

2014

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Collazo, Soraya Serra, "Maguey Hammock: A Weaving of Resistance and Persistence in Puerto Rico" (2014). *Textile Society of America Symposium Proceedings*. 940.

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NEW

DIRECTIONS: Examining the Past,
Creating the Future.

Maguey Hammock: A Weaving of Resistance and Persistence in Puerto Rico

By Soraya Serra Collazo¹



*Figure 1. Leonarda “Esmeralda” Morales-Acevedo, artisan and a Furcraea tuberosa maguey in bloom.
Image by Jessica Almy Pagán.*

Textiles are primary technology to almost all societies. Puerto Rico and the Caribbean are no exceptions. There is an object that has been woven in the region since pre-Columbian times and it is still passing through the fingers of local artisans. Hamaca, an invention of the American inhabitants,² is an indigenous voice incorporated into many languages. It was in the Caribbean, where Europeans saw its utility, and it was quickly incorporated as the best way of sleeping in their transatlantic voyages. Its production has spread throughout the world and today it is made in many countries. In Puerto Rico hammocks have been woven from cotton and maguey for at least five centuries. Although the commercialization of all handmade maguey hammocks has become difficult after the introduction of industrially made hammocks, there are still local artisans holding up the tradition. Esmeralda Morales Acevedo is one of them.

Maguey

“Maguey” and “hammocks” have been holding hands from long ago. Maguey, a monocotyledonous plant from the Agavaceae family (now Asparagaceae) is native to America, with some species endemic

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² Lila M. O’Neale. “Weaving” in *Handbook of South American Indians*, ed., Julian Steward, ed. Smithsonian Institution Bureau of American Ethnology Bulletin 143. (Washington D.C.: United State Government Printing Office, 1949), 126.

to the Caribbean.³ For their strong and flexible fiber some are identified as textile plants.⁴ Among them the *Furcraea tuberosa*, a maguey with long and intense green leafs ending in a long spine at the top and smaller spines along the borders. Its inflorescence, coming from the plant center, can grow to a height of up to 7 meters. It takes almost 20 years to bloom pale greenish/whitish flowers, the seed are small aerial bulbs. Although native to the Caribbean, it has been reported in only a few Puerto Rican municipalities including San Sebastian,⁵ where Doña Esmeralda was born and taught how to extract maguey fibers and make hammocks. It is the maguey species she use for her work.⁶

Archaeological evidence from Mexico and the Southwestern United States demonstrate maguey use as food and fiber in ancient times.⁷ The perishability of organic materials and the environmental conditions of the tropics do not allow the conservation of textile objects. This is the reason for the lack of archaeological evidence for textile technology and production in the Caribbean. Although from a Barbados precolonial site a grinder has been reported as used for maguey fiber extraction.⁸ Evidence of maguey used by Caribbean pre-colonial inhabitants can also be extracted from the early colonial chronicles. *Pita* and *cabuya*, are terms also used by them to refer to agave plants.⁹ Fernandez de Oviedo in his 1526 account mentions the use of maguey for hammock making.¹⁰ It is also mentioned by Christopher Columbus in his diaries as a fiber being used for that same purpose.¹¹

Since then, Maguey fiber continued to be produced and used as prime material for the subsequent centuries. Evidence is scattered but documents from 16th Century Real Hacienda in Puerto Rico include entries for *cabuya* related to hammocks.¹² French naturalist Andre Pierre Ledrú came to Puerto Rico by the end of the eightieth century and mentioned the existence of maguey, using the term “pita”, as a common plant from the sandy and rocky coastal lands.¹³

From the second halve of the Ninetieth Century interest in maguey production spread out in the Caribbean probably as an alternative to cotton crops. By that time at Cayo Romano, between Cuba and

³ George K. Rogers. “A Taxonomic Revision of the Genus Agave (Agavaceae) in the Lesser Antilles, with an Ethnobotanical Hypothesis” *Brittonia*, Vol. 52. No. 3 (July-Sept 2000): 218-233.

