior doctors must both appropriate and hold apart these two scientific paradigms. The seniormost student featured in the transcript, for example, conducted his research on one of the antitoxic formulations prepared during the seminar. Employing a method common to toxicological research, he documented that the heavy-metal content of the preparation did not accumulate in toxic quantities in the livers first of mice and then of rabbits. Standard pharmacological protocols such as control groups and statistically generalizable sample sizes were employed.

This research was done in part as a response to an article published in the *Journal of the American Medical Association* which documented toxic levels of heavy metals in Ayurvedic preparations sold in the Boston metropolitan area. The study warned of the possible dangers associated with heavy-metal consumption, especially for children (Saper et al. 2004). The article, published in such a prestigious venue, was perceived by doctors at the College and elsewhere as a major threat to the global future of Ayurveda. The apologists' response: "Of course there are heavy metals in our formulations. We put them there!" On methodological

grounds, Ayurveda specialists in the use of heavy-metals (*rasa-tantra*) argued that the Boston study only documented the presence of the metals in the products, not a toxic effect on living organisms. With purification and in combination with medicinal plants, heavy metals have historically been used safely and with great effect. The Student's research documented with the tools and conventions of cosmopolitan science that in fact the silver and mercury contents of the traditional snake anti-venom did not accumulate in toxic quantities in living organisms. This was viewed as a legitimation of Ayurveda and as a refutation of the methodologically flawed Boston study. Of course, these findings were juxtaposed with the Ayurvedic theory of mineral purification (*śodhana*), which also predicts that properly treated minerals will not have a toxic effect on the patient.

This type of scientific labor juxtaposes two parallel views of the material world as equal approaches to a unified phenomenon. Although there are points of convergence and matters of debate that arise in pharmaceutical practice and research, the two theories employed in modern Ayurveda institutions are not in a state of apparent conflict heading toward some synthesis or resolution that unifies the discipline. In fact, it is the juxtaposition of the two sciences as contrasting views on the same set of phenomena which is facilitating the most cutting-edge questions in terms of pharmaceutical science. What are the effects of Ayurvedic purification and herbal supplementation on heavy metals? How do pharmaceutical processes in Ayurveda affect the chemical structure of drug materials? The Student explained to me that quantum mechanics is now demonstrating the probabilistic nature of both the material universe (on the quantum level), and the scientific ability to make truth

claims about it. We should not be shocked, he assured me, when we discover in the liver the absence of heavy metal particles that should be there. There is a great deal that we do not know. Indian nationalist scholars such as Swami Vivekananda and the famous physicist and plant physiologist K. C. Boas emphasized the correlation between Western science and Indian philosophy in terms of the universal nature of scientific truth-claims such as the Laws of Thermodynamics or the fundamental features of bio-electrical activity. However, the scholars I met working on the parallel analysis of Indian drugs would more often reference, albeit in a general way, quantum mechanics and chaos theory, which they interpret as creating space for the types of questions that Ayurveda can pose.

The next chapter continues the investigation of how the boundary between Ayurveda and biomedicine is produced through truth claims and disputes in the context of a scientific conference on the topic of the modernization of medicinal plants.

Chapter 5

Truth claims and disputes in Ayurveda medical science

The main goal of this chapter is to document how truth claims are articulated and disputed by contemporary Ayurveda doctors. The scientific validity and social importance of Ayurveda drugs has been the subject of intense debate since the first British medical officers took up their study in various ways in the late 18th century. This debate over the medical efficacy of Ayurveda drugs intensified in the early 20th century when Ayurveda was taken as a point of pride by the anti-colonial nationalist movement. The debate continues today as scientists, doctors, capitalists, environmentalists, and politicians (Marxist, Gandhian, and Hindu right-wing alike) work to modernize the Indian drug industry as part of the nation-state's biotechnology development program. Medical anthropologist Lawrence Cohen (1995) has characterized this confluence of interests, and ideologies and truths about health and the body as an "epistemological carnival."⁶² It is indeed clear from other ethnographic and cross-cultural research that the statements of patients and doctors are epistemologically complex, often juxtaposing different kinds of medical knowledge (Young 1981, Farquhar 1991). By directing critical attention toward the

⁶² Cohen's metaphor of the Ayurveda conference as a carnival captures the playful juxtaposition of multiple or contradictory epistemologies. However, the metaphor is only half appropriate to my own observations of Ayurveda conferences. Bodily spectacle, a principle characteristic of carnival, is typically covered up by the scientific and professional accoutrements employed at scientific conferences and other institutional venues. While the body is constrained, however, there is a playful and creative manipulation and display of epistemological complexity.

discursive organization of truth claims and disputes in this situation of multiplex epistemologies, it is my hope that this chapter can serve as an illustration of one way in which linguistic anthropology can contribute to the social sciences of medicine.

Scientific communities are one type of social organization where we might expect to find such conflict and argument about truth claims to be a generative process that is quotidian rather than episodic, central rather than marginal, and systemic rather than epiphenomenal. Although some philosophers such as Thomas Kuhn (1996 [1962]) have emphasized the self-assured, unified, and progressive character of scientific communities, several decades of research in the social studies of science have documented that scientists dispute truth often enough and with zeal, especially at the institutional sites of knowledge production where reputations and livelihoods are at stake. Sociological investigations of scientific controversies (Engelhardt and Caplan 1987) have emphasized that the closure of scientific debate and the unification of the community have to be produced and maintained, based both on the rational merits of scientific truth claims, but no less on the political strategies and economic resources deployed by the protagonists. The work of Bruno Latour (Latour and Woolgar 1979, Latour 1987, Latour 1999) has documented many times the strategies of rhetorical and technological practice employed by scientists to produce and warrant their truth claims.

As it turns out, far from being epistemologically cataclysmic or socially divisive, I have found disputes over truth claims to be a normative occurrence at the institutional sites of modern Ayurveda. Given the complexity of interests involved in the debate over the efficacy of Indian drugs, not to mention the economic stakes, it is

perhaps not too surprising that controversies in Ayurveda are recurrent around the issue of its scientific authority vis-à-vis biomedicine. I argue that one important way in which Ayurveda's boundary with biomedicine is maintained and adjusted is through the recurrent contestation of truth claims which crosscut the disciplines.

The sociologist Gregor Simmel (1956 [1908]) was perhaps the first social theorist to recognize that recurrent and low-level social conflict can become normatively regulated and thus serve to integrate a social system. The insight that conflict can be a productive and perhaps integrating phenomenon is surprisingly prescient, especially given how the theorization of conflict has been unfortunately constrained by the teleological focus of Hegel (via Marx, Marx and Engels 1967), as well as by Durkheim's explicitly negative construal of individual conflict as a social pathology (Durkheim 1997 [1893]). In contrast with these closed teleological frameworks, dynamic and generative conceptions of conflict were developed and centered within anthropology by the work of the Manchester School of social anthropology (Gluckman 1955; Turner 1957) and by Gregory Bateson's cybernetic approach to social communication (Bateson 1972).

The case of Ayurveda debate is presented in this chapter as an example of a generative form of conflict involved in the production and maintenance of a historically contingent form of disciplinarity. The case of scientific debate more generally, and Ayurveda debate in particular, foregrounds the role of *ideologies of truth* in the discourse-level organization of the talk. All truth claims are based on an ideology of what constitutes a truth as such. For example, truth claiming in the context of US courtrooms, as Susan Phillips has argued (1992), is constrained by

standards of evidence such as the distinction between expert and witness testimony, and the prohibition against hearsay. In this context truth is ideologized as that which is “beyond reasonable doubt.” This ideology of what constitutes truth is related to the ideology of rational empiricism typically involved in evaluations of scientific truth claims. Scientific debates, whatever else they accomplish, are believed by many scientists to be about objective truths which are characteristics of an empirically observable reality. While the social effects of this ideology among Western sciences are well documented by the sociologists of science, there has been less investigation of the practice of truth claiming and debating in non-Western scientific traditions. This gap is unfortunate because, in contrast with Western scientific institutions where standards of evidence, debate, and epistemology are relatively codified (note the hegemony of Karl Popper’s ideas among practicing scientists, Mulkay and Gilbert 1981), post-colonial scientists in India at times employ a multiplex epistemological repertoire which draws upon an equally multiplex set of linguistic and cultural categories and discourses, including those of Western or international science (Nandi 1995 [1980]).

Certainly Ayurveda debate involves a strand of rational empiricism. For example, the anthropologists Margaret Trawick (1982) and Gananath Obeyesekere (1992) have both demonstrated how empirically focused experimentation, debate, theory change, and other indicators of scientific consciousness are important features of Ayurvedic practice. On the other hand, in the context of Ayurveda epistemology, in addition to this strand of rational empiricism there is also an equal valuing of foundational truths codified in text as well as of the practitioner’s own subjective

experience. When speakers make and dispute truth claims they organize their discourse in relation to this repertoire of what can count as truth. Likewise, when anthropologists, social scientists, and philosophers make meta-truth claims, we also, whether explicitly or implicitly, base our evaluations on an ideology of what counts as truth and its ontological basis (contrast, for example, postmodernism, pragmatism, and positivism as approaches to anthropology).

In the case of the debate featured below an historically contingent set of ideologies of truth is deployed as a way of articulating truth claims. This particular way in which evidence is organized and ideologized is largely unique to Ayurveda, and in particular, to the discussions and debates occurring in the postcolonial context of its institutionalized and modernized formations. The transcripts and their translations that I provide illustrate the epistemological clashes which characterize such debates, which I repeatedly observed at similar conferences and which are often published in the postcolonial literature on Ayurveda.

One of the ways that linguistic anthropology can contribute to studies of postcolonial science is by mapping how such epistemological clashes are negotiated on an indexical level, that is, on the level of the relationship between a text and its context. The warrants of authoritative truth claims and the exercise of power are often constructed through the manipulation of the indexical features of language (Hanks 1984, 1987). I am particularly interested in the potential of speakers to use language both to highlight the specificity of this relationship, and to generalize or universalize. For example, Joel Kuipers (1990) has shown how the ritual speech genres in the Weyewa speaking region of Sumba differ in that, in the cases of

chanting and blessing, performers cite the authoritative and poetic words of the ancestors, whereas in the context of divination they foreground with indexical tokens the authority of the emerging performative context and its human protagonists. In Ayurveda as well, certain truth claims are indexically grounded in particular events, persons, utterances, and intentions, whereas others are represented as codified, accepted, and universal truths. For example, truth claims based on “experience” are richly textured with locative forms, person and place names, and past tense verb forms. On the other hand, the authorities of scientific rationality and codified Ayurveda text lack this over-determined sense of indexical grounding in place and time, but rather, employ a definite future tense to represent the universal character of the truth. A key point then for linguistic anthropologists is that ideologies of truth are historically contingent epistemological repertoires which are both instantiated in discourse and have a profound effect on the discursive organization of truth claims and disputes.

Before examining some specific cases in which truth claims and disputes are employed in boundary maintenance work we must first consider the epistemological basis of truth claims as such in Ayurveda. We shall see that it is on the basis of these epistemological categories and their discursive instantiation that some truth claims are made to succeed and others to fail.

Ayurveda epistemology

Although not framed as such there is actually a fairly well-developed medical anthropological literature on the revival, nationalization, and modernization of

Ayurveda which addresses how claims of medical efficacy and scientific reality are constructed and deployed. Modern Ayurvedic doctors base their truth claims on the foundation of the authoritative medical texts (*śāstra*) while at the same time they draw upon the discourses of nationalism and scientific rationality on the one hand, and on the other, the gamut of orientalist and romanticist tropes such as naturalism, holism, post-positivism, and mysticism. For example, Lawrence Cohen (1995) has analyzed some of the arguments presented at an Ayurveda conference in Bombay, where the effects of rejuvenating tonics called *rasāyana* were interpreted in terms of the most cutting-edge neurochemistry, physics, and systems theory. Francis Zimmermann (1992) has shown how the incorporation of the discourses of new age holism and Gandhian nonviolence into the literature oriented toward Western tourists erases the violence featured in the Ayurveda methods of purgation and emesis. Jean Langford has also provided a close reading of the practices of medical mimesis involved in the authentication and de-authentication of the clinical authority of one cosmopolitan ‘quack’ (1999). She has provided the best ethnographic data to date on how differently positioned Ayurvedic doctors inhabit and modify the hegemonic discourses of Ayurveda revivalism (2002).

Ayurveda truth claims are epistemologically hybrid and socially contested starting with the beginning of the discipline’s encounter with the new biomedicine in the colonial period—that is certainly one key point that can be gleaned from this literature and the medical anthropology of Ayurveda in general. At the same time, however, this anthropology has tended to stay away from a language-sensitive reading of such truth claims. While there are numerous studies of post-colonial

Ayurveda based on the critical analysis of literature and ethnographic materials, there has yet to be a sustained attempt to make an accounting of *Ayurveda in action*. So, unfortunately, in spite of the many valuable studies and critical re-interpretations of “Modern Ayurveda” (Wujastyk and Smith 2008), we still know very little about how Ayurveda doctors negotiate their multiplex ideologies of the body in contexts where such matters are open to debate. It is through a close analysis of the more indexical features of language that emerge in the sequence of debate that we can identify the complex micro-processes by which particular truth claims get constructed as authoritative.

Ayurveda doctors in Kerala would commonly employ in their discussions with me three concepts regarding the sources of authoritative knowledge, including *śāstra* (codified knowledge), *vaidya-anubhava* (medical experience), and *yukti* (reason).⁶³ These categories constitute what I have termed an ideology of truth. Ayurveda practitioners structure their truth claims and counter truth claims in ways that reference and index this epistemological ideology. First and foremost among the sources of authoritative knowledge is *śāstra* (codified knowledge or text). The term itself is often used as a translation for the Western concept of “science,” but it is actually quite polyvalent, implying knowledge transmitted through a lineage, a discipline, authoritative or accurate knowledge, and a text containing authoritative

⁶³ The classical-period medical literature references a different tripartite categorization of “correct knowledge” (*pramāṇa* in Indian epistemology), “received knowledge” (*āptoupadeśa*), “direct observation” (*pratyakśa*), and “inference” (*anumān*) (Jaggi 1973:124-6). The categories that I describe and analyze in this chapter, although clearly parallel to the classical typology, are based on my discussions with doctors in Kerala and my interpretation of post-colonial Ayurvedic literature, in which contexts the concepts of *śāstra*, *anubhava*, and *yukti* feature more prominently than does the classical construal.

knowledge. All statements about Ayurveda uttered by its practitioners are at least implicitly, often explicitly, based on an authoritative text. The Sanskrit “compendia” (*saṃhitā*) by Caraka on general medicine and by Suśruta on surgery are considered to be authoritative throughout India. In Kerala the *Aṣṭāṅgahṛdaya* (the eight branches of medicine) by Vāgbhata has the status of *śāstra*. In Hindu philosophy, the ultimate epistemological authority is the divinely inspired and transcendent knowledge inscribed in the four *Vedas*. Ayurveda is considered a “sub-Veda” (*upaveda*), and like all the traditions of learning in India it claims a Veda-like transcendent authority by tracing an unbroken “lineage” (*paramparā*) back to a divine source (Pollack 1985).⁶⁴

Śāstra, authoritative knowledge par excellence, still must be applied in the mundane context of human contingency. Medicine is, after all, “worldly” (*laukika*) knowledge and claims to śāstric authority are only useful if they can be practically applied to ease a patient’s suffering. It is on account of this contingency that Ayurveda places special importance on the unity of the *śāstra* and a doctor’s “experience” (*anubhava*) based on “practice” (*prayoga*) (Pollock 1985). “I have an experience ...” this utterance is often used by doctors in various contexts to gain a turn at talk to express a truth claim or counter truth claim. All Ayurveda doctors in Kerala, both school and lineage educated practitioners alike, carry notebooks to record their *anubhava*. These notes include novel or slightly altered prescriptions

⁶⁴ *Śāstras*, particularly Ayurveda, are construed both in classical Indian philosophy and by its anti-colonial nationalist appropriations as both material and spiritual, and as both historical and transcendent—important ambiguities which are sometimes overlooked by postcolonial theorists such as Partha Chatterjee (1993) who has famously located the emergence of Indian nationalism in the opposition between the India/spiritual/outer domain and the West/material/inner domain.

and accompanying details about pathology, treatment, and so on. I would often observe young doctors, notebooks open with pencils in hand, gathered around a renowned practitioner who would occasionally share a few “experiences,” some of which were collected from his or her teachers and others inscribed in the context of treating patients. The notebooks of the most famous physicians have been edited and published. Thus, as a complement to *śāstra*, the practitioner’s “medical experience” (*vaidya-anubhava*) is another important source of authoritative knowledge often deployed in debates.⁶⁵

Lastly, Ayurveda privileges the role of “reason” (*yukti*) as a valid path to truthful knowledge. The concept of *yukti* includes a myriad of English senses such as analysis, rules (of interpretation, ritual, etc.), skill, and the perception of a connection (the Sanskrit form implies union, junction, and connection, Monier-Williams (1961 [1851])). The Sanskritist Francis Zimmermann (1995) has argued that the “principle of rationality” (i.e., *yukti*) is the basis of Ayurveda diagnosis in that practitioners assume that physiological and pathological states always have an assignable cause (i.e., they are not erratic). *Yukti* is the process of logical inference by which realistic, as opposed to “supernatural” (*daiva*), causation is imputed to empirically observable symptoms. Ultimately, *yukti* is how practitioners avoid illusion and it is thus considered an important source of authoritative knowledge.

⁶⁵ Not all experience is equally authoritative, however. *Ācārya vākkū* (referenced as *āptoupadeśa* in the classical texts), the testimony of sages, while not always codified as *śāstra*, is another source of knowledge which Ayurveda doctors in Kerala considered to be highly authoritative. The experience of such individuals is not tainted by “delusion” (*tamas*). As such, sages are considered to be hard to come by in the degraded “dark ages” (*kaliyuga*), and there is always the danger of encountering charlatans (i.e., inauthentic sages).

In the colonial and postcolonial periods a bifurcation occurred in the relationship between the complementary authorities of *śāstra* and *anubhava* on the one hand, and *yukti* on the other. In contrast with the epistemological pluralism and inclusivism of the classical ideology of truth, the colonial literature on Ayurveda materia medica abounds with references to the purely empirical and non-theoretical quality of Indian medical knowledge. In fact, throughout the colonial period “empiricism” was employed as a term of derision for the Indian systems of medicine in English-medium medical journals such as the *Indian Medical Gazette* and *Antiseptic*, as well as in the compendia of materia medica published in British India (e.g., Irvine 1848). In these cases Ayurveda was represented as pure *anubhava*, experience. Lacking a theory that the British could recognize, India’s rich storehouse of putative medicinal plants became available for development by the colonial state. In response, a number of Ayurveda apologists during the high nationalism of the early 20th-century appropriated this narrative and posited “experience” as an epistemological alternative to scientific “rationality.”

One example of this strategy can be found in the writing of Saraswathi Gananath Sen (1932), himself a modernizing figure in the late-colonial history of Ayurveda, who argued that pharmacological and clinical experiments and the chemical analysis of Ayurveda drugs, useful as authentications of Ayurveda knowledge, could not compare in terms of their scientific validity with the superior knowledge gained via the experience of medical practice encoded in the *śāstra*. This appropriation of “experience” became part of a compelling narrative of a purely Indian form of modernity. The downside of this strategy, however, is that it

implicitly accepted the empiricalized representation of Ayurveda which continues to underlie the asymmetrical relationship between the sciences. In the postcolonial context, *yukti*, reason, bedrock of classical Ayurveda epistemology, is often taken to have the restricted meaning of Western “scientific rationality” (in opposition to the distinctly Indian “clinical experience”). *Yukti*, for example, has come to mean the analysis of the cosmopolitan “scientific basis” (*śāstra-adhiṣṭhāna*) of Ayurveda theories and practices. As we shall see below, this concept of Ayurveda’s “scientific basis” is strongly linked with an evidence-based approach to medicine which privileges scientific strategies of universal knowledge production such as controlled clinical trials and statistical methods. Likewise, the analysis offered in this article and other anthropological and historical analyses are also cases of *yukti*.

In the transcript below we will see how these categories and their historical bifurcation affect how doctors construct and dispute truth claims in the context of a scientific conference and debate.

The discursive organization of truth claims and disputes

The cases of truth claims and disputes presented below occurred at a scientific conference held at the Science and Technology Museum in 2005 in Kerala’s capital city of Thiruvananthapuram. The chief goal of the conference was to investigate the role of Ayurveda and folk knowledge in the development of modern style pharmaceuticals. On a recent visit to Kerala, the President of India, A. P. J. Abdul Kalam, had charged Kerala doctors and scientists with the task of incorporating these

traditional drugs into the Indian biotechnology industry, which he claimed had the potential to become a multibillion-dollar sector of the new Indian economy.

