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Eighteenth Century Philippine Economy: Agriculture*

MARIA LOURDES DIAZ-TRECHUELO

BEFORE making a study of the specific efforts directed toward developing agricultural production during this period of Philippine economy, it is helpful to determine what were in fact the latent resources, and to view the broad trends of activities that ensued from them. In general it can be said that the administration of Basco marked the beginning of organized and systematic attempts at agricultural development. His "General Development Plan," followed a few months later by "A Friendly Reminder,"¹ represented the first actual programs of exploiting the resources of the country. On his initiative was due also the founding of the *Sociedad Económica de Manila* in 1781. Before this time it is sufficient to mention the isolated efforts of the Governors, like Arandía's attempt to encourage the planting

*This is the fourth of a series of five articles by Miss Diaz-Trechuelo. It is translated from the Spanish by Angelita Q. Yap.
—EDITORS' NOTE.

¹The first is dated 17 April 1779; and the second, September 1 of the same year, "Recuerdo Amigable, instructivo, que hace al Público de Philipinas su actual Gobernador, y Capitán General y Presidente de la Real Audiencia de ellas, sobre el Plan General Economico que en abril del presente año ofreció a sus intereses públicos, con deseos de su bien y verdadera felicidad." Por José de Basco y Vargas. Manila, 1 de septiembre de 1779, Archivo General de Indias (hereafter AGI) *Filipinas* 494.

of *bonga* (areca nut), pepper, cacao, cotton and coconut trees in the early years of the period we are studying.²

The Royal Philippine Company created in 1785 continued the work of the *Sociedad Económica*. We say "continued" for although the former remained in existence, its life languished during this period as we shall have occasion to see. In the year the Company was created, another institution appeared in the Philippines also designed to develop the resources of the Archipelago. This is the Intendancy of the Army, coordinated with the colonial Department of Finance, which though short-lived, left its mark on many aspects of Philippine economy, due largely to the zest and energy of its Intendant, Don Ciriaco González Carvajal.

Much older than the organizations mentioned, the Consulado of Manila represented the persistently conservative view of commerce. It was hostile to innovations, opposed the Company, but at times the Governors required it to finance agricultural undertakings and experiments as those of cinnamon and pepper.

In this study of Philippine agriculture we shall consider first the spices which dominated the speculations of many but slowly petered out. After this follow the plants that offered the industrial potential, among them the fiber plants and dye-producing plants; of the first group cotton being the most outstanding, of the second, indigo. Tobacco figures in this category, a plant that has long been cultivated in the country. Then, finally, the plants of food value, rice, wheat, corn, etc.

To give an orderly and clear exposition, we will begin with a study of concrete projects which were started before the period 1759-1800, initiated either privately or by the government and which continued on during these years. The work accomplished by the *Sociedad Económica* and that by the Company will be treated separately in another section.

² Arandia gives a factual report of the increase in the number of fruit-trees and plants grown in those Islands. Manila, 15 July 1758, AGI *Filipinas* 386.

But reference to both is made here to get first a unified view of this subject, and later to see a complete picture of their respective achievements.

THE SPICES

Among the agricultural products indigenous to the Philippines, the spices attracted the most attention. On them were built illusions, and a dream of dispossessing the Dutch of their lucrative commerce which might pass on to the hands of Spain.

Father Calvo speaks of the cinnamon of Mindanao, of the nutmeg growing wild in Camarines, Cagayan, Cebú, Leyte, and other places; of pepper, and vanilla which he says grow in Mahayhay, Province of Laguna.³

Norton Nicols comes to say that "Spain might have as much reason to buy her wines from Holland, as her cinnamon." He was referring to the possibility of obtaining in the Philippines cinnamon sufficient not only for the consumption of the Peninsula and of her overseas provinces, but also to wrest the European markets from the Dutch. He goes on to add that he has heard that clove also grows in the island, but knew for certain of the existence of nutmeg. In many places pepper "of a better and richer quality" can be obtained in abundance.⁴

The Cultivation of Cinnamon

The Project of Nicolas Norton Nicols. The first attempt to cultivate cinnamon which grew wild in Mindanao for commercial use is due to Norton who was in the Philippines during the administration of Obando.⁵ In 1759, Norton presented his *Proyecto* to the King in which he gives a general account of the

³ José Calvo, "Proyecto," in Biblioteca de Palacio, Madrid (hereafter BPM), *Miscelánea de Ayala* V, 330-339

⁴ Nicolas Norton Nicols, "El Comercio de Manila. Las Conveniencias, beneficios y utilidad que las Yslas Philipinas deben dar asi a S.M. (Quien Dios guarde) como a sus vasallos," BPM *Miscelánea de Ayala* II, 264-265.

⁵ *Ibid.*, fol. 261

the different products that could be obtained from the agricultural resources of the Islands; then, he makes a specific proposal, that he be authorized to engage in the cultivation of cinnamon in Mindanao. With this object in mind he asked for certain privileges and favors, among them, that he be appointed Governor of Mindanao with a term of office of ten years, and would be subject directly to the Council of the Indies. Thus, he becomes independent of the *sargento mayor* of the Zamboanga presidio, the highest authority in the island. Norton also sought to obtain "all the jurisdiction possible, civil, criminal, economic and judicial, and what corresponds to the first request, the power to appoint officers for any position that may be called for," and to place in his charge the collection of all taxes.⁶ Understandably, this privilege was not granted, and his authorization to cultivate cinnamon was made explicitly on condition that he remain subject to the jurisdiction of the governor of Zamboanga.⁷ On the other hand, he was conceded those petitions which were honorary in character, as the title of *capitán de alto bordo* in the royal Armada for which he received no salary, the privilege to don the garb of one of the three Military Orders. And more important than this, he was granted his naturalization papers on 3 August 1758.⁸

Another petition more tangible in nature was granted, the right to occupy and use Crown lands in Mindanao to the extent needed to cultivate cinnamon, pepper and other crops, on condition that after ten years of this contract, the plantation becomes property of the government. In exchange for this future cessation of contract, he requested freedom from all import and export duties (*almojarifazgo*), excise duties, *cientos*, taxes, or whatever duties he would have to pay for all the commodities that he will ship to the Philippines from Cádiz, or from another port of Spain. The lands were given to him on condition that the concession was not

⁶ Petition of Norton to the King, undated, AGI *Filipinas* 199.

⁷ Report of the *fiscal* of His Majesty on the claims of Norton, Madrid, 26 May 1758, AGI *Filipinas* 199.

⁸ By a royal *cédula* which granted him further permission to reside in the Philippines. There is reference to this in the letter of Rojo to Arriaga, Manila, 18 July 1761, AGI *Filipinas* 680.

harmful to the natives, and that they, not aliens, should be hired as farm-hands in the plantation. He was assigned franchises and exemptions to encourage him to carry out his plans, but with certain precautionary measures to ensure that his privileges are used towards their proper intent.

On 11 October 1758 Norton obtained permission to return to the Philippines with his servants. But two years later he was still in Cádiz where certain difficulties turned up regarding his shipment of goods, not having apparently a written order. He made an appeal to Arriaga asking him to send the written order as soon as possible so as not to lose the opportunity of sailing on the ships that were ready to leave.⁹ After seven days the order was officially issued to him.¹⁰

In July of 1761, Norton was already in Manila.¹¹ But it seems he did not immediately work out his plans, but only a year later. Undoubtedly, he spent this year making all the necessary preparations. Norton finally sailed for Mindanao in August of 1762 with the credentials of *capitán comandante* of the squadrons in the Provinces of Caraga, Cagayan and Camiguin. He was accompanied by the regimental captain of the King's Infantry, Don Juan Muñoz, to whom we owe the following information on the enterprise of Norton.¹²

They reached Surigao in the Province of Caraga on 3 December 1762. There Norton left his companion and sailed for Cagayan to set his venture, where he worked according to Muñoz, at great pains since he had promised to send the first specimens to the King by 1765. On 10 March 1763 Muñoz received news from Norton himself through a letter which narrates that although bad weather prevented him

⁹ Norton to Arriaga, Cádiz, 21 October 1760, AGI *Filipinas* 680.

¹⁰ Arriaga to Abarca, president of the *Casa de Contratación en Cádiz*, Madrid, 28 October 1760, AGI *Filipinas* 680.

¹¹ Rojo to Arriaga, Manila, 18 July 1761, AGI *Filipinas* 680.

¹² Report of Muñoz, Manila, 11 June 1765, in compliance with the order of the Governor given in a decree dated the day before, accompanying a letter of de la Torre to Arriaga, Manila, 14 July 1765, AGI *Filipinas* 682.

from penetrating into the interior of the mountains searching for cinnamon trees, he came across one from which he obtained close to two pounds "of such superior quality as to either surpass that of Ceylon or at least equal it." Again there was word from Norton continuing his search for cinnamon trees in a letter dated May 14. There was no further news from him, till the 10th of August when his manager, Don José Olazaba, wrote Muñoz of the death of Norton on the 2nd of July from a fall, badly struck with his rifle. Through another companion of Norton, Fray Marcelino del Espíritu Santo, a Discalced Augustinian, Muñoz received information that Norton discovered a great number of cinnamon trees and this had set the exploitation going. Muñoz knew nothing about the papers of Norton which must have been in the possession of his manager, José Olazaba. The *interim* governor, Francisco de la Torre had him looked for in order to gather information that would help in continuing the exploitation started by Norton. Although we have not found other data on this point, the documents of Norton must have been recovered, since his "*Instrucción*" for the cultivation of cinnamon became known and was used years later.

The Project of Basco y Vargas. After the death of Norton nothing more was done on the cultivation of cinnamon until Basco assumed administration of the country. Always attentive to all that would promote the economic progress of the Archipelago, Basco kept thinking of this cinnamon which could be an important item of commerce, that it was wise to encourage its cultivation. This was proven by the fact that in 1775 the concession was given:

that the shipment of cinnamon to and from Cádiz on ships of the royal Armada be free of all export and import duties, with the specific condition that in the records of registry it is stated that it is a product of these Islands, duly confirmed before its shipment, and that it had no mixture of that produced by foreign groups, since in this case it is subject to confiscation¹³

An opportune incident happened when in 1779, seven Dutch seamen who were held prisoners by Moro pirates,

¹³Arriaga to Anda, Aranjuez, 18 April 1775, Museo Naval, Madrid (MNM) ms. 312.

managed to escape and found their way to Zamboanga. The governor of that presidio assumed that being Dutch they should be well-acquainted with the techniques of cinnamon cultivation, and so sent them off to the nearby mountains, in November of the same year, to search for cinnamon. With some specimens that they gathered, the Dutchmen were sent to Cavite, where they were in October 1780, when Basco informed the Consulado that the specimens of cinnamon examined by experts, "were like those of Ceylon or perhaps only a bit inferior." Basco proposed that the Consulado finance the exploitation, that the Dutchmen (who wanted to leave for Batavia) be retained offering them good salaries.¹⁴ The Consulado agreed to see the specimens of cinnamon and the chocolate flavored with it, and asked that the Dutchmen be sent to them so that they may know their special skill in this industry.¹⁵ Francisco Salgado and Francisco Campos were assigned to do the tests and inquiry. The two were commissioners of the *Casa de los Gremios Mayores de Madrid* which had recently established factory in Manila.

A written report was prepared by both which was read in a meeting of November 3.¹⁶ The Dutchmen demonstrated the method used to obtain the specimens presented. They were asked whether they were willing to stay in the Philippines and direct the exploitation, to which they roundly replied "no." Regarding the tests made by Salgado and Campos, the report was that the chocolate flavored with this cinnamon the Governor sent to them, gave a foam similar to that made with Ceylon or China cinnamon, but its taste was very different. To this report Salgado added a remark orally that the cinnamon tested by itself had a bitter taste, which meant that its gum was not removed thoroughly. For this reason it could not compete commercially

¹⁴ Basco to the Consulado of Manila, 20 October 1780, testimony accompanying the letter of Marquina to the Marquis of Bajamar, Manila, 30 June 1793, AGI *Filipinas* 502.

¹⁵ Resolution of the Junta approved on 23 October 1780, AGI *Filipinas* 502.

¹⁶ El Rosario, 31 October 1780, AGI *Filipinas* 502.

¹⁷ Session of the Consulado, 16 November 1780, AGI *Filipinas* 502.

with that of Ceylon. On the other hand, Campos said that he flavored a tablet of chocolate with this cinnamon and it turned out well.

The *Prior* meanwhile announced that Basco sent him a communication saying that the Dutchmen had agreed to stay for two years, that he liked the Consulado to take charge of defraying the expenses of the enterprise. This was thus approved and in the next meeting the salary of the Dutchmen was arranged at 25 pesos a month. The governor of Zamboanga and the *corregidor* of Iligan were appointed commissioners to direct the enterprise. The needed funds were to be drawn from the collected *avería* tax which has been conceded to the Consulado. But Salgado also proposed that the *Casa de los Cinco Gremios Mayores*, and the Company of Ustáriz, and the San Ginés Company which had also established a factory in Manila, be made to contribute funds for this purpose.

Basco drew up some "*Instrucciones*" in which we believe we find those of Norton Nicols, and remitted these to the two commissioners. The "*Instrucciones*" state their charge of exploiting the cinnamon "which grows in abundance on the island of Mindanao, and its neighbor, Camiguin."¹⁸ From the introduction of this document, we gather that the Governor had already brought to Manila seeds and plants of the cinnamon. The seeds spoiled on the way being too green when they were picked up, but the plants arrived in good condition and although many wilted, twenty-nine which were planted in the garden of the royal Palace grew roots.

The results obtained by the Dutchmen from their work in Mindanao were worthless. The Consulado had invested more than 9,000 pesos. Finally, seeing that the quality of the cinnamon did not improve further, they decided to give up the enterprise. Salgado attributed this failure to the

¹⁸ "Instrucción formada por este Superior Gobierno al Gobernador del Presidio de Zamboanga y al Corregidor de la Provincia de Iligan o Misamis, para el entable del nuevo proyecto del beneficio de la canela, de que abunda la isla de Mindanao y su inmediata de Camiguin," Manila, 15 December 1780, AGI *Filipinas* 499 and 733; *Anales de la Real Academia de Farmacia* (hereafter ARAF), no. 1, 1951, p. 100.