⁴ Pedro Acevedo-Rodriguez and Mark T. Strong, eds. *Monocotyledons and Gymnosperms of Puerto Rico and the Virgin Islands*. Smithsonian Institution Contributions from the United States National Herbarium Volume 52: 1-415. (Washington D.C.: Department of Botany National Museum of Natural History, 2005), 116.

⁵ Acevedo-Rodriguez and Mark T. Strong. *Monocotyledons*, 122.

⁶ Thanks to Tamara Heartsill Scalley, Ecologist from USDA Forest Service, for the contact with Pedro Acevedo-Rodriguez, Research Scientist and Curator at the Smithsonian National Museum of Natural History, who identified the agave used by Esmeralda.

⁷ Lynn Teague, *Textile in Southwestern Prehistory* (Albuquerque: University of New Mexico Press, 1998), 15-17; McClung de Tapia et. al. “Evidencia para el uso del Agave SP durante el periodo formativo en el sur de la Cuenca de México” *Antropología y técnica* 5 (México D.F.: Universidad Nacional Autónoma de México, n.d.), 99-114; Zizumbo-Villareal et al. “Archaeological Evidence of the Cultural Importance of Agave spp in Pre-Hispanic Colima, México” *Economic Botany* 63 (3), (2009): 288-302.

⁸ Rogers. “A Taxonomic Revision”, 227-228.

⁹ Manuel Alvar Ezquerro, ed. *Vocabulario de Indigenismos en las Crónicas de Indias*. (Madrid: Consejo Superior de Investigaciones de Indias, 1997), 58.

¹⁰ Alejandro Tapia y Rivera. *Biblioteca Histórica de Puerto Rico que contiene varios documentos de los siglos XV, XVII y XVIII*. (Puerto Rico: Imprenta de Márquez, 1854), 62-63; Rogers. “A Taxonomic Revision”, 228.

¹¹ Fray Iñigo Abbad y Lasierra. *Historia geográfica, civil y natural de la isla de Puerto Rico*. ed. José Julián Acosta (San Juan: Imprenta y Librería de Acosta, 1866), 473.

¹² Aurelio Tanodi, comp. *Documentos de la Real Hacienda de Puerto Rico, 1510-1545*, Vol. II, (San Juan: Centro de Investigaciones Históricas Universidad de Puerto Rico, 2009), 90-91.

¹³ André Pierre Ledrú, *Viaje a la Isla de Puerto Rico en el año 1797*, trans. Julio L. de Vizcarrondo, ed. Eugenio Fernández Méndez (San Juan: Universidad de Puerto Rico, 1957), 159.

Grand Bahama, there were maguey crops for fiber commercialization following the example from Mexico. The Dominican Republic was interested in developing a similar industry. Apparently Puerto Rico also had the same interest. A well-known sugar plantation in Puerto Rico, the Serralles family Hacienda Mercedita in Ponce, by mid-1880 experimented with English machinery for maguey fiber extraction.¹⁴ By the same decade Ramón Emeterio Betances, a local abolitionist, experimented with it in Cabo Rojo with a fiber production venture called “Ramire”.¹⁵ The maguey interest during the period was even depicted in a short story by Salvador Brau called “Juan Petaca” (c. 1910) where the main character was a Puerto Rican maguey agriculturist who migrated to Mexico.¹⁶



Figure 2. Carpet (left) and other objects (center and right) made using maguey fibers at Puerto Rico Industrial Development Company Textile Division and local Vocational Schools. Luis Muñoz Marín Foundation Historical Archives, Photographic Archive, PRRA File.

By 1930’s photographs from the Puerto Rico Reconstruction Administration¹⁷ depicting objects from an exhibition, at a Vocational school, identified maguey as the material used for their construction (Figure 2).¹⁸ Also other images of products from the Industrial Development Company Textile Division include maguey objects. It is probably that local farmers were providing vocational schools and Textile Division with the prime material or importing them from neighboring islands like Cuba, Dominican Republic or even from Mexico. But Puerto Rican toponymy reflects the presence of maguey in the Island, many *barrios* are named as Maguey and Magueyes¹⁹ even an island from our archipelago is named *Isla Magueyes* (Figure 3). Probably for the existence of the plant in the region or maybe for the production of the fiber.

