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Sumatran Rice and 'Miracle' Herbs: Local and International Natural Knowledge in Late-Colonial Guatemala

Sophie Brockmann^a

^a Institute of Latin American Studies, University of London

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Sumatran Rice and ‘Miracle’ Herbs: Local and International Natural Knowledge in Late-Colonial Guatemala

Sophie Brockmann

Institute of Latin American Studies, University of London

Introduction

Central America at the end of the Spanish colonial period was part of an array of networks of communication within which administrators, merchants, priests and scholars created, received, and passed on information. The *Audiencia de Guatemala*, as this Spanish administrative region was known, may have been a relatively ‘peripheral’ colony in the sense that it was politically and economically only moderately powerful, but its residents nevertheless maintained a lively correspondence on scientific matters within the region, and with the world beyond.¹ Knowledge about natural history was especially valued, since in the minds of the governing elite and educated citizens it represented Enlightenment ideals of progress by exploitation of natural resources, as well as participation in international, collaborative scholarship. The *Sociedad Económica de Amigos del País de Guatemala* (‘Economic Society of Friends of the Country of Guatemala’), and the newspaper it published, were instrumental in instigating and driving projects and discussions about natural history, and stood at the centre of many such networks. This Society and its newspaper, the *Gazeta de Guatemala*, tapped into communication networks that already existed, but also created a new platform for communication and the exchange of ideas in the 1790s. This article will use evidence from the *Gazeta de Guatemala* to uncover the regional and international knowledge networks which the Central American elite was a part of, and the complex ways in which knowledge received from these global and regional networks was placed within a framework of local ‘Enlightened reform’ and progress. It will further show the interconnectedness of these networks, since Central American elites regarded membership in such ‘global’ networks of communication as an integral part of ‘local’ progress.

The *Gazeta de Guatemala*, like other contemporaneous Latin American newspapers, aimed to educate its readers, bringing ‘enlightened’ knowledge to a populace that was scathingly characterised by an editor as lacking ‘learned correspondents’, and having ‘little affinity for reading’.² As Mariselle Meléndez and Karen Stolley also discuss in the Introduction to this special issue, the editor of the Peruvian newspaper

Mercurio peruano envisaged a ‘diffusion’ of Enlightenment ideas through that publication (see also Meléndez 2009). While such rhetoric, self-consciously aiming at a ‘diffusion’ of ideas, seems to echo a traditional historiography which sees ‘the Enlightenment’ as a monolithic phenomenon based on a canon of specific texts and practices which spread from Europe to other places, the ‘Enlightenment’ that the *Gazeta* sought to spread to its readers and the general population was a local interpretation of ideas as much as a received canon. The works of French *philosophes* such as Condillac, Montesquieu and Voltaire were certainly read in Guatemala (Saint-Lu 1978, 169–70), but the ‘Enlightenment thought’ expressed by the Economic Society’s reformers and the *Gazeta* was a more general belief in categories such as ‘improvement’, ‘public happiness’ and ‘utility’, and schemes for reforming the region which drew on Spanish models but were influenced by local concerns (Paquette 2007; Shafer 1958). The introduction of ‘*las luzes*’ to Central America was envisaged by the *Gazeta* as a process that rested as much on the willingness of its readers to act patriotically to improve the region or ‘country’ [*patria*] as on erudite correspondence. The writings of Roy Porter and Mikuláš Teich (1981) as well as Richard Butterwick (Butterwick et al. 2008) are indispensable for conceptualising ‘the Enlightenment’ as a multi-faceted phenomenon that is perhaps best thought of as many local ‘Enlightenments’. Additionally, historians of non-European contexts have divorced the idea of ‘Enlightenment’ further from its European connotations in recent years. Sebastian Conrad for instance has argued for the case of 1890s Korea that Enlightenment should be conceptualised as a ‘a response to a specific situation’, ‘not a belated answer to Voltaire’ (2012, 1025).

Historical geographers have paid particular attention to geographies of knowledge, with Charles Withers characterising ‘living the Enlightenment’ in different locations as ‘a form of local cultural production and consumption’ dependent on the interaction of different discourses, values, and contexts (2007, 72). The ‘cultural production’ that the *Gazeta de Guatemala* engaged in depended on sources of information that were often defined by their geographical relationship to Guatemala City and other Central American towns, underlining the usefulness of applying a geographical approach to the study of this newspaper. This approach, which seeks to tie the intellectual history of Guatemala to geographical space, builds on research in the historiography of science (for instance Ophir and Shapin 1991; Livingstone 1995; Smith and Agar 1998; Raj 2007). Eighteenth-century Central American naturalists themselves raised epistemological concerns related to space, place and distance. These naturalists pursued a variety of different aims—the search for and authentication of locally relevant medicinal plants, the acclimatisation of agricultural plants to the local climate, and contribution to broader debates about the sort of ‘universal’ knowledge that was implied in the publication of encyclopaedic works. Most fundamentally, these different activities varied according to the geographical scale of the networks of correspondence and travel upon which they drew. The epistemological approaches taken towards these different sources were bound up with their geographical provenance. As we shall see, information on botanical or broadly ‘scientific’ topics from Central America, the

Caribbean or North America was subjected to different types of debate. The *Gazeta de Guatemala* on the one hand recorded these debates about the ‘usefulness’ of different types of knowledge, and on the other also fuelled the creation of new spaces in which natural-historical knowledge could be created and transmitted, altering the geography of knowledge of Central America.

Although the *Audiencia de Guatemala* has traditionally been seen as a relatively remote and ‘peripheral’ part of the Spanish Empire, with restricted means of communication, and at least one historian has claimed that the Guatemalan Economic Society suffered from ‘institutional isolation’ (Maldonado Polo 2001, 221), a close reading of the *Gazeta de Guatemala* demonstrates that its editors and the members of the Economic Society made it their priority to gather information from a wide range of sources, including international ones, and participated in several regional and international networks of information exchange. The *Gazeta*’s pages reflect exchanges of information facilitated by the newspaper and the Economic Society, but also by other official and private connections. We can see how the newspaper helped to tie together different types of expertise that might not otherwise have shared the same intellectual space. The geographical and social diversity of the *Gazeta de Guatemala*’s contributors and sources thus help us to understand Guatemala as an autonomous centre and place of science in its own right. We are therefore able to discern how the editors of the *Gazeta* and other reformers negotiated an array of local and international scholarly networks in the pursuit of locally useful knowledge, and in what ways they sought to balance their desire to participate in an international, scholarly world, an enlightened ‘Republic of Letters’, with their belief in the importance of the knowledge contributed by local collaborators.