Dutchmen who he thought had not the least notion of the cultivation and preparation of cinnamon. But his testimony in this case has to be taken with a certain reservation, since the enmity between him and Basco places him somewhat under suspicion of being led astray by his emotions.¹⁹ But the fact is that the exploitation was abandoned. However, these reports on it do not agree with those from Basco, but neither is this surprising. Basco sent to Spain some cinnamon specimens obtained from Mindanao²⁰ which were examined by the botanist, Don Casimiro Ortega.²¹ These specimens, he reported, had lost "almost completely the gum and bitter taste of the wild cinnamon, and approaches much more the quality of the Ceylon cinnamon which these past years we received from the same Islands by way of Acapulco." He added that the essential oil produced in its distillation in pure water cannot be distinguished by experts on the substance from that obtained from the best cinnamon sold by the Dutch. If this was obtained from trees that were not cultivated from their planting, much more could be expected when the cinnamon is properly planted and cultured.²²

By a royal order of 7 February 1785²³ the Consulado was granted certain privileges, encouraging it to continue promoting the cultivation of cinnamon. A dispatch of the same date²⁴ was sent to the Governor, acknowledging receipt of his letters of May 10 and June 1, 1781 with which he sent a copy of the "*Instrucciones*".²⁵ This royal order influenced the report of Don Casimiro Ortega, and because of it he re-

¹⁹ Salgado to Marquina, undated, AGI *Filipinas* 502.

²⁰ With a letter to Gálvez, Manila, 1 June 1781. AGI *Filipinas* 723; also in ARAF, no. 3, 1951, p. 303.

²¹ Sent to him with the royal order dated 25 March 1782, asking him to do the analysis, AGI *Filipinas* 723; ARAF, no. 3, 1951, p. 304.

²² Ortega to Gálvez, Madrid, 16 August 1782, AGI *Filipinas* 713; ARAF, no. 3, 1951, pp. 304-305.

²³ El Pardo, 7 February 1785, AGI *Filipinas* 723; ARAF, no. 1, 1951, p. 108.

²⁴ *Ibid.* AGI *Filipinas* 723; ARAF, no. 1, 1951, p. 109.

²⁵ "Instrucción," AGI *Filipinas* 499 & 733.

requested that he be sent an exact account of the method used by the Dutchmen in Mindanao. He also advised that the Dutchmen be left completely free to concentrate on this work, and that they be told to direct their efforts not so much on cultivating the trees already growing, as on planting new ones in fields prepared for this purpose, as well as to experiment on the use of grafting. Finally, Ortega suggested that specimens be sent to Spain of the cinnamon trees raised in the garden of the royal Palace, and some stems with flowers taken from those grown in Cebu which Basco had mentioned in his letter of May 10. He asked Basco to personally urge and induce the cultivation of cinnamon, without relying upon the Consulado in this matter. But all these dispatches reached Manila after the Zamboanga exploitation had been abandoned.

Salgado and the Hacienda of Calauang. Again we find the name of Salgado closely associated with the development of cinnamon cultivation on the island of Luzon. Salgado had known Norton personally, spoke to him more than once in the presence of Obando at the royal Palace in Manila. He therefore took special interest in the work of Norton in Mindanao. He came to know of the specimens that Norton sent which still contained the excessive gum or film characteristic of the Mindanao cinnamon, which made the chocolate curdle, giving it a bad taste; that this was the reason it could not compete with the cinnamon of the Dutch.

On the death of Norton, Salgado thought of the plan of transplanting cinnamon trees from Mindanao to his hacienda in Calauang. This hacienda where he had installed an indigo factory was located near Manila. He requested Don Manuel Alvarez, *sargento mayor* of Zamboanga to send him some plants, and which he received in perfect condition. Salgado planted 13 of these in Calauang, gave one to his friend, Don Santiago del Barrio, who had a house in Pag-sanjan, capital of Laguna, in order to test the planting of cinnamon in two different places. He sent some of the trunks to Anda, who was then Governor, and, who was also planting in the garden of the royal Palace; and the rest he distributed among various persons to extend its planting.

The three plants that Salgado cultivated with great care in his hacienda grew well and by 1778 were ready for cutting. He got some specimens, according to him, from which he was able to remove the gum making use of diverse operations which he originally figured out. The cinnamon he produced was as good if not better than that of Ceylon, as was confirmed by the noted botanist, the Dominican, Fray José del Rosario. Encouraged by this result, he sent to Spain separately two small samples, one in the *Astrea*, the other in the *Santa Inés*, to assure the safe arrival of at least one. The precaution in time proved wise, since the *Santa Inés* was seized by the British.

The sample in the *Astrea* reached its destination, and in the letter that went with it Salgado²⁶ asked that it be examined by experts; he offered to give his time to this promising production; that he would send a detailed account of the procedure he followed in removing the gum of the cinnamon, and of all the necessary care applied in its cultivation.

Salgado again sent two shipments separately, in the frigate *Juno* in early 1780, and in another which sailed for Acapulco in June of the same year.²⁷ Meanwhile, the samples sent earlier were taken to the botanist, Don Casimiro Ortega to be examined.²⁸ Ortega's analysis was not long in coming and was quite clear, that he found the cinnamon "exquisite and superior to that of Ceylon."²⁹ Because of this a royal order dated 11 January 1780 was remitted to Salgado expressing recognition of his vigilance and eagerness in the cultivation of cinnamon, and that he was being thanked in

²⁶ Salgado to Gálvez, Manila, 14 December 1778. This is referred to in a royal order dated, El Pardo, 11 October 1780, AGI *Filipinas* 502.

²⁷ Salgado to Basco, San Jacinto, 30 June 1781, AGI *Filipinas* 723, ARAF, no. 2, 1951, pp. 174-175.

²⁸ Royal order, Palace, 8 December 1779, AGI *Filipinas* 723, ARAF, no. 3, 1951, p. 301.

²⁹ Madrid, 15 December 1779, AGI *Filipinas* 723; ARAF, no. 1, 1951, p. 95.

the name of His Majesty.³⁰ He was also requested to send an account of the procedure he used, as well as some small branches in blossom and beginning to bear fruit, dried and well-preserved. Salgado fulfilled the order in 1781, in which year he sent word that the Calauang plantation already had 120 trees, not counting the original 13 plants from Zamboanga.³¹

While these communications went on, another dispatch had been remitted to Basco, informing him of the results obtained in the analysis done with the specimens from Salgado, and charging him to find out secretly whether these were in fact taken from the trees that Salgado raised in those "plantations in Zamboanga, Misamis and Caraga," and cultivated according to his method.³² Sure enough Basco was annoyed by the fact that Salgado had been sending samples to Spain directly without telling him. Starting with this incident, the relations between the two became always strained to the point of violence, more so on the part of the Governor. So Basco sent the first report regarding Salgado's raising the cinnamon in Mindanao; he knew only, he said, of the hacienda in Calauang where Salgado certainly had a number of trees; the impression of his having such cultivations in Zamboanga, Misamis and Caraga was only due to a false interpretation given to Salgado's reports in Spain, undoubtedly because of the origin of the plants transplanted in Calauang.

Basco added that, shortly after he arrived in Manila, Salgado presented him fresh samples of cinnamon which contained the glutinous sap or gum characteristic of that grown in Zamboanga, and therefore did not pay much attention to the matter. On the basis of this Basco insinuated that perhaps the cinnamon samples sent to Spain may have been acquired from Ceylon! This project of Salgado, cultivating cinnamon, Basco supposed, "was much like that of indigo, all

³⁰ Gálvez to Salgado, El Pardo. 11 January 1780. Testimony accompanying a letter of Marquina to Marquis of Bajamar, Manila, 30 June 1793, AGI *Filipinas* 502; ARAF, no. 3, 1951, p. 301.

³¹ Salgado to Basco, San Jacinto, 30 June 1781, AGI *Filipinas* 723.

³² Royal order, El Pardo, 11 January 1780, AGI *Filipinas*, 723; ARAF, no. 1, 1951, p. 98.

reduced to promises."³³ Such words reveal well the attitude of Basco toward Salgado, an attitude that can partly be explained, but is not justifiable. As we have seen, Salgado was simultaneously trying to work out other experiments, especially in Mindanao. Basco, whose intelligence, zest, and activity are undeniable, was a forceful man who did not tolerate the slightest opposition, nor any move contrary to his. We see a good example of this in his strong and repeated clashes with the Intendant González Carvajal.

This letter of Basco, together with the memorandum that Salgado had sent to Spain, were passed on to Don Casimiro Ortega.³⁴ He was impressed enough by the words of Basco to effect a profound change of attitude in the report he prepared regarding the experiments of Salgado. It was proper, Ortega said, to thank Salgado for his shipment, and to encourage him to promote this cultivation, but always advising the Governor of this, that an anonymous copy of the memorandum of Salgado be sent to Basco since it seemed useful to the exploitation he himself had started.³⁵

Meanwhile, by the decree of 25 June 1781, the Governor ordered Salgado to give him detailed information on everything that pertained to the cultivation of cinnamon, particularly the procedure he used in removing its gum.³⁶ But as we said, Salgado had sent the memorandum on his method to Spain, and had no wish of making it known to him before he received word from the Court. This is easily explained, given his unhappy relationship with Basco. Thus, on completing the report as he was asked to do, Salgado left this part on the method unanswered. The anger of the Governor colored the second decree of July 19³⁷ reiterating the previous

³³ Basco to Gálvez, Manila, 10 May 1781, AGI *Filipinas*, 723; ARAF, no. 3, 1951, pp. 301-302. A duplicate is in the *Legajo* 499; ARAF, no. 3, 1958, pp. 275-276.

³⁴ By royal order given in Aranjuez, 14 May 1782, AGI *Filipinas* 723; ARAF, no. 3, 1951, p. 304.

³⁵ Ortega to Gálvez, Madrid, 16 August 1782, AGI *Filipinas* 723; ARAF, no. 3, 1951, pp. 304-305.

³⁶ Testimony attached to a letter of Basco to Gálvez, Manila, 15 May 1782, AGI *Filipinas* 722; ARAF, no. 2, 1951, p. 174.

³⁷ *Ibid.*, pp. 175-176.

request. The manner in which this document was worded irritated Salgado. He responded with an extensive report, which is of great interest since it recounted all the economic enterprises that he accomplished in the Philippines. But of course, he again left out the famous memorandum, with the excuse that this had already been sent to His Majesty. Defending himself from the accusation of Basco that he wanted to monopolize the cultivation of cinnamon in his hacienda, he said that it was precisely his purpose to extend this to the surrounding areas of Manila. For this he had prepared trees and seeds to be planted.³⁸ With his report he sent some samples to the Governor which were forwarded to the *Sociedad Económica* of Manila to be examined.³⁹

The *Sociedad* appointed two commissioners to do the examination, whose report was unfavorable: "we do not find in it that piquant sweetness, mellow and aromatic taste which are the essence of the good cinnamon fruit, and in our judgment it is far from being comparable to the cinnamon of Ceylon; it cannot even vie with that we have examined from Zamboanga which has better fragrance and flavoring action." The report goes on to say that in a subsequent experiment in which various tablets of chocolate were prepared with cinnamon and given to diverse persons for testing, all judged its flavor disagreeable and found neither foam nor trace of cinnamon scent or flavor. The rest of the report was deftly couched to flatter the Governor since the commissioners undoubtedly knew of the strained relations existing between him and Salgado. The *Sociedad* forwarded the document without further remarks aside from expressing the wish that cinnamon cultivation be propagated in the Philippines.⁴⁰

But Salgado was firm. In 1783 he sent again a communication to Gálvez⁴¹ informing him that in the Calauang hacienda he already had 395 trees, and there would have been more

³⁸ Salgado to Basco, San Jacinto, 2 September 1781, AGI *Filipinas* 722.

³⁹ Decree of Basco, Manila, 3 September 1781, *Ibid.*

⁴⁰ *Sociedad Económica* to the Governor, 24 September 1781, *Ibid.*

⁴¹ Salgado to Gálvez, Manila, 31 May 1783, AGI *Filipinas* 909.

but three storms in 1782 caused great damage, uprooting 12 trees and killing all the small plants that had just sprouted.

When in 1778 he wrote that it would take only 18 to 20 years for the cinnamon trees to multiply sufficiently to supply all the provinces of Spain, he was counting then on receiving during those years all the necessary help in transporting from Zamboanga and Misamis certain quantities of trees and seeds. But a few months later, when a shipment of 200 plants arrived in Manila, Salgado was refused the 12 plants that he requested from the Governor. Instead they were all planted in the garden of the Palace, but the soil was not suitable, and most of the plants died. Later, more than a thousand plants and a great quantity of seeds arrived which were distributed among different persons with Salgado once again excluded.

Salgado himself shows how in his own hacienda, things did not progress as well as he expected. His own ignorance of this cultivation caused him to lose a great amount of seeds. Later he realized that the position of the lands exposed them to the east wind and the cinnamon blossoms were blown down. But now with greater experience, definite improvements in cultivation could be made with foreseeable results.

Actually, a few months later⁴² he writes that there are 607 trees growing, all from the seeds of the first 13 trees that he brought from Zamboanga in 1774. He was confident that in the future the cultivation of cinnamon would be faster and could be extended to the other provinces near the capital. Salgado continued giving reports in the following years: in early 1787 the number of trees of different sizes increased to 3000, in November of the same year, the number doubled; moreover, 5000 grains had been sown and he planned to increase this continually.⁴³

The creation of the Royal Company of the Philippines made possible the coming of the naturalist, Don Juan de Cuéllar, to the Islands. This is one step forward in the direction

⁴² Salgado to Gálvez, Manila, 30 December 1783, AGI *Filipinas* 909.

⁴³ Salgado to the Marquis of Sonora, Manila, 22 November 1787. AGI *Filipinas* 975.

taken to bring the natural resources of the country to productivity. Cuéllar also held the honorary appointment of royal botanist, or botanist of His Majesty, to whom he was to give a report of his work twice a year.