¹⁴ José Ramón Abad. *Economía, Agricultura y Producción*, ed. Andrés Blanco Díaz (República Dominicana: Archivo General de la Nación, 2012), 69-86.

¹⁵ Ramón Emeterio Betances, “Carta a Lola Rodríguez de Tió,” *Revista del Instituto de Cultura Puertorriqueña*. No.3. (April-June 1959): 43.

¹⁶ Salvador Brau. “El cuento de Juan Petaca” in *Lugares Imaginarios*. Accessed July 11, 2014. <http://lugaresimaginarios.wordpress.com/2012/11/25/el-cuento-de-juan-petaca/>.

¹⁷ Federal Agency established by United States President Franklin D. Roosevelt executive order 7057, May 28, 1935, with the goal to fight poverty and unemployment in Puerto Rico. It was on function until 1955.

¹⁸ Luis Muñoz Marín Foundation Historical Archive, Photographic Archive, PRRA file.

¹⁹ Plural for maguey.



Figure 3. Puerto Rican toponymy reflects the presence of maguey in the Island. Image by author.

Hammock

On the other hand we have hammock. It is one of few textile tradition from Pre-colonial times still weaved in Puerto Rico today. Its use has been commented in almost every recount from the Spanish conquest onward. Cristopher Columbus diaries have many references to hammocks. Spaniard chronicler father Las Casas in his *Historia de Las Indias* includes a detailed description for hammock weaving.²⁰ Its presence in daily life for colonial times has been documented since the Sixteenth Century. As early as 1515 cotton hammocks were made for sale at the Mona Island.²¹ Documents from the 16th Century Real Hacienda includes many entries for hammocks, most of the time mentioning cotton as the raw material. In other instances there is no mention of the fiber they were made, although probably made out of maguey, but it will be difficult to point out. In those same documents there are references to hammocks with or without *cabuya*²² probably referring to the maguey rope used to hang them. During the indigenous uprising of 16th century in Puerto Rico Spaniards were sent to control them. The documents report that hammocks were included as spoils of war brought by soldiers and civilians who participated on those expeditions.²³

During 18th Century hammocks use has been reported by Spanish officials and the clergy as means to claim the laziness of local people. A stigma was attached to them for the following centuries. By now hammock use has spread over all social classes, from the campesino to the Hacendado.²⁴ Abbad y Lasierra in his 1776 recount mentions the use of hammocks as the only furniture and sleeping implement at the country side bohios; as a resting place for the tired agriculturist on the field; the resting and sleeping tool used by travelers to the interior of the island and as the place where women from the upper class rest and smoke while servants take care of their home.²⁵ French naturalist Ledru ten years later, in

²⁰ Las Casas, *Historia de las Indias*, 226.

²¹ A letter to the Catholic Spaniard King from Friar Damián Lopez de Haro mention a visit to Mona Island to place an order for cotton hammocks. Abbad y Lasierra. *Historia geográfica*, 96, 315.

²² Hammocks are mentioned at least 38-40 instances in the Real Hacienda inventory entries. Tanodi, *Documentos*, 35-42, 78, 89-91, 103, 106-107, 114, 125-126, 156, 164, 167, 175, 179, 183, 192, 194, 213, 222, 740-741, 748, 769.

²³ Miguel Rodríguez López. *Crónicas Tainas* (San Juan: Editorial Nuevo Mundo, 2010), 25.

²⁴ *Muchacha durmiendo en hamaca*, 1782-1786 by Spanish painter Luis Paret y Alcazar (Museo del Prado Collection), was made after returning to Spain from Puerto Rico where the author was exiled for a few years by the end of the 18th Century. It is probably a scene from Puerto Rico.