Of course, natural history in Spanish America more often than not was tied to Spanish imperial initiatives (Lafuente and López Ocón 2006, 123–50; Vos 2007a, 214). The study of natural history in the colonies often served both local and imperial purposes. The phenomenon of local ‘peripheries’ significantly contributing to the creation of Enlightenment knowledge, as well as the adaptation and re-interpretation of Enlightenment concepts for local purposes, have been widely discussed by historians of science in colonial settings, and especially in the Spanish Empire (Cañizares Esguerra 2001; Conrad 2012; Saldaña 2006; Schiebinger and Swan 2007; Bleichmar et al. 2009). This article, however, will focus on the role of Central American creoles (and resident Spaniards with an interest in ‘improving’ the colony) in creating and maintaining knowledge networks not directly related to imperial projects—small-scale local networks within Central America, as well as scholarly contacts that arose from travel. The role of autonomous scientific centres assumed by Mexico City and Bogotá, which has recently been discussed by historians of science, can serve as a parallel here (Achim 2008, 49–50; Bleichmar 2012). Guatemala City, as a town of great regional importance, was the most obvious ‘center’ on which regional knowledge networks were based. However, the (often informal) flow of knowledge between smaller locations of scientific activity emphasised in this article provides

a fuller picture of Central America's intellectual landscape, a picture which makes visible the complexity of the dense local networks of personal, informal contacts which formed the basis of many natural-historical projects.

The projects discussed in this essay focused primarily on local needs, such as the cultivation of local medicinal herbs, and the interpretation of scientific knowledge from abroad within a local context. The article thus ties together the analysis of both 'local' and 'global' networks, which were often connected through intermediaries who were simultaneously parochial and global agents (in this case, the Economic Society's members), who strove to find global significance for their local knowledge, as well as incorporating global knowledge into local economies (Schaffer et al. 2009). As Simon Schaffer and Kapil Raj have warned, it would thus be simplistic to distinguish sharply between the local and the global (2009, xxvi). While this article highlights 'local' networks of knowledge and methods of knowledge creation within Central America, it also places them in the context of the 'global' influences which cannot be separated from them. In the pages of the *Gazeta de Guatemala*, reports of natural-historical projects were accompanied by rhetoric which emphasised Guatemala's connections to a wider, more international, scientific world, which included sources from as far away as Philadelphia, Jamaica and Sumatra.

The Basis of the *Gazeta de Guatemala*'s Knowledge Networks: Local Contributors

The *Gazeta de Guatemala*, published as a weekly paper in Guatemala City 1797–1807, was the most important medium through which the leaders of the Economic Society communicated with its members, and also reached other subscribers, who were not necessarily also members of the Economic Society. It constitutes one of the most plentiful sources of information on Guatemala's intellectual landscape in this period (see also Dym 2009, 99–118; Poupeney Hart 2010). Although the *Gazeta* was not an exclusively 'scientific' publication, 'useful arts and sciences' occupied an important place in its pages. Reports concerning the sciences, mainly natural history and discussions about medical plants, constituted approximately ten percent of the total number of articles in the *Gazeta de Guatemala*.³ The newspaper not only disseminated 'useful knowledge' from acknowledged authorities, but also sought to gather new information through the participation of its readers. Readers for instance contributed information on the geography of the province they lived in and information about medical herbs. From the start, the editor Alejandro Ramírez stressed that the potential of the *Gazeta* lay in collaboration.⁴ Letters submitted by readers constituted about a fifth of all articles, while the number of articles based on information contributed by readers across Central America was certainly even higher.⁵ The active involvement of readers in the creation of the newspaper means that a definition of this 'reading public' also reflects the range of people participating in a Central American network of natural-historical knowledge.⁶

The readers we have a record of, that is, the subscribers to the *Gazeta*, were mostly part of the educated elite, whether they were Spaniards or Creoles. The lists of

subscribers in the 1790s and 1810s indeed show mainly officials of the colonial government, clergy, and wealthy merchants.⁷ However, aside from high-ranking officials and clergymen, there were also priests of smaller parishes, low-ranking officials, and individuals listed just as ‘residents’ rather with than an official title or clerical rank, suggesting that the *Gazeta* had a broad readership among the literate public at least. As Jordana Dym notes, the ‘public’ constituted by the *Gazeta*’s readership brought together ‘supposedly incompatible and competing elements of colonial society’ (Dym 2009, 115–18). An example of an esteemed member of the Society who was not a part of the Guatemala City elite was Antonio Muro. Between 1797 and 1805, as a corresponding member of the Society, he sent a great number of letters on matters of trade and agriculture. Muro was self-taught and by no means rich: for two years, he did not send any contributions because he did not have money for a scribe or paper (Belzunegui Ormazábal 1992, 305; Rojas Lima 2004, 658–59); he was, however, an honorary member [*socio de mérito*] and a well-regarded regular contributor to the *Gazeta* (Maldonado Polo 2001, 232–33). Yet there were limits to the *Gazeta*’s inclusiveness. While the *mestizo* and Indian masses were not excluded from the Society and its paper in theory, in practice there is no evidence that their participation went much beyond being the subject of various schemes to integrate indigenous people more closely into the *Audiencia*’s economy.⁸ The evidence for women readers is also ambiguous, since it is likely that at least some of the letters purportedly written by women were fabricated by the editor to stir up debate (Poupeney Hart 2010, 16).⁹ However, for all its limitations, the *Gazeta* was probably the most socially inclusive communication network in Central America.

Moreover, the Economic Society and *Gazeta* also succeeded in being geographically inclusive. The Society tied in members from other parts of the country through *juntas de correspondencia* (associations of ‘corresponding members’) in different parts of the Kingdom of Guatemala, established with the express aim of contributing chorographic and natural historical knowledge concerning their respective provinces.¹⁰ Given that the seat of the Economic Society, with many of its most active members, was in Guatemala City, it is not surprising that many of the readers who submitted opinions to the *Gazeta* were from that city. However, other contributors included provincial village priests, or men who were reporting about experiences gained from living on a rural estate. News and items of knowledge from diverse sources of expertise and different parts of Central American society were tied together in one publication.

The *Gazeta*’s Local and Regional Communication Network

This broad readership meant that the newspaper was an excellent way of spreading news within Central America, news which otherwise might only be transmitted to narrow circles, to the government through official letters, or through the contacts of merchants guilds. In one instance, when the official post and newspapers from Madrid had failed to arrive, the *Gazeta* promised to print the news from Europe

which had arrived on a merchant ship from Cádiz via Vera Cruz.¹¹ Another notice confirms the importance of the newspaper as a new avenue for distributing not just news, but scholarly and scientific information as well to the reading public. In a short piece about the oven specially developed by the Mexican naturalist José Mariano Mociño for an improved method of indigo extraction, the editor pointed out that the naturalist's treatise on the subject had not yet been published. Thus far it had merely been presented to the Economic Society.¹² Since the original treatise was not available as a source, the *Gazeta*'s article relied on a description provided by an 'enthusiast' [*aficionado*] instead.¹³ The newspaper and its informants thus took seriously opportunities to circulate information more rapidly than established publication routes, opportunities that were in part created by the publication and dissemination of the newspaper itself. Such new methods of communication were also related to the gradual growth of 'local correspondence "circuits"' rather than the more traditional 'itinerary and radial modes of document travel' based on only a few centres and major routes, which Sylvia Sellers-García has observed in connection with the reform and improved efficiency of the Guatemalan postal service in the 1760s (Sellers-García 2012, 81–82; Sellers-García 2014, 103–37).