Cuéllar visited the hacienda of Calauang soon after his arrival in Manila, and was greatly impressed. He saw in it, he said, "a cinnamon plantation of great value which Salgado himself has made to flourish at great cost." In his estimate there were already some 600 trees ready to be cut, and more than 3000 small ones, two seedbeds containing 2000 plants. As is evident, these figures coincide with those of Salgado's. Cuéllar praised the generosity and patriotism of Salgado who, he wrote, immediately sent 12 plants and a letter offering his plantation for whatever experiments he wished to make.⁴⁴

Undoubtedly, these reports of Cuéllar and those of the Intendant Carvajal counteracted the statement of Basco. The new reports occasioned a royal decree remitted to the Governor of the Philippines, then Don Félix Berenguer de Marquina.⁴⁵ The decree ordered him to promote the plantation of Salgado, making use of the technical knowledge of the botanist Cuéllar, and getting the cooperation of the Directors of the Royal Company in Manila. A copy of this decree was sent to the governing board of the Company in Madrid.⁴⁶

In compliance with these orders, the Governor sent new samples of cinnamon in December 1788 along with the instructions drawn up by Cuéllar on the method of preparing them.⁴⁷

⁴⁴ Cuéllar to the Marquis of Sonora, Manila, 9 January 1787, AGI *Filipinas* 723; ARAF, (no. ?), 1951, pp. 309-314. In his letters of 2 July 1787 and 26 November 1787 Cuéllar continues to speak of the good condition of the hacienda of Calauang, property of Salgado, AGI *Filipinas* 273, ARAF, no. 1, 1951, pp. 317 and 320.

⁴⁵ El Pardo, 20 January 1788, AGI *Filipinas* 723; ARAF, no. 4, 1951, p. 406.

⁴⁶ Royal order, El Pardo, 20 January 1788, sent to the Directors of the Philippine Company, AGI *Filipinas* 723; ARAF, no. 4, 1951, p. 407.

⁴⁷ "Descripción del modo de beneficiar las plantas de canela que se hallan existentes en el plantio de don Francisco Xavier Salgado, en su Hacienda de Calauang, situada en la provincia de la Laguna de

No one can doubt the genuineness of these samples since the Governor sent one of his assistants and a commissioner of the Royal Company with Cuéllar to cut the specimens.⁴⁸

In the cited instructions of Cuéllar, he affirms that the trees planted in Calauang were of the kind called by Linnacus "Laurus Cinnamon". There were then 14,520 small trunks; in the following year the number increased to 18,735. However, this increase was much less than the estimate of Cuéllar, who hoped that there would grow 50,000 of the sowing of that year.⁴⁹ Although the botanist affirms in his "*Descripción del árbol que produce la canela de Filipinas*" that the cinnamon was of the same variety that grew in Ceylon,⁵⁰ nevertheless he tried to obtain genuine seeds of the latter to experiment on this cinnamon when its trees are cultivated in the Philippines. He succeeded in having the Intendant Carvajal bring these seeds, and he planted them in the mulberry plantation owned by the *Sociedad Económica*. He also had Carvajal bring 8 trees from Canton and seeds from Tonquin, but of these only one frail plant survived.⁵¹

In January 1789, Cuéllar drew up a long report in order to dissipate the confusion and doubts raised over the quality of the cinnamon of Mindanao and that of the hacienda in Calauang. From varied observations and impressions, he concludes that, in his opinion, all the cinnamon trees of the Philippines are of the same species as that of Ceylon. He explains the main difference between their fruits, that is in their gum content: it is caused by the type of soil in which the cinnamon is cultivated. The soil of Ceylon is poorer and more sandy than that of the Philippines and the cinnamon grown

Bay." Por don Juan de Cuéllar. Manila 7 de diciembre de 1788. AGI *Filipinas* 501-A.

⁴⁸ Marquina to Porlier, Manila, 22 December 1788, AGI *Filipinas* 501-A; ARAF, no. 4, 1951, pp. 418-419.

⁴⁹ "Descripción del modo de beneficiar las plantas de canela..." by Cuéllar, Manila, 7 December 1788, AGI *Filipinas* 501-A; ARAF, no. 4, 1951, pp. 420-421.

⁵⁰ Manila, 22 January 1789, AGI *Filipinas* 723; ARAF, no. 4, 1951 pp. 421-422.

⁵¹ Cuéllar to the Governor, Manila, 22 January 1789, AGI *Indiferente General* 1545; ARAF, no. 1, 1952, p. 45.

there has less gum. This is supported by the fact that the cinnamon which Salgado sowed in less fertile soil than that of the mountains of Zamboanga contains less gum. In conclusion, he believes that this defect, the gum content, can be diminished eventually with experience in its cultivation and care. On the other hand, he deduces from the result of his analyses that the Philippine cinnamon has richer oil value than that of Ceylon.⁵²

The specimens of cinnamon collected by Cuéllar in Calauang in 1788 and sent to Spain were carefully analyzed. The results were satisfactory since they found them much improved over the previous ones, and more closely resembling that of Ceylon. This time the analysis was assigned to Don Castor Ruíz del Cerro, who prepared an extensive and documented report⁵³ describing the results of his work. He was given 10 different samples which weighed 17 pounds and 4 ounces, each one identified by its place of origin, whether they were grown from seedlings, or already from plants, and whether or not they were pruned. Ruíz del Cerro describes this cinnamon as "of a light bark, quite tenuous and fragile, rounded, deep-colored, quite fragrant, of a somewhat sweet taste, sufficient pungency, and leaves a gummy taste in the mouth."

He goes on to explain the processes by which the cinnamon was prepared: He took 9 pounds of the cinnamon, and after it was thoroughly macerated, soaked it for two days in an infusion of about 8 gallons of ordinary water. It came out at the end of this period as gummy as fleawort. When distilled in an alembic, it produced nearly four gallons of water mixed with essential oil that was quite clear and pure. This quantity represents a yield of almost a dram and a half per pound. This proportion of oil extracted ranks it high among the best cinnamon. Furthermore, the essential water was highly aromatic and tasty, possessing "all the qualities of the best cinnamon water." The third procedure consisted of

⁵² Cuéllar to Porlier, Manila, 22 January 1789, AGI *Filipinas* 723; ARAF, no. 6, 1951, pp. 614-622.

⁵³ Madrid, 26 September 1789, directed to the *Botánico Mayor* of His Majesty, Don Juan Díaz, who was assigned by Ruíz del Cerro to do this study, MNM ms. 312.

filtering the residue left at the bottom of the alembic. using a slow fire to evaporate it in a *baño de Maria*, resulting in 20 ounces of cinnamon extract "of satisfactory color and consistency."

We shall not enter into the details of the other phases of the analysis which would involve us in highly technical processes. Instead, let us hear the final evaluation given by Ruiz del Cerro. He states that

having examined the different specimens separately and individually, I conclude that they differ but little, either in quantity or in quality, from the products obtained through analysis of cinnamon from Ceylon. However, Salgado's cinnamon contains a great deal of viscous or gummy matter that so weakens and confines the essence and other properties of this cinnamon that its odor and taste fail to reveal the distinctively delicate fragrance and flavor of Ceylon cinnamon.

The texture of Manila cinnamon has improved a great deal since the last analysis . . . made in the *Real Botica*. Then, its stems were thick and a little rounded; they were also tough and woody. Now, on the contrary, they were thin, rounded, more fragile and less woody . . . and this improvement cannot but be the result of Señor Salgado's methods and care in his cultivation of cinnamon.

Among the various cinnamon specimens which Señor Salgado sent abroad were some from trees taken from the Province of Misamis, and others from the Province of Zamboanga, all of which he cultivated in his Calauang hacienda where he experimented on various means of cultivation. He discovered that the trees where incisions were made produced cinnamon with less gum and with a more aromatic taste than that produced by trees cultivated without incisions. But their active principles diminished, so that in subjecting the trees to the method of incisions, one succeeded in freeing the cinnamon from too much mucilaginous substance but at the expense of weakening the active properties of the cinnamon.

He goes on to urge that every means available be tried to remove the gum, and for this he recommends grafting (which method he fails to describe in his reports), believing this would improve its quality. However, even in this present imperfect state of the cinnamon. Ruiz del Cerro recommended its marketing, for as such it was already quite good, and its sale would stem the flow of much silver from the Islands into the pockets of Dutch traders.

In view of this report, the royal decree ordering the intensification of cinnamon cultivation and the placing at Salgado's disposal whatever help he needed was once more issued to the Governor of the Philippines.⁵⁴ At the same time, Salgado was informed of the successful result obtained in the analysis, and of the gratitude given in the King's name for his labors. He was given encouragement to continue his enterprise and to make use of Cuéllar's technical learning.⁵⁵

New samples were taken in October 1789 and sent to Spain aboard the frigate *Placeres*.⁵⁶ These came from trees grown from Zamboanga seeds, sown in 1774; a second group came from Misamis seeds planted in 1782, and the last came from trees imported from China of just more than two years' growth.⁵⁷

Our knowledge of the situation during this period of the cinnamon plantation comes from the signed testimony of persons as trustworthy as Cuéllar, the *Ayudante* of the *Plaza de Manila*, Diego Baptista Gallegos, and the commissioner of the Royal Philippine Company, Juan Benito de Echevarria.⁵⁸ There were then 18,735 trees of various ages of the variety which is native to the Philippines, 55 trees which Salgado imported from China, and 6 grown from Ceylon seeds. In 96 nurseries or seed-beds, there were 25,510 seedlings from cinnamon sown in 1788. In still other nurseries there were smaller plants grown from the sowing of a little more than 69 *gantas*⁵⁹ of seeds from trees raised in the hacienda but which came from seeds from various parts of the Philippine archipelago. This last sowing occurred in July 1789. The signers of this document affirm having counted one by one the seeds

⁵⁴ San Lorenzo, 21 October, 1789, AGI *Filipinas* 723; ARAF, no. 1, 1952, p. 49.

⁵⁵ Royal order of 21 October 1789, San Lorenzo, to Salgado.

⁵⁶ With a letter of Marquina to Porlier, Manila, 18 January 1790, AGI *Filipinas* 723; ARAF, no. 1, 1952, p. 54.

⁵⁷ Letter to Cuéllar, undated.

⁵⁸ Calauang, 31 October 1789, included in the testimony attached to a letter of Marquina, AGI *Filipinas* 502.

⁵⁹ Measure of capacity: in dry measure a ganta is equal to 1/25 of the caván, or 2-1/2 pints; in liquid measure it is equal to 1/16 of the

contained in an eighth of a ganta, caculating a yield of 834,000 plants. Judging from the results of the sowing, the number of plants lost must not have been very great. According to Salgado himself, within 4 or 5 years, there would be in the surrounding areas of Manila enough cinnamon to supply all the provinces of Spain and the Indies, seeing that in 1790 they succeeded in sowing more than a million seedlings.

We learn the method of cultivation adopted in the Calauang hacienda from a detailed description prepared by Salgado. It attests to the high cost involved in cultivating a plant requiring meticulous care and a large number of laborers. The sowing is first made in nurseries which were shielded from sun and rain by a roof. Irrigation was of prime importance, without which the cinnamon would fail to germinate.

When these attained a height of a third of a yard or a bit more, it was transplanted on clean and well-ploughed soil where they were set at a distance of half a yard from each other for easier watering during the dry season. Each had to be properly shaded so as not to deprive them of the rain nor of the evening dew, but to screen off the direct rays of the sun. Once they were three feet in height, they were transplanted in the definitive location where they would grow into trees. This was done at the start of the rainy season in order not to ruin them. The young plants were set at a distance of three yards from each other so that their roots could easily spread out, and their branches not get tangled. They were lined to form pathways for ready access to each trunk. The area reserved for the young cinnamon plants was carefully fenced to prevent animals, especially deer and wild pigs from destroying them.

All this Salgado described in support of his petition that a loan of 30,000 pesos be given him, payable in three years, half of which amount would come from the Royal Philippine Company and the other half from the Consulado of Manila. Both organizations were under obligation to promote the deve-

Philippine jar (about 12-2/3 gal), equal to one *azumbre* (about 2 liters and 2 pints). The metric equivalence is 3 liters.

lopment of the country's productions. The Company was to apply for this purpose 4 percent of its yearly profits, while the Consulado was to use for the same purpose the duties it collected from merchants.

Accordingly, a plan was drafted for this purpose but there was a long delay in the response of the two organizations. At first both denied absolutely their capacity to help. The Company's excuse was that, having been in existence for only four years, it could not boast of enough profits; the Consulado, to justify itself, alleged that it was engaged in another work and did not have funds to support another enterprise.

Meanwhile, the plantation continued prospering, due to the vigilance of its owner. By July 1791, there were already 590,382 trees growing in the hacienda, a number that would have reached more than a million had Salgado not ordered the previous year the cutting of the roots of those trees which had grown from Misamis seeds. Salgado was of the opinion that the cinnamon they produced was of a quality inferior to that of the Zamboanga stock, since cultivation did not appreciably diminish the quantity of mucilage present in them, while the other trees continued to improve and to give hopes of producing shortly a cinnamon that would rival that of Ceylon.⁶⁰ Up to this time, there were only four cuttings made to get the specimens sent to Spain occasionally.

The previous year, Salgado had indicated his wish to sell his hacienda either to the King or to the Royal Philippine Company mentioning his advanced age and the absence of general heirs to succeed him.⁶¹ The minister of the Indies forwarded this proposal to the said Company, recommending that it be accepted for its own good and that of the nation. Salgado, on his part, pressed for its acceptance, pointing out his lack of funds to continue the enterprise and the absence of anyone else in the Islands to whom it could be entrusted. He proposed as the terms for this alienation of property, that

⁶⁰ Salgado to Porlier, Manila, 25 July 1791, acknowledging receipt of the royal order of 21 October 1789 and writes lengthily on the condition of his estate. AGI *Filipinas* 723; ARAF no. 3, 1952, pp. 264-270.

⁶¹ Salgado, Manila 14 January 1790, AGI *Filipinas* 693.

he be given all the haciendas confiscated from the Jesuits at the time of their expulsion. The government had leased those properties which were in a bad state to tenants, but these impoverished the land further, and in their greed sought hasty profits without considering the damage they themselves inflicted on the lands. Having appraised the proper value of these lands, this sum would then be subtracted from the total value of the Calauang hacienda, and Salgado receive in effect only the difference.

Meanwhile, the plan proposed by Salgado for a loan of 30,000 pesos, previously referred to, continued to drag its feet, forcing the owner of Calauang to give an ultimatum, that unless he receives some money by June 30, 1791, he would have to dismiss all the workers in the cinnamon plantation except for 12 peons to take care of the hacienda. Should this come to pass, the increased number of trees which needed to be transplanted at a certain time would be lost, and the sowing for that year which promised a harvest of a million trees would not take place.