By the time I attended the conference I had already spent over a year in Kerala doing multi-sited ethnography at institutional sites like laboratories, NGOs, clinics, colleges, pharmacies, archives, and so on, and I had been especially keen to track the networks between the key players at these institutions, doctors, scientists, scholars, government administrators, and health, environmental, and political activists. The typically myriad participants of my far-flung ethnographic sites were gathered together in the main room of the conference to address some of the key issues around the development of medicinal plant drugs. These included important questions about the scientific status of Ayurveda and folk knowledge, the role of Ayurveda and cosmopolitan science in the development of new pharmaceuticals, the value of indigenous medicine in the burgeoning Indian economy, and the development of a more just system of bio-prospecting. In addition to the school-educated Ayurveda doctors and the professors and graduate students of Ayurveda college research departments, the audience was further populated by laboratory scientists, organic farmers, Gandhian activists, puranic healers, and lineage-trained “country doctors” (*nāṭṭū vaidyār*) of various sorts. A few journalists and I were on hand to document the event. Seated around the podium as commentators and honored guests were the administrative heads of some of the key Kerala government institutions involved in the modernization of Ayurveda. The conference was conducted in both English and Malayalam, the vernacular language of Kerala and the

official language of the first day of the conference when the featured debate occurred.

The first transcript that I will present illustrates a successfully articulated truth claim and the subsequent transcripts, a successfully rebutted one. The first transcript features Dr. Rajan, one of the officially sanctioned experts at the conference. He was trained in his lineage and also had advanced degrees in both Ayurveda and biomedicine from Indian medical colleges. Dr. Rajan was a professor at a local Ayurveda College and thus, he was actively involved in research, treatment, text and pharmaceutical production, and the socialization of novices. These activities involve the continual framing and reframing of the discipline's relationship to biomedicine. The boundary-maintenance work of college educated Ayurveda doctors like Dr. Rajan requires a kind of dual subjectivity which straddles indigenous and Western epistemologies. Neither pure *śāstra* nor pure technoscience can serve as a basis for the critical display of this dual subject position. This liminality distinguishes school-educated Ayurveda doctors both from their lineage-trained colleagues and teachers, and from their counterparts in the cosmopolitan sciences (many of whom are their collaborators, workmates, friends, and family relations). The articulation of scientific truth claims in Ayurveda often requires the performance of this dual subjectivity, displaying comparable expertise in both disciplines and in their articulation.

From among Dr. Rajan's remarks at the conference I have selected an example of a successfully articulated truth claim which analyzes the scientific basis of Ayurveda massage practices in terms of the categories of Western physics. This is

an example where the evidence of the text, experience, and reason are discursively organized to nicely complement each other. The case also illustrates how statements about medical and scientific reality are also statements about the relationship between Ayurveda and the Western sciences, especially the science of biomedicine.

(Transcript 5-1: Dr. Rajan's address to the medicinal plants conference)

- 1 Dr. Rajan: nammute eṅpatuvum toṅṅūruvum vayassuḷḷa ammāvanmārū
entā pratyēkiccū yātoru cikitsayum ceytiṭṭilla divasavum rāvilē
eṅṅa tēccū kuḷikkum
*our 80 and 90-year-old uncles did not do any special therapy but
rather they would apply oil daily in the morning*
- 2 nalla RALEIGH CYCLE-um cavuṭṭi nālpatañcū KILOMETER
SPEED-il pōkunnatū kāṅām
*they can now be seen going a 45-kilometer speed riding a good Raleigh
cycle*
- 3 etra dūraṃ vēṅameṅkilum
for however long they wish
- 4 kāryam entā?
what is the reason (for this exceptional health and vigor)?
- 5 → ippōḷ MELBOURNE UNIVERSITY-il oru STUDY naṅṅannu
at Melbourne University there is an on going study
- 6 orē samayaṃ aṅcū sattinum FORMS OF ENERGY oru BODY-il
ninnū marroṅṅu BODY-il ēkkū TRANSFER ceyyān kaḷiyunna orē
sādhana eṅṅa tēppāṅṅu
*(the study claims that) oil application is the only thing that can cause
the transfer from one body to another body of the five forms of energy
at one time*
- 7 ayaṃ eva hasto bhagavan (UNCLEAR) ayaṃ viṣvabhaiśakaṃ
(Sanskrit verse)⁶⁶

⁶⁶ Although a part of this verse is difficult to make out, the language and the meter are more typical of classical Sanskrit than Vedic. I have no way of knowing if Dr. Rajan's improper citation was intentional or accidental, but for the purpose of this analysis, it is clear that he was claiming the *Rigvēda* as an authority.

- 8 → THE MERE TOUCH OF HAND ITSELF IS THE UNIVERSAL
REMEDY *ennāṅṅṅṅṅṅ ṛgvēdam paraññatū*
the mere touch of the hand itself is the universal remedy, that is what
the Ṛgvēda says
- 9 → atāyatū
that is
- 10 oru kaiyyilū ELECTRICAL ENERGY
in the hand there is electrical energy
- 11 → atāyatū BODY-kkū INHERENT ELECTRICAL ACTIVITY *uṅṅṅṅṅṅ*
that is ... in the body there is an inherent electrical activity
- 12 ā ELECTRICAL ENERGY MASSAGE *ceyyumpōḷ* oru BODY-il
ninnū marroru BODY-il ēkkū pōkunnu
that electrical energy, when doing massage, goes from one
body to the other body

Dr. Rajan continued by describing the remaining four types of energy transmitted during massage.

Dr. Rajan starts out his argument with a description of the rather remarkable effects of the daily application of oils. Citing a Melbourne University study, he argues that the exceptionally vigorous health of certain members of the older generation relates to the energy transduction effects of the practice of daily massage with oils, a nonclinical folk practice in Kerala which is also used clinically to great effect in Ayurveda. Then, as Ayurveda doctors typically do, he cites a canonical text (*śāstra*) in support of his argument using a distinctive style and meter. In this case he recites a verse from the *Ṛgvēda* (but note Footnote 66), the oldest and thus most authoritative text in the Sanskrit literature, which he immediately after translates into English (Line 8). Note the discourse marker “*atāyatū*” (Line 9), which I have translated as “that is” but it can be rendered more literally as “that which was that.”

The form is a metalinguistic marker which frames the subsequent talk as a “commentary” (*vyākhyāna*) about the preceding discourse (i.e., the *R̥gvēda* verse). Also note that Dr. Rajan’s commentary embeds jargon from English technoscientific terminology.

We can see how the epistemological domains of Dr. Rajan’s argument are regimented by a series of hermeneutical code-switches. First, folk knowledge (i.e., *anubhava*) is communicated in the Malayalam vernacular (Lines 1-4). This knowledge is linked to text, first to a Melbourne University study (Lines 5-6) and then to the codified knowledge of *śāstra* rendered in the original Sanskrit (Line 7). The verse is translated into English (Line 8) and subsequently interpreted in terms of an English technoscientific typology of energies (*yukti*), which is embedded within a Malayalam matrix language (Lines 9-12). By knitting together these different kinds of authoritative evidence the argument makes a strong claim for the scientific status of ancient Indian knowledge based on its correlation with Western science.

The scientific validation of Indian knowledge accomplished by arguments like Dr. Rajan’s has been the ideological platform for a variety of prominent nationalist movements (Prakash 1999). On the other hand, in the postcolonial context the nationalist credentials of individuals who too eagerly employ the methods and values of Western science as the criteria by which to evaluate Indian knowledge have often been called into question. Ayurveda purists in particular have been vociferous in their criticism that the two systems have to be kept separate, and that it is largely inappropriate to evaluate the claims of Ayurveda based on Western criteria (although they have sometimes done so when it benefits their apologetics). In the second

example, which I discuss below, Dr. Rajan uses a criterion of Western science to invalidate an Ayurveda authority. As we shall see, this negative truth claim posits an asymmetrical alignment between the disciplines and occasions a dispute over the claim's ontological basis.

The second example (Transcripts 2-5) details a dispute that followed Dr. Rajan's utterance of a truth claim about the non-efficacy of an Ayurveda preparation called a *nasya* (nasal drip) to treat Hepatitis A. In contrast with the first example in which Dr. Rajan used Western science to support the value of Ayurveda knowledge, in this second case the truth claim employs the criteria of Western science to make a negative and devaluing proposition. In the context of the rapid expansion and liberalization of India's economy the debate over the development of indigenous medicines such as the *nasya* has a particularly weighty significance for the protagonists. Dr. Rajan's negative truth claim occasioned a counter truth claim by his colleague Dr. Vishnu. Vishnu's critique took the form of a compelling narrative of clinical experience which ultimately forced Dr. Rajan, a respected, renowned, and institutionally sanctioned expert, to publicly retract his negative statement.

As a sanctioned expert at the conference Dr. Rajan was responsible for answering questions from the audience, which were written on index cards and placed at the podium. Turn assignment, length, and topic were controlled by Dr. Rajan himself and the other authorized participants at the podium. Thus, unlike conversational arguments and verbal duels the turn-taking structure of this scientific conference was both highly constrained and asymmetrically organized. The style of talk employed at the conference and at similarly official events is categorized as a

“speech” or “podium talk” (*prabhāṣaṇa*), which is characterized by a highly stylized intonation pattern and an increase of literary morphology and Sanskrit-derived lexicon. The only audience members able to secure a turn at talk were the friends and colleagues of the moderator and the other officials on the dais. Audience feedback was generally limited to applause and laughter. Sanctioned participants were allowed to speak as long as they needed to make their point (as long as they stayed on topic and were not too redundant). So, Dr. Rajan was able to choose which handwritten questions he would answer and he controlled the duration and content of his answers. One such question (read aloud on Line 1) asked about the medical efficacy of *nasya* (nasal drip) in the treatment of *maññappitta* (literally “yellow bile,” translated into English both as “jaundice” and here as “Hepatitis A”).

(Transcript 5-2: Dr. Rajan comments on the *nasya* treatment)

- 1 Dr. Rajan: aṭuttū cōdyam .. kāttū tēkkila koṇṭṭu nasyam ceytāl maññappittam
mārrān sādikkumō?
next question .. will maññappitta change if you do nasya with teak leaves from the forest?
- 2 atappōlāṇṇu karaḷine bādikkunna asukhattinū nasyappravacanam
ceyyatū
this is prescribing nasal drip for a sickness that affects the liver
- 3 → ī paraññatū pōle tanne vēroru sādhanamāṇṇu
this is another thing like (I) just said before
- 4 ī nammuṭe āyurvēdaśāstra prakāram allenkil MODERN MEDICINE
prakāram HEPATITIS A, HEPATITIS B, HEPATITIS C, HEPATITIS
D enniññane pala taram GRADES-ukal uṇṭṭu
whether on the basis of our Ayurveda śāstra or on the basis of modern medicine, there are several grades (of the disease), Hepatitis A, Hepatitis B, Hepatitis C, and Hepatitis D

- 5 paksē ī tuṅṭil paṛayunnatū ī HEPATITIS A ennū paṛayunna
sāḍhanam yātoru cikitsayam vēṅṭa
*but if the patient's file says Hepatitis A, if it says that thing, no other
treatment is required*
- 6 → tanniye añṅū mārum ennāṅṅū
that will change on its own
- 7 → itū nasyam ceytāl ēlū divasaṃ koṅṭum naysam ceytillenkil
orālccakoṅṭum mārum
*if you do naysa it will change in seven days, and without doing
naysa it will change in a week*
- 8 Audience: (laughter)
- 9 atukoṅṭū ī praśnaṃ sambhāvikkunnatū entū ennū vaccāl .. ī
palarum nasyam ceytavarū verutē añṅū māriyatānū
*that is because for this problem what is happening for all those who do
nasya is that it changed on its own*

In Line 3 Dr. Rajan refers to his previous truth claim, in which he argued against the common folk practice in Kerala of bathing in water treated with the seed of a particular plant to treat allergic reactions. Referring to *śāstra*, the scientific theory of allergies, and his personal experience, he argued that the allergic reaction goes away on its own without treatment. His “experience” detailed how he suffered as an adult from an allergic reaction to a tree he used to climb as a child, and how he rejected the folk treatment in order to determine how long it would take to heal untreated (only a few days). The truth claim and supporting narrative of experience were evaluated favorably by a fellow expert on the dais who called him an “experience guru” (*anubhavaguru*). Deploying the canons of authoritative evidence in Ayurveda, this truth claim was a successful negative interpretation of a non-*śāstric*

folk practice. While Dr. Rajan draws a parallel between this past and the present truth claims we will see how they were differently constructed and interpreted.

After constructing a parallelism between Hepatitis A and *maññappitta* (Line 4), Dr. Rajan minimized the treatment's scientific status because Hepatitis A, "That will change on its own" (Line 6). He continued the point with the cleverly phrased couplet "If you do *naysa* it will change in seven days, and without doing *naysa* it will change in a week" (Line 7). This couplet form is an example of a kind of scientific rationalization (i.e., *yukti*). The rationalization is based on the iconicity of the couplet form to the structure of a double-blind clinical trial, playing humorously on the temporal parallelism between the test and control groups, "seven days" and "a week." While the effect of the joke may seem like common sense, it is a historically recent form of common sense linked to the introduction of evidence-based medicine in India. Furthermore, for some of the scientists and doctors at this conference it is the lack of such procedures that vexes the process of developing Indian drugs for the international pharmaceutical market. One botanist, Dr. Nayar (see Transcript 5-3), took up Dr. Rajan's couplet form as a counter-example to how he believes folk knowledge is typically propagated in Kerala, where a lack of such clinical controls encourages superstitious and otherwise incorrect and unscientific thinking.

Śāstra and experience indicate *nasya* in cases of Hepatitis A, but these sources of knowledge are contrasted by Dr. Rajan to the disease's universal "scientific basis" (*śāstra-adhiṣṭhāna*) produced by the tools of technoscience. I have underlined the verb "to change" (*māruka*), which is the main verb for the three utterances where Dr. Rajan contrasts scientific and non-scientific forms of reasoning (Lines 6, 7, and 9).

On Lines 6 and 7, where a scientific rationalization is articulated, he employs the definite future form (-um) which confers a sense of a truth which is decoupled from space and time. On Line 9, however, this is contrasted with “all those who do *nasya*,” who are themselves confused by the particular contingency of the event, that “it changed (past tense form *māri*) on its own.” I will highlight in some of the transcripts below this contrast between indexically grounded and universalized truth claims.

One of the dignitaries sitting beside the podium was Dr. Nayar, a famous botanist and biotechnologist. After Dr. Rajan had finished Dr. Nayar requested a turn by referencing his “experience” (Line 10). He thus coded his contribution in a manner that was epistemologically appropriate to his targeted audience of Ayurveda doctors (even though he himself was a cosmopolitan scientist and his remarks were in fact not a narrative of experience). He calls attention to two previous topics of discussion, one (Lines 12-14), on the unity of traditional Ayurveda and folk knowledge based on their mutual environmental and climatic determinism (this determinism is a staple of nationalist Ayurveda historiography), and the other (Lines 15-16), on the traditional practice of “hand poison” (*kaiviṣa*). *Kaiviṣa* was a type of poison believed to be used in the past in Kerala which could be obtained from folk practitioners and traditional vaidya. The poison was understood to be administered incrementally so that the victims would become deranged, often committing suicide, but that there would be no other symptoms to evidence a poisoning. The practice is associated with “sorcery” (*mantravadam*). Previously, Dr. Nayar had scolded the Ayurveda doctors for even discussing this topic at a scientific conference. Dr.

Nayar's recommendation regarding this practice and the future of Ayurveda illustrates a modernist interpretation of Indian tradition.

(Transcript 5-3: A modernist interpretation of Ayurveda; the enumeration is continued from Transcript 5-2)

- 10 Dr. N: enrre oru anubhavam parayām?
may I speak my experience?
- 11 Dr. R: PLEASE .. tirccayāym
please .. of course
- 12 Dr. N: nēratteyulla carccayil āyurvēda pārambarya vaidyaññlepparri
nāṭṭarivukaḷ onnipikkukayāṇṅ ceytatū
*in the previous discussion traditional Ayurvedic medicine and folk
knowledge were united*
- 13 atātū kālāvastayil ā bhāgattuṅṭākunna cikitsākaḷ atū aññīkariccirunnu
*the treatment of each tradition is based on climate (including
geography and environment)*
- 14 ādyāmāyittū aññīkariccirunnu
this fact was established for the first time
- 15 atinre pēril ī kaiviṣam nēratte nān parañña oru viṣayamā atū
*it was in the name of this (unity of traditional Ayurveda and folk
medicine) that I spoke before on the topic of kaiviṣa ("hand poison")*
- 16 ī kaiviṣattinre pēril aññū curukkaṃ ayalpakkakārū tammil vaḷakkū
uṅṭākkunna rītiyilulla
*the accusation of kaiviṣa is only a method that some people use to
quarrel with their neighbors*
- 16 paḷaya ācārññal tiriccū koṅṭṭu varunna rītiyilulla
the method of returning to the old traditions
- 18 nammute rājattil ninnū oliññū pōyittulla ācārññal tiriccū koṅṭṭu varunna
rītiyilulla
*that is, the method of returning to the traditions left over from our (old)
country*
- 18 āyurvēda samvidhānaññal nallatalla ennū nān paraynnu
I am saying that that is not a good direction for Ayurveda

20 atinōṭoppaṁṁ taṅṅe oru ceṛiya kāryaṁ paṛayāṅuḷḷatū .. ī pāmpū viṣaṁ
nāya viṣaṁ
*along with that there is a small matter to discuss .. serpent poison and
rabid dog bites*

Dr. Nayar then presented an example which further illustrated the non-
efficacy of a folk medical practice. Many people living in Thiruvananthapuram’s
rural hinterland consult folk doctors when they are bitten by a snake or dog to
receive an ash based preparation called *bhasma*. They often prefer this preparation
to the safe and effective allopathic treatments. Most snakes and dogs, he argued, are
not deadly, but the few people unfortunate enough to be bitten by those that are
deadly do in fact die without the prompt administration of anti-venom (or rabies
vaccine and immunoglobulin). Worse yet, these folk doctors prescribe the *bhasma*
without determining the snake’s species (as is required of anti-venoms). *Bhasma*
remains a popular treatment only on account of the high proportion of non-deadly
relative to deadly snakes and rabid dogs in the area. Victims of non-deadly snake
and dog bites would recover with or without the treatment. “That is the belief” Dr.
Nayar concluded, “It is a mental problem.”

Dr. Nayar argues for a strong disciplinary boundary between Ayurveda and
folk knowledge, a boundary he felt had been undercut in the previous discussions
when the two traditions were unified based on their mutual climatic determinism.
The examples he gave had a family resemblance to Dr. Rajan’s comments on *nasya*.
Like the supposed medicinal effect of *nasya*, *kaiviṣa*, the poison itself and its effect
do not exist; there are only accusations of *kaiviṣa*. Likewise, the medicinal effect of

bhasma only seems efficacious because folk doctors do not properly identify the type of bite and because there is a relatively high proportion of non-poisonous snakes and non-rabid dogs. In all these cases the correlation between substance and medicinal effect is represented as spurious. Dr. Nayar concludes that the future of Ayurveda will not be found in such wrongheaded traditions. Rather, the way to develop Ayurveda is to employ the tools of technoscience to perfect and market its many effective treatments, and discard that which is superstitious and otherwise ineffective.

As was accurately interpreted by Dr. Nayar, Dr. Rajan's analysis of the *nasya* treatment for Hepatitis A suggests an asymmetry between Ayurveda (based on the authorities of text and experience) and biomedicine (based on the historically bifurcated and reified authority of reason). Thus, technoscientific tools and knowledge have the power to both authenticate and to de-authenticate truth claims about Ayurveda. The undercutting of Ayurveda on the basis of Western criteria is not often accepted uncritically.