The articles printed in the newspaper, as well as the letters from readers, show that the paper was a catalyst for new paths of communication—in the form of Economic Society meetings in Central American towns other than Guatemala City (chiefly Trujillo in Honduras), and in the exchange of letters between readers in this public forum. The overlap between the 'virtual' community of the newspaper's readers and the 'real' communities which existed in the region's cities and towns is particularly interesting. The *Gazeta*'s articles successfully solicited from its readers action which went beyond engagement in the 'virtual' community. Examples include exhortations to collect seeds of exotic plants from a particular citizen's house and try to grow them, or to collect any useful plants one might encounter on one's travels.¹⁴ The participation of 'curious men' in agricultural projects was commonly invoked. In one instance, seeds of a plant new to Guatemala arrived in the capital, and the *Gazeta* reported that they had immediately been 'distributed to curious persons of this capital' for experimentation, a distribution facilitated by the newspaper.¹⁵ While Antonio Lafuente has observed that elites would have been loath to participate personally in agricultural activities despite the general support for a 'rationalisation of agricultural practice' (1992, 103), this sort of practical action was precisely what Latin American newspapers solicited, and where non-elite participation in these discourses may have constituted an advantage. Such exhortations complemented the more generic instructions and descriptions of plants that often appeared in the *Gazeta*'s pages.

The Economic Society's reach meant that it could succeed in locating plants where even the professional botanists of the Royal Botanical Expedition to New Spain, which had visited Central America 1795–1799, had failed. The Society had asked the botanists to look for the dye-producing *rubia* plant in Guatemala, but they were apparently unable to locate it. The Society then attempted to import the plant's seeds

from Spain twice, but they arrived spoilt. However, when the Society widened its search in 1816 and was about to announce a prize for whomever might find 'this precious plant', the provincial of the Santo Domingo convent presented them with three ounces of the precious seeds, and a commission of three members of the Society then distributed them across Central America.¹⁶ The friar was presumably encouraged to search for the seeds in response to the Society's renewed efforts, since he was an honorary member [*socio de mérito*] and had previously sent the association plant samples in the hope they might be considered useful.¹⁷ The success in finding the *rubia* plant represents an example of the members' network providing positive results where other approaches had failed. This and other notices published by the *Gazeta* on the work of readers who participated in its projects demonstrate the existence of active support for the newspaper's mission to bring 'utility' and 'improvement' to the *Audiencia de Guatemala*.

A further way to invite the participation of a geographically and socially broad array of Central Americans, even beyond the members of the Society and beyond literate men, was envisaged by the Society in a letter which exhorted members to search for curiosities of nature for the natural history cabinet in Guatemala City. The letter gave detailed information about what type of animal and mineral was sought and especially targeted 'corresponding members' outside the capital. Apart from seeking natural curiosities themselves, they should 'read this out a few times to those subjects who walk across many lands, because from these knowledge is always acquired, and some news of resources which chance usually presents to them'.¹⁸ Reliance on local empirical knowledge was most pronounced in the case of medicinal plants, where local applicability was key, and thus the descriptions of the appearance and habitat of plants needed to be empirical and extremely detailed, rather than abstract and learned.

Contributors to the *Gazeta* often relied on indigenous informers for their botanical knowledge, and sometimes stressed these indigenous sources, apparently in an attempt to verify the authenticity of their information. One contributor introduced a medicinal plant in a letter to the editor, stressing the vernacular nature of his knowledge rather than any formal description. The article was entitled 'A short description of the herb or plant called *Camácarinata* or *Rox iyuin umül*, which, without being in accordance with botany, is enough to recognise it'.¹⁹ The description was one of precise local relevance, naming the villages around Lake Atitlán in Guatemala near which the plant grew and was cultivated, as well as a description of its appearance and fruits. Although a translation of the indigenous name for this plant was not given, it appears that the author understood it as being related to the indigenous word for 'rabbit's ear'. He might even have expected his readers to do so as well, since he commented that the appearance of its leaf 'is similar to the rabbit's ear; and it probably takes its derivation among the Indians from this similarity'.²⁰ In this description, the empirical evidence of the location of the herb and its indigenous name, which likewise suggested direct experience with the plant, demonstrated the author's ability to tap into local wisdom and relay it to the *Gazeta*'s wider network.

Crucially, the *Gazeta*'s emphasis on communicating local knowledge in a relatively direct, informal way to its readers meant that the lack of a formal botanical description did not seem to matter to the letter's usefulness. The anecdotal style of such reports may appear to be inherent in the genre of the newspaper, but the informally described evidence in the *Gazeta* is substantially different from the type of formal botanical discussion favoured by the Lima-based newspaper *Mercurio Peruano*.²¹ The *Gazeta*'s emphasis on the collaboration of readers and its faithful reproduction of many readers' letters enable us to trace not only the movement of knowledge across the region, but also the sources and application of such knowledge in vivid anecdotal detail. In contrast to official government documents, which often obscure the origin and journey of particular plants or botanical descriptions (Vos 2001, 213–14), the *Gazeta*'s reports often highlight the interactions between priests, administrators and indigenous people that produced them. The newspaper contains rich clues about the practical and social context from which plants came, and therefore helps us understand the locally based social interactions which formed the basis of the *Gazeta*'s local and regional networks of knowledge exchange.

Official and Private Knowledge Networks

The *Gazeta*'s significance as a method of communicating information from one member of the 'reading public' to a wider audience also surfaces in the ways it provided a platform on which official and non-official modes of communication could intersect. A series of reports about a medicinal plant known as *algalia* was printed between 1799 and 1802, disseminating the botanical and medical knowledge of parish priests to a wider audience, thus drawing information which was previously only known locally or within the Catholic Church's administrative network into the public sphere.²² The movement of the *algalia* across Central America relied on established administrative contacts between priests and bishops, secular administrators and lower-ranked officials, but also on the *Gazeta*'s power to inform and facilitate contacts and exchanges (figure 1).

The *Gazeta* announced in 1799 that the archbishop of León, Lorenzo Tristan, on passing through the capital, had 'left the seeds of a bush which he called *algalia*' in the care of the Economic Society.²³ He had 'acquired [the seed of this bush] from the Caribbean Indians, and propagated and extended it in his diocese, León de Nicaragua, with good success'. Apparently independently of this report, it had become known to 'Ponciano Garrote, the priest of Masatenango' in the Guatemalan province of San Antonio, and its curative powers had been proven several times.²⁴ This announcement provoked a great number of curious responses. This plant may have been slightly more widely known than the initial reports suggested, since just two years later the *Gazeta* published a summary of reports from all over the region citing cases of 'miraculous' recoveries after taking the *algalia* medicine. However, it was very much considered a 'new' plant—the *Gazeta*'s editors, for instance, felt unable to give a 'scientific description'.²⁵ The *algalia* seemed to have previously existed in vernacular



Figure 1 Map of the Audiencia de Guatemala, showing the towns through which the *algalia* plant moved. (a) From León to Guatemala City through the archbishop of León's administrative travels and personal contacts (1799). (b) From Masaya to Quetzaltenango, then Masatenango through the *corregidor* of Quetzaltenango's travels (1780–1793). (c) From a reader of the *Gazeta* to Texacuángos (1800).