All the fears expressed in Salgado's letter find echo in another letter of Cuéllar who was pessimistic about Salgado's receiving funds necessary to continue his cinnamon plantation.⁶² He pointed out that Salgado did not have the money "sufficient even to maintain well those plants now existing." Added to this was the fact that though the King had ordered both the Governor and the Company to extend all the help required, actually many difficulties prevented this from being carried out. Nevertheless, Cuéllar proposed his plan for the large-scale cultivation of cinnamon in another letter of the same date.⁶³ Above all, he thought it necessary to estimate exactly how much cinnamon is consumed in five years, and to adjust to this the number of seeds to be sown. Regarding the setting of its price, he figures that it should be high enough to assure the prestige of the product as well as to make its

⁶² Manila, 27 June 1791, AGI Filipinas 723; ARAF, no. 3, 1952, pp. 270-273.

⁶³ Cuéllar to Porlier, Manila, 27 June 1791, AGI Filipinas 723; ARAF, no. 3, 1952, p. 273.

cultivation financially remunerative. In his opinion the price agreed upon should be somewhere between that of cinnamon from Ceylon and that of China.

He adds that during the first years, great precaution should be taken that the cinnamon exported to Spain be not mixed with the Misamis variety or of any other kind that might lower its market value. He also wanted it to be placed in and sold from a public warehouse owned either by the Royal Company or by some other responsible party.

On June 20, 1791, more specimens were taken from Calauang. The cutting was now done at the proper time since the trees were in blossom. In the case of some previous specimens, to comply speedily with a decree, the cuttings were gathered when the trees were already bearing fruit. The new specimens therefore proved to be of better quality.

The Royal Company and the Consulado continued steadfastly to refuse any help to Salgado until the royal decree issued on 21 October 1789 finally reached Manila in July 1790. On receiving the decree, they asked Cuéllar for an estimate of what would be strictly needed to maintain the cultivation of cinnamon till the end of the year. He informed them that 1,100 pesos would suffice, a sum that the Company handed directly to the botanist in order that he might take care of its disposal. This occasioned a vehement and justified protest on the part of Salgado who reminded them that it was to him that the royal decree gave authority to receive and administer the economic help, not of 1100 pesos merely, but of the entire sum that he had been requesting for some time now. He reminded them of His Majesty's order that he be given all the help he needed for his important project. He asked the Governor's intercession, who then issued a decree on August 6 ordering the Company to give Salgado 5,000 pesos in part payment of the 15,000 they were to loan him for three years.⁶⁴ The Consulado, at the same time, was ordered to give Salgado from its tax funds 15,000 pesos under similar terms. As guaranty, Salgado was to mortgage his Calauang hacienda.

⁶⁴ Decree of Marquina, Manila, 6 August 1791, AGI *Filipinas* 502.

He was obliged to return the loan with the produce of the first cuttings, and to submit a monthly account of the investments made with the sum received as audited by Cuéllar who represented the Company's interest, and by the chaplain of the hacienda or another person chosen for the Consulado.

It is interesting to note that this same decree orders Cuéllar to extend the planting of cinnamon to other suitable places since it was the King's express desire to increase its production to supply all of his dominions.

During that time, while the Consulado as well as the Directors of the Company were giving pretexts and excuses, Salgado had to borrow elsewhere the money needed for the expenses of the July 1st operations, confident that the King's order would eventually be complied with.

The state of the planting of cinnamon on June 27, 1791 is summarized as follows from a report of Cuéllar:⁶⁵

<i>Trees</i>	
13 to 14 years' growth	385
5 to 6 years, now due to bear seeds	3,975
2 years, located in two square seedbeds formed in 1789 & 1790	7,135
In groves or nursery-gardens	25,000
In nurseries, growing from the 1790 sowing	150,879
From the sowing near the end of 1790	402,828
<i>Total</i>	590,382

Cuéllar indicates that in May or within the first weeks of June 1792, 3 million trees of the right age would be ready, giving an estimated production of some 3,750 pounds of cinnamon, and reserving 1,370 of the more mature trees for gathering seeds. This harvest would be tripled in 1794 or in the spring of 1795 by which date there would be 7,315 trees ready for processing and from which some 9,143 pounds could be extracted. Transplanting in 1791 the 175,879 trees which were then in groves, a harvest of 219,846 pounds would be ready for 1796. These were almost lost due to some delay in their transplanting. The following year, this would increase to 503,030 pounds,

⁶⁵ MNM ms. 312.

provided that the cultivation of the 402,828 young trees of the recent sowing was done in due season.

After 3 years from the time of the first cutting, a second could be made of the shoots which grew from the root crown. After a similar period of time had passed, a third cutting could be made without additional expenses aside from that incurred in uprooting the weeds.

Cuéllar adds that if in 1791 and in the two subsequent years, no sowing transpires, no harvests will occur in the 3 succeeding years. Through the same report, we learn that the six cinnamon trees from Ceylon seeds are in good condition as they neared three years from the time Salgado planted them in Calauang. The ones from China have multiplied to 44, and of those he had, 13 were more than four years' growth and about to bear seeds. Six months later, about the end of December, Salgado wrote that there were now 600,000 trees growing in the nurseries, aside from those previously grown and whose number he had previously reported.⁶⁶

A few days later, Cuéllar confirmed the above facts in a letter reporting the shipment of boxes of specimens from the last two cuttings which was detained in Manila by the Company. At the same time, 3 boxes containing 293 pounds of cinnamon were shipped. This marked the first shipment of some importance that could be placed on sale at a suitable price, initiating its introduction in the distant market.⁶⁷

On April 30, 1792 Cuéllar was in Calauang, from where he writes Don Antonio Porlier, informing him that they were transplanting to the groves or nursery-gardens the plants of the last sowing. They were also preparing the soil for planting, by the start of the rainy season, the 400,000 trees which grew from the spring of the previous year. "These plants," he states, "have grown to the present time without losses, thanks to the constant vigilance of Don Francisco Salgado, who gives them all the care they need to insure their

⁶⁶ Salgado to Porlier, Manila, 30 December 1791, AGI *Filipinas* 723; ARAF, no. 4, 1952, pp. 374-379.

⁶⁷ Cuéllar to Porlier, Manila, 3 January 1792.

growth." But he expresses his fears that unless help be given Salgado will not be able to prolong his efforts any further.⁶⁸ From a letter of Salgado⁶⁹ we learn that he not only borrowed huge sums of money but also sold personal jewelry and some property in a generous effort to keep his enterprise going. But his example was neither followed nor imitated for, when September 5, 1792 came around, still no help had been given him.⁷⁰ This state of affairs was made more lamentable considering that the plantation was prospering, and from the sowing made in 1791, the groves and nurseries contained 271,000 trees.⁷¹

Convinced of the importance of Salgado's project, Cuéllar seized every possible opportunity to insist on the necessity of extending help to him. One such opportunity was the stay in Manila of Don Alejandro Malaspina, whose scientific expedition reached the Philippines in 1792. Cuéllar sent a copy of his extensive research and report on the cinnamon of Calauang⁷² dated 22 January 1789 in Manila. In his letter, Cuéllar explains the reasons that moved him to write: he hoped to protect Malaspina from acquiring a false view of the matter from "the reports and idle talk disseminated by those whose ill will is directed against the development of our fruits and specifically of the cinnamon of these Islands, since they speak without sufficient knowledge or with *disposition opposed to the owner of the plantation of this exquisite plant in Calauang.*"⁷³

In the Philippines, while Salgado and Cuéllar fought to continue the cultivation of cinnamon, in Spain a new analysis was being made of samples that were gathered in October 1789 but which were studied only in February and March of 1792.

⁶⁸ Cuéllar to Porlier, Calauang, 30 April 1792, AGI *Filipinas* 723: ARAF, nos. 5, 6, 1952, pp. 488-90.

⁶⁹ Salgado to Porlier, Manila, 25 July 1791, AGI *Filipinas* 723: ARAF, no. 3, 1952, p. 269.

⁷⁰ Note appearing in the testimony following the decree of Marquina of 6 August 1791, MNM ms. 312.

⁷¹ Note dated 7 September 1792, *ibid.*

⁷² Cuéllar, Manila, 22 January 1789, AGI *Indiferente General* 1545; also in MNM ms. 312.

⁷³ Cuéllar to Malaspina, Manila, 11 September 1792, MNM ms. 312.

According to the report of the chief apothecary, Don Juan Díaz, they were much inferior to those examined in 1789 by Don Castor Ruíz del Cerro, whose report we already cited. They were also lacking in essential oil and Díaz considered them altogether worthless. He blames this on the method of incisions used in its cultivation, which according to him, instead of removing the gum as was intended, removed, "the more active and precious parts." He recommends that no incisions be made, that grafting be experimented with, and that they carefully study the conditions of the soil, fertilizing it sufficiently.

Meanwhile in Manila, there still was no action taken upon the proposals and petitions of Salgado. Both the Consulado and the Company delayed the matter. At the urging of Salgado, the Governor finally succeeded in making the Company pay 150 pesos a month until such time as its Directors in Manila receive definite instructions from Spain. To this sum, Marquina added 75 pesos a month drawn from the royal treasury.⁷⁴ But all these efforts proved to be futile since there were no methods which ensured the removal of the gum of Philippine cinnamon and this devalued it in the European market. Its cultivation diminished each year and by the 19th century it was finally abandoned.

Pepper

This spice also grew wild in the Philippines. "Nothing else is required save to plant it at the base of a tree or a stake for it to climb, entwining itself like ivy. The Indios use it raw for their dishes without any further preparation," thus wrote Father Calvo in 1753.⁷⁵ Viana likewise included pepper among the native products of the Philippines that were worthy of being exploited.⁷⁶ But no attempts were made until the coming of Basco who issued an *Instrucción* for the cultivation of pepper addressed to the ecclesiastical and civil authorities

⁷⁴ Marquina to Marquis of Bajamar, 30 June 1793, AGI *Filipinas* 502; ARAF, nos. 5, 6, 1952, pp. 493-496.

⁷⁵ Calvo, "Proyecto", folio 333, BPM *Miscelánea de Ayala* V, ms. 2820.

⁷⁶ "Demostración" I, iv, 11.

of the provinces and to the Consulado. The Governor promised to buy all the pepper they could give him in five years starting from 1781, at 20 pesos a picul. He also offered to distribute free seeds and set up a prize for the one who would cultivate the most pepper.⁷⁷ All this he publicized on March 20 of that year, offering likewise rewards for the five persons who would gather in good time a harvest of pepper deemed to be superior in both quality and quantity. Such rewards could consist in exemptions from the payment of tribute, in certain distinctions, or in the form of money according to the circumstances and station of life of those meriting them.⁷⁸

Basco's *Instrucción*⁷⁹ begins by explaining the importance that the cultivation of pepper could have for the Islands' economy. He ordered each province to sow at least a cavan of seeds, and each hacienda half a cavan in order to start its propagation. The first objective proposed was to adequately supply the Archipelago's needs of pepper and then to export it to the other provinces of Spain. The natives are assured of the sale in Manila of whatever pepper they harvest on the terms already cited. Basco, in No. 21 of his "*Plan Económico*," diligently urged the *alcaldes mayores*, the landlords of haciendas, the *doctrineros*, and the Consulado and merchants of Manila, to give impetus to the cultivation of such a useful plant pointing out that pepper garners great profits easily since it bears fruit in a short time and each shrub comes laden with great quantities of seeds. Therefore, if sown in the numbers previously indicated, they would harvest many tons in a few years. The local authorities entrusted with the fulfillment of this plan ought to impart it to *principales* of the *pueblos* and have them devote suitable sites for the sowing of pepper. If for the present, there is a lack of pepper seeds in the

⁷⁷ Report of Diego García Herrera, representative of the Consulado of Manila, giving an account of their agreement on the matter in a session on 6 March 1781, folios 7 to 12 of the testimony accompanying a letter of Basco to Gálvez, Manila, 12 May 1781. V. R., no. 361, AGI *Filipinas* 498.

⁷⁸ Basco to Gálvez, *Ibid.*

⁷⁹ Instrucción formada por el Superior Gobierno de estas Islas para el plantio, cultivo y beneficio de la pimienta," by Basco, Manila, 20 January 1781, AGI *Filipinas* 498.

Philippines to take care of the extensive sowing that was planned, then from the first harvest, it is hoped to keep on expanding the area under cultivation.

The *Instrucción* includes specific directives on the method of sowing, the work required by the plant, the manner of collecting the seeds, and the exertion of strenuous efforts that they be collected in season. The *Instrucción* ends by describing how it is to be passed through warm water in order that the seeds acquire the black color which is their distinctive appearance in the market. Upon calculating the profits from their commercial sale, he estimates that even if sold at half a rial per pound, it would still register a gain of 300%. Finally, he orders the *corregidores*, *alcaldes*, landowners, and the Consulado to inform him annually of the progress achieved.⁸⁰ Basco informed the King of the entire matter on May 12, 1781, in a letter where he summarizes what he has done up to the time, saying:

After giving instructions pertinent to the development of cinnamon, which have been long forthcoming, and having called from oblivion the iron mine of Santa Inés... I then proceeded according to my economic designs to enter another stage in the development of those fruits which this fertile land can produce, giving to the public an "Instruccion" (copies of which I am enclosing) concerning the planting, cultivation, and exploitation of pepper . . .⁸¹

The development of pepper was slow and always met the opposition of the Philippine merchants who told the superintendent Carvajal that they considered it "of little worth and value," since in their opinion, a large part of the seeds came out hollow and inactive. An order given by the *Superintendencia*, that in the province of Tondo nurseries be prepared and the natives obliged to grow a determined number of plants, was therefore not obeyed. This led Carvajal to commission Cuéllar to examine a certain amount of seeds that he had, to see their quality and fitness for cultivation in the country.⁸² In his reply, Cuéllar said that he "found their sub-

⁸⁰ *Ibid.*

⁸¹ Basco to the King, Manila, 12 May 1781, no. 17, AGI *Filipinas* 649.

⁸² Carvajal to the Marquis of Sonora, Manila, 5 January 1788, no. 338, AGI *Filipinas* 723; ARAF, no. 3, 1951, p. 324.

stance quite firm and solid, possessed of the required spiciness and with a pleasant taste." He points to the smallness of the seed, a defect he does not consider noteworthy as he attributes this to circumstances that can be remedied. He believed that the Province of Laguna was most congenial for the propagation of pepper since its soil was suited to this species.⁸³ In his trip through that province, the botanist had observed that pepper cultivated there was of inferior quality since they did not trim the leaves, causing a thick foliage to grow and deprive the fruit of both the warmth and the ventilation it needed for its nutrition. The results obtained by those cultivators who followed his advice were excellent. Thus in 1788, the Royal Philippine Company was able to buy some pepper and to sign contracts with the natives, now encouraged by the profits they gained.⁸⁴ This point will be amplified later when we treat of the history of this Company.