Dr. Rajan was reminded of this complicated situation by his colleague Dr. Vishnu. Although not an officially sanctioned expert, he was a well-known authority on both Ayurveda and biomedicine. He was able to secure a turn and voice his criticisms during the question-and-answer session because of his connections with the moderator (Dr. Rajan himself). Dr. Vishnu starts off:

(Transcript 5-4: Dr. Vishnu's experience)

- 1 Dr. Vishnu: enrre WIFE pūjappurayilū PROFESSOR āṇū
my wife is a professor (in the Ayurveda college) at pūjappura
- 2 entināṇū enrre bhāryayute pērū ivite paraññatū ennū cōdiccēkkāṃ
you may be asking why I am saying my wife's name here
- 3 ī CASE ṇānum enrre bhāryayum kūṭeyāṇū TAKE ceypatū atukoṇṭāṇū
ñān aṭṭu paraññatū
I said her name because my wife and I took this case together
- 4 enrre oru UNCLE āyurvēdaṃ paṭhicca āluṇṭū
I have an uncle who studied Ayurveda
- 5 enne āyurvēdaṃ paṭhippiccu
he also taught me Ayurveda
- 6 puḷḷikkāran maññappittaṃ pitipettū
this man caught maññappittaṃ (Hepatitis A)
- 7 puḷḷikkāran svantamāyittū kaśāyamokke kuticcu pakṣē kṣīṇaṃ
mārunnilla
he drank his own decoctions but the weakness didn't change
- 8 ennāl āsupatriyil pōkāṃ ennū paraññittū HOSPITAL-il pōyi
BEDSIDE-il
*then he said let's go to the hospital, so we went to the HOSPITAL (and
I sat) by the bedside*
- 9 ADMIT ceypa samayattū BILIRUBIN-ē patinañcū śatamānaṃ
untāyirunnullū
*at the time of his admission (to the hospital) his bilirubin test was
only 15%*
- 10 atū varddhiccū varddhiccū irupattimūṇāyi irupattiyañcū ākumpōḷū
COMA uṇṭākān sādhyata uṇṭū ennū manassilākkikkontū
*that number continued to increase to 23, which is when I became
concerned, since when the number reaches 25 there is a possibility of a
coma*

Dr. Vishnu then described the trouble he went through to locate the needed medicinal plant, and the procedures for preparing and administering the *nasya* drug. Finally he concluded:

- 16 oru aramaṇikkūr kaḷiṅṅappoḷu mūkkil ninnū iṅṅane veḷḷam varān tutaṅṅi
a half an hour (after administering the nasya) water began to flow out of the nose
- 17 → ī nasyaṃ ceytāl āyurvēdaśāstraṃ parayunnatū kuḷippikkarutū ennāṅṅū
it says in the Ayurveda śāstra that after administering nasya (the doctor) shouldn't cause (the patient) to bathe
- 18 pakṣē itinre oru ācāryan unṅṅū ... nasyaṃ ceyyunna oru ācāryan mānnār unṅṅū
but there is an ācāryan (sage) on the subject ... a nasya practicing ācāryan in mānnār (place name)
- 19 ī vaidyanumāyittokke ālōciccittāṅṅū itū ceytatū
I inquired about this medicine and all (the procedures for preparing and administering the nasya)
- 20 uṅṅane ī aramaṇikkur kaḷiṅṅū kuḷippiccu
exactly half an hour after (giving the nasya) I had the patient bathe
- 21 atū kaḷiṅṅū irupattinālū maṇikkūr mūkkil ninnū oru maṅṅa drāvakaṃ iṅṅane vannu koṅṅirunnu
after that was finished for the next 24 hours yellow fluid flowed from the nose
- 22 pirrettinre pirrenṅū BLOOD nōkkiyappōḷēkkū pantraṅṅāyi BILIRUBIN
the day after the next as soon as I looked at the blood his bilirubin level had decreased to 12
- 23 atū kaḷiṅṅū kuṅṅēseyāyitṅṅū orālcca kaḷiṅṅappōḷ NORMAL āyi
after that, gradually, after about a week it became normal
- 24 → iṅṅane oru anubhavam unṅṅū
this was my experience
- 25 kātṅṅu piccakaṃ nasyaṃ ceytū
I did nasya with forest piccakaṃ (a medicinal plant term)

- 26 → HEPATITIS A-yāyullū atū ñān sammatikkunnu
I believe that it was only Hepatitis A (and not Hepatitis B or C)
- 27 pakṣē ī parayunna pōle miṇṭātirunnāl śariyāvattilla ennatū koṇṭāṇṅū ñān
koṇṭāṇṅū ñān paraññatū
*what I have said today I said because it will not be okay to sit without
speaking (on this important topic)*

The Ayurveda Director followed Dr. Vishnu’s turn by addressing Dr. Rajan who was standing beside the podium next to him on the dais.

- 28 Ay. Dir.: doctorē
dear doctor (to Dr. Rajan)
- 29 ī nasyaṃ ceyyuka ennatū vaḷare EFFECTIVE āṇṅū A
doing this nasya is very effective for (Hepatitis) A
- 30 atine mōcanamākkān kaḷiyum ennū ādhunikaśāstrattinū kaḷiyuka
vaḷare nallatāṇṅū
*it is also very good to use the modern medicine which ameliorates that
(disease)*
- 31 → enrre abhiprayattil āyurvēda marunnū kūṭi koṭukkām
in my opinion Ayurveda medicines can be taken together
- 32 Dr. Rajan: atū oru satyaṃ .. ini aṭuttū cōdyaṃ
that is the truth .. now the next question

Dr. Rajan read out loud and answered the next question from the audience.

Dr. Vishnu articulates a narrative of “experience,” *anubhava* (referenced as such on Line 24), which he positions in direct opposition to Dr. Rajan’s negative rationalization. In contrast with Dr. Rajan’s use of Western science to produce universalized truth claims, Dr. Vishnu’s experiential narrative is grounded to his social relations with his wife and uncle; the events of the story emerge in time and

place, and the narrator reports his thinking about them as they occurred. For example, among an Ayurvedic doctor's social relations it is the relationship with one's own traditional teacher (*guru*) which is the most consequential to one's identity as a physician. Dr. Vishnu foregrounds this important relationship in Lines 4-5 by stating that his patient was also his uncle and *guru*. By including consequential details such as these, Dr. Vishnu's narrative particularizes the treatment of Hepatitis A in a way that undercuts Dr. Rajan's universal rationalization.

On Lines 7-9 the narrative is represented by all main verbs as a specific event located in a past time and place. The indexical anchoring is also reinforced by the locative case endings (*-il*) on Line 8. The specific and experiential nature of the truth claim being communicated continues until it shifts momentarily on Line 17, where Dr. Vishnu communicates a *śāstric* truth claim using an authoritative negative command form. Also note how Dr. Vishnu legitimated his own deviation from *śāstra* by referencing the advice of an expert on such matters; a *nasya* practicing *ācāryan* (sage) (Lines 18-19) (on authoritative testimony in Ayurveda see Footnote 65). Dr. Vishnu continues to challenge Dr. Rajan's negative rationalization within the more indexically grounded and particularizing mode until, in Line 26, he heads off a potentially serious challenge to his counter-narrative. He claims that his uncle's illness was only Hepatitis A, and by implication that it was not actually a more severe form of Hepatitis (Hepatitis B or C), which would explain the severity and persistence of the symptoms. In Line 27, before taking his seat, he describes his feeling of moral obligation to stand up and speak as he did.

We see in this dispute between Drs. Rajan and Vishnu that the mediation of Ayurveda's disciplinary boundaries takes the form of scientific truth claims. Dr. Rajan's truth claim privileged Western knowledge by highlighting a contradictory and asymmetrical relationship between the disciplines. Dr. Vishnu's narrative maintained the contradiction between the claims of the disciplines but inverted the asymmetry, situating Ayurveda therapeutics as the more effective healing practice. The State Director of Ayurveda was on hand to suggest a way out of the conundrum posed by the apparent contradiction between Dr. Rajan's rationalization (or *yukti*) and Dr. Vishnu's experience (or *anubhava*): Simply accept the institutional imperatives of medical pluralism. Allopathic and Ayurvedic drugs are both effective and can be administered together (Lines 28-31). The prescription of Ayurveda drugs along with biomedicines is often argued by Ayurveda practitioners to speed recovery from treatable conditions. Next, on Line 32 Dr. Rajan accepted the Ayurveda Director's contribution as true but he did not elaborate and in fact he abruptly changed the topic.

Shortly after, however, Dr. Rajan read a question from the audience which again questioned the effectiveness of another Ayurveda preparation called a *kaṣāya* (decoction) to treat Hepatitis A. He took the opportunity to realign himself with *śāstra*.

(Transcript 5-5: Dr. Rajan retracts his earlier position)

- 1 Dr. Rajan: atū mārunna prakrīyaye tvaritapeṭuttukayāṅṅ ī cikitsārīti
that treatment hastens the healing process
- 2 → āyurvēda śāstra prakāraṃ virēcana pradhānamāya oru rōgamāṅṅ
maññappittam
*according to the Ayurveda śāstra maññappittam (Hepatitis A) is the
most important disease to treat with vomiting*
- 3 srōtarōdham uṅṅākkunna rōgam
*(Hepatitis A) is a disease that blocks the flow (of fluid through the
bodily channels)*
- 4 srōtarōdham mārunna ētu cikitsayam maññappittattine
mārikkittum
*whatever treatment changes these blocked channels will cause a
change in maññappittam (lit. “yellow bile”)*
- 5 appōḷ nasyam ceytū koṅṅulla cikitsayil atāṅṅ sambhāvikkunnatū
now this also happens with nasya
- 6 ī parañña sāhacaryattilū svantamāya mārunna oru rōgam
*(I) previously said how this disease is a condition which will change on
its own*
- 7 atinū kūṅṅe oru ceriya cikitsa kūṅṅi ākumpōḷ rōgam mārunnatāṅṅ
pettanākum
*in addition to the disease (changing on its own) by doing a little extra
treatment the disease will change very quickly*
- 8 HEPATITIS A ī parañña ellā cikitsakoṅṅum niśśēsam mārikkittum
*with all of the treatments we have talked about (nasya, decoction,
and vomiting) you will get complete relief*
- 9 → orālccakoṅṅṅ mārunnatāṅṅenkil itū kūṅṅi ceytāl mūnnū divasaṃ koṅṅṅ
mārum
*if (untreated) it changes in a week, if you do treatment it will change in
three days*

Dr. Rajan aligns himself with śāstra by directly referencing the classical theory that *maññappitta* (lit. yellow bile) results from the blocked flow of the bodily channels (Line 3-4). In spite of his backtracking, Dr. Rajan does not concede the

major warrant of his original truth claim, that Hepatitis A will change on its own (Line 6-7). Ayurveda treatments, following the lead of the Ayurveda Director, “hastens the healing process” (Line 2) and cause “the disease to change very quickly” (Line 7). Note how, again, on Lines 7-9, when Dr. Rajan explains the action of the drug, the nature of *śāstric* truth is decoupled from place and time through the use of the definite future tense (underlined in the text). Dr. Rajan concludes in Line 9 with a re-formulation of the couplet he originally employed to downplay the effectiveness of *nasya*. The couplet still has a resemblance to the temporal structure of a clinical trial. This time, by contrast, whereas the control group took a week to heal on its own the treatment group only took three days. The universal knowledge of *śāstra* and technoscience are brought back into a complementary relationship.

School educated Ayurveda doctors straddle a dual disciplinary formation which is the result of the historic project to modernize traditional Indian medicine. Dr. Rajan’s expert testimony had to negotiate the contradiction between the power of technoscience to both legitimate and undercut Ayurveda’s scientific authority. In Transcript 5-1 Dr. Rajan legitimated the scientific value of Ayurvedic massage practices on the basis of the different types of energy known to Western physics—electrical, thermal, kinetic, etc.—which are transferred to the body of the patient and confer health benefits. The contribution was recognized by his fellow participants as an interesting, thoughtful, and above all, gratifying use of technoscience to establish the importance of a ubiquitous Ayurvedic practice. In Transcript 5-2, however, Dr. Rajan made a negative rationalization of Ayurveda on the basis of a technoscientific

criterion. This violation of the boundary between the disciplines occasioned his peer Dr. Vishnu to construct a compelling counter-narrative of “clinical experience” (*vaidya-anubhava*) which ultimately forced this senior and respected doctor to publicly retract his negative truth claim. Ultimately, Dr. Rajan was forced to accept the face-saving compromise suggested by the Kerala Director of Ayurveda. However, Dr. Vishnu’s counter-narrative, while resolving the particular argument about the use of *nasya* to treat Hepatitis A, actually maintains the role of truth claiming and disputing in both challenging and maintaining Ayurveda’s disciplinary alignments.

The asymmetrical organization of turn-taking at the conference limited audience participation and feedback. However, the meta-commentary provided to me by my associates was rather diversified. There was a group of biotechnologists at the conference who worked at a government research institute on the anticancer effects of phytochemicals (i.e., the internal constituents of medicinal plant drugs). Their task was to identify the “active ingredients” of known efficacious drugs, alkaloids, sugars, steroids, and so on, and to analyze their chemical structure. This research, however, was expensive and time-consuming, especially considering the large number of folk and Ayurveda drugs documented in the *materia medica* literature compiled in India by colonial and post-colonial scientists. They explained to me that such debates about the clinical effects of herbal drugs are essential to their work because they help to establish a separation between efficacious and non-efficacious remedies. They deferred their consensus, however, on the resolution to the debate offered by the Ayurveda Director and taken up by Dr. Rajan. As the

Director of the laboratory noted, “The effect of the *nasya* needs to be studied scientifically.”

An Allopathic doctor whom I spoke with after the conference had a rather different opinion than the laboratory scientists. “There is some truth to what Dr. Vishnu said. The treatments used in Ayurveda are very powerful, often more so than the English medicines that I prescribe. The ancient sages understood many things that we scientists are only now discovering. They had an intuition (*avarkkū oru INTUITION unṭāyirunnu*.)” This Allopathic doctor was collaborating with an Ayurveda doctor to develop an Ayurveda drug as a modern Allopathic treatment for rheumatoid arthritis, about which he had presented a talk at the conference and received the top prize. Although he himself could only wonder at the insights of the sages he believed that Ayurveda treatments such as *nasya* and the remedy for rheumatoid arthritis were both effective and based on scientific “intuitions.”

Perhaps the most interesting response to this dispute that I collected was from a young Ayurveda doctor I knew from the Government Ayurveda College. She had recently graduated and started work as a Lecturer at a private Ayurveda college. The work of the laboratory scientists and Allopathic doctor mentioned above basically involved the technoscientific extraction and development of indigenous medicines (that is, an asymmetrical disciplinary alignment). In contrast, the work of this young physician and teacher involved the socialization of novice doctors in the delicate balance that they must maintain between Ayurveda and cosmopolitan science. She was very impressed by Dr. Vishnu’s narrative of “experience.” She planned to report on the debate to her students at the college and to advise them to prescribe the

nasya to speed recovery in cases of Hepatitis A. However, she also acknowledged that Dr. Rajan, with his equal training in both disciplines, was a topmost expert on the relationship between Ayurveda and biomedicine. “The study of this relationship is very interesting,” she explained “because it can show us the scientific basis of our Ayurveda treatments.” At the same time, she was frustrated that there was not a more effective way in which this scientific basis could be established on Ayurveda’s own principles and represented in its own language.

The scientific status of Ayurveda was confirmed by its complementary alignment with biomedicine. This disciplinary alignment was produced, adjusted, and maintained in the context of truth claims and disputes at the scientific conference. At the same time, however, the dispute and the use of technoscience to authenticate Ayurveda also entailed something of the disciplinary ambivalence associated with modern institutional Ayurveda. Technoscience can both authenticate and undercut Ayurveda truth claims, and ultimately, the use of technoscience as a privileged authority undermines Ayurveda’s own epistemological canons. This ambivalent relationship with technoscience provides Ayurveda doctors with a major motivation for both maintaining and challenging their science’s disciplinary boundaries.

Conclusion

The labor of school-educated Ayurveda practitioners involves the mediation between Indian classical and cosmopolitan theories of the corporeal body and its pathology and treatment. I have argued that one of the roles of truth claims and disputes at the

institutional sites of modern Ayurveda is to produce and mediate disciplinary boundaries. I have also argued, following Simmel (1956 [1908]), that this boundary maintenance process is one historical manifestation of a productive form of social conflict. Another role of Ayurveda debate in its contemporary postcolonial context, which I will address in Chapter 6, is to produce and authenticate pharmaceutical value and to create local and global markets for the sale of Ayurveda commodities.

Debates like the one featured in this chapter are ongoing in Kerala in medical journals and at similar scientific conferences. Recent controversies I have documented include the translation of Ayurveda disease categories, plant terms, and its anatomy and physiology vis-à-vis western science. Ayurveda's boundary with biomedicine was successfully defended and redefined in these cases and, as these boundary debates continue, similar discursive tools and epistemological ideologies can be used to incorporate new knowledge and to continue transforming the discipline. It is through the practice of scientific debate that Ayurveda doctors are constantly pushing at and defending—and thus transforming—their science's boundary with the cosmopolitan sciences. In this way the historical routinization of truth claims and disputes as a form of boundary maintenance and transformation is also the routinization of a mechanism of disciplinary production.

A close analysis of the types of evidence deployed in truth claims and disputes reveals how the protagonists organized their contributions to index the epistemological categories of authoritative knowledge in Ayurveda. Ordered in this way, the truth claims of Ayurveda doctors navigate the complex set of epistemologies through which the ontological basis of Ayurvedic knowledge is in

large part negotiated between the authority of *śāstra* and that of technoscience.

Thus, the activity of truth claiming and disputing is organized on a discursive level by the ideologies of what constitutes a truth as such. In fact, the disagreement over truth claims among Ayurveda doctors itself assumes a common epistemological ideology. Linguistic anthropologists and other social scientists who make truth claims and meta-truth claims could benefit from a critical attention to such ideologies of truth and to how they organize their own and others' discourse.

It is my hope that by focusing critical attention on the styles and social effects of scientific argumentation that the analysis offered in this chapter has helped to clarify both the social and linguistic ontology of truth claims and, vice versa, the role of such claims and disputes in the ontology of the social.

PART III: COMMODIFICATIONS

Chapter 6

The production and authentication of value

This dissertation began with an analysis of the asymmetrical organization of text on colonial materia medica. The intertextual processes of asymmetrical citation, empiricized translation, and telescopic baptism, had the effect of extracting the drugs employed in Ayurveda and transforming them into objects of knowledge for colonial science. These processes erased the social and material relations of this extraction of knowledge, and instantiated in text an epistemological asymmetry between Ayurveda, atheoretical yet empirically effective, and cosmopolitan science, with its sophisticated explanations of that empirical effectiveness. This chapter investigates another aspect of Ayurveda's institutionalization, the practices of labeling, describing, and ultimately producing drugs for differently positioned markets. Specifically, I describe how Ayurveda doctors and biotechnologists use language differently to produce and authenticate value.

Ostentional practice

Cosmopolitan and Ayurvedic pharmacologies posit two very different views about the ontological status of Ayurveda drugs, each with its own orientation toward a drug's material qualities. Ayurveda pharmaceutical talk-and-practice involves the

multi-sensate materiality of the drug itself as part of its value as an ideological sign and as a pharmaceutical commodity. I have adopted the term *synesthesia* from neurobiology, poetics, and performance studies to refer to this mode of value production.⁶⁷ I employ the term to describe *a culturally elaborated pattern of trans-modal sense mapping*, which I argue is a process involved in the production and consumption of Ayurveda drugs. Ayurveda drugs, conceptualized and produced synesthetically, are copious, fresh, green, textured, odoriferous, pungent, and overfilled with *guṇa* (quality). The language of synesthesia is equally copious and draws upon the vernacular plant and Ayurveda terminology. Such drugs are employed in Kerala as home remedies and in the context of doctor-patient interactions, and are currently entering the markets of herbal beauty care, international health tourism, and the web-based New Age health movement.

Drugs are material objects, however, and as such, they are subject to the vicissitudes that can affect all material objects as they circulate through social contexts of use (Keane 2001). This potential of material objects to become decontextualized and circulate through different novel contexts was central to colonial science's historical efforts to extract Indian drugs from local markets. The process started in earnest with the early 19th century British work on *materia medica* and continues in the work of the Indian biotechnologists of today. *Telescopy* is the term I designate for the mode of pharmaceutical commodification used by

⁶⁷ In neurobiology synesthesia refers to a normal perceptual state which is characterized by the compulsory and subjectively salient trans-modal mapping of sensory channels (tasting colors, feeling sounds, and so on). In poetics, synesthesia refers to the use of multi-sensate metaphors. Also note that stage and cinematic performances often consciously map sensate modalities, particularly visual and auditory channels (recall Walt Disney's *Fantasia*).

cosmopolitan scientists.⁶⁸ It involves *the projection of value onto materially embedded technoscientific essences*, such as the alkaloids, steroids, proteins, tannins, sugars, etc. that lie hidden within the plant. Such drugs are powerful, rationalized, purified, encapsulated, and often bearing scientific-sounding Latinate designations.

These contrasting material-semiotic modes of value production involve a cultural typification of the drug's inherent material qualities or "qualisigns" (from the typology of the American philosopher Charles S. Peirce 1955). A qualisign, by virtue of its material modality, is necessarily co-present or bundled-together with other qualisigns (Keane 2003). As features of an object form, qualities never exist isolated as such, outside of a process of cultural typification. The unpacking of this bundle of material qualities involves a semiotic transition from qualities as unrealized presence to qualities first as tokens and then as cultural types. I use the term *qualisignification* to refer to the semiotic process by which material qualities are discursively categorized and culturally elaborated.⁶⁹ Material qualities, by virtue of being experienced as such and by being the objects of linguistic reference, are always enmeshed in this material-semiotic process of cultural typification. Talk, in fact, is often co-present with the production and consumption of material things, things that

⁶⁸ Telescopy is a term used in literary analysis—"telescopic text or narrative"—which refers to the practice of embedding narratives within narratives, so that one part of an overarching master narrative is elaborated into a similarly overarching master narrative, a part of which itself may be narratively elaborated (producing a telescopic narrative structure). An example of narrative telescopy is the Rama *bhakti* (devotional) tradition in Tamilnadu, which has taken the portion of the Ramanayana which describes the relations of Lord Rama and his wife Sita and developed a full corpus of stories regarding their erotic play and Sita's devotion to her husband (Ramanujan 1989b).