rather than formalised knowledge: one priest reported that although he had been familiar with the plant, he did not know its name until it was reported in the *Gazeta*.²⁶

Following this initial announcement of the *algalia* in the newspaper in 1799, more details were published on how this plant was dispersed across Central America, revealing a wide network of informal botanical contacts. In a letter to the editors, one Prudencio Cozar, the *corregidor* of Quetzaltenango, reported that he had taken a shoot of this plant with him from Masaya (Nicaragua) twenty years previously, in 1781. In Masaya, he had learned of the *algalia*'s healing powers, and that the seeds for the plant had arrived in that town the previous year, with the English invasion of the San Juan fortifications ('*se hubo de los ingleses*'). He had subsequently given the seeds to Ponciano Garrote, the priest of Masatenango (Guatemala), when he visited that town on official business in 1793. In Masatenango they had cured a person bitten by a viper, and this was the start of the seed's propagation in this region.²⁷ Others joined the discussion, including the priest of Masatenango himself, confirming that the *algalia* indeed had curative powers for the bites of 'all manner of snakes'.²⁸ This lively

discussion in the *Gazeta* further encouraged the spread of the plant across Central America, bringing it to the attention of men who were interested in growing the plant themselves. A subscriber to the *Gazeta*, the parish priest and of the village of Texacuangos (San Salvador), requested the *algalia* plant in response to one of the newspaper's articles. Two years later, the *Gazeta* reported that not only had the priest been able to receive the plant from one Ignacio Somosa, he had also extended its spread through his parish.²⁹

The debate about the *algalia* as it played out in the pages of the newspaper makes visible a range of contacts, maintained in person and through correspondence, through administrative duties and private interest, which connected Central Americans interested in botany. However, it also simultaneously traces the creation of *new* pathways for botanical information and samples through the medium of the newspaper. While it is possible to link the early movements of this plant, from Nicaragua to Guatemala for instance, to routine administrative travel, the articles in the *Gazeta* resulted in the plant traversing different intellectual as well as geographical spaces. The case of a single medicinal plant thus shows how even residents of small Central American villages participated in a variety of knowledge networks, some defined by geographical proximity to and personal contact with visitors, others through the *Gazeta*'s 'public sphere'. The *Gazeta* both showcased existing networks of communication, and forged new connections between residents of Central America.

This movement of knowledge between villages (or rather, between Spanish or Creole individuals living in these villages) also creates questions about the relationship between the circulation of knowledge about this 'new plant' and the indigenous inhabitants of those regions. Although the *Gazeta*'s plan to eventually create a formal botanical description of the *algalia* remained tentative and the articles about the plant serve to show the complexity and non-linearity of Central America's communication networks rather than any coherent 'scientific project', the *Gazeta* did create a somewhat triumphalist narrative around the movement of the *algalia*. The editors described in glowing terms the success of the priest of Masatenango, Ponciano Garrote. He planted the *algalia* in his parish and 'experienced its good effects in all the bites that were presented to him in the last few years. The natives are so convinced by this remedy that they instantly come running for it to the house of said priest'.³⁰ The idea of a Spaniard, rather than an indigenous healer, having this sort of knowledge about herbs to cure the bite of a venomous local snake is an interesting subversion of the traditional image of a Spaniard prising the 'secrets' of nature from indigenous informers. The pastoral role exercised by the priest was of course compatible with providing medical help, and Carl Linnaeus had even explicitly advocated a role for priests in dispensing medical advice through a knowledge of medicinal herbs (Heller 1976, 365). However, the role of the parish priest within the community had always been deeply ambiguous, since priests in Central America, as elsewhere in Latin America, held a crucial position as representatives of state authority.

The story of the priest as benevolent caretaker of the natives, who otherwise would not have had access to this extraordinary cure, appears to seek to portray a peaceful society led by the Church and panders to the old trope of ‘docile Indians’. It is a description which puts Spaniards thoroughly in control of what used to be wilderness—not only do the inhabitants live under Spanish rule, but the countryside and its dangers have also been conquered. If the Spanish exploration of the Latin American flora constituted a second conquest, a ‘conquest of nature’, this was an example of a successful conquest to the point where, through the *Gazeta*’s correspondents, traditional roles of knowledge provider and receiver could be reversed. The reports on the *algalia* and other local plants thus demonstrate the *Gazeta*’s remarkable ability to draw on sources from a range of social contexts and geographical locations within Central America, an ability that was recognised by the editors when they commented on the comprehensive success of the *algalia* article.

Reprinting Knowledge from Abroad

Casting their net even wider, the editors of the *Gazeta de Guatemala* saw it as their task to disseminate ‘useful knowledge’ to their readers from a range of sources, including Spanish publications and foreign periodicals. The subject matter of most of these articles was clearly not intended to provoke collaboration and discussion in the same ways as articles about local medicinal plants, but was instead intended to ensure that the *Gazeta* was not an insular, parochial publication. Some sources initially appear to connect the *Gazeta* with the science and technology of places as far away as Britain. For instance, one article on ‘iron bridges’ was based on a notice ‘from an English newspaper from Lancaster’.³¹ This source was likely to have arrived in Guatemala in a translated or summarised form. As Fiona Clark has pointed out, articles which were originally from foreign journals were sometimes only copied from an already translated version, often from a Spanish periodical (Clark 2009, 157; see also Barker and Burrows 2002, 6–7). Another article was clearer about its source: a report about one Doctor King’s chemical analysis of human brains had first been printed in London, then in a Madrid newspaper, before finally appearing in the *Gazeta de Guatemala*.³² The editors even affirmed that the re-publication of articles from Spanish newspapers need not concern ‘new things, nor things which merit to stay on a connoisseur’s bookshelf for much time’.³³ Including Spanish articles, and extracts of foreign works circulating in Spain, would bring Guatemala on a par with Spanish cities. The very impression of being acquainted with European research was valued, even if it was second-hand, third-hand, or not of lasting importance. This desire to be connected to, and on a par with, the European intellectual community reflects an uneasy attitude of the editors towards Europe and European knowledge. While confidently asserting the value of local knowledge, they nevertheless considered their ‘*patria*’ to be in a peripheral position, both geopolitically and in scientific terms, and clearly envisioned the Economic Society and *Gazeta* as means to prove the

Audiencia de Guatemala's ability to participate in wider information networks (Luque Alcaide 1962, 27; Shafer 1958; see also discussion below).