²⁵ Abbad y Lasierra. *Historia geográfica*, 46, 146, 212, 282, 311, 403, 407.

1797, echoed the Fray and also mention this piece of furniture as responsible for local laziness.²⁶ In the 19th century Puerto Rican intellectuals were interested in local customs and traditions as a way to point out the island backwardness and the need to head to a modern and prosperous future leaving behind old customs.²⁷ They included hammocks in their essays also mentioning them in a very similar way as their 18th century counterpart carrying on its laziness stigma.²⁸

By the mid-20th Century in Puerto Rico a populist government created the Institute for Puerto Rican Culture to foment and recreate cultural identity.²⁹ They organized and promoted cultural festivals, artisan fairs and markets dedicated to specific cultural objects. A National Hammock Festival has been celebrated annually since 1981 by the first weekend of July at San Sebastian, known as the “hammock crib”. Born from a communitarian base cultural group, Casa Pepiniana de la Cultura promotes the manufacture and use of hammocks. Local artisans gather at the festival, most of them making cotton hammocks with imported cotton cordage. In 2009 I visited the festival for the first time looking for artisans making maguey hammock to interview. I asked each weaver I saw if they worked with maguey. The answer was always the same, “I don’t but there is an artisan named Doña Esmeralda, she works with maguey”. After receiving the same answer several times I changed my question and started to look for Esmeralda. She was the only hammock maker at the Festival that year, and for the subsequent years, who has all handmade maguey hammock for exhibit and sale. However this last summer there was another artisan, Eustaquio Alers, exhibiting a maguey hammock.

Doña Esmeralda and maguey hammock

Leonarda Morales Acevedo better known as Doña Esmeralda, performs every step: she gathers the maguey leafs, extracts the fiber, spins, weaves and sells the final product. Esmeralda’s family has played an important role. Her ancestors³⁰ passed down their knowledge and her children have learned to weave hammocks. Although her children help at different stages of maguey processing she is the only one performing the whole process. As an attempt to preserve this ancestral tradition in 2011 a documentation project started with the financial support from the Institute of Puerto Rican Culture. Once a week for a month we followed Esmeralda with a digital camera, a video camera, microphone, paper, pencil and asked many questions as she performed each step of fiber processing and hammock making.

²⁶ Ledrú. *Viaje a la isla*, 113.

²⁷ As can be seen reflected in those intellectual literary works during the turn of the 19th to 20th Century. María de Fátima Barceló Miller, “Nociones de género en el discurso modernizador en Puerto Rico, 1870-1930” *Revista de Ciencias Sociales*, Nueva Época, no. (June 9, 2000): 3, 14, accessed April 25 2014, http://rcsdigital.homestead.com/files/Nueva_epoca_no9_junio2000/Barcelo_Miller.pdf; Mario Cancel Sepúlveda. “Historiografía del siglo 19: consensos teóricos” *80grados*. May 2, 2014, accessed August 16, 2014, <http://www.80grados.net/historiografia-puertorriquena-siglo-19-consensos-teoricos/>; María Teresa Cortés Zavala, “La memoria nacional puertorriqueña en Salvador Brau” *Revista de Indias*, Vol, LVII num. 211 (1997): 769-778.

²⁸ Only to mention some of them: Alejandro Tapia y Rivera. *La palma del cacique*. 2nd Edition, (La Habana: Imprenta del Tiempo, 1862); Salvador Brau. *La campesina*. Disquisiciones sociológicas. (San Juan: Imprenta José González Font, 1886); and Manuel A. Alonso. *El Jibaro: Cuadro de costumbres de la isla de Puerto Rico*. (Barcelona: Juan Oliveres Impresor de S.M., 1849).

²⁹ Comisión de Educación, Ciencia y Cultura del Senado de Puerto Rico. *Informe sobre las Instituciones culturales en Puerto Rico*. (San Juan, Puerto Rico: Editorial Instituto de Cultura Puertorriqueña, 2002), 129-136; Katherine Marsh-Kennerley. “Cultural Negotiations: Puerto Rican Intellectuals in a State-Sponsored Community Education Project, 1948-1968” *Puerto Rican Herald*. Vol. 7 no. 46 (2003), accessed August 16, 2014, <http://www.puertorico-herald.org/issues/2003/vol7n46/CultNegotiations-en.html>.