⁶⁹ Qualisignification foregrounds the material modality of signification. Likewise, Karl Marx has provided us with a beautiful and compelling image of the role of materiality itself in human processes of meaning and sensation, "... doesn't the pianist produce music and satisfy our musical sense, perhaps to some extent he produces this sense?" (1971:97 Footnote 1). The acoustic materiality of the sound itself is here implicated in the process of sense cultivation.

are constructed through language to have qualities which matter to their value. Qualisignification requires this co-presence of the act of reference and the bodily engagement with the material thing. I use the term *ostensional practice* to characterize acts of showing and manipulating material objects, and simultaneously indexing, categorizing, and characterizing their qualities with language. This is the fundamental unit of practice by which, I argue, Ayurveda doctors and cosmopolitan scientists employ the qualities of Ayurveda drugs in the production of distinctive regimes of value.

In the cases of ostensional practice that I examine in this chapter the material-semiotic process of qualisignification is part and parcel of the production of pharmaceutical commodities. This work of ostensional practice is organized into two distinctive divisions of labor, each with its own theory about the materiality of Ayurveda drugs. Ayurveda and Cosmopolitan sciences' distinctive ontologies or "knowledge schemata," as Michael Silverstein has so designated (2003; 2004), are historically enregistered-in-language and imposed-in-talk upon the psychophysical experience of comestible commodity production and consumption. As illustrated by his case study of the bourgeoisie practice of "oinoglossia," a.k.a., "wine talk," the refinement of a taster's palate that accompanies oinoglossic competence is not so much the reflection of high-class identity as its indexical entailment. Ayurveda pharmaceutical labor and its co-occurring extension-oriented-talk, not unlike the case of bourgeois comestibles, involves a discursive imposition of a *culture of essence*. Thus, ostensional practice is a kind of linguistic activity which is both enmeshed in the materiality of objects in the world, and involved in the process of constituting

those objects as signs within particular regimes of knowledge. Postcolonial Ayurveda is regimented by two regimes of knowledge, each with its distinctive languages, ideologies, institutions, modes of production, and social identities. The relationship between names and things is an effect of a linguistic division of labor. I have termed the unit of this linguistic labor as ostensional practice, which involves the use of language and material practice in the process of the production and cultural typification of material things. In this chapter I address how these two regimes of knowledge are produced and involved in the production of Ayurveda drugs as commodities. Now, I investigate the production of value in the context of Ayurveda pharmaceutical commerce.

The multi-sensate production of value in Ayurveda

There is a story recorded in the *Vinayapiṭika* (the compilation of a Buddhist monastic order) which was retold to me on occasion in response to my queries about the healing power of Ayurvedic drugs. A legendary Buddhist physician named Jīvaka is said to have studied under his preceptor Ātreya in the famous university at Taxila, now located in modern Pakistan. For Jīvaka's final examination, Ātreya asked him to collect from the city's hinterland all the plants that lacked any medicinal value. After several days, Jīvaka returned to his master empty-handed because he was unable to identify a single plant that did not possess some sort of healing power. He had passed Ātreya's examination. Having proven his knowledge of nature's ubiquitous power to heal, Jivaka was permitted to leave the university to start his own practice (Keswani 1970). The story underscores the ideological link between

Ayurveda and nature (*prakṛti*), as well as the cultural conceptualization of nature as a source of overabundant health-giving substances. Note that Nature’s power to heal is not only manifested in the greens and browns of raw plant materials, but also in the metallic colors of heavy metals such as mercury, lead, gold, and silver (I revisit the issue of the heavy metal content in Ayurveda drugs at the end of this chapter).

In Ayurveda’s “theory of material qualities” (*dravya-guṇa-vijñāna*), the analysis of nature’s sensuous materiality is manifested in the discourse about a plant’s “medicinal action” (*karma*) as first and foremost the result of six categories of “taste” (*rasa*): “sweet” (*madhura rasa*), “sour” (*amala rasa*), “salty” (*lavana rasa*), “pungent” (*katu rasa*), “bitter” (*tikta rasa*), “astringent” (*kaśaya rasa*). Each *rasa* is a symptom of the predominance of two of the five essential elements (*butha*) of the Ayurveda cosmology: earth (*pṛthivi; bhūmi*), water (*jala*), fire (*tējas; agni*), wind (*vāyu*), and ether (*ākāśa*). The *guṇa* are the tactile manifestations of the *rasa* which are organized into a series of 10 qualitative oppositions (e.g., “heavy” (*guru*)/“light” (*laghu*); “dense” (*sandra*)/“liquid” (*drava*), etc.). The *guṇa* cause subjective “heating” (*uṣṇa*) and “cooling” (*śīta*) effects upon ingestion or application, which is commonly translated as the drug’s “potency” (*vīrya*). Lastly, there are three *rasa* that can remain in the body after a drug’s digestion which are known as *vipāka*.

Transmutations of the five elements which manifest a drug’s *rasa*, and in turn its *guṇa*, *vīrya*, and *vipāka*, also constitute the material universe and the human body, the three vitiated humors called the *doṣa* (the politics of translating this concept were dealt with in Chapters 3 & 4). So, the same material constituents that express themselves in a drug’s *rasa* also constitute the human body and its pathological

states. For example, sour taste (*amala rasa*) is caused by a predominance of “earth” (*bhūmi*) and “fire” (*agni*), and in consequence, drugs with a strong sour taste excite *kapha* and *pitta doṣa* which are themselves manifestations of earth and fire elements respectively. In conditions where (*agni* “fire” based) *pitta* is suppressed, for example, perhaps leading to a decrease in “digestive power” (*dāhana śakti*), and in turn to a variety of dreadful symptoms, one doctor I observed would prescribe sour foods and drugs to supplement the lack of *agni*, and thus, increase the patients’ digestive power. Likewise, the elemental constitution of drugs can be used to counteract its opposite vitiated form, such as how the earth and water elements which predominate in “sweet taste” (*madura rasa*) can alleviate vitiated *pitta* by neutralizing its predominant element of fire. Ayurveda drugs often contain multiple ingredients, each of which requires their own *dravya-guṇa-vijñāna* analysis. Furthermore, the *rasa*, *guṇa*, and *vīrya* of the various ingredients can contradict, enhance, or transmutate when mixed and processed, all of which must be accounted for in a doctor’s pharmaceutical calculus. In cases when a medicinal effect cannot be analyzed in terms of *dravya-guṇa-vijñāna*, the drug is said to have a “special expression” (*prabhāva*), which was conceived by some doctors I knew as a sign of the limit of their scientific knowledge, and by others as a magical effect akin to the healing power of gems (*maṇi*), temple grace (*prasāda*), magical utterances (*mantra*), and so on.

It is clear from this terminology of qualisignification that any analysis of the role of language in processes of commodification must in part be based upon the world-creating nature of language’s referential function. The qualities predicated

upon the material reality of Ayurveda drugs do not exist *as qualities* prior to their regimentation in language. In Peirce's phenomenology, the thing, the plant material itself, is simply an undifferentiated bundle of material potentials (the quality of Firstness). The language of the Ayurveda *dravya-guṇa-vijñāna* is thus a qualitative modalization of the plant material's unrealized potential for signification. Doctors with expert fluency in *dravya-guṇa-vijñāna* use this language to analyze and project synesthetic value upon the drugs employed in their medical practices.

It is common knowledge in Kerala that a drug's *rasa* somehow relates to its medicinal effect. Patients ingesting a *kaṣāya* (medicinal decoction), for example, would regularly wince in disgust and comment emphatically upon its tremendously bitter *rasa* knowing full well that the more distasteful the better the drug's healing power.⁷⁰ However, patients will only rarely have more than a lay understanding of the linguistic and conceptual complexities of *dravya-guṇa-vijñāna* which underlie Ayurveda practice. In consequence, the synesthetic production of value for the consumer involves more the meta-linguistic function of language to emphasize and intensify the message of Ayurveda's value. The synesthetic value production also involves intensifying modes of visual and olfactory display.

Consider the synesthetic strategy employed by Dr. Lekha, who ran a small Ayurveda drugstore located on the busiest street in Thiruvananthapuram's urban center. Approaching the store 10-yards-out through the thick smog I could already

⁷⁰ The facial expression which commonly follows the ingestion of bitter or pungent *kaṣāya* is the same expression of utter distaste that often accompanies the utterance of the word *cīta*, meaning a proximate "bad experience."

sense the robust smell of heaps-upon-heaps of unprocessed dried and fresh plant material: piled on the floor, stocked on the shelves, and hanging from the ceiling.



(Photo 6-1: The interior of Dr. Lekha's Ayurveda drugstore. The worker is collecting together various fresh drugs for a patient.)



(Photo 6-2: A patient is consulting with Dr. Lekha, who is sitting at her desk.)

Trained by her father and certified by the Thiruvananthapuram Ayurveda College, a retired District Medical Officer, Dr. Lekha herself manufactured most of the pharmaceutical “combinations” (*yōga*) that she sold under her own label in the busy little store. For this she had transformed her veranda into a small drug factory where she and her workers daily prepared various formulae popular in Kerala: *kaṣāya* (decoction), *taila* (medicinal oil), *kēra* (coconut-based medicinal oil), *cūrṇa* (power), *lēhya* (granulated powder), *ariṣṭa* (fermented decoction), and *gūlaykkū* (pills). “I myself prepare these drugs scientifically.”⁷¹ “But what is science (*śāstra*),” I had to ask. Her answer was unambiguous, “[I] use the formulations themselves which the Seers have said ... if the required plants are not available [I]

⁷¹ *nān svayaṃ śāstriyamāyi tayyārākkunnu*

add different medicinal herbs with the needed qualities ... if the drug is not prepared correctly its qualities are lost.”⁷²

Dr. Lekha prided herself on the Kerala specific and traditional nature of her practice. Like many of the older generation of vaidya she preferred the *Āṣṭāṅgahṛdaya* (The Eight Limbs of Medicine) popular in Kerala over Ayurveda’s pan-Indic urtext, the *Carkasaṃhitā*. Also, she would regularly prescribe combinations, known to be unique to Kerala, that were recorded in the old Malayalam compilation *Sahasrayōgam* (A Thousand Prescriptions). Apart from her prepared medicines, Dr. Lakha’s self-branding as a traditional Kerala practitioner is reflected in the fact that she mainly sold *pacca marunnū* (green or fresh drugs). As in the olden days, the patients and their social relations would prepare the drugs in the home according to Dr. Lekha’s direction. I asked her why she chose to focus on these raw drugs. She looked up from the desk at the baskets hanging around her, “There are many single drugs,”⁷³ which she followed with a rapid-fire list of well-known medicinal plants: “*tulaṣi, guggulu, jīraḡam, vēppū*.” Dr. Lekha continued, “For every single drug there are many many uses ... there are so many qualities.”⁷⁴

Adjectival vowel extension, nonobligatory plural markers, and rapid-fire vernacular plant lists—Dr. Lekha would often deploy this *language of natural abundance* with her patients as a means of emphasizing the copiousness of her

⁷² ācaranmar paranna yōgam tane upayōgikkunnu ... paranna cēdi illeṅgil veṇḡa guṇattinre kūdi mutu auṣadham certtuṃ ... yōgam śerikkum tayaṛākkillengil guṇam naṣdam

⁷³ ottiri orramūli uṅṅū

⁷⁴ oru orramūlikkū phala phala prayōgam uṅṅū ... bhaiyaṅgara kūṭatal guṇaṅṅaḷ uṅṅū

medicines. A new grandmother, for example, had approached Dr. Lekha for some medicines to speed her daughter's recovery from a cesarean birth. The ingredients and directions were complex, and after checking her notes with the doctor, the grandmother with her basket of drugs in hand simply asked, "Any other medicines?"⁷⁵ Such customary closing queries would invariably be met with a torrent of plant names, and again, with the discourse of natural abundance: "There is so much" Afterwards, she turned to me and explained that most, if not all of the medicinal plants used in Ayurveda are "divine drugs" (*divya auṣadha*): i.e., single plants with many diverse and miraculous panacea-like healing effects. Through her language of natural abundance, as well as through her *strategies of visual and olfactory display*, Dr. Lekha's commercial and medical practice employs the sensuous materiality of Ayurveda drugs as an ideological sign of their health-giving value. I actually got her to admit the visual artifice involved in her storefront presentation once when I asked her, quite seriously, "Is it decoration?"⁷⁶ She laughed heartily. "It's not decoration," she continued to laugh while explaining that patients might use the variously strewn about foliage to identify unknown species. She repeated herself, "It's not decoration," and then with a wry smile she whispered across the table, "There may be a little decoration."

I commonly observed this strategy of visualization in Kerala. Photographic and video representations of medicinal plants, for example, are often close-up and

⁷⁵ *vērē auṣadham?*

⁷⁶ This transcript is adapted from my handwritten notes.

MW: *alaṅgāraṃ āṇō?*

DR. L: *alaṅgāraṃ alla*

tightly framed, which gives an impression of the plant exceeding its boundaries.

This framing also excludes the context of human artifice which produces the plant as a medicine.



(Photo 6-3: TV news cameraman records an image of a medicinal plant)

This photo, for example, is of a Malayalam TV news cameraman collecting footage at a government of Kerala sponsored event to promote medicinal plant education which was held at a government girl's school in Triruvananthapuram. Notice how close up the shot is framed. The images of medicinal plants created in this way produce an effect of an overabundant and self-evident nature.

There are numerous pharmaceutical companies in Kerala and throughout India attempting to bottle-up and otherwise package as commodities the natural healthy goodness of traditionally prepared Ayurveda medicines. The Arya Vaidya Sala of Kōṭṭakkaḷ and the Kerala Government's own brand Oushadhi of Tṛṣūr are two very popular examples of large-scale quality-controlled industrial manufacturing firms that specialize in the production of classical preparations. Their small company shops can be found throughout Kerala. Arya Vaidya Sala, in particular, pioneered the early use of modern packaging and quality control in the preparation of classical formulae. In addition to manufacturing their own drugs which are sold

under their own label, many of the practicing vaidya whom I met sell these commercial “ready-made” preparations to their patients as part of their medical practice. The Ayurveda knowledge employed in these classical preparations has also been used to make new products such as soaps, hair tonics, cold medicines, tooth powders, etc (Banerjee 2002).⁷⁷ For example, the private pharmaceutical firm, Panchakasturi, has made a fortune repackaging a medicinal plant commonly used to treat asthma, colds, and other seasonal respiratory conditions. In the photos below factory workers produce and package this drug under quality controlled industrialized conditions.



(Photo 6-4: Industrial pharmaceutical workers prepare an Ayurveda-based asthma medicine in a steam- heated aluminum cauldron that is in the shape of a traditional brass vessel)



(Photo 6-5: These workers apply standardized labels and product packaging for an Ayurveda-based cough syrup)

To market industrialized home health and beauty care products, the synesthetic commodity value projected by Doctor Lekha in the contexts of a face-to-face encounter with her drugs’ consumers is displaced onto the product packaging and advertisement. In Kerala, such commodities are aggressively marketed on

⁷⁷ Madhulika Banerjee (2002) has analyzed the product packaging and marketing strategies of Dabur, one of the largest pharmaceutical companies in India. Currently, Dabur’s focus has shifted from classical Ayurveda preparations toward natural beauty care and food supplements marketed toward a Western and middle and upper middle-class Indian clientele.

Malayalam television and especially in monthly women's magazines like *Vanita* (Woman) and *Mangalam* (Blessing), and health magazines such as *Ārōgyam* (Health), *Āyurārōgam* (Life Health), and *Ārōgyamāsīka* (Health Monthly). The glossy full-color images in these magazines typically juxtapose images of plant drugs with those of feminine beauty, domesticity, traditional knowledge, and scientific modernity. Cold and asthma remedies, for example, are often marketed with images of home and hearth, typically featuring a concerned mother and her suffering child. Such advertisements may also featured traditional vessels filled with fresh ginger and peppercorns, or palm leaf manuscripts. Images of traditional knowledge may be juxtaposed with laptop computers, laboratory paraphernalia, and references to “modern research” (*ādhunika gavēśana*), emphasizing the status of the commodity as ancient knowledge of nature produced and consumed in a modern technological context.

For example, in 2004 *Ārōgyamāsīka* carried a series of ads for Jeeva Ayurvedic Soap featuring an unclothed, fair skinned and beautiful woman whose body was concealed by the tall grass, ferns, and other plants. The model is pictured sitting amongst the flora, smelling with an expression of ecstasy a bar of soap. The pictured olfactory moment foregrounds the sensuous nature of the soap as a natural product, additionally signified by green product packaging, green font, and the green flora surrounding the model's nude body. The product itself is dyed green. The indexical configuration that sutures nature together with this idealized conception of feminine beauty is underscored by the text of the advertisement. Twenty seven Ayurveda medicines are listed by name, and then the following:

Jeeva contains 27 Ayurvedic ingredients which give protection, brilliance, and nourishment to your skin. Its special foam like cream opens the minute pores in the skin, removes impurities, and delivers the Ayurveda qualities deep [into the pores]. That way there is more beauty, more smoothness, and more youthfulness for your skin.⁷⁸

The Ayurveda qualities contained in the product, signified as nature by the vibrant green-color symbolism, penetrate deep into the skin and restore a lost idealized state of beauty, salient qualities of which include youthfulness, purity, nourishment, smoothness, and brilliance.⁷⁹

It is important to note that these practices of synesthetic commodification are based upon a cultural common sense about “nature” (*prakṛti*) as the traditional source of health giving foods, drugs, and modes of life. This cultural background for Ayurveda drug commodification is also appropriated as an ideology for the de-commodification of medicinal plants. In fact, there is in Kerala a widespread practice of harvesting medicinal plants as “home remedies” (*gṛha-vaidya*). With the explosion of cultural print capitalism in Kerala over the past ten years, texts ranging from cheap pamphlets available in train station bookstalls to hardcover

⁷⁸ niññaḷuṭe carmmattinū pōṣaṇavum ōjassum saṃrakṣaṇavumṇalkunna 27 āyurvēdik cēruvakaḷ aṭaṇṇiya jīva. Atinṛre saviśēṣamāya krīṃ pōluḷḷa pata crnattule suṣiraññaḷtuṛannū, aḷkkukaḷ nīki āyurvēda guṇaṇṇaḷ āḷtilēkkettikkunnu. añṇne niññaḷuṭe carmmattinū ēre yuvatvaṃ, ēre minusaṃ, ēre saundayaṃ.

⁷⁹ Francis Zimmermann (1992), in a comparison of classical with New Age and tourist representations of Ayurveda, has found the natural and nonviolent symbolism of these appropriations tends to obfuscate the fact that Ayurveda, like all medicine, is a violent business. “Neither red (the red of bloodletting), nor black (the black of chemical oxides), but green—the green of herbs freshly gathered, a symbol of nonviolence: this is the new model of Āyurveda’s flower children” (210). The English Ayurveda literature oriented towards tourists often couples images and discourses of nature, spirituality, health, and the Orient. The effect of this framing of Ayurveda on the practices of the vaidya in Kerala is an important subject that I will address in future research.

encyclopedias with glossy photos are available for purchase as home remedy reference manuals.

My neighbor in Thiruvananthapuram was a middle-aged and upper-middle-class homemaker with two daughters in high school who had moved from her village home in central Kerala to the city for her husband's work. I remember on the day we met, when I mentioned my project she proudly showed me her crisp new encyclopedia of medicinal plants. It was only after shelving the book in a curio cabinet amongst her various accoutrements of upper middle-class life that she began to lecture her daughters and me on the many uses of the medicinal plants available at her family's village property. In my experience this remarkable fluency in the identification and use of medicinal plants is not uncommon among homemakers in Kerala, even still in urban settings and among the younger generation.⁸⁰

It is in the context of this widespread tendency to use medicinal plants outside of a capital-mediated mode of consumption and exchange that a variety of small-scale yet concerted cultural projects in Kerala are working to de-commodify Ayurveda drugs. "In this lifetime I will not sell a drug,"⁸¹ Dr. Subramanian paused to hold our gaze, and repeated his assertion with equal force in English, presumably to make sure I got his point. The mixing of leftist (anti-commodification) and Hindu

⁸⁰ It occurred to me that the gendered nature of the transmission of medicinal plant knowledge in the home might be one reason for the dominance of women in the botany and biotechnology departments that I visited in Kerala. Although the women that I asked about this tendency did not want to politicize or interpret their work in a Kerala cultural context, I know from observation that all levels of botanical scientific labor were staffed by women or predominantly by women during my research tenure, including as graduate students, curators, librarians, technicians, research scholars, teachers, professors, laboratory directors, and chairs of departments.

⁸¹ *ñān ī jīvanattil oru marunnū vilkkumilla*

(karmic rebirth) rhetoric was not uncommon for Dr. Subramanian, who led a small group of left-leaning Ayurveda doctors and students who had become radicalized against what they believe to be the negative effects of the pharmaceutical industry on their science. When he was a student in Ayurveda college Dr. Subramanian observed the marketing of drugs to young doctors. He now argues that this practice has led to a generation of practitioners whose knowledge of Ayurveda has become increasingly limited to the writing of prescriptions for “ready-made” products. He believed that this commodification of the healing process marginalized Ayurveda’s many boons—especially its rich analysis of the healing properties of nature and its holistic and dynamic conceptions of health, illness, diagnosis, and the doctor-patient relationship. Dissatisfied with his college experience he went on to study with a traditional vaidyan. Radicalized against the commodification of Ayurveda in this way, however, Dr. Subramanian sympathized with yet eschewed the grandiose critiques of global capitalism popularized by the Communist Party of India and similar groups. For him, the establishment of local institutions was the only way to effect tangible change.