This premium placed on far-away knowledge meant that the editors went to great lengths to reprint information sourced from far away. The transmission of such knowledge was, however, sometimes circuitous. The difficulty of publishing information from abroad was due to both physical distance and difficulties of translating knowledge from outside to the local context. The *Gazeta* printed at least two major articles which had originally been published by José Celestino Mutis, a famous naturalist, in Bogotá, the capital of the Spanish colony of New Granada: one on the supposed public health dangers of plantain trees, another on the different species of *quina*, or cinchona bark.³⁴ Bogotá was, from the point of view of Guatemala City, very far away. Thus the editor of the *Gazeta* complained that it was impossible to ask for clarification of an article regarding a medicinal plant from Bogotá about which there was some confusion, since 'our means of communication with Santa Fé [de Bogotá] are quite difficult'.³⁵ 'Distance' was conceived of as travel-time and transport connections rather than geographical distance, as Sylvia Sellers-García has shown, and Guatemala City was better connected with Veracruz, Spain, and even Lima than it was with the geographically closer Costa Rica or Bogotá (Sellers-García 2012, 80). Furthermore, poor transport connections meant that articles were often not directly imported from Bogotá to Guatemala City. Unsurprisingly, the flow of information generally followed trade and administrative routes and, while the *Gazeta de Guatemala* could be distributed within Central America through the newly reformed and expanded postal system, Central America lacked these connections with many other Spanish American locations.³⁶ For instance, one article about a 'remedy for the bite of venomous snakes', originally published in the newspaper of Bogotá ('*Papel periódico de Santa Fé de Bogotá*'), only arrived in Guatemala because it had been reprinted in the Spanish newspaper *Mercurio de España*, which in turn was brought to Guatemala with the post from Spain regularly.³⁷ The physical difficulties of transmission, and the perception of distance they created, could trigger debates about the applicability of such foreign knowledge, as had happened in the case of a report by José Celestino Mutis, where readers doubted that the naturalist's findings on plantain trees were relevant to Central America (see Brockmann 2012, 177–83).

International Contacts and Networks

Many of the connections between the *Gazeta* and its sources were more direct than the paths travelled by articles that were in fact reprints, and which arrived in Guatemala more or less fortuitously. While many of the letters submitted by the readers were intended to communicate knowledge either from Guatemala City to a scattered provincial readership or from the relative isolation of a provincial town or *hacienda* within Central America to the spread-out community of readers across the *Audiencia*, other contributions were the result of members of the Economic Society

reporting back from their travels. José Felipe Flores, the country's leading physician and supporter of the Society's and *Gazeta*'s projects, undertook a voyage to many of the scientific centres and universities of Europe and North America in 1797, sending back information about the 'current state of the sciences' in Philadelphia and other locations, which the *Gazeta* duly published.³⁸ Alejandro Ramírez y Blanco (editor of the *Gazeta* 1797–1801) and the merchant Francisco Sosa travelled to Jamaica in 1801. Ramírez had previously travelled to the West Indies and Philadelphia on trading voyages as an interpreter and intermediary for the merchant Juan Bautista Irisarri, so it can be assumed that he served as an interpreter for Sosa, too (Poupeney Hart 2009, 7). A royal decree allowed trade with 'neutral countries' when the Anglo-Spanish War of 1796 blocked naval traffic between Spain and America, opening the possibility of voyaging to countries outside the Spanish Empire. Although mainly an avenue for trade, this traffic also facilitated the exchange of ideas (see also Poupeney Hart 2010, 10). Ramírez and Sosa brought back plants and seeds, including some 'exotic' plants which had originated in Sumatra. The *Gazeta de Guatemala* published a letter by Ramírez with information about these plants and seeds in full, over several issues.³⁹

But how had these 'exotic plants' made their way to Guatemala? A clue lies in the source given for Ramírez's description of the Sumatran seeds in the *Gazeta*—Ramírez states that his knowledge of these plants stems from a description made by one Dr Campbell, 'a botanist employed in the service of the Eastern Company [East India Company] resident in Sumatra'.⁴⁰ This description was apparently widely known in botanical circles. Another account of Dr Campbell's work on Sumatran plants appears in the British *Annals of Agriculture* 1801, published by the English agricultural writer Toby Young.⁴¹ The article in the *Gazeta* is a faithful translation of the same list of plants and explanation of their cultivation and properties that is found in the *Annals*, with only a few minor alterations. This suggests that Dr Campbell sent out a large number of letters accompanied by seeds to various government agencies or agricultural, economic or patriotic societies around the British Empire. As the article in the *Annals* explains, the seeds in question were 'transmitted to the West Indies by the Board of Agriculture [and] are the produce of the island of Sumatra, and have been sent from thence to the Board by Dr. Campbell, an ingenious botanist in the service of the East India Company'. Ramírez's source must have been a copy of the original letter circulating in Jamaica or a personal acquaintance with a person in charge of the plants, since he was in possession not only of the description, but also of the highly prized seeds.

Ramírez probably also had some access to the Jamaican botanical gardens, since the list of live plants he brought with him from Jamaica included the breadfruit tree—famously brought to Jamaica by Captain Bligh—as well as cinnamon, mango, jackfruit and ackee.⁴² The plants were not native to Jamaica, but had rather been acclimatised in one of the island's botanical gardens (Parry 1955, 18). Some of them stemmed from Bligh's voyage to Tahiti, others (including mango and tree sorrel) from a French ship which was captured by a British fleet in 1782, while it was transporting live plants from Mauritius to Martinique (Howard 1975, 371–72). We

can see how this exchange may have worked in practice in an analogous episode in which Hipólito José da Costa, a botanical emissary of the Portuguese government, visited a famous greenhouse in Philadelphia, and received a 'precious collection of seeds' as a gift (O'Malley 2011, 47). The movement of these plants, seeds and the accompanying information around the globe is thus an interesting example of plant samples and knowledge being transmitted from a project of cultivation and acclimatisation in the British Empire to the Spanish Empire, which was engaged in similar projects. While these empires shared an interest in such botanical matters, they did not usually cooperate, so it seems that local agents beyond the control of high-ranking agents were responsible for informally sharing these particular samples.

The plants and seeds Ramírez had brought to Guatemala were certainly appreciated by those interested in natural history. Apart from being described in the *Gazeta*, they were also presented to the Economic Society's members in the general assembly [*junta pública*] of 1799.⁴³ Economic Societies outside Guatemala were also interested. The *Gazeta*'s editor explained that after the notice about Ramírez bringing back these exotic plants had been reprinted in the Spanish newspaper *Correo Mercantil*, he had received a number of responses from abroad:

from Havana, and New Spain, and from other locations, we have been badgered [*importunado*] several times to give an account of their current state and progress, if they remain in good condition, if they adapt to the climate, if there is hope of moving them from these to others of our possessions in this continent and the islands, & c. & c.⁴⁴

The interest within Guatemala, too, remained constant. Several years later the *Gazeta* again mentioned one of the plants that Ramírez had brought to Guatemala, *yerva guinea*. Although the article seems to imply that it was already growing in Guatemala before this date, the mention in this locally important catalogue of plants had spurred one Isidoro Soto, professor of pharmacy in Guatemala City, to make a 'botanical description' of it, which the *Gazeta* now reported on. The authors of the article point out that this plant was 'unknown to the celebrated Linnaeus', but placed it in 'that famous naturalist's genus *panicum*' (comprising mainly large tropical grasses), implying that they were adding knowledge to an international, scientific catalogue of plants. The arrival of Ramírez's plants in Guatemala and their publication by the *Gazeta* thus seem to have been significant for the development of an international outlook among local naturalists.