³⁰ Maternal and paternal side of her family.



Figure 4. Esmeralda collecting (left) and cleaning (center and right) maguey “pencas.” Images by Jessica Almy Pagán.

Esmeralda looks for wild maguey plants with *pencas* (maguey leafs) in its perfect gathering stage. She started at her own barrio Robles but has needed to extent her gathering arena. Gathering *pencas* has become more difficult each time since wild maguey plants are difficult to find. Esmeralda has a family network for maguey plants seekers, keeping an eye for magueys on the road to led Esmeralda to new locations. After carefully selecting *pencas* she cuts them using a *machete* (Figure 4). With a pickup truck her older son Pito helps to take them home.

The *Pencas* are cleaned from spines and cut down vertically following fiber alignment into two or three inch strips (Figure 4). Once all are cut down she has two ways to extracting the fibers. If someone with the strength to pull is available she ties up a rope to a tree or pole, one of the *pencas* strip is tied to the other end of the rope, in a way that when pulled, the leaf epidermis is removed and only the fibers are left. If she needs to do it by herself she places a wood piece with a smooth surface in a slant and scrapes the maguey leaf strips until epidermis is removed (Figure 5). The last method is slower and less efficient than the former but if no one is available to help, scraping is the method she uses. The fiber is cleaned with water to remove the excess of a soapy itchy substance and placed in a line to dry.

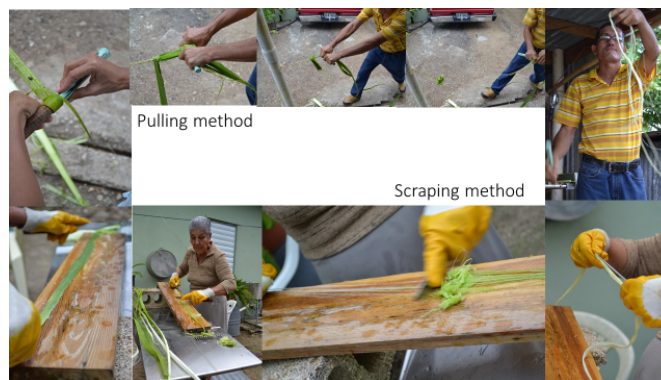


Figure 5. Two extracting fiber methods. Images by Jessica Almy Pagán

Once dried she takes small portions of fiber placing them into a humid towel in order to prepare it for spinning. In her living room a nail in a door frame serves as “spinning tool.” She places a small amount of fiber and starts spinning to create a fine rope that she calls *cabuya*, a three to four millimeters in diameter single “Z” ply fiber. Esmeralda spins with her left hand as taught by her mother. In order to maintain the consistency of the *cabuya* width and strength she rarely delegates this task.

One *braza* is a measurement she made from hand to hand with extended arms equivalent to 1.6 meters more or less. When 25 of this *brazas* of spun fiber are ready, it can be converted to a *mazo de cabuya*, when 25 *mazos de cabuya*, 1,000 meters are ready, weaving begins. At her bed side a loom is ready to be used. It consists of two vertical metal poles parallel to each other attached to floor and ceiling. A perpendicular pole placed at the top provides loom stability (Figure 6). Also serving as a holding place for *mazos de cabuyas*, needles and scissors to have on hand while weaving. The hammock length depends on the vertical poles proximity to each other, she has it set for three distances: one for full hammocks, one for seating hammocks and one for *coy* (which is a small hammock for newborns).



Figure 6. Esmeralda's hammock loom (left and center left), finished hammock and "manillas" (center right) end loops (right). Images by Jessica Almy Pagán (left) and author (right).