Dr. Subramanian had purchased land in the Western Ghats Mountains which is an area that is famously rich in wild medicinal plants. The group that had assembled there to build a clinic and “research center” included a British academic, some recently graduated Kerala doctors, students and workers who had been

recruited from Nagaland in Northeast India, and laborers and patients from the surrounding community.⁸²

Dr. Subramanian and his students educated their patients to harvest and produce their own medicines. Complex preparations were produced by the doctors themselves but provided to the patients free of charge. In exchange for their pharmaceutical and clinical labor, Dr. Subramanian's students received free tuition in Sanskrit and Ayurveda. The fact that the "course" was unaccredited and thus could not confer any recognized titles or degrees was part of the antiestablishment ideology of the community. As we talked workers from the local community were building the hospital. One of the workers captured a green frog and explained to the crowd that gathered that this particular species could only be distinguished by a set of markings on its back, and that the flesh could be consumed for cases of chronic cough. Dr. Subramanian explained to me with delight that this "folk knowledge" (*natū-arivū*) of the plants growing naturally in the environment is the greatest resource in his project to construct a local alternative to pharmaceutical capitalism.

A similar case from the other side of the political spectrum is the Gandhi inspired village development projects which stress *svaraj* (self-reliance) on local industries, including the cultivation of medicinal plants. One group I visited in Thiruvananthapuram's rural hinterland organized "organic farming committees" (*jaiva-kṛṣi sabha*) and "medicinal plants committees" (*auśadha sabha*). The

⁸² The eclectic group assembled at the site was recruited by Dr. Subramanian and his colleagues in the context of travel and work in Nagaland and elsewhere with indigenous healers. This work is part of an international movement to awaken a sense of the global alterity of indigenous healers for the purposes of fighting against bio-piracy and the devaluing of indigenous traditions.

organization gave trophies for excellence in medicinal plant horticulture. I had the opportunity to spend an afternoon with the three-time first place winner, an elderly woman who seemed to me to have converted every conceivable space of the land surrounding her small house into organic or medicinal plant horticulture (Photo 6-6). The drugs she harvested were circulated among the members of the Committees and in this way throughout the community. The remainder was used to produce simple Ayurveda preparations and natural beauty care commodities for sale locally and in village development shops and fairs (Photo 6-7).



(Photo 6-6: A Gandhian development worker [left] tours a co-op member's rooftop garden)



(Photo 6-7: A worker [middle center] prepares Ayurveda soap products [right] for sale in a cooperative shop; my son stands in the foreground)

It is interesting that both leftist and Gandhian approaches to the de-commodification of Ayurveda drugs employ in their projects much of the same language of natural abundance used to commodify drugs in the first place. The indexical configurations of nature, tradition, health, and domesticity are in these cases deployed to ideologize the development of non- or anti-capitalistic modes of

medicinal plant production and exchange. This chapter now turns to the role of ostensional practice in the authentication of material value.

Pharmaceutical authentication as a social relation



(Photo 6-8: Ganesh Vaidyan [center] describes his drug production techniques)

We have already seen how the ideology of Ayurveda drugs, delineated in *sāśtra* and prepared by hand by self-stylized “traditional” vaidya is part of this process of authentication. I now provide a case study of a traditional *Siddha* practitioner for whom the social relations of material authentication pose something of a problem. Ganesh Vaidyan is a lineage trained Siddha medical practitioner and pharmaceutical entrepreneur who lives in Thiruvananthapuram’s rural hinterland. In interesting ways his operation is a marginal case in the region’s plural political economy of medicine. Siddha is the traditional system of healing of Kerala’s neighboring state of Tamil Nadu, and Siddha texts are written in the Tamil language. The practitioners and apologists of Siddha who live in Tamil Nadu emphasize the exclusively Tamil origin of the practice, which is linked with Dravidian nationalist conceptions of the

primordial Tamil nation. This nation is constituted in opposition to the Aryan and Sanskrit civilization which, they say, spread southward throughout the subcontinent as an aggressor. In contrast, in Kerala the Sanskrit tradition of Ayurveda is known to be among the most historically robust in India, and the practice is extremely popular throughout the region, which is one of the few places in the subcontinent where patients see Ayurveda doctors as their primary care physicians.

This particular doctor developed a unique style of language which takes advantage of his marginal position in the regional political economy of medicine. I argue that his unique entrepreneurial strategy and stylistic virtuosity highlight the social conditions of authentication, a strategy common to Ayurveda vaidya and Indian medical practitioners more generally. The case is also interesting because it is an illustration of how a foreign medical practice such as *siddha* can be encompassed within the locally hegemonic discourse of Ayurveda. It is thus a compelling demonstration of Ayurveda's value as an ideological sign.



(Photo 6-9: Practitioner displays the manuscript for his Malayalam Encyclopedia of Siddha)

The few other Siddha practitioners in Kerala that I observed catered to resident Tamils and local clientele. These doctors tended to represent their practice

in ways that inhabited the Dravidian nationalist narrative, emphasizing the distinctiveness of Siddha vis-à-vis the more popular Ayurveda. For example, one lineage trained practitioner that I observed had documented in Malayalam in handwritten notebooks the pharmaceutical, clinical, and philosophical distinctiveness of Siddha. Bereft of patients and drug sales, he could not afford to publish this massive literary corpus (see Photo 6-9) to which he had dedicated years of labor. As an expert on Siddha's distinctiveness, however, he was able to secure a position as a resident guru at a nearby modernized Siddha College and Hospital. He received a small salary for his presence in the college, where he would hang around most days and occasionally consult with school-educated Siddha doctors and students. So, in the Kerala context, the Dravidian nationalist representation of Siddha's opposition to Ayurveda and Sanskrit culture has proven to be a relatively ineffective as an entrepreneurial strategy, in large part on account of Ayurveda's ideological hegemony and popularity in the regional political economy of medicine.

Ganesh Vaidyan developed a new entrepreneurial strategy which actually takes advantage of his discipline's marginality in the Kerala context. He positioned his medicine as both distinctive from Ayurveda, and incorporated by Ayurveda. His sales pitch was marked by this disciplinary ambivalence, which signified on different levels a text that was both monologue and dialogue, authoritative and intimate, literary and conversational, and foreign and local. Thus, I argue that in response to his marginal position in the political economy of medicine, Ganesh Vaidyan

developed a strategy of *double voiced stylization* which situated his drugs as both familiar and distinctive, and his persona as both intimate and authoritative.⁸³

My attention was originally drawn to Ganesh Vaidyan's pharmaceutical operation in large part because of its astounding success. In two large Humvee trucks Ganesh Vaidyan and his staff would travel to the major cities of southern Kerala to stage a unique kind of drug marketing event. I observed these events throughout the course of my research. As soon as Ganesh Vaidyan started to speak a large crowd would invariably gather, and on such occasions commerce was often quite swift. His operation became so successful that he was able to start marketing his drugs in some of the English pharmacies in Thiruvananthapuram, where his drugs were shelved next to designer brand Ayurvedic cosmetics such as hair tonics and soaps.

⁸³ Sociolinguistic simultaneity, that two or more social distinctions can be indexed by the same utterance, has only recently become a focus of anthropological investigation. Recent appropriations of Bakhtin's heteroglossic characterization of the utterance (1981) have fundamentally challenged a unified conception of linguistic code, as for example in Kathryn Woolard's (1998) analysis of bivalency in language contact situations. It is my hope that a similar re-theorization of the sociolinguistic concept of style might also lead to a better understanding of the role of linguistic simultaneity in the display of socially complex, ambivalent, and simultaneously multiple persona and social distinctions. For example, Marjorie Goodwin and Samy Alim (2007) have described a case of "transmodal stylization," where contradictory styles are simultaneously distributed across modalities; for example, the simultaneous use of racially stigmatized "ghetto girl" gesture and class stigmatized "Valley girl" speech. As a departure from the traditional sociolinguistic paradigm, a heteroglossic theorization of style, it seems, requires a more serious appreciation of the multi-layered complexity of language as a semiotic medium, as well as a multidimensional approach to social context which incorporates an empirically grounded account of social motivations.



(Photo 6-10: Ganesh Vaidyan's workers prepare, display, and sell a medicinal oil)

In this photo (Photo 6-10) we see in the left corner a worker preparing Ganesh Vaidyan's main commodity, a medicinal oil used to treat *vāta* conditions such as rheumatism. In the center of the photograph are 108 medicinal plant ingredients displayed in little boxes, reminiscent of a natural history collection without the labels. To the right of the photograph a salesman interacts with customers. Ganesh Vaidyan would display the ingredients and the drug's production in crowded bus stands and beside the temple tank in Thiruvananthapuram's East Fort. I will now present some transcript evidence based on a recording made of Ganesh Vaidyan's sales pitch as he interacted with about 150 customers one night in the Fort.

(Transcript 6-1: "Can you substitute oil with water?")

- 1 suhṛttukkaḷē
dear friends
- 2 ī nūrriyettū marunnukaḷ cērkkantē nān cōdikkattē
should (we) not add these 108 medicines, let me ask that
- 3 eṇṇakkū pakaram veḷlamolikkān okkūō?
can you substitute oil with water?
- 4 kaṭuēṇṇa vēṇaṃ ... nalleṇṇa vēṇaṃ ... āvaṇakkeṇṇa vēṇaṃ
mustard oil is needed ... gingerly oil is needed ... castor oil is needed

- 5 ī kāṇunna muḷuvan marunnukaḷuṃ vēṇaṃ
all the medicines seen are needed
- 6 appō itrēṃ marunnukaḷuṃ cērttā
then this many medicines are added
- 7 ī tailaṃ ṅān tayyār̄ ceytatū
I prepare the oil
- 8 ōrō marunnukaḷ eṭuttōḷū
each drug (I) take and make good
- 9 śār̄irattinr̄re ētū bhāgattū oru vēdanayō vilakkamō uḷukkō piṭittamō kōccū
which ever part of the body there is a pain, sprain, dislocation, seizure, or frozen muscles
- 10 ī kāṇunna nūrr̄iyrt̄tū marunnukaḷuṃ dā ... ī raṅṅū kalañcū vītaṃ ... cērk̄kayā eṭtū iṭikkū
these 108 medicines (which you are) seeing right there ... two measures (of each) are added together, taken and pressed
- 11 ī kāṇunna nūrr̄iyet̄tū marunnukaḷuṃ ī raṅṅū kalañcū vītaṃ ... dā ninnaḷuṭe kaṅṅinr̄re mumpilvaccū eṭuttū
these 108 medicines (which you are) seeing, two measures (each) right in front of your eyes are taken (and prepared)
- 12 parassyamāyi tanne iticcū
publicly itself (they are) pressed
- 13 parassyamāyi tanne poṭiccū
publicly itself (they are) powdered
- 14 parassyamāyi itil kācci aricceṭukkunna
publicly in it (the bottle) (they are) distilled and filtered
- 15 ī tailattinr̄re pērāṅṅū vātarōga siddha mar̄mmāṅi tailaṃ
the name of this oil is Vātarōga Siddha Mar̄mmāṅi Tailaṃ

There is an ambivalence in this text which centers on Ganesh Vaidyan's presentation of self as a local, trustworthy, and intimate person, on the one hand, and an authoritative expert with access to esoteric knowledge on the other. Traditional

vaidya such as this one are known to possess secret knowledge (*rahāsyā*) of the powers of medicinal plants, knowledge which they are widely believed to withhold from the disciples in their lineage; in one popular version, even up until the moment of their death. Ganesh Vaidyan, possessing this secret knowledge, emphasizes how all 108 drugs are necessary, and that two full measures of each drug are added to the cauldron and prepared publicly right in front of the crowd's eyes. In addition to the public ostentatious context of the drug's production, elsewhere in the corpus Ganesh Vaidyan represents himself as trustworthy both because he is local and because he is traditional and rural. Like the members of his audience, he also can be seen regularly in the marketplaces, bus stands, and temples, and he, unlike those of the modern educated class, does not mock many of their regional folk beliefs. The labeling and categorization of the drug itself also plays upon the ambivalence between the foreign and the local:

(Transcript 6-2: "This is Ayurveda")

- 1 itū āyurvēdamāṇū
this is Ayurveda
- 2 āyurvēdamennū ṅān samsārikkumpōḷ cōdikkuṃ
when I speak of Ayurveda it is often asked
- 3 "alla vaidyarē ... ī āyurvēdaṃ āṛū kaṇṭupiticcū?"
"no dear Vaidyar ... who discovered this Ayurveda"
- 4 enrre acchan ... acchanrreapupan okke vaidyanmārā
my father ... my father's grandfather and so on were Vaidya
- 5 ṅāṅṅalārauṃ kaṇṭupiticcayallā
no one among us has discovered (Ayurveda)
- 6 āyurvēdaṃ āṛū kaṇṭupiticcū?
who (then) discovered Ayurveda?

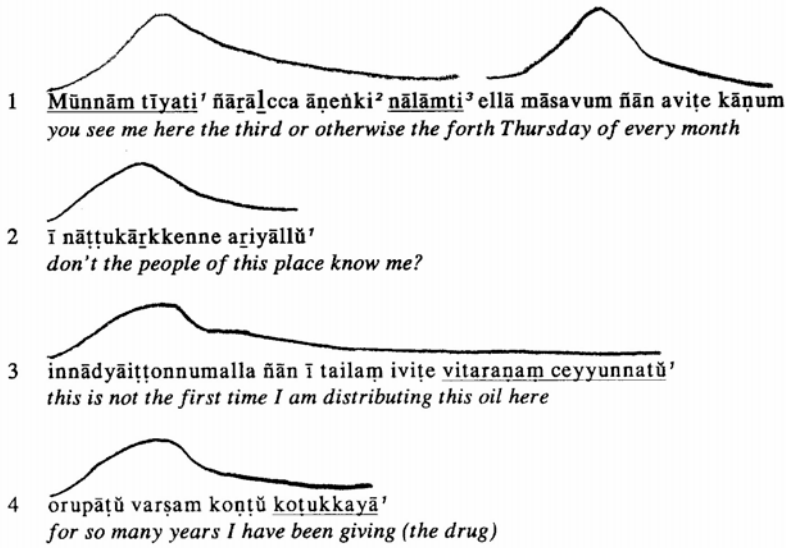
- 7 dēvanmār jīviccirikkunna oru kālakhattattil dēvammārkkū āsukham
in the (ancient) time when the Gods lived they had sickness
- 8 ī dēvammārellām kūṭi oṭi eviṭe cennu?
(when) all of these Gods ran together where did they arrive?
- 9 brahmāvinrre aṭuttū cennu
they arrived next to (Lord) Brahmāvū
- 10 brahmāvū dēvammārkkū upadēśiccū koṭukkappetta vēdamāṇū ... āyurvēdam
the advice given by (Lord) Brahmāvū to the Gods is the Veda ... Ayurveda
- 11 vēdamāṇū ... upadēśamāṇū vaḷḷū varakāsuri dhanvantari kūpaṁ tuṭaṅṅiya
patinettū ācāryanmār itū kaṇṭupitīccaṭ
*the Veda is ... the advice is that Vaḷḷū, Varakāsuri, Dhanvantari, Kūpaṁ, and all
the rest of the 18 sages discovered*
- 12 siddharkaḷāṇū ... itū kaṇṭupitīccatū
it was the Siddhars who discovered it
- 13 itū prakṛtiyuṭe sambattāṇū
it is nature's treasure

The name of the drug, *Vātarōga Siddha Maṛmmāṇi Tailam*, which he uttered in the previous transcript and elsewhere throughout the corpus, marks the drug as emerging from the Siddha tradition which focuses on the treatment of vital spots (or Maṛmmā). He also refers to the sages who received Ayurveda from God as Siddhars (Line 12-13), although the list includes individuals referenced in the Sanskrit canon, the most prominent of which is *Dhanvantari*, who is sometimes worshiped as the God of Ayurveda. At the same time, however, Ganesh Vaidyan identifies the drug as Ayurveda, and his knowledge as descended from a lineage going back to the original sages who received the knowledge from Lord Brahmāvū. He thus encompasses his own knowledge within the divine Hindu origin narrative of Ayurveda. The drug, in

this way, is represented as both the familiar, trusted, and popular Ayurveda, as well as the foreign and exotic Siddha.

On the level of style Ganesh Vaidyan's sales pitch has a highly repetitious and exaggerated intonation contour which marks his talk as *prabhāṣaṇa*, that is, a formal speech or podium talk. Heightened intonation patterning is associated with authoritative content more generally, and doctors often accentuate the intonation of their talk when they want to communicate a package of authoritative or traditional knowledge. Speechmaking is also characterized in Malayalam by the use of Sanskrit lexical items and literary style morphology, pronunciation, and syntax. I first transcribed and studied this text with Dr. V. K. Bindu, a research scholar in the Linguistics Department at the University of Kerala. Together, we had spent countless hours reading Malayalam literature, and transcribing speeches, classroom discourse, scientific debates, and conversations that I had recorded. In contrast with the genres we had studied together, Ganesh Vaidyan's sales pitch was special in that it refused to occupy the opposition between literary speech and writing and the more regionally marked conversational styles. Consider this transcript from Ganesh Vaidyan's speech which provides an example of the multilayered lamination of sociolinguistic signs which produces an effect of a double voiced text:

(Transcript 6-3: “Don’t the people of this place know me?”)

- 
- 1 Mūnnām tīyati¹ nārālcca āṇeṅki² nālāmti³ ellā māsavum nān avite kāṇum
you see me here the third or otherwise the forth Thursday of every month
- 2 ī nāṭṭukārkkenne ariyāllū¹
don't the people of this place know me?
- 3 innādyāiṭṭonnumalla nān ī tailaṃ ivite vitarāṇam ceyyunnatū¹
this is not the first time I am distributing this oil here
- 4 orupātū varṣam koṇṭū kotukkayā¹
for so many years I have been giving (the drug)

Line 1, Superscript 1, “mūnnām tīyati” (*third date*), is a morphologically and phonologically elaborated form which is indicative of speechmaking and literary composition. However, Superscript 2, “āṇeṅki” (*otherwise*), demonstrates final consonant deletion (from *āṇeṅkil*) commonly observed in conversational and regional dialect styles. The following word, Superscript 3, is parallel to the construction marked by Superscript 1 of the same line, except the form “mūnnām tīyati” (*third date*) is now morphologically reduced to a conversational form “nālāmti” (*fourth date*). There are numerous cases of this pattern of metrical parallelism in the text, where similar forms are presented sequentially both in a formal literary and dialect conversational styles. Line 2, Superscript 1, also shows this morphological reduction, replacing “ariyāmallo” with “ariyāllū” (*don't you know?*). Following this utterance, Line 3, Superscript 1, introduces a highly marked literary form, the use of a Sanskrit noun with a Malayalam auxiliary verb, “vitarāṇam

ceyyunnatü” (literally, *doing distribution or circulation*). This is the most common marker of speechmaking and literary Malayalam, and Ganesh Vaidyan’s text has many examples of such explicitly Sanskritized verb formations. In the following line, Line 4, Superscript 1, the Sanskritized literary form on Line 3 is paralleled, and morphologically reduced. Thus, “koṭukkakayāṅna,” a common third-person recipient verb of giving semantically parallel to the Sanskrit noun “vitarāṇam,” is morphologically reduced to the conversational form “koṭukkayā” (*giving*).

The metrical parallelism of this text alternates lexical, phonological, and morphological signs of speechmaking, *prabhāṣaṇa*, with signs of dialect and conversational style on the same and alternating levels of language. This process of multilayered lamination allows Ganesh Vaidyan to occupy two distinctive regimes of value simultaneously. Whereas podium talk is indicative of official occasions, the conversational forms that are deployed in this text are regionally marked as specific to the Thiruvananthapuram and southern Kerala rural hinterland. Clearly Ganesh Vaidyan’s sales pitch is an example of stylistic virtuosity, and he never fails to draw a crowd. This mode of stylization, I argue, can be interpreted in the context of his larger entrepreneurial strategy, which in large part is an adaptation to his marginal position in the regional political economy of medicine. Neither foreign nor entirely local, but both, Ganesh Vaidyan attempts to display a persona that is both intimate and trustworthy, but also authoritative and in possession of secret and exotic knowledge. This liminal persona is reflected in his double construal of his lineage and commodity as simultaneously both Ayurveda and Siddha. The veracity of his drugs is authenticated through this representation of his knowledge and the social

relationship between himself and his audience of prospective patients. It is precisely because this relationship poses a problem for Ganesh Vadyan that he stylizes his language and his presentation of self as a means of highlighting the fact that pharmaceutical authentication is itself a contingent social relation. Whereas vaidya recognize and accentuate the social nature of the authentication of their drugs, next we shall see how state facilitated pharmaco-capitalism hides this social contingency behind the significata of technoscientific authority.