The plants and seeds influenced Central American naturalists even years later. A member of the Economic Society from Trujillo took it upon himself in 1811 to examine the makeshift botanical garden in which some of these plants had been acclimatised, which had fallen into neglect after the departure from Guatemala of its original owner, and sent his report to the Society's assembly.⁴⁵ He identified several of the original plants and sent a leaf from a cinnamon bush to Guatemala City for proof of its identification. This rediscovery of one of Ramírez's 'exotic plants' was hailed as a 'great find for the *patria*'. Another Society member promptly offered 50 pesos to aid

the continuation of the garden.⁴⁶ Five years later, delegates were still being nominated by the Economic Society to ‘conserve, propagate and cultivate said plants’ at the Society’s cost.⁴⁷

The Sumatran seeds did not just remain in the hands of members of the Economic Society, or in ‘artificial’ environments such as Trujillo’s botanical garden. In late 1803, the *Gazeta* reported on an ‘abundant’ harvest of rice completed by two landholders in Chapagua, a new settlement just outside Trujillo in Honduras. A sample of the grain had been sent to the capital to demonstrate its quality. Indeed the editors appreciatively commented that it was ‘of good taste, and stronger and more nutritious than common rice’. The Honduran cultivators specified that it was ‘not an indigenous product of this part of America’, which gave the editors reason to believe that the grains stemmed from ‘the grain from Sumatra which in the year 1801 was brought to this kingdom’.⁴⁸ The short distance of this new settlement from Trujillo, where the Sumatran seeds had originally arrived, seems to support this conclusion. The Spanish economic and agricultural journal *Correo mercantil* in 1804 reprinted this article from the *Gazeta de Guatemala* which described the harvest of Sumatran rice in Trujillo.⁴⁹ The *Gazeta* in turn, stressing that the *Correo mercantil* had reproduced the article ‘word for word’ [*á la letra*], now reprinted in Guatemala the comments made by the *Correo*’s editors about the Honduran rice, which suggested investing in machines (specially adapted flour-mills) to aid production.⁵⁰ Not only was the Guatemalan Economic Society thus successful in facilitating the introduction of the foreign plants, and in dialogue with men who experimented with new crops in Central America’s provinces, but also established a transatlantic conversation—conducted in the pages of newspapers—about these plants. The *Gazeta*’s world was truly global and connected, a clear example of the sort of ‘two-way line of communication’ that Mariselle Meléndez and Karen Stolley, in their Introduction to this volume, define as a crucial component of the aspirations of Latin American ‘local Enlightenments’.

It seems that the exotic quality of the Jamaican and Sumatran plants in itself merited attention, in the sense that it confirmed Guatemala’s ability to find connections to the kind of international knowledge networks it aspired to be a part of. The distance between Central America and the rest of the world was keenly felt, with administrators routinely complaining about ‘the great distance’ between Guatemala and other parts of Spanish America. Although the editors of various journals in Spain, Mexico and Havana subscribed to the *Gazeta de Guatemala*, in general, Guatemala’s place in this network often seemed to constitute one of passive reception rather than active contribution. This was of course a position which the *Gazeta*’s editors actively worked against, and there were some success stories such as the importation of ‘exotic plants’, or the introduction of particularly productive and sought-after beehives from Havana by a merchant, Ventura Batres.⁵¹ However, the perceived unequal relationship can be seen in the way that a newspapers’ foreign sources were stressed, and the way in which the knowledge of foreign naturalists such

as Dr Campbell, who had compiled the description of Sumatran plants, was admired (Brockmann 2012, 180–82). Progress of Central American science was, to some extent, measured by the Economic Society's ability to participate in less 'peripheral' communication networks. Travellers such as Alejandro Ramírez or Ventura Batres were lauded for their 'enlightened' journeys. An article in the *Gazeta*, for instance, stressed that Ventura Batres 'strives to distinguish himself, and if he leaves his country it is not to return to it with empty hands, and a hollow head, as so many other travellers of other places'.⁵² Ventura Batres, José Felipe Flores and Alejandro Ramírez had succeeded in expanding their personal geographical horizons, and, by extension, the range of information available to any interested men in Guatemala. They had also extended the boundaries of one of the information networks which connected Guatemala City to a wider world.

Interactions with the Spanish Government's Scientific Efforts

Many of the above-mentioned local and international networks of knowledge depended largely on personal connections between individuals. It is typical of the entanglement between 'state' and 'civil society' in Bourbon Latin America that some of these informal contacts were the direct result of the government's scientific efforts (see also Paquette 2007). They grew out of encounters with the members of the Royal Botanical Expedition to New Spain, who spent time in Central America between 1795 and 1799 and even helped to establish a Cabinet of Natural History in Guatemala City in 1795 (Maldonado Polo 2001; Muñoz Calvo 1989). One of the members of the expedition, José Mariano Mociño, served as a contact for the transmission of useful scientific information years later, sending a recently published pamphlet on smallpox from Madrid to the editor of the newspaper, Alejandro Ramírez.⁵³ The *Gazeta* maintained a constant interest in the work of imperial botanists elsewhere in the Spanish Empire, too, as is evident from a notice published about the Royal Commission which in the 1790s explored Cuba's flora.⁵⁴ Baltasar Manuel Boldo, a physician who carried out much of the botanical work, published notes on his progress in the Cuban newspaper *Papel Periódico de la Habana* and also exploited the Havana Economic Society's connection with other societies (Blanco Fernández de Caleyá 2000, 50). Boldo's letter to the Guatemalan Economic Society, published in the *Gazeta*, requested plant samples from Central America. It is unclear what, if any, responses Boldo received, but this letter highlights the way the Spanish government's botanical expeditions interacted with local scholars and their wider intellectual circle. The *Gazeta*, in turn, utilised these connections in the wider context of their effort to tap into large-scale scientific knowledge networks and forge connections between the local networks and knowledge communities formed by its readers and these more international networks.

A Complex Network of Local and Global Connections

The Central American Bourbon reading public was thus interconnected both on a local level, and on an ‘inter-provincial’ or international level through newspapers and scientific treatises. Within Central America, the *Gazeta* connected readers from the spheres of secular administration, the Church, the religious orders, merchants and landowners. Notwithstanding the obvious importance of imperial initiatives such as the Royal Botanical Expedition to Central American natural history in this period, the newspaper shows a wider and more varied network of people who were interested in scientific information, and its practical use, than might be expected. Central Americans also proactively participated in networks which exchanged knowledge or botanical specimens, networks which were not defined by official links, but were instead built on the basis of private and scholarly contacts with Havana, Philadelphia, and European cities. The lines between bureaucratic and ‘private’ methods of communication were often blurred as members of the Economic Society or correspondents of the *Gazeta* bypassed more traditional ways of circulating and publishing information in order to prioritise locally relevant issues of the day, while still relying on the administrative or religious networks they were part of for information.