First she *monta la hamaca* at the loom, placing the first element horizontally with each fiber aligned parallel to each other, passing the fiber from one vertical pole to the other. The width of the hammock will depend of the numbers of the first element turns. A wooden needle is an important tool at this point, Esmeralda's are made by her son Pito. The needle is threaded, holding up seven to nine yards of cord, from each *maso de cabuya* she can make six needles.³¹ Using the needle the hammock is made with linking stitches³² assuring a smooth and shiny surface. Thicker maguey *cabuya* is used for *manillas*, from where the hammock will be hung (Figure 6 center), and for the loops at the ends (Figure 6, right).

The whole process is long and younger generations of hammock weavers think it is tedious and non-rentable, it is faster, easier and less expensive to buy readymade cotton cord for hammock weaving. With it the long tradition of maguey processing is being forgotten.

Since the maguey hammock is one of the few textile object still weaved in Puerto Rico; maguey *cabuya* been one of the few fibers still produced by local artisans; both, fiber production and weaving knowledge coming down from so many centuries, very far from its more than two hundred year old stigma of laziness, it can be said that it is a weaving of perseverance and resistance in Puerto Rico. The hammock can be an object of pride of indigenous heritage, being incorporated to almost every household as a decorative implement, it is seen as a place to take a break from the daily fatigue. In some ways carrying on the laziness stigma, or maybe not, after all hammocks originally were made to rest and sleep.

³¹ I pulled apart two of the needles threaded by Esmeralda and used the amount of thread at those particular needles as an example in order to have an idea of thread amount at each one.

³² If using Emery's nomenclature Esmeraldas hammocks consists of a two single element linking stitches. Irene Emery. *The Primary Structures of Fabrics*. Washington D.C.: The Textile Museum, 1994), 52-53.

Acknowledgements

I want to acknowledge the contributions of Dax Collazo, Marilyn Figueroa Rivera and Wenceslao Serra Delíz for revision of the text and their asserted suggestions. To Mario Cancel Sepulveda, Annie Santiago and Ester Santiago Ortiz for pointing out useful references. Nevertheless I am responsible for any omission or error in the final text. The maguey hammock documentation project was made in part thanks to the Institute of Puerto Rican Culture Fondo Permanente para el Financiamiento del Quehacer Cultural. But all my grateful thanks go to Esmeralda Morales Acevedo and her family for their time and knowledge, but mostly for holding up the tradition. Special thanks for Gadiel, Mosi and Alek Rivera-Serra for their unconditional support.

Reference Cited

- Abad, José Ramón. *Economía, Agricultura y Producción*. Edited by Andrés Blanco Díaz. Vol. CLXV. Santo Domingo: Archivo General de la Nación, 2012.
- Abbad y Lasierra, Fray Iñigo. *Historia geográfica, civil y natural de la isla de Puerto Rico*. Edited by José Julian Acosta. San Juan: Imprenta y Librería de Acosta, 1866.
- Acevedo-Rodriguez, Pedro and Mark T. Strong, eds. *Monocotyledons and Gymnosperms of Puerto Rico and the Virgin Islands*. Smithsonian Institution Contributions from the United States national Herbarium Volume 52: 1-415. Washington D.C.: Department of Botany National Museum of Natural History, 2005.
- Alonso, Manuel A. *El Jibaro: Cuadro de costumbres de la isla de Puerto Rico*. Barcelona: Juan Oliveres Impresor de S.M., 1849.
- Alvar Ezquera, Manuel ed. *Vocabulario de indigenismos en las Crónicas de Indias*. Madrid: Consejo Superior de Investigaciones de Indias, 1997.
- Barceló Miller, María de Fátima. “Nociones de género en el discurso modernizador en Puerto Rico , 1870-1930” in *Revista de Ciencias Sociales, Nueva Época*, no.9 junio 2000 (3, 14). Accessed April 25, 2014 http://rcsdigital.homestead.com/files/Nueva_epoca_no9_junio2000/Barcelo_Miller.pdf
- Betances, Ramón Emeterio. “Carta a Lola Rodríguez de Tió.” *Revista del Instituto de Cultura Puertorriqueña*. No.3. (April-June 1959), 43.
- Brau, Salvador. “El cuento de Juan Petaca.” *Lugares Imaginarios*. Accessed July 11, 2014. <http://lugaresimaginarios.wordpress.com/2012/11/25/el-cuento-de-juan-petaca/>. Originally published in Rosita Silva *Antología puertorriqueña*. 1928.
- Brau, Salvador. *La campesina*. Disquisiciones sociológicas. San Juan: Imprenta José González Font, 1886.
- Cancel Sepúlveda, Mario. “Historiografía del siglo 19: consensos teóricos.” *80grados*. (May 2, 2014). Accessed August 16, 2014. <http://www.80grados.net/historiografia-puertorriquena-siglo-19-consensos-teoricos/>