Indian drugs: a crisis of materiality

The pill bottle is the central fetish item of the international pharmaceutical industry. In the American version, the orange plastic cylinder with the childproof lid and white stick-on label is a sign of the *material veracity* of the contents within. “Material veracity,” in this case, has the very particular meaning of the one-to-one correspondence between the bottle’s label and the materiality of the drug. The two dimensions of material veracity include the drug’s *purity*, that no more and no less of the drug’s prescribed constituents be present, and *potency*, that the constituents be present in the prescribed amount. It is easy to imagine that the issue of material veracity in the international drug industry is a deadly important matter. Adulterated and improperly dosed drugs kill patients and lead to terrible pain and suffering. The production of the commodity’s material veracity takes place in the context of a network of human social relations characteristic of state-authorized pharmaco-capitalism. These social relations are the institutional felicity conditions of the drug production which the pill bottle hides from our view.

The magic of the pill bottle's fetishized signification works something along the lines of what Sherry Ortner called a "synthesizing key cultural symbol" (1973). Safety, effectiveness, science, hygiene, standards, expertise—these values are bundled together in the sign of the pill bottle. Thus, the symbol evokes trust not analysis; in particular, a trust in the state and capitalist institutions which regulate and produce the often dangerous substances which we consume as patients. However, unlike other synthesizing key cultural symbols such as the post-9/11 American flag bumper sticker, the pill bottle, omnipresent, is not often psychologically salient or discursively and culturally elaborated. The pill bottle is silent, and we are silent about it as we purchase and consume its contents. This silence is typically broken in cases when the institutional felicity conditions of the drug's material veracity are not met, so that the social conditions of the drug production and authentication enter into consciousness and become the subject of debate. In contrast with the fetishized status of the pill bottle in western pharmacy, in the Indian colonial context, when pharmaceutical capitalism was in its nascent form, the material veracity of Indian drugs was the focus of an elaborated discourse which questioned the institutional felicity conditions of production.

Indian drugs are adulterated. While the tone of condescension inherent in this proposition varies between authors and between the colonial and postcolonial periods, the idea that the production of Indian drugs is a capricious business is a remarkably durable ideological trope. It has also been a major motivation for the professionalization of pharmacy in India. Ironically, perhaps, the robust discourse of pharmaceutical expertise proliferated in many texts such as those describing regional

flora and materia medica argued against the dangers of excessive language. As an example of this ideology consider “The General Rules,” composed by two British medical authorities and appended in an introductory medical school textbook for Indian students in turn-of-the-century colonial India (*An Introduction to Materia Medica for India*, Ponder & Hooper 1901):

General Rules

Rules to be observed while compounding or dispensing –

1. Give undivided and concentrated attention. Promiscuous conversation should never be allowed in a dispensary.
2. Read through the prescription carefully, and note any inconsistencies in dose or incompatibilities. If difficulty occurs in deciphering (=reading) the prescription, compare the formation of the doubtful letters with other unmistakable portions of the prescriptions.
3. Then begin compounding. After finishing, it is well to again read the prescription and check the items.
4. When measuring poisonous substances, another person should check the quantity.
5. In labeling drugs, the writing should be small, neat, distinct and regularly spaced. Never put a label over on old one. Never substitute one drug for another ... (1901:323).

This text is an argument that languages are full of words which refer to things that are characteristics of a world that is pre-constituted and separate from the signification of it. Languages reflect the world, or at least, they can be made to reflect the world by experts who carefully certify the one-to-one relationship between the name of an object on the one hand, and the object itself on the other. Addressing the assumptions and methodologies of anthropologists, linguists, and other social scientists, Michael Silverstein (1976) has criticized this extensionalist ideology as a highly restricted and uni-functional analysis of language. In the context of

pharmaceutical practice, however, a uni-functional representation of language is preferred because, by reducing language to an operation of pure reference, the ideology erases the social context and historical contingencies that muddle the work of pharmacy, i.e., that of applying names to things in an historically consistent manner.

It is clear from these Rules that this relationship is highly contingent, and that such extensionalist couplings have to be produced and carefully maintained both by the stripping away of “promiscuous” (i.e., non-referential) talk and by the stripping away of extraneous (i.e., non-extensional) materiality. A particular hermeneutic is also legislated in pharmaceutical practice. The pharmacist reads and then must re-read the prescription, and in cases of unclarity, “compare the formation of the doubtful letters with other unmistakable portions of the prescriptions.” Then the pharmacist engineers the drug-product so that it conforms to the language of the prescription penned by the doctor, and finally, labels the container with a standardized style of writing. Mislabeling the drug and straying from the doctor’s orders is very serious: “Never substitute one drug for another.” Reading, writing, and the semantic link between the drug’s name and the name’s material extension are legislated in this way so that the drug-substance can be reliably identified by the language of the prescription and label. Thus, the linguistic division of pharmaceutical labor in its idealized form involves a regime of prescribed material and linguistic practice. The textual history of the Indian pharmaceutical science can be envisaged as the struggle to overcome the indeterminacy between the word-as-linguistic-sign and its correlated object-in-the-world.

The institutional felicity conditions of this extensionalist language ideology and practice did not exist in India in the early 20th century colonial context. These conditions include the institutional relations necessary for the socialization of experts, as well as the social and material relations necessary for the scientific authentication of Ayurveda drugs. J. C. Ghosh, following fifteen years of civil service and two years training at Manchester University, became in 1912 among the first Indians to be certified in Pharmaceutical Chemistry. He had taken advantage of his time in Manchester by establishing professional contacts with members of the British Pharmacopoeia Committee and by touring pharmaceutical factories across England. Upon his return to India he took charge of the Government Medical Stores Department in Madras, which was at the time the only drug laboratory in the Madras Presidency to employ exclusively the techniques outlined in the 1914 edition of the *British Pharmacopoeia*. In his free time, Ghosh began an extensive study of Indian drugs at the local Ayurvedic library (Ghosh 1940:xii-xiv). He became convinced that the application to Indian drugs of the scientific procedures he observed in England would lead to a dramatic modernization of health care. “[W]hat appears to be needed” he argued,

is to train a body of chemists who will assist medical men in investigating the chemical and histological characters of such indigenous drugs as will be found to be really useful on trial in hospitals and in physiological laboratories of medical colleges. The results of these investigations would be monumental in that they would unmistakably settle the identity and characters of *Ayurvedic* drugs, “a field yet unexplored,” on the same bases as apply to British Pharmacopoeia drugs. ... This procedure alone will protect the public from the fraud now practiced upon them by irresponsible manufacturers, will protect the indigenous Indian drugs from falling into disrepute and will finally protect and develop an industry which

offers promise of possibilities of great development but which, in a large majority of cases, is still unfortunately left in the hands of untrained and unscrupulous men (emphasis and quotation in the original, 1918:6)

Ghosh was a strident advocate for the professionalization of pharmacy in India. In his copious publications on the subject, he argues for state intervention into the process of certification and for laws to protect consumers against the unstandardized variability of traditional medicines. He argued for a state mandated authentication process, which was viewed as a prerequisite for the development of industrial pharmaceutical capitalism in India. In 1937 the groundwork for this authentication process was established by the founding of a Bio-Chemical Standardization Laboratory in Calcutta, which was followed by a series of Drugs Laws which legislated the standardization, labeling, and medicinal claims of pharmaceutical manufacturers. The enforcement of these laws and institutions of drug authentication was fully centralized in 1947, when the Bio-Chemical Standardization Laboratory was re-baptized as the Central Drugs Laboratory (Government of India 1952).

The most common type of drug commodity produced by this biotechnology regime of authentication is the chemical isolate based on the scientific analysis of plant extracts. In these cases, the extracted material itself or the material in combination with other chemicals forms the basis of a novel drug commodity. On the outskirts of Trivanananthapuram, two graduate students and their supervisor, Dr. Krishna, work in a biotechnology lab on the anticancer properties of medicinal plants (Photo 6-11). The clinically white aesthetic of the lab was complemented by

technoscientific gadgetry, scientific conference posters, and a library of medicinal plant compendia published by the colonial and postcolonial scientific establishments.



(Photo 6-11: A biotechnology laboratory at a cancer research institute. The two graduate students are working on the computer and Dr. Krishna is sitting at her desk in the background.)

On one occasion I found the three scientists working around a large sheet of white paper upon which were scattered seeds of a plant called *ummaṁ* in Malayalam and *Datura metel* Lin. in the “scientific nomenclature” (*śāstra-nama*). The plant material itself had been collected from Dr. Lekha’s Ayurveda drug store (described above). They told me that there has been promising research on the anticancer properties of a protein found within the plant and that with further research and development the protein itself might someday be part of a successful cancer treatment. Dr. Krishna took the time to show me the reference from her collection of scientific books. Their goal was to isolate the protein by adding a chemical catalyst to the seed-material and then, to document the quantity of the protein in the Kerala variety of *Datura*. Scientific documentation was necessary if Kerala-based pharmaceutical firms might

contribute to and benefit from the future potential industrialization of the drug's production.

Dr. Krishna described to me her views on this type of research. “Inside a plant there is not just one medicine ... there are many ingredients/chemicals.”⁸⁴ She continued (all-capitalized text is English in the original), “The ancient sages discovered the effects of the medicinal plants. But, what is the MECHANISM OF ACTION? How will it destroy BACTERIA? How does it HEAL THE WOUND? This needs to be discovered scientifically. That is our research.”⁸⁵ In line with her molecular view of Ayurveda drugs, for Dr. Krishna, the human body and its environment are infested with an invisible army of microbes, bacteria, viruses, and parasites. Dr. Krishna had a kind of passion for this invisible universe and its biotechnological development. She explained to me, for example, her view that the human gastrointestinal tract is really quite miraculous for its ability to contain the millions of microbes necessary for regular healthy digestion. Upon the moment of death, however, when the soul departs the body, the inhabitants of the G.I. tract start to decompose the body and potentially, to contaminate the environment. She argued that Hindu funeral practices such as cremation and the rituals involving death pollution and purification actually functioned to restrict the spread of such disease-causing contagions to the grieving survivors. For Dr. Krishna the rituals that many Hindus practice as a matter of habit are in fact based on scientific principles. Dr.

⁸⁴ oru ceditil oru murunnū illa ... kūṭṭal rāsakaḷ unṭū

⁸⁵ nammūṭe ācāryaranmar auśadhattinū phalaṃ kaṇṭupīṭiccīrunnu ... puḷṣē entāṇṭu MECHANISM OF ACTION? BACTERIA eṇṇane naśikkum? eṇṇane WOUND HEAL cayyunnu? itū śāstriyamāyi kaṇṭupīṭikkān vendi vannu ... itāṇṭu nammūṭe gavēṣaṇaṃ

Krishna explained to me the incredible complexity of the chemical constituents contained within Ayurveda drugs. It is only with great labor and difficulty that such drugs can be assayed. She continued, “The Ayurveda Seers discovered these drugs. We use MICROSCOPES and other methods but how did the Seers know?”⁸⁶ She paused and then continued, “How did they know? It may be an INTUITION.”⁸⁷ I remember the surprising feeling of being penetrated by the logic of Dr. Krishna’s argument. At that moment I also wondered how the ancient Seers could have acted as if they understood the modern principles of biochemistry. Did they understand? She concluded, “That is why we do scientific research. That way we can discover the knowledge of our ancestors.”⁸⁸

Telescopic commodification directs the scope of ostension to the particulate objects that lie within the plant, upon which are predicated technoscientific designations such as “protein.” Drugs produced and standardized in this manner are called “English *marunnū* (English drugs), and there are rules placed on their production, labeling, and circulation. Starkly contrasting with the synesthetic mode of commodification employed by Dr. Lekha, Ganesh Vaidyan, and their corporate-industrial counterparts, telescopic commodification employs the tools of technoscience to strip away the plant’s sensuous materiality. Tossing this gross materiality and its typification aside, cosmopolitan scientists contend that the plant’s

⁸⁶ *ī auṣdham ācāryaranmar kaṇuṭiṭṭicu ... MICROSCOPE ... pinne vēṛē rīti upayōgikkunnu puḷṣē ācāryaranmarkkū eṇṇane aṛiyām?*

⁸⁷ *āvarkkū eṇṇane aṛiyām? oru INTUITION āyirikkam*

⁸⁸ *atukoṇṭāṇṇū śāstriya gavēśanaṃ cayyunnu ... aṇṇane nammuṭe ācāryaranmarkkū aṛivū kaṇuṭiṭṭikān parruṃ*

medicinal effect results from the discrete chemical compounds situated within. Thus, the work of cosmopolitan scientists to unpack Ayurveda pharmaceutical qualisigns involves a visualization of Ayurveda drugs on the molecular level (on the *molecularization* of the Western life sciences see Kay 1993).

This research is coordinated as part of a biotechnology development regime which emerged as one of the nation-state's answers to the development woes of postcolonial India. It was in this context of the ramping up and institutionalization of a socialist nationstate that a variety of scientific institutions were constructed to harness India's productive resources. In terms of medicinal plants, on the national level the effort was organized under the direction of the Council of Scientific and Industrial Research, the Botanical Survey of India, the Indian Council of Medical Research, the Department of Indian Systems of Medicine and Homeopathy, and ultimately, under the Government of India Planning Commission. Riding a wave of economic liberalization over the past several decades, biotechnology has taken a paramount place within India's development regime. The biotechnological development of new drugs, however, would be cost prohibitive in India without ethnobotanical and classical accounts to direct the research to the plant species with the most potential. Such bio-prospecting is pursued at both private and public Allopathic and Ayurvedic medical colleges, departments of botany, chemistry, and biotechnology at Indian graduate universities, regional botanical research centers throughout India, and at government laboratories like the Central Drug Research Institute in Lucknow. "Sector studies" periodically issued by India's state and private institutions of commerce and development frame Ayurveda and Indian

medicinal plants within a language of neoliberal capitalist economics. Consider one such report issued by the Export-Import Bank of India (1997) which trumpeted the untapped potential of India's "plant based product ... market" for the cause of national development:

The vast fund of knowledge relating to plant based products has not been used to successfully develop significant depth in the market for such products even though low cost, availability and absence of adverse 'allopathic' type side-effects make herbal products a superior choice technically and economically" (1997:11).

This sector study is an example of the widespread tendency of neoliberal economic discourse to reify the social relations of production as an abstract "market," in terms of which the ideologies of Ayurveda drugs are represented as products selling points vis-à-vis other products. On the basis of a detailed study of sector studies such as the preceding, in 2005 the Indian President A. P. J. Abdul Kalam on one visit to Thiruvananthapuram announced the figure of 6 billion US dollars as a goal for Kerala's herbal drug market. The idea of a multibillion dollar market for Kerala's medicinal plants was used by scientists and government authorities to refocus and electrify the efforts of scientific laborers to capitalize on the increasingly global trend toward natural medicines.

The previous year, in 2004, India had fulfilled its obligation to the World Trade Organization by switching its patent legislation from process to product patents. The form of the drug, its molecules and other constituents, became the basic unit of pharmaceutical property. Product patent legislation imports a highly extensionalist language ideology which, while in step with a telescopic conception of materiality, is not easily applied to Ayurveda formulations which are famously

complex and unstandardized. The colonial and postcolonial pharmaco-capitalist practices of value production and authentication are based upon a network of institutions which are authorized by an extensionalist ideology of language, an ideology which is now mandated in India by the global patent regime. Thus, telescopic commodification serves to entextualize drugs as objects of Ayurvedic knowledge and to incorporate them into the Western pharmacopoeia. It is on the basis of the accumulated scientific literature *about* Ayurveda medicinal plants, not the Ayurveda corpus itself that Dr. Krishna, her students, and other Indian biotechnologists are pursuing their anticancer studies. It is toward the development of that literature and patentable drug materials that their work will contribute.

Language and the social organization of reality-authenticating institutions

Drugs are signs. While this is certainly not a controversial claim among medical anthropologists and other social scientists of medicine, the sociolinguistic nature of that signification is far less appreciated. Following Peirce's semiotics, Silverstein's analysis of "wine talk," and Kripke and Putnam's anti-descriptivist semantics, I have shown how two distinctive theories of the extensional reality of Ayurveda drugs are imposed upon the modes of pharmaceutical production and exchange by the use-in-context of what I have called synesthesia and telescoping, two equally distinctive registers of extension-oriented talk-and-action. Semiotically, these theories hinge upon the typification of the inherent material qualities (qualisigns) of the plant materials. This enregisterment and authentication of reality—through ostensional practice—is socially organized at the institutional sites of scientific socialization and

pharmaceutical production, which in turn entail reality-defining social roles such as traditional Vaidyar, college-educated Doctor, Scholar, Scientist, (Botanist, Biotechnologists, etc.), etc.

Anthropologists in the Boasian tradition have long been concerned with the relationship between language and the consciousness or perception of reality, commonly framed under the research program known as “linguistic relativity” or the “Sapir-Whorf Hypothesis.” I submit that the reality-defining and -redefining uses of language in the context of postcolonial Ayurveda are in the spirit of this tradition when broadly construed. Ayurveda doctors and biotechnologists alike deploy their distinctive reality-defining registers in a context that co-occurs in time with the production of that reality, that is, the pharmaceutical commodity and its regime of value. This is perhaps one of the little recognized yet radical implications of linguistic relativity—when broadly construed and situated in the context of practical activity it leads one to question the analytical utility of a fundamental and organizing opposition in Western thought, the distinction between reality and our knowledge of it. This conclusion is not as radically nominalist as it might first appear. It is certainly not a novel or controversial argument in anthropology or the human sciences that people produce many aspects of their own reality. The contribution of this chapter is to foreground the heavily mediating role of discourse in that process of producing and authenticating reality within Ayurveda’s two cultures of essence.

This dissertation concludes with a reappraisal of the cultural project of Ayurveda apologetics as part of the larger process of the meta-discursive framing and theorization of India’s emergent postcolonial modernities. The concepts and

methods of linguistic anthropology are well tailored for this kind of inter-scalar analysis, linking situated interactions and text productions to large-scale historical processes and social conditions and ideologies. In this regard, I argue that the concept of the *institutional discourse genre* developed in this dissertation is relevant to the project of formulating a critical discourse of modernity. The concept, it seems, would be particularly appropriate and useful in the analysis of colonial, postcolonial, other historical and comparative contexts in which processes of institutional rationalization are historically significant.

Chapter 7

Ayurveda modernity and its meta-discursive practices

We have seen how the asymmetrical relationship between Ayurveda and colonial medicine was codified into text, and how Ayurveda apologists sought to regiment the two systems as parallel visions of the body and its treatment. This parallelism was contested and ultimately institutionalized through the practice of translating the Ayurvedic body, a process that was coterminous with the organization of the institutional forms required to produce—and socialize practitioners into—the universal body of biomedicine in Ayurveda colleges. We have examined transcript and ethnographic evidence in considerable detail for the ways in which Ayurveda’s disciplinary boundaries are maintained and transformed in the context of Ayurveda’s institutional centers. We have considered the commodification of Indian drugs as Ayurveda practitioners and technoscientists differently produce these drugs and authenticate their value.

The analysis developed in this dissertation has focused on the inter-scalar qualities of Ayurveda apologetics, at once highly situated in social interactions and text productions, but at the same time, a significant part of the process of macro-historical change. By way of concluding this dissertation I will discuss some of the implications of this analysis in terms of the larger context of Ayurveda discourse, as a meta-discursive framing of the emergent forms of Indian modernity. My hope is

that this dissertation can demonstrate how linguistic anthropologists might orient some of their methods and insights regarding the relationship between the micro-organization of social action and broader levels of social organization and ideology to the task of formulating a critical anthropology of postcolonial modernities.

The critical discourse of modernity, of which anthropology is a co-author, has had to battle against the implicit assumption of modernization theory, that “modernity”—however we mean the term—emerged more or less fully formed in post-Enlightenment North Atlantic Europe and subsequently spread over the world via colonialism, and now, via the transnational mechanisms of planetary capitalism, development, and imperial geopolitics. Such teleological conceptions of progress are more or less indicative of the dominant narrative of the European Enlightenment. An early formal statement about modernization theory was developed by Antoine-Nicolas de Condorcet in his posthumously published *Sketch for a Historical Picture of the Progress of the Human Mind* (1955 [1795]), which recounts the history of civilization as one of scientific and moral development. There are many more recent examples of this teleological view of history culminating in Euro-American modernity. Perhaps the most prominent author is Francis Fukuyama (1992) who argues that liberal democracy, the natural result of human reason and freedom, is the end stage of history’s evolution (all that is left of history, in Fukuyama’s view, is for liberal democracy to establish planetary hegemony).

As an apologetics of the West, modernization theory assumes that European modernity is unified and that its development followed a path of linear evolution, a theory of which is encapsulated in the meta-discursive keywords of “democracy,”

“capitalism,” “science,” “humanism,” “secularization,” “Protestantism,” and “the nation.” This story gave rise to a class of “second modernities,” which modernization theory argued would follow, or at least *should follow*, the same progressive linear trajectory of Western modernity.

The anthropological and historical response to this teleological worldview was twofold. First, one anthropological critique of modernization theory is that modernity must be understood in a planetary context. It did not emerge in the North Atlantic fully formed, but rather, modernity and its economic base, capitalism, emerge dialectically in the context of an asymmetrical colonial encounter. More work in the vein of Eric Wolf (1982) and Sidney Mintz’s (1985) planetary histories is required to integrate the diverse historical and anthropological research and to provide a framework for interpreting modernity’s dynamic emergence, thwarted possibilities, and polyvalent trajectories. This criticism, if correct, not only undermines the teleological structure of modernization theory, but it also exposes and historicizes its power dynamics.