Examining the networks of communication upon which the *Gazeta de Guatemala* depended, but also the new paths of communication forged by the newspaper, helps us define how Central American scholars saw their own role as participants in international knowledge networks. Geographical space was an important factor considered by editors and readers of the *Gazeta* in their evaluations of the ‘utility’ of different pieces of information, newspaper articles, or botanical specimens. The response to knowledge that arrived in Central America from faraway places was generally positive, but it was often subjected to queries about how it fitted into the overarching aim of gathering ‘locally useful’ knowledge. The transformation of one of Alejandro Ramírez’s ‘exotic plants’, rice from Sumatra, into a crop which could generate pride in the agricultural achievements of Central America once it had been acclimatised to the region is just one example of the sometimes convoluted rhetoric through which the *Gazeta* and its readers sought to reconcile foreign knowledge with their more immediate aims. Other examples of ‘foreign knowledge’, such as newspaper articles imported from various European newspapers, by contrast seemed to provide the ‘utility’ of showing Central America to be a ‘connected’ place. The different contexts in and scales on which Central American naturalists operated meant that this uneasy coexistence of ‘local’ and ‘global’ types of knowledge and epistemologies was never authoritatively solved, but instead debated and judged in each individual case.

The idea that it was a virtue in itself for Central American intellectuals to be part of a ‘global conversation’ through newspapers was repeatedly expressed. The notion that Latin American Creoles saw themselves as part of a ‘Magna Hispania’, one Hispanic kingdom among many, has been articulated by many historians (Brading 1991; Cañizares-Esguerra 2001, 202–6). Paula de Vos has argued that this concept applied

to the realm of science and medicine too: since Spanish American overseas possessions saw themselves as part of a 'confederation of kingdoms' rather than simply 'colonies', they considered themselves on a par with European countries when it came to the flow of information around the world (Vos 2007b, 139–40). While Central America's position in these information networks was never quite 'on a par' with European networks due to slow communication routes, it is certainly true that Central Americans were determined to participate in these networks as fully as possible. At the very least, it was the Economic Society's and *Gazeta de Guatemala*'s aim to put Central America firmly on this international map of knowledge exchange. While their point of view could hardly be described as a radical 'Creole patriotism', the *Gazeta* and Economic Society's endeavours to place Guatemala City at the centre of knowledge networks did contribute to a vision of Guatemala as an autonomous entity, at least as far as scientific matters were concerned. As Central Americans were redefining the possible sources and validation of their knowledge, no longer including just Spain and other Spanish colonies, but also North America and the British colony of Jamaica, the focus of their scientific networks started to shift away from Spain. Even though this did not directly translate into a political movement, it provides an example of the loosening of connections to the European metropolis, and projected the image of a new Central America in which 'local' networks were closely connected to 'global', cosmopolitan ones, and 'local' knowledge was also relevant on an international scale.

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SOPHIE BROCKMANN received her PhD from the University of Cambridge in 2014, and is currently a postdoctoral research fellow at the Institute of Latin American Studies (School of Advanced Study, University of London). She is working on a book based on her PhD dissertation, provisionally entitled 'Surveying Nature in Central America, 1770–1838', and has commenced a new research project on the history of archaeology in 19th/20th-century Central America.

Notes

- ¹ The Kingdom of Guatemala encompassed the jurisdictions around Guatemala City, roughly corresponding to modern-day Guatemala, but also modern-day Chiapas, El Salvador, Honduras and Nicaragua. While Costa Rica was technically also a part of this jurisdiction, the *Audiencia* (high court) had little effective power there, so this discussion will focus on the core region of the Kingdom of Guatemala. See Hall and Pérez Brignoli 2003, 32–33, 38–39. It was this larger area that the 'Guatemala' in the title of the Economic Society referred to: *Junta Pública de la Real*

Sociedad Económica de Amantes de la Patria de Guatemala. Nueva Guatemala en la Oficina de D. Alexo Mariano Bracamonte (1797, 2).

- ² 'Memorias para hacer una descripción puntual del Reyno de Guatemala', *Gazeta de Guatemala* 1, no. 14 (15 May 1797), 107; see also Poupney Hart 2010, 12–13. Public education was one of the main aims of Enlightenment-era newspapers: see Meléndez 2009, 116.
- ³ 161 of 1,545 articles: average calculated across the years 1797–1803 based on the indices in the published volumes of the *Gazeta de Guatemala*. A fuller statistical analysis can be found in Brockmann 2013, Appendix. See also Hernández Pérez 2010, 7.
- ⁴ 'Prospecto de ampliación', *Gazeta de Guatemala* 1 (1797), unpag.
- ⁵ The percentage of readers' letters is 19% when counting only those articles which are clearly marked in the index as being the result of a letter from the reader, or where the title clearly indicates that a reader's opinion is expressed, and repeated *verbatim*.
- ⁶ This concept of a 'reading public' is of course closely connected to Jürgen Habermas's concept of a 'public sphere' (Habermas 1989). Broadly speaking, the 'public production and consumption of knowledge' (Withers 2007, 66) that the *Gazeta de Guatemala* engaged in corresponds perfectly to Habermas's ideas, although Habermas's emphasis on the capitalist and bourgeois nature of the public sphere is far less applicable to Central America. The 'Guatemalan reading public' is also discussed in Dym 2009. On the 'public sphere' in Latin America, see for instance Guerra and Lémpérière 1998, Ortega Martínez and Chaparro Silva 2012, Silva 1988, and Uribe Urán 2000.
- ⁷ 'Lista de subscriptores', *Gazeta de Guatemala*, vols. 1, 3, 5.
- ⁸ Córdova, Matías de, *Utilidades de que los Indios se visten y calzan a la española* (Guatemala, 1798); Belzunegui Ormazábal 1992, 229–30.
- ⁹ Example of a letter written by a woman: 'Una criolla incognita, á los Señores Editores', *Gazeta de Guatemala* 7, no. 330 (1803), 433–34.
- ¹⁰ 'Compendio Instructivo', in *Junta Pública de la Real Sociedad Económica de Amantes de la Patria de Guatemala. Celebrada en 12 de Diciembre de 1796* (Guatemala, 1797), 20; 'Junta de Correspondencia de Truxillo', *Gazeta de Guatemala* 2, no. 76 (27 Aug. 1798), 225. See also Luque Alcaide 1962, 56.
- ¹¹ 'Nueva Guatemala 19 de Junio', *Gazeta de Guatemala* 1, no. 20 (19 June 1797), 158.
- ¹² *Quinta Junta Pública de la Real Sociedad Económica de Amantes de la Patria de Guatemala: celebrada el día 16. de diciembre de 1798*, (Guatemala, 1799), 7: some of the Economic Society's members were preparing to publish an annotated version.
- ¹³ 'Economía rural', *Gazeta de Guatemala* 2, (17 Dec. 1798), 331.
- ¹⁴ For instance, 'Yerva de Guinea'. *Gazeta de Guatemala* 8, no. 384 (11 Mar. 1805), 398.
- ¹⁵ *Gazeta de Guatemala* 5, no. 196 (23 Mar. 1801), 426.
- ¹⁶ 'Continúa el resumen de las actas de la Real Sociedad, leído por el Secretario en la junta pública general de 27 de Diciembre último', *Periódico de la Sociedad Económica*, no. 19 (1 Feb. 1816), 298–99.
- ¹⁷ 'Carta del MRP Provincial de Santo Domingo al Secretario de la Sociedad', *Periódico de la Sociedad Económica*, no. 16 (15 July 1815), 90–91.
- ¹⁸ 'Compendio Instructivo', in *Junta Pública [...] Celebrada en 12 de Diciembre de 1796*, 2. This *Compendio Instructivo* was of course quite strongly linked to imperial modes of collecting, and echoed instructions regarding the collection of herbs sent from Madrid to Spanish officials in the colonies.
- ¹⁹ 'Breve descripción de la yerva ó planta llamada *Camácarnate* ó *Rox iyuin umùl*, que sin ser con arreglo à la botánica, basta para qué pueda conocerse', *Gazeta de Guatemala* 8, no. 379 (4 Feb. 1805), 554–55.
- ²⁰ *Ibid.*, 554.