Nutmeg

The discovery of nutmeg in the Philippines took place in the first quarter of the 16th century. In 1622, the Governor, Don Alonso Faxardo de Tenza gave notice of its discovery in the mountains, and he considered them "very similar to those gathered in the Moluccas."⁸⁵ He was asked to send samples to Spain, but we are not told whether he was able to do so.

In the oft-cited project of Father Calvo, nutmeg is also mentioned as we stated, and it is said to grow wild in Camarines, Cagayán, Cebú, and Leyte and which "if transplanted

⁸³ Report of Cuéllar, Manila, 4 January 1788, AGI *Filipinas* 723; ARAF, no. 3, 1951, p. 325.

⁸⁴ Cuéllar to Porlier, Manila, 28 December 1788, AGI *Filipinas* 723; ARAF, no. 6, 1951, pp. 603-604.

⁸⁵ Royal *cédula* to the *oficiales reales* of Mexico, Madrid, 9 October 1623, (Mexico, 1.065, libro VII, fol. 102). In this royal *cédula* reference is made to the letter of this Governor, dated 20 August 1622, writing about the discovery. The royal *cédula* orders the *oficiales reales* of Mexico to forward the samples to Spain as soon as they received them. ARAF, no. 1, 1951, p. 95.

and cultivated, would be quite good."⁸⁶ Norton also spoke in similar terms.⁸⁷

However, many years were to pass before attention was focused on this product, of little importance if compared to the profits accruing from the cinnamon and pepper business. Nevertheless, the royal decree issued in El Pardo on 20 January, 1788 ordered the Governor of the Philippines to encourage the cultivation of this spice which existed in a plantation of the Calauang hacienda owned by Salgado.⁸⁸ At the same time, a similar royal decree was addressed to the Directors of the Philippine Company in Madrid, who on receiving it, promised to transmit its contents to all those concerned in Manila.⁸⁹

However, Marquina reported that there were no nutmegs in Calauang at that time, but that they were found growing wild in the nearby mountains where Cuéllar found three distinct species, one of them being the genuine "*Myristica*." The specimens were gathered out of season when they were as yet immature, to which fact the botanist attributed its lack of aroma.⁹⁰ In his report, Cuéllar says that to start the cultivation of nutmeg in the country it would be necessary to get small plants from Mt. Banajao and transplant them in the neighboring fields appropriated for this purpose.⁹¹ Among these, was the hacienda of Salgado, where by October 1789 one seedbed already had 197 nutmeg plants.⁹² In 1790, Cuéllar himself planted in Calauang 184 more plants which, as described in a letter of Salgado in June of the following year, were growing well, covered with foliage but still too young to bear fruit.⁹³

⁸⁶ Calvo, "Proyecto", folio 333, BPM *Miscelánea de Ayala* V, no. 2820.

⁸⁷ Norton, "Proyecto de Comercio", folio 264.

⁸⁸ AGI *Filipinas* 723, ARAF, no. 4, 1951, p. 406.

⁸⁹ ARAF, no. 4, 1951, p. 407.

⁹⁰ Marquina to Porlier, Manila, 22 December 1788, AGI *Filipinas*, 501; ARAF, no. 4, 1951, p. 418.

⁹¹ Cuéllar, Manila, 7 December 1788.

⁹² Cuéllar to Porlier, Manila, 20 January 1790, AGI *Filipinas* 723; ARAF, no. 1, 1952, p. 61.

⁹³ Salgado to Porlier, Manila, 25 July 1791, AGI *Filipinas* 723; ARAF, no. 3, 1952, pp. 264-270.

Nutmeg was also grown on the land of the *Sociedad* in Malate, where there were three of this plant in 1789.

The specimens forwarded to Spain in February 1790 were analyzed by Don Juan Díaz, the chief apothecary of His Majesty.⁹⁴ His judgment proved to be quite unfavorable. He found them "destitute of color, odor, taste, form, and of the surface which they should have. As a result, they lacked those active principles which constitute its essence. Its oil comes out black and of poor consistency, while the nuts regularly extracted from the fruits are so small as to be unmarketable. Its mace produces three kinds of oils which in my opinion are useless in their present state." He states that perhaps cultivation could improve its quality and for this purpose recommends treatment similar to those he had given for cinnamon.⁹⁵

After this, the exploitation of nutmeg, like cinnamon and pepper which was the object of great hopes, was not followed up. All these products gradually disappeared without attaining the success that seemed so certain. It is interesting to read the paragraphs which Buzeta wrote concerning spices in the introduction to his *Diccionario*, which eloquently show how 50 years later, all the efforts that took shape in the second half of the 18th century had failed: "It is said that the clove tree and the tree that produces nutmeg may be found on the islands of Mindanao and Palawan." Of cinnamon which at first abounded, they say that "up to now it has failed to give satisfactory results; nevertheless, a Dutchman claims to have gotten specimens of good quality from that island, and Don Iñigo de Azaola also found some in the Province of Laguna."⁹⁶ It is unquestionable that he was referring to the ruins of the once magnificent plantation of Calauang. On the other hand, concerning pepper, they say that it was of excellent quality, but its cultivation was abandoned by the natives who preferred to concentrate on the cultivation of coffee seeing that this gave higher profits for lesser efforts.

⁹⁴ Marquina to Porlier, Manila, 3 February 1790, AGI *Filipinas*, 501-A, ARAF, no. 2, 1952, p. 138.

⁹⁵ Don Juan Díaz to Marquiz of Valdecareana, Aranjuez, 30 March 1792 AGI *Filipinas* 723; ARAF, nos. 5, 6, 1952, pp. 486-487.

⁹⁶ Buzeta y Bravo, *Diccionario*, I, p. 35.

DYE-PRODUCING PLANTS

The Cultivation and Preparation of Indigo

The plant or herb that produces indigo, known to botanists as *indigofera tinctoria*, grows wild in the Philippines. The Chinese extracted from it a blue dye for domestic use, and also exported a certain amount of it to China. But cloth dyed with it did not wear long because the lime mixture it contained spoiled the material.

The first attempt to prepare indigo paste using the method followed in Guatemala is due to Salgado whose name appears with that of Norton at the beginning of this enterprise. Norton makes reference to this in his *Proyecto de Comercio* where he states that

during the course of a conversation, the Marquis of Obando remarked to his wife that it was sad to think that such a respectable and profitable industry which could be improved like that of Guatemala is neglected. When he asked me whether I knew something of its cultivation, I answered that I knew enough of its theory to consider it a project worth introducing in the Philippines. He insisted that an experiment be made as to its feasibility and I consented to please his wife, giving as a condition that he appoints Don Francisco Salgado, "a man of inquiring and tenacious mind" to assist me. Since I found no time to conduct the experiments by myself, I passed on to Salgado my ideas and instructions on the matter. We finally succeeded in making indigo that withstood all tests, being the best and most durable that water and fire have seen.

Norton adds that he obtained good profits from the samples he sent to China, the Coast of Coromandel, Persia, and London. Good prices were offered him in the first three places. In London he received 2,600 rials *vellon* for a shipment that had cost only 500 rials in its manufacture. He estimated that he would be able to get as much as he wanted of this product each year from the Philippines.⁹⁷

It is curious that Salgado makes no reference in his writings to the details of this first experiment he did with Norton. This, we believe, can be explained by his anxiousness

⁹⁷ Norton, "El Comercio de Manila," *BPM Miscelánea de Ayala II*, fol. 261.

to attribute solely to his own initiative the start of this industry.

In 1766, Salgado sent to the Court samples of indigo that he himself prepared together with others obtained ordinarily in the Philippines by the use of the Chinese method.⁹⁸ It seems that his indigo was declared as highly useful as that of Guatemala and Santo Domingo. As a result of this favorable analysis, the Governor of the Philippines who was then Don José Raón was charged to promote its cultivation and manufacture. The wishes of the King were made known to the City and Commerce of Manila, but they said that nothing could be done if experts from Guatemala are not brought in, ignoring the fact that Salgado had already discovered a method that gave successful results.

Salgado then presented to the Governor a contract with a set of nine conditions, asking among other things that uncultivated lands be given him for indigo cultivation. He included a petition for an exclusive right of 20 years in the manufacture of indigo in the Philippines. Despite some objections on the part of the *fiscal*, Salgado's terms received provisional approval in Manila, reserving definitive approval to the Crown. He was given some lands near Laguna de Bay, in a place called San Isidro de Calauang, a district of the town of de Bay, some 9 or 10 leagues from Manila.

Salgado describes the geography of his new holdings. Two springs flowed close to the estate, forming a natural lagoon that served as a water reservoir. Other rivers and springs in the area could be utilized to irrigate most of the hacienda which had "many lovely fields whose stretches of level ground are suited for planting indigo and other seeds."⁹⁹ The rivers that crossed through the hacienda could be made navigable

⁹⁸ Salgado to Basco, San Jacinto, 2 September 1781, AGI *Filipinas* 723; ARAF, no. 2, 1951, pp. 177-180.

⁹⁹ Salgado to Gálvez, Manila, 30 December 1779, AGI *Filipinas* 693, published in Francisco de las Barras de Aragon, "Don Francisco Xavier Salgado y sus obras en Filipinas en el siglo XVIII," which was presented in the congress of the *Asociación Española para el Progreso de las Ciencias* held in Seville.

as far as Laguna at a small cost. This was clearly advantageous for the factory.¹⁰⁰ The mountain range overlooking Calauang was covered with dense forests of valuable timber and was a fine hunting ground for wild deer and mountain pig.

A notorious bandit called Mambujarra once roamed the place and with his band terrorized the natives of the neighboring towns. A luxuriant growth of cogon,¹⁰¹ canes, and other groves would make its clearing expensive in terms of time and of money.

Salgado soon started the construction of the factory and of the cisterns that were to hold the indigo cuttings. Since he wanted the workshops to be made of solid tile and bricks as protection from fires and typhoons, he built first the kilns used for the manufacture of these building materials.

To help Salgado finance this, Anda, who was his great friend, provided him with 23,600 pesos and assigned him twice the number of *piezas* he was entitled to in the galleon, "following the spirit of the new regulation which makes such a provision for those subjects who had investments in the ship, raised livestock, or owned factories, workshops, etc., with an assessed value of 8,000 pesos."¹⁰²

Preparations were made in the years 1774 and 1775, clearing lands, building a factory and dwellings. In 1776 some indigo was already sown, but the harvest was poor due to a drought, and only a few specimens were obtained which Salgado sent to Spain in order to have the price of the indigo determined. He was pleased with the result since the experts said that the indigo was as good as that of Guatemala and quoted a price at 3 1/2 pesos per pound of indigo "flor."

¹⁰⁰ Salgado to Basco, El Rosario, October 1778, AGI *Filipinas* 495. In a testimony accompanying a letter of Basco to Gálvez, Manila, 23 December 1779, V. R. 204, AGI *Filipinas* 495.

¹⁰¹ A species of wild herb which serves as perfect grazing for cattle. In some localities it is used in place of nipa for roofs. Cf. W. E. Retana, "*Diccionario de filipinismos*," extract from *Revue Hispanique*, vol. 21 (New York, Paris, 1921).

¹⁰² Anda to the King, Manila 16 June 1779, AGI *Filipinas* 881.

The process of preparation is explained by Salgado himself, showing that it involved repeated experiments and incurred great cost. First he had to test how much time was needed to keep the herb immersed in the cisterns since this was affected by temperature changes; in the summer less time was required to prepare it for stirring. The pressure to be applied in the stirring had to be gauged; the stronger the pressure, the less time required. Not only the quality but also the quantity of indigo extracted depended upon this.

Then it is left to settle and to precipitate. But this operation had to be hastened by mixing with the indigo a special herb commonly known as *cuajo*. Since this was not found in the Philippines, Salgado ordered it from New Spain and from the Coast of Coromandel but failed to secure it. After experimenting with different native herbs, he found one locally known as *anonang* which in 4 hours decanted the indigo. Otherwise, left by itself, this process took 5 or 6 days. It was necessary to quicken decantation since the cisterns had to be cleared for the immersion of a new batch of herbs, which, once in season, would be lost if cutting was delayed.¹⁰³

The indigo obtained by this method gave better dyeing results than by that practised by the natives. With one pound of indigo could be dyed 32 bundles of silk, cotton, or wool, while that of the natives required one jar of 16 *gantas* to dye one bundle of *manta de bejan* weighing about 50 pounds. Moreover, the dye made by the natives faded quickly while the indigo paste of Salgado's preparation lasted many years. When Salgado drew up this report, no one in Manila knew how to dye with indigo, and the necessary ingredients for this were not obtainable in the Philippines. The quality of the dyes obtained, therefore, could not be tested.¹⁰⁴ Salgado sent for these ingredients from Mexico and Europe, and was able to dye silk and cotton. But this procedure proved too costly. He was sure, however, that similar substances could be found

¹⁰³ Salgado to the King, Manila, 30 December 1779, in Barras de Aragon, "Don Francisco Xavier Salgado...", AGI *Filipinas* 693.

¹⁰⁴ Salgado to Basco, San Jacinto 2 September 1781, AGI *Filipinas* 723; ARAF, no. 2, 1951, pp. 177-180.

in the Philippines if there were trained persons who would look for them.

To his good intentions regarding the development of indigo industry in the Philippines, Salgado said he never kept his procedures of preparing indigo secret. On the contrary, he managed to teach them to his administrator, Don Joaquín de la Cuesta, who however, did not succeed in manufacturing good dye. He also wanted others to learn so that after the 15 years of his exclusive right, there might be a number of persons trained in this industry which was of such importance to Philippine economy. Besides making public his methods of indigo manufacture, he also gave out the name of the herb that substituted for the *cuajo*, described the manner of using it and the quantity needed according to the size of the cistern.¹⁰⁵

In 1777 he extended the sowing but the harvest that year and the next was disappointing. Wild grass in the virgin lands where the indigo was planted choked the herbs. Moreover, there was so much rain during the harvest season that the indigo was nearly all lost. The indigo taken from the cisterns and which needed to be dried in the sun for three or four consecutive days were spoiled. Finally, he could not do the second and third croppings of the plants because of the flood in the lowlands.