Comisión de Educación, Ciencia y Cultura del Senado de Puerto Rico. *Informe sobre las Instituciones culturales en Puerto Rico*. San Juan, Puerto Rico: Editorial Instituto de Cultura Puertorriqueña, 2002.

Cortés Zavala, María Teresa “La memoria nacional puertorriqueña en Salvador Brau” *Revista de Indias*, Vol, LVII num. 211 (1997): 761-782.

Las Casas, Fray Bartolomé de. *Historia de las Indias*. Edited by André Saint-Lu. Venezuela: Biblioteca Ayacucho, 1986.

Emery, Irene. *The Primary Structures of Fabrics*. Washington D.C.: The Textile Museum, 1994.

Ledru, André Pierre. *Viaje a la Isla de Puerto Rico en 1797*. Translated by Julio L. de Vizcarrondo, edited by Eugenio Fernández Mendez. San Juan: Universidad de Puerto Rico: 1957.

Marsh-Kennerley, Katherine. “Cultural Negotiations: Puerto Rican Intellectuals in a State-Sponsored Community Education Project, 1948-1968.” *Puerto Rico Herald*. Accessed August 16, 2014.
<http://www.puertorico-herald.org/issues/2003/vol7n46/CultNegotiations-en.html>

McClung de Tapia, Emily, Javier González Vásquez, et. al. “Evidencia para el uso del Agave SP durante el periodo formativo en el sur de la Cuenca de México” *Antropología y técnica* 5. México D.F.: Universidad Nacional Autónoma de México, n.d, 99-114.

O’Neale, Lila M. “Weaving” in *Handbook of South American Indians*. Edited by Julian Steward. Smithsonian Institution Bureau of American Ethnology Bulletin 143: Washington D.C.: United State Government Printing Office, 1949.

Rodríguez López, Miguel. *Crónicas Taínas*. San Juan: Editorial Nuevo Mundo, 2010.

Rogers, George K. “A Taxonomic Revision of the Genus Agave (Agavaceae) in the Lesser Antilles, with an Ethno botanical Hypothesis” *Brittonia*, Vol. 52. No. 3 (July-Sept. 2000): 218-233.

Tanodi, Aurelio, comp. *Documentos de la Real Hacienda de Puerto Rico*, Vol. II 1510-1545, San Juan: Centro de Investigaciones históricas Universidad de Puerto Rico, 2009.

Tapia y Rivera, Alejandro. *Biblioteca Histórica de Puerto Rico que contiene varios documentos de los siglos XV, XVII y XVIII*. Puerto Rico: Imprenta de Márquez, 1854.

Tapia y Rivera, Alejandro. *La palma del cacique*. Accessed August 15, 2014.
<http://www.cervantesvirtual.com/servlet/SirveObras/01715185659037176322257/p0000001.htm#1>.

Teague, Lynn. *Textile in Southwestern Prehistory*. Albuquerque: University of New Mexico Press, 1998.

Zizumbo-Villareal, Daniel, et al. “Archaeological Evidence of the Cultural Importance of Agave spp in Pre-Hispanic Colima, México” *Economic Botany* 63 (3), (2009): 288-302.