- ²¹ Compare for instance, 'Introducción a la descripción científica de las plantas del Perú', in Clément 1998, 93–114.
- ²² A botanical name is not given, but *abelmoschus moschatus* is recorded under the name *algália* in Brazil and Mexico. Its properties of an antispasmodic and febrifuge seem to correspond to some of the effects reported in the *Gazeta*. See Quattrocchi 2012, 3; Ramírez 1902, 4.
- ²³ 'Aviso', *Gazeta de Guatemala* 3, no. 133 (29 Nov. 1799), 150.
- ²⁴ Garrote seems to have been in touch regularly with the Economic Society's Guatemala City members, contributing, for instance, to the Society's report on cacao cultivation. See Belaubre 2008, paragraph 11; 'Aviso', *Gazeta de Guatemala* 3, no. 133 (29 Nov. 1799), 150.
- ²⁵ 'Algalia', *Gazeta de Guatemala* 5, no. 216 (3 Aug. 1801), 531–32.
- ²⁶ 'Algalia', *Gazeta de Guatemala* 5, no. 222 (10 Sept. 1801), 560–61.
- ²⁷ *Ibid.*
- ²⁸ 'Algalia', *Gazeta de Guatemala* 5, no. 235 (26 Oct. 1801), 612.
- ²⁹ 'Algalia', *Gazeta de Guatemala* 5, no. 216 (3 Aug. 1801), 531. The priest had previously been mentioned as a man who worked towards increasing the agricultural yield of his province: 'Junta de Gazeta / Mencion honrosa del cura de Texaquangos', *Gazeta de Guatemala* 3, no. 131 (18 Nov. 1799), 132.
- ³⁰ 'Aviso', *Gazeta de Guatemala* 3, no. 133 (29 Nov. 1799), 150.
- ³¹ 'Puentes de hierro', *Gazeta de Guatemala* 7, no. 205 (1803), 234.
- ³² 'Análisis de algunos cerebros humanos', *Gazeta de Guatemala* 2, no. 65 (11 June 1798), 139–40.
- ³³ *Gazeta de Guatemala* 5, no. 221 (7 Sept. 1801), 554.
- ³⁴ 'Sobre los plataneros', *Gazeta de Guatemala* 2, no. 51 (1798), 32; 'De las diferentes especies de Quina, y sus virtudes medicinales. Por el Dr. D. José Celestino Mutis, célebre medico y botanico de Sta Fè de Bogotá', *Gazeta de Guatemala* 6, no. 275 (7 Sept. 1802), 216–18.
- ³⁵ 'Remedio para la mordedura de culebras venenosas', *Gazeta de Guatemala* 6, no. 270 (13 Sept. 1802), 224.
- ³⁶ Reliance of the *Gazeta* on the postal system: 'Prospecto de amplicacion', *Gazeta de Guatemala* 1 (1797), unpag.; 'Miscelanea', *Gazeta de Guatemala* 2 (17 Dec. 1798), 333; Central American postal system: Sellers-García 2012.
- ³⁷ 'Remedio para la mordedura de culebras venenosas', *Gazeta de Guatemala* 6, no. 270 (13 Sept. 1802), 223–35.
- ³⁸ 'Carta del Dr Flores. Filadelfia. Mayo 17 de 97', *Gazeta de Guatemala* 1, no. 45 (11 Dec. 1797), 356–66.
- ³⁹ 'Catálogo de plantas traídas á Trugillo por D Alexandro Ramirez y D Francisco Sosa', *Gazeta de Guatemala* 5, no. 194 (9 Mar. 1801), 413–15; 'De semillas de otras plantas asiaticas', *Gazeta de Guatemala* 5, no. 195 (16 Mar. 1801), 421–22, and no. 196 (23 Mar. 1801), 425–26. Although Alejandro Ramírez was born on the Spanish peninsula, he stayed in Central America (as an administrator) for several decades, and married a local woman. His enthusiasm for the development of Central America, however, never dampened his loyalty to the Spanish Crown, and he left Guatemala in 1812, having been promoted to the post of superintendent of Puerto Rico: Poupeney Hart 2009, 6–11.
- ⁴⁰ *Gazeta de Guatemala* 5, no. 195 (16 Mar. 1801), 421.
- ⁴¹ *Annals of Agriculture* 37, no. 214 (1801), 557–61.
- ⁴² 'Catálogo de las plantas traídas', *Gazeta de Guatemala* 5, no. 194 (9 Mar. 1801), 414–45.
- ⁴³ *Octava Junta Pública de la Sociedad Económica de Amantes de la Patria de Guatemala. Primera despues du restalecimiento [sic] celebrada el dia 12. de Agosto de 1811. Por Beteta Impresor de la Sociedad*, 17.
- ⁴⁴ 'Plantas exóticas', *Gazeta de Guatemala* 6, no. 273 (23 Aug. 1802), 197–99.
- ⁴⁵ *Octava Junta Pública*, 17.
- ⁴⁶ *Ibid.*, 18.

- ⁴⁷ 'Continua el resumen de las actas de la Real Sociedad', *Periódico de la Sociedad Económica*, no. 19 (1 Feb. 1816), 300.
- ⁴⁸ 'Progresos de la Agricultura en Truxillo'. *Gazeta de Guatemala* 7, no. 334 (19 Dec. 1803), 469–70.
- ⁴⁹ *Correo mercantil de España y sus Indias*, no. 38 (10 May 1804), 298–99.
- ⁵⁰ 'De cultivo y exportacion de arroz', *Gazeta de Guatemala* 8, no. 367 (8 Oct. 1804), 462.
- ⁵¹ 'Adquisiciones utiles', *Gazeta de Guatemala* 6, no. 273 (23 Aug. 1802), 199–200.
- ⁵² *Ibid.*
- ⁵³ 'Vacuna', *Gazeta de Guatemala* 6, no. 254 (21 June 1802), 147.
- ⁵⁴ 'Carta: Havana, 17 diciembre de 1797', *Gazeta de Guatemala* 2, no. 61 (4 Mar. 1798), 108–9.

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