Second, it became clear that the transition to capitalism in the colonies did not reliably reproduce or effectively impose Western modes of political organization, consciousness, information flow, religion, and so on, following the same path or entailing the same results as it did in the metropole. Thus, anthropologists, immersed in their far-flung fields, have documented *other modernities* (“Indian” in the present case). These other modernities have a family resemblance to the modernities of the geopolitical center but they diverged as people negotiate their futures in terms of their own beliefs and practices. A useful tension has emerged in the anthropology of

modernity between a recognition of the dramatic social and historical transformation brought on by the transition to capitalism or conversion to Protestantism on the one hand, and on the other hand, a recognition that the particulars of any ethnographic situation fundamentally undermine broad modernization narratives such as “the transition to capitalism” or “the conversion to Protestantism.”⁸⁹ Certainly the rise of poly-ethnic multiculturalism as a dominant ideology of liberal democracy and its planetary spread has contributed to the general recognition and acceptance of the possibility of alternative forms of modernity, as long as they resemble democratic free-market capitalism enough to be encompassed by it.

If we accept that modernity is in fact multiplex, contested, dynamic, and emergent, that still leaves us with the question as to whether or not there are any patterned regularities to the negotiations involved in the experience and conceptualization of modernity. One point that needs to be foregrounded is the fact that modernity has its own meta-discourse. In spite of the pluralities of global modernity and the multi-sited and dialectical nature of its histories, modernity’s meta-discourse, its self-assured style and vocabulary, does indeed appear to be a uniquely Western phenomenon which was self-consciously imported to the colonies. In early modern India, as elsewhere outside the metropole, there does not appear to be anything like a nascent modernization theory, self-conscious apologetics, or a meta-discursive terminology marking the epoch as a new and improved break from the past. In the case of postcolonial modernities, this meta-discourse was not

⁸⁹ This tension was the subject of a debate in the journal *Current Anthropology* (see Englund & Leach 2000; and the critique by Kahn 2001)

homegrown, at least not at first, but rather, it required a translation and imposition by the colonial power. In British India, this meta-discourse of modernity was used to authorize the colonial government and its interventions in India, and it was part of the mechanism by which the British socialized a class of elite Indian colonial servants. The leaders of the anti-colonial nationalist movement were themselves members of this class, and many of them, such as Jawaharlal Nehru (1989 [1946]), exposed the hypocrisies of the civilizing mission of colonialism. Nehru himself accepted much of modernization theory with enthusiasm, yet he rejected the patronizing idea that India would be forever underdeveloped without the aid of British domination. For the modernist nationalist elite like Nehru, British colonial concepts like “science” (Prakash 1999) and “history” (Dirks 1990) were adapted as signs of India’s lack, as well as of its potential modernist future as an independent nation-state.

It should be clear to the readers of this dissertation that most of the Ayurvedic doctors featured in this dissertation have taken a more critical and ambivalent stance toward the meta-discourse of modernity. On the surface, their approach may seem similar to what Ashish Nandi (1995 [1980]) has characterized as an “alternative science,” in which practitioners creatively draw upon India’s rich cultural history to frame counter-hegemonic and uniquely Indian forms of modernity. Clearly, on the part of post-colonial *vaidya* there is a tremendously creative appropriation and manipulation of both Western science and Indian tradition, but it is not framed in terms of the East/West dichotomy that Nandi underscores.

This opposition, politically efficacious and provocative in its own right, loses much of its analytical utility when it is brought to bear upon the details of Ayurveda

practitioners' discursive practices. In a general sense, "symbolic opposition" (Levi-Strauss 1963 [1958]) and its predecessor, the conflict-synthesis teleology of history (Hegel via Marx, e.g., Marx & Engels 1967), have been central analytical tropes in the history of the human sciences. Nonetheless, it was *parallelism*—not opposition, and not conflict-synthesis—which was the dominant characteristic of the relationship between Ayurveda and biomedicine as it was represented to me and put into practice by the vaidya of Kerala. These doctors were incredibly adamant and persistent in their attempts to clarify to me that the co-presence of Ayurveda and biomedicine should not be misunderstood as "mixing." I suspect that this ideology may be at play more than has been commonly recognized in the scholarly literature on Ayurveda, perhaps in part because the paradigm of medical syncretism introduced by Leslie has been such an effective critique of ideologies of Western medical purism. Whether or not my suspicion is borne out in other regional and institutional contexts, the insistence of modern Kerala vaidya on the equal separateness of Ayurvedic and Allopathic practices and concepts should give pause to any scholar who interprets the co-presence of the two systems as a sign of Ayurveda's decline.

I have argued that the ideology of medical parallelism is a counter-response to the unmarked and hegemonic status of biomedicine in late and postcolonial India. The discursive instantiation of this ideology is Ayurveda apologetics, which is itself a meta-discourse of a kind of postcolonial Indian modernity which is being negotiated and produced at modern Ayurveda institutional locations. This meta-discourse, learned by novice practitioners in Ayurveda Colleges and articulated in

various clinical and institutional contexts, involves the identification and ideologization of the points of similarity and difference between the two sciences.

There are three effects of this meta-discourse of Ayurveda modernity that are documented in the dissertation: bureaucratic, temporal, and economic rationalization. These effects are not the products of the discourse itself, but rather, of discursive actions mediated by innovative institutional discourse genres. Through the micro-politics of institutional discourse bureaucratic educational and research institutions were organized, diagrams of Ayurveda's past were formed and ideologized, and pharmaceutical commodities and regimes of value were produced. It was via the medium of the institutional discourse genre that ideological reference was stabilized toward the work of negotiating their science's disciplinary boundaries with biomedicine, which was a key factor in the historic project of institutional modernization.

It is through the analysis of the inter-scalar quality of discursive action that linguistic anthropologists can contribute to the project of the anthropology of modernity, as well, to historical anthropology more generally. At the start of this dissertation I had to jettison the uni-functional view of language often employed in colonial discourse analysis which treats text as an artifact that can be read on the level of reference for the omnipresent workings of power. Texts refer, to be sure, but the effects of reference are not limited to the transmission of ideological content. The genre of colonial compendia of materia medica was one such project which sought to categorize the medicinal plant knowledge of Ayurveda practitioners. However, this act of reference in itself was less significant than the intertextual

indexical connections established by the genre. I documented three such patterns, asymmetrical citation, empiricalized translation, and telescopic baptism, which codified into text the unequal relationship between the disciplines. I argue that the significance of these modes of entextualization was in how they effected the erasure of the social relations of the genre's extraction of Ayurvedic knowledge, the theoretical content of that knowledge, and the material object of the knowledge itself (i.e., the herbal drug). Likewise, the Ayurvedic counter-response was to reorganize the indexical structure of the genre by neutrally juxtaposing the two disciplines, a textual instantiation of ideology of medical parallelism.

In these cases, the intertextual organization of the genre was interpreted as a diagrammatic icon of the relationship between the disciplines. Chapter 3 further illustrates this ideological process, where we saw in the context of the modernization of the curriculum at the Travancore Pathasala that the relationship between Ayurvedic anatomical concepts and their Allopathic translations was taken as a diagram of the temporal structure of Ayurveda's past. In comparison with the fluid, dynamic, polymorphous, and contingent bodies of Ayurveda, the body of biomedicine was static, universal, and highly anatomically specified. Words, i.e., anatomical terms, were mapped onto this body which had been laid bare on the dissection table. The proponents of a scientifically enhanced curriculum demonstrated the feasibility of incorporating Western knowledge by projecting exact equivalences between these English anatomical designators and the language of the Ayurveda body, and especially, of the *tridoṣa*. These translations were interpreted as an iconic sign of the temporal structure of India's scientific past, an ideological move

which served to authorize the project of curriculum modernization. The conditions of translation and its ideologization changed in independent India, and the correlation of the *tridoṣa* and the body of biomedicine has become taboo for many vaidya who labor at the institutional centers of modern Ayurveda.

The concept of language ideology employed in this dissertation has focused specifically on the diagrammatic iconization of intertextual patterns. In these cases it was the connections between languages, texts, and utterances that were the linguistic materials upon which language ideologies were projected. Following Gal and Irvine's framing of the concept (Gal & Irvine 1995; Irvine & Gal 2000), linguistic anthropologists and sociolinguists have typically understood language ideologies in terms of their role in the marking of social boundaries and thus, as a consequent factor in processes of linguistic differentiation. The approach developed in this dissertation contributes to this work by demonstrating how sociolinguistic boundaries are realized in the act of boundary transgressing forms of discursive action such as translation. It is through the process of diagrammatic iconization that discourse-crossing activities are ideologized. Diagrammatic icons are perhaps especially efficacious as ideological signs because the resemblance upon which the sign is projected is based on indexical patterns formed through practical activity. Colonial materia medica and anatomical translation are two examples in which the interdiscursive patterns of the genre were taken as the semiotic basis for iconic signs of significant ideological importance.

Ideological production in itself, however compelling it may be, must be linked with the production of social relations for it to have its desired effects. How does

discursive action both assume and produce the conditions of its own felicity? One way is that ideologies provide ready-made frameworks for cognizing institutional modes of practice and social organization. We saw in Chapter 4, for example, how medical students and novice doctors learn to negotiate medical parallelism at the institutional center of the Ayurveda college, and how this skill is essential for displays of expertise and for the communication of diagnostic information in the clinical encounter. Chapter 5 then examined a similar process where doctors constructed their truth claims and disputes in terms of an institutional ideology of what can count as an authoritative truth claim. The process of articulating and disputing such truth claims at a scientific conference was part of the process of negotiating Ayurveda's disciplinary boundary with biomedicine.

Another way that discursive production effects institutional change is by making the conditions of its own production the focus of social action. The production and authentication of value in the context of Ayurveda pharmaceutical commerce is an excellent example of this process. The unstandardized variability of Ayurveda drugs was the topic of an elaborate discourse during the colonial period and this discourse continues today in the modern technological context. Thus, the social relations of pharmaceutical authentication are continuously being brought into question. Traditional doctors have approached this problem by foregrounding the social conditions of pharmaceutical production. They construct a social persona as an authentic, traditional, and socially intimate person whose drugs can be trusted to be safe and effective. Biotechnologists, botanists, and other scientists, on the other hand, have approached the problem of the indeterminacy of Indian drugs by a

massive project of scientific and industrial institution building. The authentication of their drugs, as well produced in the context of human social relations, is distributed across a network of pharmaceutical research centers, drug testing laboratories, and public and private industrialized pharmaceutical manufacturing companies. It is under the imperatives of the pharmaco-capitalist regime of value that such institutional networks were organized as the conditions of pharmaceutical authentication.

Future sociolinguistic analyses of meta-discourses of modernity might consider focusing on historical periods when the language ideological framework of the contemporary sociolinguistic scene was less naturalized and more open for debate. For example, in the context of South Asian history, it would be interesting to investigate the discursive and intertextual strategies employed in the debate between the Orientalists and the Anglophiles (Christian missionaries and utilitarian administrators), which signaled the end of the role of classical languages in colonial administration. Although the debate is taken as the moment of the historical triumph of English as a language of science and colonial administration, during the early 1830s this was by no means a foregone conclusion. Linguistic anthropologists can bring some their sophisticated methods of discursive analysis to the project of a critical history of the present by identifying and analyzing the discursive mediation of such historically significant moments—moments when the conditions of sociolinguistic life were the subject of genuine contestation.

A second area that linguistic anthropologists can contribute to the critical discourse of modernity is by tracking the intertextual histories of modernity's meta-

discourse as it circulates beyond the centers of production at universities, government offices, NGOs, and media institutions. For example, in Kerala today, Malayalis have access to great variety of scientific information in Malayalam which can be used to reinterpret and transform their social relations. This new information is circulated in public health radio and television broadcasts, over the Internet, in the context of the doctor-patient encounters, and in very popular women's and health lifestyle magazines. Morally scandalous topics such as sexual relations, domestic strife, and sensitive health problems such as psychiatric conditions, reproductive problems, and skin diseases are now the subject of an elaborate expert discourse, including both scientific as well as new stylizations of *śāstric* discourse. Titillating and grotesque images often accompany the circulation of this discourse of scientific rationality. How is this new *scientific morality* involved in the transformation of the social relations of Kerala society? Linguistic anthropologists might contribute to a theory of the transformative effects of scientific discourse by carefully studying its linguistic and visual organization and by contextualizing this analysis in terms of an ethnographic account of the social entailments of its interdiscursive circulation.

It is likely that ready-made analytical keywords such as democratization, secularization, rationalization, liberalization, and so on, will be insufficient designators of the complex kinds of experience and ideological and discursive practice which characterized the historical coupling of science and English, and which will likely characterize the emergent process of the production and circulation of a discourse of scientific morality. This was certainly the case in the context of this study of modern Ayurveda apologetics. I hope that this dissertation has put forward

some useful ideas about how institutionally situated discursive activity is an important part of the process by which Ayurveda vaidya and perhaps other social actors negotiate their own postcolonial modernity.

References

- Ainslie, Whitelaw
1826 *Materia Indica: Or, some Account of those Articles which are Employed by the Hindoos, and other Eastern Nations, in their Medicine, Arts, and Agriculture.* London : Longman, Rees, Orme, Brown, & Green.
- Alter, Joseph S., ed.
2005 *Asian Medicine And Globalization.* Philadelphia: University of Pennsylvania Press.
- Arnold, David
1993 *Colonizing the Body: State Medicine and Epidemic Disease in Nineteenth-Century India.* Berkeley: University of California Press.
- Austin, John
1962 *How to do Things with Words: The William James Lectures Delivered at Harvard University in 1955.* J. O. Urmson, ed. Oxford: Clarendon.
- Bakhtin, Michael M.
1981 *Discourse in the Novel.* *In The Dialogic Imagination.* Michael Holquist, ed. Pp. 259-422. Austin: University of Texas Press.
- Banerjee, Madhulika
2002 *Power, Culture and Medicine: Ayurvedic Pharmaceuticals in the Modern Market.* *Contributions to Indian Sociology* 36: 435-467. [
- Bateson, Gregory
1972 *Culture Contact and Schismogenesis.* *In Steps to an Ecology of the Mind.* Pp. 62-72. Chicago: The University of Chicago Press.
- Bauman, Richard & Charles L. Briggs
1990 *Poetics and Performance as Critical Perspectives on Language and Social Life.* *Annual Review of Anthropology* 19:59-88.
- Benjamin, Walter
1969 *The Task of the Translator.* *In Illuminations.* Hannah Arendt, ed. Harry Zahn, trans. Pp. 69-82. New York: Schocken Books.
- Bhabha, Homi
1994 *Of Mimicry and Man: The Ambivalence of Colonial Discourse.* *In The Location of Culture.* Pp. 85-92. London: Routledge.
- Bose, Kartick Chandra
1932 *Pharmacopoeia Indica: Being a Collection of Vegetable, Mineral, and Animal Drugs in Common Use in India.* Calcutta: Book Company.
- Burghart, Richard
1988 *Penicillin: An Ancient Ayurvedic Medicine.* *In The Context of Medicines in Developing Countries.* Sjaak van der Geest & Susan Reynolds Whyte, eds. Pp. 289--299., Dordrecht, The Netherlands: Kluwer Academic Publishers.
- Bourdieu, Pierre
1977 *Outline of a Theory of Practice.* Richard Nice, trans. Cambridge: Cambridge University Press.
1990 *The Scholastic Point of View.* *Cultural Anthropology* 5(4): 380-391.

- 1991 [1999] *Language and Symbolic Power*. John B. Thompson, ed. Gino Raymond & Matthew Adamson, trans. Cambridge, Massachusetts: Harvard University Press.
- Chakrabarty, Dipesh
1992 *Postcoloniality and the Artifice of History: Who Speaks for 'Indian' Pasts?* *Representations* 37:1-26.
- Chatterjee, Partha
1986 *Nationalist Thought and the Colonial World: A Derivative Discourse?* Minneapolis: University of Minnesota Press.
- Chattopadhyaya, Debiprasad
1977 *Science and Society in Ancient India*. Calcutta: Research India Publications.
- Cohen, Lawrence
1995 *The Epistemological Carnival: Meditations on Disciplinary Intentionality and Ayurveda*. In *Knowledge and the Scholarly Medical Traditions*. Don Bates, ed. Pp. 320-343. Cambridge: Cambridge University Press.
- de Condorcet, Antoine-Nicolas
1955 [1795] *Sketch for a Historical Picture of the Progress of the Human Mind*. June Barraclough, trans. New York: Noonday Press.
- Derrida, Jacques
1985 *Des Tours de Babel*. In *Difference in Translation*. Joseph F. Graham, ed. & trans. Pp. 165-207. Ithaca & London: Cornell University Press.
- Dirks, Nicholas B.
1990 *History as a Sign of the Modern*. *Public Culture* 2(2):25-32.
2001 *Castes of Mind : Colonialism and the Making of Modern India*. Princeton, N.J.: Princeton University Press.
- Drew, Paul & John Heritage, eds.
1992 *Talk at Work: Interaction in Institutional Settings*. Cambridge: Cambridge University Press.
- Durkheim, Emile
1997 [1893] *The Division of Labour in Society*. W.D. Halls, trans. New York: The Free Press.
- Dutt, Uday Chand
1877 *The Materia Medica of the Hindus: Compiled from Sanskrit Medical Works*. Calcutta: Thacker & Spink.
- Dymock, William
1884 *The Vegetable Materia Medica of Western India*. Bombay: Education Society's Press.
- Dymock, William, C. J. H. Warden, & David Hooper
1890-93. *Pharmacographia Indica. A History of the Principle Drugs of Vegetable Origin, Met with in British India*. London: K. Paul, Trench, Trübner & Company.
- Eagleton, Terry
1991 *Ideology: An Introduction*. London & New York: Verso.

- Eliade, Mircea
 1957 Time and Eternity in Indian thought. *In* Man and Time. Joseph Campbell, ed. Pp. 175-200. New York: Pantheon.
- Engelhardt Jr., H. Tristram and Arthur L. Caplan, eds.
 1987 Scientific Controversies: Case Studies in the Resolution and Closure of Disputes in Science and Technology. Cambridge: Cambridge University Press.
- Engler, Steven
 2003 "Science" vs. "Religion" in Classical Ayurveda. *Numen* 50: 415-463.
- Englund, Harri and James Leach
 2000 Ethnography and the Meta-Narratives of Modernity. *Current Anthropology* 41(2): 225-248.
- Erickson, Frederick and Jeffrey Shultz
 1982 The Counselor as Gatekeeper: Social Interaction in Interviews. New York Academic Press.
- Farquhar, Judith
 1991 Objects, Processes, and Female Infertility in Chinese Medicine. *Medical Anthropology Quarterly* n.s., 5(4):370-399.
- Foucault, Michel
 1971 The Order of Things: An Archaeology of the Human Sciences. *Mots et les choses*, trans. New York: Pantheon Books.
 1975 [1973] The Birth of the Clinic: An Archaeology of Medical Perception. A. M. Sheridan Smith, trans. New York: Vintage Books.
 1980 Power/Knowledge: Selected Interviews and Other Writings 1972-1977. C. Gordon, ed. New York: Pantheon.
- Fukuyama, Francis
 1992 The End of History and the Last Man. New York: Free Press.
- Gal, Susan and Judith T. Irvine
 1995 The Boundaries Of Languages And Disciplines: How Ideologies Construct Difference. *Social Research* 62:967-1001.
- Gananath Sen, M. M. Saraswati
 2002 [1916] An Address on Hindu Medicine. *In* Lectures of M. M. Gananath Sen Saraswati. Varanasi: Chowkhamba Sanskrit Series Office.
 1932 Foreword to K. C. Bose's Pharmacopoeia Indica. Calcutta: Book Company.
- Garfinkel, Harold
 1967 Studies in Ethnomethodology . Englewood Cliffs, NJ: Prentice-Hall
- Gelman, S. A. & J. Coley
 1991 Language and Categorization: The Acquisition of Natural Kind Terms. *In* Perspectives on Language and Thought: Interrelations in Development. S. A. Gelman & J. Coley, eds. Pp. 145-196. New York: Cambridge University Press.
- Geertz, Clifford
 1973 The Interpretation of Cultures. New York: Basic Books.