These setbacks made Salgado decide to build dams to irrigate the lands and grow the plants during the dry season of that region, from February to May and a part of June. At the same time he thought of sowing on the unirrigated highlands to see if it was possible to take advantage of the isolated heavy rains which occurred there even during the dry season.

The many occupations of Salgado prevented him from directing the preparation of indigo himself which he left to his administrator. But the latter could not imagine the proper methods of operation and mutilated the herbs, obtaining a

¹⁰⁵ Salgado to the King, 30 December 1779, in Barras de Aragon, "Don Francisco Xavier Salgado...", AGI *Filipinas* 693.

small quantity of poor indigo. The enterprise would have progressed faster perhaps if Salgado had kept to it. His perseverance was shown when he first experimented on indigo. After a year of hard work (and, as he claimed, he was self-taught) he was able to gather some samples which he sent to Spain. As he asserted, "not once in my life did I see indigo, nor known its existence," but together with Norton, who admitted only some theoretical knowledge of it, they ventured into the industry.

By the end of 1778, the factory had only one cistern; still it was more than enough, since there were hardly any plants harvested. But there were plans to construct one or two more when the production warranted it.

Salgado ends his extensive report indicating the prices at which he would sell his indigo to the government:

The first class called "flor" at 20 rials per pound; the second class, "corte", at 12 rials per pound; and the third class, "sobresaliente", at 2 rials per pound.

The first samples of indigo from Calauang sent to Spain were also considered of very fine quality. A royal order dated 22 April 1777 was therefore communicated to Basco who had been appointed Governor and was preparing to embark for the Philippines,¹⁰⁶ asking him that upon his arrival in the Islands, he should see to it that 150 *arrobas* of this dye be sent to Spain every year. He informed Salgado of the arrangement in August of 1778 to have this quantity prepared quickly for its shipment in the *Astrea* which was to sail for Cádiz in early 1779. Since Salgado did not have the indigo available, for reasons still to be explained, this was another cause of friction between him and Basco. The Governor reiterated the order in November of 1779, but there still was no indigo prepared.¹⁰⁷ He reported this to Gálvez, stating that the 15 years exclusive right of indigo manufacture given to Salgado was gravely pre-

¹⁰⁶ Basco acknowledges receipt of this royal order in Cádiz, where he was preparing to embark for the Philippines on 31 October 1777, AGI *Filipinas* 690.

¹⁰⁷ Salgado to the King, Manila, 30 December 1799, in Barras de Aragon, "Don Francisco Xavier Salgado...", AGI *Filipinas* 693.

judicial to the natives, and not much less to the Crown and the country. In least accord with Salgado on the cultivation of cinnamon as we saw, Basco wrote that "he [Salgado] has made a beautiful hacienda of livestock, rice fields, plantations, etc., and what he sent to Spain of his promises are excuses and plans to which everything in the Philippines is reduced."¹⁰⁸

In this same letter Basco gives an account of the natives and mestizos of the town of Tambobo, located about one league from Manila, who also engaged in the manufacture of indigo under the direction of their teacher, the Augustinian *fray* Matías Octavio. Of their produce a sample of 150 *arrobas* of indigo was sent to Spain in the frigate *Juno*. This was examined by Spanish dye experts who roundly affirmed that the indigo was useless, and did not even wish to quote its price; but they suggested that experiments be continued until better results were obtained. At the same time these experts examined samples of the three kinds of indigo that Salgado sent. They agreed that the kind called "flor" was of good quality and could be used in the royal factories in Guadalajara if it was priced at 45 rials *vellón* per pound. The indigo "corte" could be bought at 40 rials a pound. The "sobresaliente" was of very inferior quality "because either a necessary ingredient was missing in its preparation, or the box containing this indigo was damaged at sea."¹⁰⁹

As can be seen, the outcome of the analysis was favorable to Salgado. This was communicated to Basco by a royal order of 19 September 1782 which he found disappointing since in a way he had patronized the factory of the Indios. In his letter of 23 December 1779, he reported that this factory had good prospects inasmuch as the Company of Ustáriz, and San Ginés and Company were disposed to procure its entire produce, and this he trusted would give great impetus to the natives and mestizos.¹¹⁰ Father Octavio had told him that in the following year they could prepare a thousand quintals of indigo.

¹⁰⁸ Basco to Gálvez, Manila, 23 December 1799, V.R. 204, AGI *Filipinas* 495.

¹⁰⁹ Report of the master dyers, Alejandro Lopez and Antonio Avila. Guadalajara, 30 August 1782, AGI *Filipinas* 690.

¹¹⁰ Basco to Gálvez, Manila, 23 December 1779, AGI *Filipinas* 496.

Basco was quite optimistic about this promise as is clearly seen in a letter he wrote a few days later where he states,¹¹¹ that the work undertaken by this religious "can prove to be more deserving of His Majesty's appreciation, for he contributes to the welfare of these possessions with his cultivation of a fruit which in time will be of considerable commercial value. When the Royal Philippine Company is established, it can request for experts from Guatemala who can grow the fruit to perfection. It can thus be a regular item of exportation." He remarks further that the promises of Father Octavio gave more realistic hopes than those of Salgado's.

On his part, Salgado forwarded a dispatch asking for exemption from the *alcabalas* or sales tax, which the Governor sought to require him to pay. He points out that in the second of the conditions he had submitted, and which were approved, he petitioned that those uncultivated lands which were given him for the establishment of an indigo factory, be exempted from all charges or tributes. Furthermore, he refers to a provision in Basco's *Plan General Económico* (number 23) which grants all new factories exemption from tributes for a few years. At the same time he demands that he be given a notarized copy of the royal *cédula* that conceded him the exclusive right to manufacture indigo for 15 years in all the provinces where indigo was made by the Chinese method, namely, in Cavite, Tondo, Zambales, Bulacan, Pampanga, and Laguna.¹¹²

But far from this, the unfavorable reports of Basco regarding the factory of Salgado, and the latter's failure to supply the government of the 150 *arrobas* of indigo yearly, occasioned the royal decree of 20 June 1781 issued at Aranjuez.¹¹³ This annulled the exclusive privilege conceded to Salgado, and instead charged Basco to promote the free manufacture of indigo. But the reports were biased since there was no such commitment

¹¹¹ Basco to Gálvez, Manila, 30 December 1779, V.R. no. 6, AGI *Filipinas* 496.

¹¹² Dispatch of Salgado, undated. In a testimony accompanying a letter of Basco to Gálvez, Manila 23 December 1779, V.R. 204, AGI *Filipinas* 495.

¹¹³ Dated 20 June 1781, AGI *Filipinas* 690.

whatsoever on the part of Salgado. There was only, as we saw, the royal order sent to Basco directing him to place at the disposal of the government this amount of indigo each year. Salgado, whose interests were question¹¹⁴ explained his position, without his memorial taking effect, since unrestricted indigo manufacturing continued. Denying Salgado the right of protection although he had a legal claim to the privilege resulted, no doubt, to the detriment of the country's economy. This merely proves that his pleas were left unheeded in spite of his legal rights.

Meanwhile, the newly founded *Sociedad Económica de Manila* had taken under its auspices, upon the instance of the Governor, the indigo industry at Tambobo. In May 1781, they sent indigo samples to Spain which had been examined, it seems, by agents of the *Casa de los Cinco Gremios Mayores de Madrid* and of the Company of Uztáriz who reported that the indigo was superior to the "corte" of Guatemala, and they estimated that it could be sold in Cádiz at the price of 20 or 22 silver rials per pound. On the other hand, the samples sent by Basco to Spain in the *Astrea* were tested by experts at the royal factory of Guadalajara and their statement reads: "We are positive that they are of no value, being as bad in quality as the 150 *arrobas* which he sent before in the *Juno*".¹¹⁵ At the same time, samples from Calauang were examined and appraised favorably by the experts: they estimated that those of the qualities "flor" and "corte" could be used and give profit if their production costs were 45 and 40 rials *vellón* respectively; the "sobresaliente" was clearly of inferior quality and could merely be sold at 30 rials per pound. A copy of this report of the experts was transmitted to the Governor who meanwhile continued his vigorous efforts to stimulate the cultivation of indigo.¹¹⁶ Salgado again protested this, now appealing to Gálvez, pointing out that the unrestricted manufacture of indigo by Father Octavio and others encouraged

¹¹⁴ Salgado to the King, 30 December 1779, in Barras de Aragon, "Don Francisco Xavier Salgado..." p. 115; AGI *Filipinas* 693.

¹¹⁵ Alejandro López and Antonio Avila, Guadalajara, 30 August 1782, AGI *Filipinas* 690.

¹¹⁶ With royal order of 19 September 1782, AGI *Filipinas* 690.

to do likewise was only hurting those who, like him, pioneered in the industry; that this practice vitiated the exclusive privilege of manufacture conceded to him.¹¹⁷ But once more Salgado's complaint was to no avail.

To bring about large-scale cultivation of indigo, Basco proposed to the Consulado that as an incentive to those who engaged in the industry, the merchants should offer them loading space in the *nao*. The response was a flat denial softened by specious reasons, which proves as Basco remarked that the merchants were ignorant of their own interests, for the exportation of indigo would have meant an expansion of trade, high gains accruing to the *nao* shippers, and general economic prosperity for the country. Basco showed the wisdom of the proposal by calling attention to the support given by the King to those who set up factories for indigo manufacture, namely, a share in the galleon proportional to the capital invested in the factories. In this manner he thought of a scale of shares which could be applied with corresponding investments:

<i>Pesos</i>	<i>Share</i>
1,000	1/6
2,000	1/8
4,000	1/2
8,000	1
16,000	2*

*This being the maximum which can be granted to an individual, even though his investments in the industry exceed 16,000 pesos.

Basco regarded this concession of shares a great impetus in the production of indigo which he termed, "the richest source of revenue in the Islands," because of its excellent quality, ready salability, and its abundance. "Nothing can contribute more to the prosperity and radiance of these Islands than the favors bestowed upon the manufacturers of indigo."¹¹⁸

In this general plan to promote the cultivation of indigo the privilege of Salgado was not taken into account. Thus,

¹¹⁷ Salgado to Gálvez, Manila, 21 May 1781, in Barras de Aragon, "Don Francisco Xavier Salgado . . ." p. 115. AGI *Filipinas* 693.

¹¹⁸ Basco to Gálvez, Manila, 12 May 1782, no. 459, AGI *Filipinas* 975.

when he informed Gálvez of the state of his cinnamon plantations in Calauang, he again mentioned the indigo complaint, that the Governor not only permitted but positively encouraged the manufacture of the colorant.¹¹⁹ A few months later he wrote that he had discharged the workers employed in the factory and closed it, incurring a loss of 60,000 pesos invested in its construction, in the planting and cultivation of his indigo, and the labor of ten years. The indigo cultivation was started in 1773.¹²⁰

While Salgado continued to seek redress, the factory in Tambobo continued operations, and in 1782 new indigo samples were sent to Spain which were analyzed like the first ones in the royal factories of Guadalajara. One of the three boxes sent contained indigo of superior quality that was classified "‘de flor perfecta,’ better than that called ‘corte’ of Guatemala and excellent for the deep-blue color." Its price was quoted in Spain at 50 rials *vellón* a pound.

The contents of the second box were inferior in quality compared to the first, as one pound of indigo had to be used to obtain a tint equal to that which was obtained using three-fourths pound of the first. But at a price proportionately much lower, it also proved to be of use. The third box arrived empty; without doubt it broke open in the course of the trip.¹²¹

A royal decree of April 26, 1785 reported all this to the Governor,¹²² and suggested that he "encourage those natives to foster the cultivation of the indigo of better quality," and to improve that of inferior quality. On acknowledging receipt of the decree, Basco reports that he had communicated the message to the natives through Father Octavio, and adds that lately they have obtained still better samples than those sent

¹¹⁹ Salgado to Gálvez, Manila, 31 May 1783, AGI *Filipinas* 909.

¹²⁰ Salgado to Gálvez, 30 December 1783, AGI *Filipinas* 909.

¹²¹ Pedro de Lerena to Gálvez, Aranjuez, 20 April 1785, Complying with the request of Gálvez of 10 February 1785 to have the samples examined by the directors of the royal factories of Guadalajara whose report he communicates in the letter.

¹²² AGI *Filipinas* 690.

before, "so that if it continues to be in demand, it will be a great source of revenue."¹²³

Meanwhile, Father Octavio carried on his work and upon the pleading of the Governor postponed his return to Spain in order to continue teaching the Indios the method of obtaining indigo as done in Guatemala. With respect to this, he wrote: "I eagerly undertook the enterprise; I looked for books dealing with the cultivation of indigo, I did unnumbered experiments and after several months of great expense and labors, I found the satisfaction of making good indigo; I explained to the Indios the immense wealth that the Islands possessed in this plant, since it is obvious that in all the provinces and towns they find and cultivate this plant."¹²⁴ Somewhat later, he notes happily that the frigate *La Paz*, newly arrived from Manila, brought him a letter from an old parishioner of his who informed him that he had sold 880 *arrobos* of indigo and that for the coming year, he hoped to obtain 1,200 *arrobos*. Father Octavio remarks further: "truly this news gave me much satisfaction since I saw that from my expenses and work could come certain advantages to Spain and I hope that the condition of those dominions will transform and become of advantage to the Crown."

The cultivation of indigo was actually extended to other provinces, and so in 1789 there were already some plantations of this "indigofera" in Batán. According to a statement of Cuéllar they produced well the indigo paste.¹²⁵

The progress made in its cultivation in Batán, continued in subsequent years. Marquina writes that his production of indigo has so increased that in 1792 he could export a great amount of it, procured by foreigners.¹²⁶ This encouraged the

¹²³ Basco to Gálvez, Manila, 19 June 1786, no. 889, AGI *Filipinas* 690.

¹²⁴ "Segundo Memorial o Relación compuesta por el padre Octavio, agustino, que se fué a España. Trata de la industria, población, tributos y estancos de las Islas Philipinas." MNM ms. 136, doc. 2º.

¹²⁵ Cuéllar to Porlier, Manila, July 1789, AGI *Filipinas* 723; ARAF, no. 1, 1952, p. 47.

¹²⁶ Marquina to the Marquis of Bajamar, Manila, 30 July 1793, no. 37, AGI *Filipinas* 502; ARAF, nos. 5, 6, 1952, p. 497.

inhabitants of other provinces, particularly those near Manila who had done extensive planting. But as always happens, covetousness all but frustrated these laudable efforts, since there were individuals, who, to profit from the big demand, mixed it with the indigo containing "tintarron" or the low-grade dye manufactured for the Chinese which had a great quantity of lime. The adulteration was at the point of discrediting the product in the market. The Governor was thus obliged to publish a proclamation imposing heavy fines on such fraudulent practices.

As was its usual attitude, the Consulado did not support the enterprise of Father Octavio, but rather opposed it, ever resolved to prove the dependence of the Archipelago upon the Acapulco trade, and claiming that there was no proper production that could make it sustain itself. Only Don Diego Garcia Herreros offered economic assistance to Father Octavio, and continued his support of the indigo industry even after the latter had returned to Spain. The efforts of Father Octavio were rewarded when finally during the last two decades of the 18th century, indigo came unto its own as one of the Archipelago's important commodities of trade, marking also the success of the Royal Philippine Company that lent special attention to the industry.

But the work of Salgado received no recognition, although his initiative and pioneering work cannot be overlooked, as the second Director of the *Sociedad Económica*, Don Francisco Xavier Moreno, acknowledged. The manufacture of indigo paste, he explained, "is due to Francisco Xavier Salgado, resident of this city, although others more fortunate than he, with the help of the *Sociedad*, developed it better, and took the credit for it."¹²⁷ But if we give weight to a testimony of Salgado, it seems that Father Octavio himself profited from Salgado's first experiments, getting information from an old servant of his, and resorting to other means to learn the procedure of manufacture followed in his factory.¹²⁸ Still, as we

¹²⁷ Moreno to Porlier, Manila, 30 December 1789, AGI *Filipinas* 593.

¹²⁸ Salgado to Gálvez, Manila, 30 December 1779, AGI *Filipinas* 693.

judge the matter, it is certain that Father Octavio succeeded in obtaining results far superior to those of Salgado's. If it is proper to recognize Salgado as the initiator of the preparation of indigo paste, it is also fair to accord Father Octavio the merit of perfecting and extending this industry in the country. Father Octavio placed the industry on a solid basis, making indigo one of the principal commercial sources of revenues of the country. The manifests of shipments in the frigates of the Royal Philippine Company during the first three years of its traffic attest to this.

Year	Ships	Pounds of Indigo
1787	<i>Placeres</i>	7,175
1787	<i>Nieves</i>	7,175
1788	<i>Astrea</i>	2,083
1788	<i>Rey Carlos</i>	1,100
1789	<i>Sta. Rufina y Dolores</i>	22,975
1789	<i>Nieves</i>	11,600
1790	<i>Rey Carlos</i>	34,225

Other Dye-Producing Plants

This account would be incomplete if a few words are not said about the *bonga* or areca nut, the *sibucão* and other species of dye plants, although not one of these came near the importance of indigo.

The *bonga* is a fruit of the palm tree known by this name in the Archipelago, and is also found in other Asian countries. It resembles the fruit of the common date-palm, or the acorn, and appears in clusters. The Chinese used it to make colors fast, but this secret of its use the Spaniards did not come to know.

When Simón de Anda returned to Spain in 1768, he brought with him a number of these fruits with which different experiments were made at the factories of Valencia, Guadalajara, Talavera, and in Madrid by the expert Cristobal Sedeño, "the most dexterous dyer" of the Court. He drew up a report in which he said that the true color of the *bonga* is a bright orange-yellow, but blended with other substances it could produce various colors; he made tints of crimson, pur-

ple crimson, silverish shade, greenish, bluish gray, light yellow brown, and affirms "it had the firmness of the 'Allepine galinut'; and the special quality of fixing more luster on all kinds of colorants, particularly the light crimson color."¹²⁰

Anda also sent *bongas* to the factory of Valencia to have tests made which might reveal the secret of the Chinese, and although the results were not definite, they were promising.¹³⁰ In 1770 Anda returned to the Philippines as Governor-General, and in 1771 he again sent another shipment of the fruits which were of better quality than those he brought with him. As he explains in his letter, the fruits came from the Province of Cagayan where the natives paid their tributes with *bongas*.¹³¹ This variety of *bonga*, much smaller in size, but much finer than the common variety, was the one used by the Chinese for their dyes. "This specie is grown only in the mountains of Cagayan, without benefit of cultivation, and it is believed that it is not found anywhere else in this part of the Orient." Its price, Anda reports, was about four or five pesos a picul, and "is so abundant that your Majesty can load entire fleets or galleons with them."

New experiments were conducted at the royal textile factories of Talavera on the 21 boxes of *bongas* that the Governor sent, but neither did they succeed this time in uncovering the secret of the Chinese.¹³² Years later, in 1780, they tried to repeat the experiments.¹³³ The results were still negative and the *bongas* were never mentioned again.

¹²⁰ Report of Sedeño, undated, forms part of the "expediente sobre examinar la virtud tintoria de las bongas de Filipinas, que trajo de aquellas Islas el Gobernador señor Anda," May 1769-August 1780, AGI *Filipinas* 390; ARAF, no. 3, 1958, p. 270.

¹³⁰ Miguel de Muzquiz to Don Andrés Gómez y de la Vega, Aranjuez, May 1769. *Ibid.*

¹³¹ Anda to the King, Manila, 4 January 1771, no. 76, AGI *Filipinas* 491; ARAF, no. 3, 1958, p. 271.

¹³² Its director, Don Joaquín Zester asked for a certain amount of *bonga* in 31 October 1771, and he was given 12 lbs., AGI *Indiferente General* 1549; ARAF, no. 3, 1958, p. 271.

¹³³ Royal order, San Ildefonso, 21 August 1780, sent to Muzquiz. In this Gálvez tells him that if he still had anymore *bongas* to send them to him in order to have experiments repeated. Muzquiz replied

Another Philippine dye-producing plant is the *sibucan*, similar to the Brazil-wood or log-wood, of which Father Delgado wrote: "In these islands, the *sibucan* is beautiful and colorful, it grows wild from its own seeds that drop from the pods."¹³⁴ The tree is thorny and the natives planted it around their gardens and farms to fence animals out.

The *sibucan* was an important article of export to China where it was used as a substitute for kermes in dyeing silk, damask, and cotton, although its color was not as fast and as durable as that obtained from the kermes.

To complete this group of plants, mention must be made briefly of the other dye-producing species used by the natives: the roots of the *bangcan* giving a red tint, better and more fast than that of the *sibucan*; the roots of the *nino* also produced this dye. The bark of the *bagalibas* fixed a fine tawny color on mantles; a small plant called *balanti* was used to dye in black, as well as the bark of the *cunallón* and of others. The bark of the mangrove tree or *tungug* gave a blood-red color, and purple dye was obtained from the bark of the tree *bayaga*.¹³⁵

THE CULTIVATION OF FIBER PLANTS AND THE MANUFACTURE OF TEXTILES

Cotton

Among the fiber plants found in the Archipelago, cotton, no doubt, claimed a first place, with the Provinces of Ilocos and Cagayan bearing the oldest tradition of its cultivation.

In the beginning of this period under study, Salgado established a factory for the manufacture of cotton sail-cloth.

that he had none left and adds that the results obtained in Guadalajara, Valencia and Talavera were futile, so were those obtained by the dyer in Madrid, Juan Mansilla who did different tests at Anda's request. Muzquiz to Gálvez, San Ildefonso, 30 August 1780. These documents are also a part of the "expediente sobre examinar la virtud tintoria de las bongas de Filipinas..." AGI *Filipinas* 390.

¹³⁴ Juan José Delgado, *Historia general sacro-profana, politica y natural de las islas del Poniente llamadas Filipinas* (Manila, 1892), p. 482.

¹³⁵ *Ibid.*, pp. 482-84.

The factory had 21 looms in operation, weaving more than 70,000 yards of this cloth for the sails of the royal fleet and other uses. The cloth was of such good quality that it became an export item to Batavia. The factory also produced cloth for the uniform of the troops, a kind of cotton weave which was dyed blue, and other pieces dyed red. The product was excellent and better suited to the climate of the country than the woolen uniform hitherto used by them. Salgado also made a blue-and-white striped cotton cloth used by sailors and the poor people.

But the raw material, the cotton yarn, gradually became scarce until the factory had to interrupt its work, despite the efforts of Obando to encourage the natives to bring in supplies, offering them a good price as the quality calls for and giving them immediate payments in cash. To promote the cultivation of cotton, Obando distributed seeds to all provinces of the religious Orders. Through the pastors of the towns near Manila, he hoped that the seeds would spread on to the natives. He also urged them to exhort and advise the natives to devote themselves to this cultivation, explaining to them the benefits they would obtain. But these efforts failed, and Salgado had to close his factory when the cotton yarn in the royal warehouses was used up. Very little could be obtained from the natives not even from those of Ilocos in spite of tempting offers, like paying them for cotton yarn the price of the finished *mantas* or blankets that they delivered as tribute.

In the war of 1762, the British needing firewood burnt the looms, thus destroying the entire factory. If the production of that factory had risen to a volume sufficient to supply the heavy cotton cloth and other fabrics for home consumption, and to export a surplus to the market of New Spain, it could have checked great quantities of silver that yearly flowed to China for the purchase of these commodities. Furthermore, from this first cotton venture it would have been possible to go into the manufacture of fabrics of superior quality.¹³⁶

¹³⁶ Salgado to Basco, Manila, 2 September 1781. Dispatch attached to the letter of Basco to Gálvez, Manila, 15 May 1782, AGI *Filipinas* 723; ARAF, no. 2, 1951, pp. 180-81.

So went to ruins what could have contributed much to the economic development of the country.

After the destruction of Salgado's factory, we do not find another attempt to manufacture cottons on a large scale until the founding of the *Sociedad Económica* in Manila. The *Sociedad* tried to establish in the capital a factory-school for apprentices, some of whom would be allowed to come on their own accord, others compelled to attend and live there as interns. The training would be free and once the apprenticeship was completed, the new graduate would be provided with a loom and other necessary equipment to help him start on his own a textile industry.¹³⁷ The *Sociedad* also tried to promote the cottage industries of the natives, encouraging them by offering prizes, and protecting them with various measures from the stiff competition of Chinese textiles.

But the real impetus given to the cultivation of cotton came from the Royal Philippine Company when this made the first trial exportation, sending to China 150 bags of raw cotton. The excellent reception of the product encouraged the Directors of the Company to extend its cultivation. The Philippine cotton was considered superior to that of the Malabar Coast, since it fetched a price of 15 *taeles*, instead of 10 to 12 *taeles* paid for the latter.¹³⁸

Being convinced of its good quality, the Company tried to investigate whether its cultivation in the Islands would be practical, secure, and remunerative. To this end, capital advances were offered to farmers and a fixed purchase price, and it was stated that the Company was willing to buy their whole produce. This motivated many to go into cotton cultivation, especially those farmers in the surrounding areas of Manila and Ilocos. So new frontiers were opened, pushing into the vast uncultivated lands where cotton could be grown.

¹³⁷ Plan prepared by Don Mariano Tovias, censor of the Society. In testimony of the agreement to develop the industry, 1783, AGI *Filipinas* 593.

¹³⁸ The *tael* was monetary unit of account of the Philippines used as a common unit of exchange, particularly in transactions with the Chinese. It is equivalent to about 6 *pesetas* and 30 centavos.

For this purpose, the botanist of the Royal Philippine Company, Cuéllar, devoted special attention to a study of species of cotton found in the Archipelago, as well as other fiber plants. To him we owe the interesting reports on these cultivations at the end of the 18th century,¹³⁹ and the account on the potentialities that the country had to develop the cotton and silk textile industries.

Cuéllar described the different kinds of cotton that he found in the Philippines and said that the fibers of the strain which corresponds to the fifth (*Bombax Pentandrum*) in the binomial system of nomenclature of Linnaeus, was not made use of by the natives. It was planted around their houses and gardens to fence them, and only in the provinces near Manila is the fruit gathered and sold without removing the seeds to serve as stuffing for pillows. In the other provinces it did not even have this use; they allowed it to drop and dry losing its fibers. Cuéllar planted this variety of cotton in Calauang to fence the cinnamon plantations, and to obtain a sufficient quantity which he thought could be used to experiment on the manufacture of different kinds of fabrics.

Cuéllar sent samples of this kind and of another strain called "coyote" to the governing board of the Company in Manila. The "coyote" cotton was planted as an experiment in the garden of Malate. From its crop a portion of the raw cotton was set aside, the rest was spun and woven into 8 *mantas coletas*, which resembled the nankeen cloth imported from China. He also sent these to Spain. Cuéllar extended the planting of this kind of cotton to Malate and Pasig, and sent its seeds to the Province of Batán.

But he expected that greater use could be made of the white cotton which was planted and found almost everywhere in the Archipelago, particularly as we said in some provinces (Ilocos, Cagayan and others) where it grew in such abundance and was of better quality. To improve the fabrics, Cuéllar made different experiments dyeing them in varied colors:

¹³⁹ Cuéllar to the Directors of the Royal Company, Manila, 29 December 1791, AGI *Filipinas* 723; ARAF, no. 4, 1952, pp. 369-73.

he dyed cotton yarns in light and dark blue, green, straw-color, and beige. He had these woven into a number of handkerchiefs and presented them to the governing board of the Company. He was encouraged to persevere in his work, and to try to perfect the red color so as to come as close as possible to that of the Coast of Coromandel.

Anxious to expand the cotton industry, Cuéllar visited the towns of Lipa, San José, El Rosario, Taal, and Babuan where the women were weaving a coarse fabric for local use. There were more than 3,000 looms in these towns, but only 50 were used to weave cotton, others were used to weave abaca for shirts. He also went to the towns of Malabon and Navotas, where a fairly good number of looms were also worked to weave cotton. Cuéllar acquainted himself with the weaving methods of the natives, and collected samples of their fabrics. In Taytay and Cainta he found that the raw material was scanty and most of the looms were left unused. Cuéllar took up this situation to convince them that it was more advisable to get the raw cotton from the Company, and return it spun in yarns, charging only for the labor, rather than obtaining the cotton themselves and selling the yarns to the mestizos who took advantage of them. In this manner he succeeded in starting an industry in Taytay, Cainta, and Pasig under the direction of the Company. He paid for the skein at *tres cuartos* when it had accumulated 2,855 yards of cotton strands. Thus as much cotton as necessary could be converted into yarns and sold in this form, or for the use of the textile factories, and it was possible to determine the exact cost, since all the skeins had a standard measure of fibers, whereas before those prepared by the natives on their own had various sizes. In his report Cuéllar recommends that the manufacture of fabrics should be in those provinces where daily wages are lower, and makes other suggestions to reduce the cost of production, and to increase the value of dyed cottons according to the shade of the colorant.¹⁴⁰

¹⁴⁰ The blue color increased the value by $1\frac{1}{2}$ or 2 pesos, per 100 skeins; the straw-color, as well as the beautiful green, 3 pesos; and red, 4 pesos. Cuéllar was certain he could produce these at much lower cost.