- General Medical Council of Great Britain
 1865 The British Pharmacopoeia. Published for the General Medical Council by Constable & Company [and Addenda 1865, 1867, 1885, 1898].
- Ghosh, J. C.
 1918 Indigenous Drugs of India: Their Scientific Cultivation and Manufacture, with Suggestions for the Development of New Industries.” Calcutta: Butterworth & Co.
 1940 Indigenous Drugs of India: Their Scientific Cultivation and Manufacture, with Suggestions Intended for Educationists and Capitalists” (Second ed.) Calcutta: Published by P.K. Ghosh.
- Gluckman, Max
 1955 Custom and Conflict in Africa. Oxford: Blackwell
- Goffman, Erving
 1961 Asylums: Essays on the Social Situation of Mental Patients and other Inmates. Chicago: Aldine Publishing Company.
- Goodman, Nelson
 1972 Seven Strictures on Similarity. *In Problems and Projects*. Nelson Goodman, ed. Pp. 437-47. Indianapolis and New York: Bobbs-Merrill.
- Goodwin, Charles and John Heritage
 1990 Conversation Analysis. *Annual Review of Anthropology* 19: 283-307.
- Goodwin, Marjorie Harness & H. Samy Alim.
 2007 “Whatever (Neck Swivel, Suck Teeth, Eyeball Roll)”: Transmodal Stylization and Stance Display in Preadolescent Girls’ Argumentative Talk. Paper presented November 30, 2007 at the Annual Meeting of the American Anthropological Association, Washington, DC.
- Gopalakrishnan, N.
 n.d. My India’s Last Birth History (enrre bhārattinrre pūrvajanma caritram). Heritage Publication Series 75. Kerala, Thiruvananthapuram: Indian Institute of Scientific Heritage.
- Government of India
 1948 Report of the Committee on Indigenous Systems of Medicine. Vol. I & II. India: Ministry of Health.
 1952 Report of the Bio-Chemical Standardisation Laboratory 1946 (1st April) to 1948 (31st January) and the Central Drugs Laboratory 1947 (1st February) to 1949 (31st March). B. Mukerji, ed. Calcutta: Government of India Press.
- Government of India
 1963 Report of the Shuddha Ayurvedic Education Committee. Delhi: Government of India Press.
- Grice, H. Paul
 1989 Studies in the Way of Words. Cambridge, Mass.: Harvard University Press.
- Guha, Ranajit, ed.
 1997 The Subaltern Studies Reader 1985-1995. Minneapolis: University Of Minnesota Press.

- Guha, Ranajit
 1997 *Dominance without Hegemony: History and Power in Colonial India*.
 Cambridge, Mass.: Harvard University Press.
- Habermas, Jürgen
 1987 *Modernity's Consciousness of Time and Its Need for Self-Reassurance*. In
The Philosophical Discourse of Modernity: Twelve Lectures. F. G.
 Lawrence, trans. Cambridge: MIT Press
- Hanks, William F.
 1984 *Sanctification, Structure, and Experience in a Yucatec Ritual Event*. *The
 Journal of American Folklore* 97(384):131-166.
 1987 *Discourse Genres in a Theory of Practice*. *American Ethnologist* 14(4):65-
 88.
- Harrison, Mark
 2001 *Medicine and Orientalism: Perspectives on Europe's Encounter with Indian
 Medical Systems*. In *Health, Medicine and Empire: Perspectives on Colonial
 India*. Biswamoy Pati & Mark Harrison, eds. Pp. 37-87. New Delhi: Orient
 Longman.
- Hausman, Gary J.
 1996 *Siddhars, Alchemy and the Abyss of Tradition: 'Traditional' Tamil
 Medical Knowledge in 'Modern' Practice*. Ph. D. Dissertation, University of
 Michigan.
- Hegel, Georg Wilhelm Friedrich
 1890 *Lectures on the Philosophy of History*. J. Sibree, trans. London: G. Bell &
 Sons.
- Honigberger, John Martin
 1852 *Thirty-Five Years in The East. Adventures, Discoveries, Experiments,
 and Historical Sketches, Relating to the Punjab and Cashmere; in Connection
 with Medicine, Botany, Pharmacy, etc., together with an Original Materia
 Medica; and a Medical Vocabulary, in Four European and Five Eastern
 Languages*. London, H. Baillière.
- Hooper, D. and C. F. Ponder
 1901 *An Introduction to Materia Medica for India: Including the Preparations of
 the British Pharmacopoeia, 1898*. Calcutta: Thacker, Spink, and Company.
- Import-Export Bank of India
 1997 *Indian Medicinal Plants: A Section Study*. Import-Export Bank of India,
 Occasional Paper #54.
- Inden, Ronald B.
 2000 [1990] *Imagining India*. Bloomington, IN: Indiana University Press.
- Irvine, Judith
 2004 *Say When: Temporalities in the Language Ideology*. *Journal of Linguistic
 Anthropology* 14(1):99-109.
- Irvine, Judith & Susan Gal
 2000 *Language Ideologies and Linguistic Differentiation* In *Regimes of
 Language*. Paul Kroskrity, ed. Pp. 35-84. Santa Fe, NM: School of American
 Research.

- Irvine, R. H.
1848 A short Account of the Materia Medica of Patna. Calcutta: Military Orphan Press.
- Jakobson, Roman
1959 [1987] On Linguistic Aspects of Translation. *In Language and Literature*. Pp. 428-435. Cambridge: Harvard University Press.
- Jameson, Frederic
2003 The End of Temporality. *Critical Inquiry* 29(4):695-718.
- Jones, Sir William
1786 [1824] Discourses Delivered before the Asiatic Society: and Miscellaneous Papers, on the Religion, Poetry, Literature, etc., of the Nations of India. 2nd ed. London: C. S. Arnold.
- Kahn, Joel
2001 Anthropology and Modernity. *Current Anthropology* 42(5):651-680.
- Kay, Lily
1993 The Molecular Vision of Life: Caltech, the Rockefeller Foundation, and the Rise of the New Biology. Stanford: Stanford University Press.
- Keane, Webb
2001 Money is No Object: Materiality, Desire, and Modernity in an Indonesian Society. *In The Empire of Things: Regimes of Value and Material Culture*. Fred Myers, ed. Pp. 65-90. Santa Fe: School of American Research Press.
2003 Semiotics and the Social Analysis of Material Things. *Language & Communication* 23(5-4): 409-425.
- Kesavan Pillai, K.
1923 Pratyakṣaśārīraṃ. (Visible Anatomy) Thiruvananthapuram: The Srishara Power Press.
- Keswani, N. H.
1970 Medical Education in India Since Ancient Times. *In The History of Medical Education*. C. D. O'Malley, ed. Pp. 329-366. Berkeley: The University Of California Press.
- Khory, Rustomjee Naserwanjee.
1887 The Bombay Materia Medica and their Therapeutics. Bombay: Rániná's Union Press.
- Khory, Rustomjee Naserwanjee & Nanabhai Navrosji Katrak
1903 Materia Medica of India and Their Therapeutics. Bombay, Times of India Press.
- Kripke, Saul.
1980 [1972] Naming and Necessity. Cambridge, Mass.: Harvard University Press.
- Kretschmer, Ernst
1925 Physique and Character: An Investigation of the Nature of Constitution and of the Theory of Temperament. *Körperbau und Charakter*, trans. New York: Harcourt Brace.

- Krishnankutty Variar, N. V.
 1980 [2002] *Āyurvēdacaritraṃ* (Ayurveda History). Kottakkal Ayurveda Series 24. Kottakkal: Ayra Vaidya Sala.
 2005 *History of Ayurveda*. Kottakkal Ayurveda Series 56. Kottakkal: Ayra Vaidya Sala.
- Kuhn, Thomas
 1996 [1962] *The Structure of Scientific Revolutions*. Chicago and London: University of Chicago Press.
- Kuipers, Joel
 1990 *Power in Performance: The Creation of Textual Authority in Weyewa Ritual Speech*. Philadelphia: University of Pennsylvania Press.
- Kumar, Anil
 1998 *Medicine and the Raj: British Medical Policy in India, 1835-1911*. New Delhi & London: Sage Publication.
- Kunjan Pillai, Suranad, ed.
 1965 *Malayalam Lexicon*. Thiruvananthapuram, India: University of Kerala.
- Langford, Jean M.
 1999 *Medical Mimesis: Healing Signs of a Cosmopolitan 'Quack.'* *American Ethnologist* 26(1):25-46.
 2002 *Fluent Bodies: Ayurvedic Remedies for Postcolonial Imbalance*. Durham, North Carolina: Duke University Press.
- Latour, Bruno
 1987 *Science in Action: How to Follow Scientists and Engineers through Society*. Cambridge, Mass.: Harvard University Press.
 1999 *Pandora's Hope: Essays on the Reality of Science Studies*. Cambridge, Mass.: Harvard University Press.
- Latour, Bruno and Steve Woolgar
 1979 *Laboratory Life: The Social Construction of Scientific Facts*. Beverly Hills and London: Sage.
- Leslie, Charles
 1992 *Interpretations of Illness: Syncretism in Modern Ayurveda*. *In Paths to Asian Medical Knowledge*. Leslie, Charles and Allan Young, ed. Pp. 177-208. Berkeley & London: University of California Press.
 1976 *The Ambiguities of Medical Revivalism in Modern India*. *In Asian Medical Systems: a Comparative Study*. Charles Leslie, ed. Pp. 355-367. Berkeley: University of California Press.
- Lévi-Strauss, Claude
 1963 [1958] *Structural Anthropology*. Claire Jacobson & Brooke Grundfest Schoepf, trans. New York: Basic Books.
- Lewis, Warren, ed.
 1918 *Gray's Anatomy of the Human Body*. Twentieth edition. Philadelphia: Lea & Febiger.

- Macaulay, T. B.
1972 [1835] Minute on Indian Education. *In* Selected Writings. John Clive & Thomas Pinny, eds. Pp 237-252. Chicago & London: The University of Chicago Press.
- Mannheim, Bruce
1999 Iconicity. *Journal of Linguistic Anthropology* 9(1-2):107-110.
- Marx, Karl
1971 *The Grundrisse*. David McLellan, ed & New York: Harper & Row.
1977 *Capital: A Critique of Political Economy*. Ben Fowkes, trans. New York: Vintage Books.
- Marx, Karl & Friedrich Engels
1967 *The Communist Manifesto*. Samuel Moore, trans. Harmondsworth, Penguin.
- Mintz, Sidney
1985 *Sweetness and Power: The Place of Sugar in Modern History*. New York: Penguin.
- Monier-Williams, Monier
1961 [1851] *Sanskrit-English Dictionary*. Varanasi, India: Chowkhamba Sanskrit Series Office.
- Mulkay, Michael and G. Nigel Gilbert
1981 Putting Philosophy to Work: Karl Popper's Influence on Scientific Practice. *Philosophy of the Social Sciences* 11:389-407.
- Nadkarni, K. M.
1908 *Indian Plants and Drugs with their Medical Properties and Uses*. Madras: Norton.
1927 *Indian Materia Medica*. Bombay : K.M. Nadkarni.
- Nadkarni, K. M. & A. K. Nadkarni
1976 [1954] *Dr. K.M. Nadkarni's Indian Materia Medica: With Ayurvedic, Unani-tibbi, Siddha, Allopathic, Homeopathic, Naturopathic & Home Remedies, Appendices and Indexes*. Bombay: Popular Prakashan.
- Nandi, Ashish
1980 *Alternative Sciences: Creativity and Authenticity in Two Indian Scientists*. New Delhi: Oxford University Press.
- Naraindas, Harish
2006 Of Spineless Babies and Folic Acid: Evidence and Efficacy in Biomedicine and Ayurvedic Medicine. *Social Science & Medicine* 62:2658-2669.
- Nehru, Jawaharlal
1989 [1946] *The Discovery of India*. New Delhi: Oxford University Press.
- Nēśamaṇi, S.
2001 [1985] *Auśadha Sasyaṇṇal (Medicinal Plants)*. Thiruvananthapuram, Kerala: State Institute of Languages.
- Nordstrom, Carolyn R.
1988 Exploring Pluralism—The Many Faces of Ayurveda. *Social Science & Medicine* 27(5):479-489.

- Obeyesekere, Gananath
 1992 Science, Experimentation, and Clinical Practice. *In Paths to Asian Medical Knowledge*. Charles Leslie and Allan Young, eds. Pp. 160-176. Berkeley: University of California Press.
- Orta, Garcia da
 1563 Cologuios dos Simples, e Drogas he cousas Medicinais da India, e assi dalguas frutas achadas nella onde se tratam alguas cousas tocantes amedicina, practica, e outras cousas boas, pera saber copostos prllo Doutar Garcia Dorta. Goa: Ioannes de Endem.
- Ortner, Sherry
 1973 On Key Symbols. *American Anthropologist* 75(5):1338-46.
- O'Shaughanessy, William, ed.
 1841 [1844] *The Bengal Pharmacopoeia, and General Conspectus of Medical Plants, Arranged According to the Natural and Therapeutical Systems*. Calcutta: Bishop's College Press [the 1841 title is *Bengal Dispensary*]
- Paniker, K. N.
 2002 Indigenous Medicine and Cultural Hegemony: A Study of the Revitalization Movement in Keralam. *In Lectures on Ayurveda*. Kottakkal Ayurveda Series 50. Pp. 1-41. Kottakkal, Kerala: The Arya Vaidya Sala.
- Paton, W. D. M.
 1963 Early Days of Pharmacology. *In Chemistry in the Service of Medicine*. F. N. L. Poynter, ed. Pp. 75-88. London: Pitman Medical.
- Peirce, Charles S.
 1955 *Philosophical Writings of Peirce*. Justus Buchler, ed. New York: Dover.
- Philips, Susan
 1992 Evidentiary Standards in American Trials: Just The Facts. *In Responsibility and Evidence in Oral Discourse*. J. H. Hill & J. T. Irvine, eds. Pp. 248-259. Cambridge and New York: Cambridge University Press.
- Pingree, David
 1992 Hellenophilia versus the History of Science. *Isis* 83(4): 555-563.
- Pollock, Sheldon
 1985 The Theory of Practice and the Practice of Theory in Indian Intellectual History. *Journal of the American Oriental Society* 105(3):499-519.
- Poynter, F. N. L., ed.
 1963 *Chemistry in the Service of Medicine*. London: Pitman Medical
- Prakash, Gyan
 1999 *Another Reason: Science and the Imagination of Modern India*. Princeton: Princeton University Press.
- Putnam, Hilary
 1975 The Meaning of 'Meaning.' *In Mind, Language and Reality: Philosophical Papers, Volume 2*. Pp. 215-271. Cambridge & New York: Cambridge University Press.
- Quine, W. V. O.
 1960 *Word and Object*. Cambridge MA: MIT Press.

- Raghava Varier, M. R.
2002 *The Rediscovery of Ayurveda: The Story of the Arya Vaidya Sala*, Kottakkal. New Delhi: Viking & Penguin Books India.
- Ramanujan, A. K.
1989a *Is There an Indian Way of Thinking? An Informal Essay*. *Contributions to Indian Sociology*.23: 41-58.
1989b *Two Three Hundred Ramayanas: Five Examples and Three Thoughts on Translation*. *In Many Ramayanas: The Diversity of a Narrative Tradition in South Asia*. Paula Richman, ed. Pp. 22-49. Berkeley and Los Angeles: University of California Press.
- Ravi Varma, L. A.
1941 [1988] *Foreward to. Bṛuhaccharira (Systematic Anatomy)*. Kottakkal: P. Madhava Warriar.
1947 *Śārīra (Body)*. Ayurveda Series No. 1. Thiruvananthapuram, Kerala: Government Press.
- Royal, John Forbes
1837 *An Essay on the Antiquity of Hindu Medicine, Including an Introductory Lecture to the Course of Materia Medica and Therapeutics, delivered at King's College*. London: William H. Allen & Co.
- Said, Edward
1978 *Orientalism*. New York: Pantheon books.
- Saper, Robert B., Stefanos N. Kales, Janet Paquin, Michael J. Burns, David M. Eisenberg, Roger B. Davis, & Russell S. Phillips
2004 *Heavy Metal Content of Ayurvedic Herbal Medicine Products*. *Journal of American Medical Association*. 292:2868-2873.
- Freeman, John Richardson
1993 *Performing Possession: Ritual and Consciousness in the Teyyam Complex of Northern Kerala*. *In Flags of flame: Studies of South Asian Folk Culture*. Heidrun Bruckner, Lothar Lutze, and Aditya Malik, eds. Pp. 109-138. New Delhi: Manohar.
- Sengupta, Narendranath
1911-14 *The Ayurvedic System of Medicine: Or, An Exposition, in English, of Hindu Medicine as Occurring in Charaka, Susruta, Bāgbhata, and other Authoritative Works, Ancient and Modern, in Sanskrit*. Delhi: Neeraj Publishing House.
- Sharma, Shiv
1929 [1983] *The System of Ayurveda*. Delhi: Neeraj Publishing House.
- Silverstein, Michael
1976 *Shifters, Linguistic Categories, and Cultural Description*. *In Meaning in Anthropology*. K. H. Basso and H. A. Selby, eds. Pp. 11-55. Albuquerque: University of New Mexico Press.
1981 *The Limits of Awareness*. *In Working Papers in Sociolinguistics* 84. Austin: Southwest Education Development Laboratory.
2003 *Indexical Order and the Dialectics of Sociolinguistic Life*. *Language & Communication* 23: 195-229.

- 2004 'Cultural' Concepts and the Language-Culture Nexus. *Current Anthropology* 45(5):621-652.
- Silverstein, Michael & Greg Urban
1996 The Natural History of Diacourse. *In* *Natural Histories of Discourse*. Michael Silverstein & Greg Urban, eds. Pp. 1-20. Chicago: University of Chicago Press.
- Silverstein, Michael & Greg Urban, eds.
1996 *Natural Histories of Discourse*. Chicago: University of Chicago Press.
- Simmel, Gregor
1956 [1908] *Conflict and the Web of Group Affiliations*. Kurt H. Wolff, trans. New York: Free Press.
- Sreekumari Amma, ed.
2002 [1985] *Āyurvēda Itihāsam (Ayurveda Legends)*. Kerala Government Ayurvedic Publication Series 13. Kerala, Thiruvananthapuram: Government Ayurveda College.
- Trautmann, Thomas R.
1992 The Revolution in Ethnological Time. *Man*, n.s., 27:397-97.
1995 Indian Time, European Time. *In* *time: Histories and Ethnologies*. Duan Owen Hughes and Thomas R. Trautmann, eds. Pp. 167-197. Ann Arbor: The University of Michigan Press.
1997 *Aryans in British India*. Berkeley : University of California Press.
- Trevelyan, Charles E.
1838 *On the Education of the People of India*. London: Longman, Orme, Brown, Green, & Longmans.
- Trawick, Margaret.
1982 The Ayurvedic Physician as Scientist. *Social Science and Medicine* 24(12):1031-50.
- Turner, Victor
1957 *Schism and Continuity in an African Society: A Study of Ndembu Village Life*. Manchester University Press
1967 *The Forest of Symbols: Aspects of Ndembu Ritual*. Ithaca: Cornell University Press.
- Varier, P. S.
1922 *Āyurvēdatatvañṅaḷ (Ayurveda Principles)*. *Dhanvatari* (11):68-71.
1941 [1988] *Bṛhacchar ĩra (Systematic Anatomy)*. Kottakal: P. Madhava Warriar.
- Weber, Max
1978 [1969] *Economy and Society: An Outline of Interpretive Sociology*. Guenther Roth & Claus Wittich, eds. Berkeley, Los Angeles, & London: University of California Press.
- Vivekananda, Swami
1997 *Selections from the Complete Works of Swami Vivekananda*. Calcutta: Advaita Ashrama.
- Waring, Edward John, ed.
1868 *Pharmacopeia of India*. London: Allen and Company.

- Wise, Thomas A.
 1867 *Review of the History of Medicine*. 2 volumes. London: J. Churchill; Edinburgh: Adam Black & Co.; Bombay and Calcutta: William Thacker & Co.
- Wolf, Eric R.
 1982 *Europe and the People Without History*. Berkeley: University of California Press.
- Woolard, Kathryn A.
 1998 Simultaneity and Bivalency as Strategies in Bilingualism. *Journal of Linguistic Anthropology* 8(1):5-29.
- Wujastyk, Dagmar & Frederick M. Smith, eds.
 2008 *Modern and Global Ayurveda: Pluralism and Paradigms*. Albany: State University of New York Press.
- Wujastyk, Dominik
 1998 [2001] *The Roots of Ayurveda*. New Delhi: Penguin Books.
- Young, Allan
 1981 When Rational Men Fall Sick: An Inquiry into some Assumptions Made by Medical Anthropologists. *Culture, Medicine, and Psychiatry* 9:317-35.
- Zimmermann, Francis
 1987 *The Jungle and the Aroma of Meats*. Berkeley: University of California Press.
 1989 Terminological Problems in the Process of Editing and Translating Sanskrit Medical Texts. *In Approaches to Traditional Chinese Medical Literature*. Paul Unschuld, ed. Pp. 141-151. Dordrecht, London: Kluwer Academic.
 1992 Gentle Purge: The Flower Power of Ayurveda. *In Paths to Asian Medical Knowledge*. Charles Leslie and Allan Young, eds. Pp. 209-223. Berkeley: University of California Press.
 1995 The Scholar, the Wise Men, and Universals: Three Aspects of Ayurvedic Medicine. *In Knowledge and the Scholarly Medical Traditions*. Don Bates, ed. Pp. 227-319. Cambridge: Cambridge University Press.
- Zysk, Kenneth G.
 1991 *Asceticism and Healing in Ancient India: Medicine in the Buddhist Monastery*. New York & Oxford: Oxford University Press.