For experiments, he placed a Chinese type loom in his house and made varied tests in weaving cloth for the uniform of a military regiment. Among the samples—some cotton weaves, silks, others of mixed weave of cotton and silk fibers—he obtained and sent to Spain, some turned out to be of fine quality.

Cuéllar likewise sent to the town of Binangonan, where the women and children engaged in the weaving of stockings, samples of different qualities of white cotton, from fine to coarse, which they could work on. With the samples he sent the respective prices. So, Cuéllar ends this report asserting that, providing the natives with the raw materials, and buying from them their produce, the textile industry in the country would expand with conspicuous advantages to everyone.

The limited study of the naturalist, Cuéllar, served as the basis of a program of the Company to promote the cultivation of cotton, and develop the yarn and textile industries. The places chosen to extend the planting of cotton included various towns near Manila (Parañaque, Imus, Bacor) and the Provinces of Iloilo, Bulacan, Batangas, and Batán. The cultivation in Ilocos was intensified, the province being strategically located for cotton exports to China. But these efforts showed that only Ilocos was adapted to large-scale cultivation, for in the other provinces the work came to an untimely end. In Ilocos the local industry absorbed practically the entire cotton production, the scale of output increased from 25,000 pieces of blankets (before the establishment of the Company) to 50,000 or 60,000 annually by 1795¹⁴¹. Besides blankets, the products included tablecloths, napkins, towels, *terlingas* for petticoats, and blue *guingon* for trouser; the latter were also made of the *coyote* cotton, a fabric of light coffee-color. Weaves for bed coverlets were also made, *rayadillos* or striped blue-and-white cotton, sometimes interwoven with silk. The town of Malabon specialized in the making of *cambayas*, a thick blue-and-white checkered fabric used for the *sayas* of the poor native women. In Iloilo

¹⁴¹ Report of the Directors in Manila, Patricio Darwin and Juan Manuel Arrieta to Don Eugenio Llaguno; Manila, 31 December 1795, AGI *Filipinas* 701.

they made bedspreads and blankets, "colorful and of exquisite weave" according to Father Delgado, "as well as *tapis* or *refajas* which the wealthy class customarily wore over their plain *sayas* as a sign of importance and elegance.¹⁴²

Mulberry-tree Cultivation and the Cottage Silk Industry

The cultivation of the mulberry-tree was introduced into the Philippines before the period we are studying. But this remained neglected, although as Father Calvo indicates, at that latitude the tree grows a constant foliage which make it possible to gather about four harvests a year.¹⁴³ The *Sociedad Económica* paid special attention to the cultivation of the mulberry-tree and the silkworm, and for a time the results were successful, but due to various factors, silk culture did not flourish in the country.

In 1782 the *Sociedad* requested one of its members who was on his way to China to bring with him upon his return experts in the cultivation of silkworms and the weaving of silk. Also, to get some trunks of the mulberry-tree native to China, since the foliage of the trees growing in the Archipelago was not as suitable for feeding silkworms. In 1783 these plants arrived and were sown on a piece of land given to the *Sociedad* by the Discalced Augustinians who owned an hacienda in the district of Manila.¹⁴⁴

On this land, that soon became property of the Royal Philippine Company, was to rise later the Botanical Garden of Manila. It was used then as a vivarium or nursery for mulberry plants. From there the cultivation of mulberries spread among the natives and in no time there could be seen beautiful orchards in the provinces near Manila, and even in some distant ones, like Camarines. Effective pressure came from the Governor who ordered that each town should devote a sufficient portion of land to mulberry-trees. Further-

¹⁴² Delgado, *Historia*, p. 629.

¹⁴³ Calvo, "Proyecto", fol. 333, vo, BPM *Miscelánea de Ayala V.*

¹⁴⁴ Carvajal to Gálvez, Manila, 12 January 1784, no. 6, AGI *Filipinas* 593.

more, that each Indio must plant a certain number of these trees in the surroundings of his house. Because of this, as Cuéllar testified, towards the end of 1786 there was such a great abundance of mulberry-trees. But the enterprise was not economically sound since the value of the silk produced did not even cover the cost of the venture, at times because the harvest was niggardly, and in some cases those who engaged in the cultivation on a large-scale used Chinese labor which cost more than that of the natives. Not only were there no gains, but there were considerable losses. They therefore abandoned the mulberries altogether.

The Royal Philippine Company also tried to develop the silk industry directly. But they too met with futile results, since the Indios, seeing that they did not obtain the expected benefits, uprooted the trees. The governing board in Manila therefore thought of asking Cuéllar to make a study of the industry, to look into its potentialities and the means to induce its development. The botanist proposed that they should again intensify the planting of mulberries, offering to buy the leaves from all those who did not wish to cultivate the silkworms themselves. This cultivation of silkworms, he suggested, could be done on the land in Malate under the direction of the Company, and such a center of cultivation could be set up in other places in distant provinces where farmers of neighboring orchards could deliver and sell their mulberry leaves.¹⁴⁵

Cuéllar, working with the natives, made some experiments. He obtained samples of *payon* or coarse silk, and others that he bleached and dyed in different colors. The silk was taken from the silkworms cultivated in the garden of the Company, and feeding on mulberries grown there.

Following the lead, the Governor, Felix Berenguer de Marquina thought of starting a silk industry in the Province of Tondo, conveniently located near Manila. To this effect he sent a circular letter to the pastors of all its towns, and an

¹⁴⁵ Report of Cuéllar to the Government Board of the Royal Philippine Company, Manila, 29 December 1791, AGI *Filipinas* 273; ARAF, no. 4, 1952, pp. 365 ff.

order to all the civil authorities urging them to encourage the planting of mulberries in the yards around the houses of the Indios.¹⁴⁶ Mulberry saplings were provided them free at the Malate vivarium, and the Company promised to buy all their silk, or their mulberry leaves if they did not want to cultivate the silkworms. With such a plan Marquina expected to come up with good results, since Tondo's proximity made it possible to watch and observe the mulberry orchards. He was confident that within two or three years the silk produced would be sufficient to supply the domestic market, as well as to give an excess which could be exported to New Spain, thus setting up an important chapter in the commercial history of the Philippines.

In May of 1793, 600,000 mulberry saplings were distributed, but only 250,000 of these were retained, the rest were not planted and left to dry because the natives whiled their time away. In the case of one *alcalde* of the natives, a punishment was imposed for his lack of interest by making him replace the losses. Thus, in 1794 the plan of sowing reached the number of almost a million trunks.

Nevertheless, these efforts did not achieve their objective, and silk was never produced on a large scale, although the ships of the Company, in their voyages between 1788 and 1790, brought to Spain small shipments of raw silk and silk fabrics.

Other fibrous textiles

Among the studies that Cuéllar did is one on the cultivation of the species called *ortiga alvea*. In China, the *lien-cecillo*, or small linen cloth, was made from the fibers of this plant. It grew abundantly in the islands of Batanes, and was transplanted to the garden in Malate by González Carvajal. There Cuéllar found four or five plants from which he propagated this variety. He planted some in his own garden in Manila. From these he obtained better specimens, the re-

¹⁴⁶ Both documents are dated 16 October 1792 and Marquina refers them in his letter to the Marquis of Bajamar, Manila, 30 June 1793, no. 37, AGI *Filipinas* 520; ARAF, nos. 5, 6, 1952, pp. 497-501.

sult of his painstaking care. He sent sample fibers drawn from these plants to Spain to have them woven like linen. He wanted to experiment on this type of fabric thinking that it would be highly useful to provide the country with it, thus cutting the importation of *liencecillo* from China. He therefore suggested that if the results were satisfactory, it would be advisable to send one master weaver of linen to the Philippines.¹⁴⁷

Linen was not found in the Philippines. The first seeds of flax and hemp were brought by Basco who had them planted in the Provinces of Cagayan, Ilocos and Pampanga, and in some haciendas around Manila, Tunasan, Lian, Malabon, Calauang and others. In the garden of the royal Palace seedbeds were also prepared for them, but since the seeds arrived in bad condition, only about a tenth of the flax germinated and of the hemp, "not even a grain." However, Basco would not give up; he ordered from New Spain another shipment of seeds. He instructed particularly that the seeds be placed in well-protected bottle cases, and to leave them out in the open rather than in the hold of the ship.

To direct the experiments, the Governor brought with him, Don Fernando Avilés, an *interim* chaplain of the Armada, who was well-versed in these cultivations. Avilés transferred to the hacienda of Malabon, property of the Countess of Lizárraga, who generously offered not only to provide the lands, but also the implements and tools, house, and whatever help that he asked for.¹⁴⁸ There too, the flax seeds germinated, but not the hemp, which confirms the suspicion that the seeds arrived spoiled. Basco refers to this matter again in May of the following year,¹⁴⁹ and says that the crop of flax was almost lost completely, and the little that was saved was so weak that it merely produced flax fibers of inferior quality. But Basco was not easily discouraged, and before he would admit that the land was not suitable for these

¹⁴⁷ Report of Cuéllar, AGI *Filipinas* 723.

¹⁴⁸ Basco to Gálvez, Manila, 29 December 1778, no. 37, AGI *Filipinas* 690.

¹⁴⁹ Basco to Gálvez, Manila, 20 May 1779, AGI *Filipinas* 687.

cultivations, he wanted to make further experiments in different provinces and at various seasons of the year. He therefore asked again that seeds of both strains be sent from New Spain on the Acapulco galleon that was due to arrive.

The Viceroy of Mexico, upon receiving the request of the Governor, ordered that the shipment of seeds be sent to the Philippines.¹⁵⁰ But the plantings that followed also failed, as Basco himself admitted when he related the return of Avilés to Spain, admitting that he was unable to make a success of its cultivation, "either because the land is inhospitable to its growth, or that the seeds were spoiled enroute."¹⁵¹

Among the textile fibers of the Islands, mention must be made of abaca which, although at this period had not yet acquired the importance it was to assume in the following century, was the source of an indigenous industry of some volume. Abaca (*musa textilis*) comes from a tree similar in appearance to a banana tree. From its fibers were made cordage for ships and various textiles. Among these the *medriñaque* made in southern Luzon and the Visayas can be singled out. The fabric was used for interlining dresses and as buckram, which in the 18th century became an important item of export. Similar to this but thicker was the textile called *guinara* reserved for the domestic market. In Camarines, Ilocos, and Tondo was made the *nipis* of different colors and weaves. It was used ordinarily for shirts of natives, both for men and women, and its qualities and prices varied.¹⁵² This was not exported, although, as Father Delgado said, if it were known in other countries, it would have been highly prized and could constitute an article of foreign commerce.¹⁵³

¹⁵⁰ Royal order, San Ildefonso, 24 October 1779, AGI *Filipinas* 690.

¹⁵¹ Basco to Gálvez, Manila, 31 December 1783. Avilés himself wrote to Gálvez on 12 July 1783 from Cádiz telling him that he arrived on the 5th in the frigate *Asunción* and offered to give personal account of what happened in this cultivations. AGI *Filipinas* 690.

¹⁵² Rafael Díaz Arenas, *Memorias históricas y estadísticas de Filipinas* (Manila, 1850) cuaderno 11.

¹⁵³ Delgado, *Historia*, p. 561.

TOBACCO CULTIVATION

The tobacco monopoly produced an important source of revenue in the country. Here we shall limit ourselves to a brief account of the extension of its cultivation. According to Father Delgado, tobacco did not exist in the Philippines before the coming of the Spaniards and was brought in by them from Mexico.¹⁵⁴ It acclimatized itself perfectly and grew throughout the country, although it resulted in varied qualities. In Luzon, the tobaccos of Maniquina and San Mateo were famous; in Leyte, those of Hilongos and in Panay, that of the Province of Iloilo. But the most productive provinces were Pampanga and Cagayan. The leaf of the Cagayan tobacco was naturally dry yellow while that of Gapan (Pampanga, was darker.

The quantities of tobacco harvested in the Philippines were impossible to estimate since before its monopoly in 1782, there was no restriction on it whatsoever. Even after the creation of the monopoly which affected the island of Luzon only, unrestricted cultivation continued in other places, and clandestinely in many provinces of Luzon because the natives consumed it extensively and it was for them an article of prime necessity. Because of this, the natives themselves cultivated it with diligence, notwithstanding the orders given them to the contrary.

THE FOOD PLANTS

Here we shall discuss only those plants which were found essential to the economic life of the country, being either items of high consumption in the country, or items of foreign commerce.

In this group, rice occupies the primary place, being the "bread of the Islands". There was a wide variety of rice, each one adapted to a class of soil and climate, demanding a distinct type of cultivation. Thus, those lands that were smooth and clayish, in which the water penetrated with difficulty, were first flooded and softened from the start of the

¹⁵⁴ *Ibid.*, p. 758.

rains brought by strong monsoon in the month of June. So that the waters might not accumulate in the low areas, the surface of the land was levelled forming large square sections separated by ridges. Meanwhile the seedbeds were prepared. After a month, the rice seedlings were transplanted in the fields. There the seedlings arranged in rows completed the vegetative cycle, and were ready for reaping in December.

The high lands which were somewhat loose were tilled at the start of the monsoon rains, and rice was sown directly without benefit of seedbeds. The harvest took place in October. This was called "the chance harvest" since it was less certain than the first method.

The third system of cultivation called *caingin* by the natives was adapted to mountainous places where there were no level lands required by the variety of rice that had to be transplanted and no work animals.

There were such a variety of rice that from the Indios of Lambunao alone, García Armenteros gathered 54 kinds; some of them were indigenous and others introduced from neighboring countries.¹⁵⁵ Armenteros classifies them into three groups, *arroz fino*, *ordinario* and *pegajosa*. The varieties of the second class were the more nutritious and were used by the natives. Those of the third were used to make loaves and rice cakes mixed with coconut milk and sugar.

Father Delgado enumerated 93 distinct species of rice and describes their characteristics.¹⁵⁶

Rice cultivation received great impetus at the start of 1789, when the port of Manila was opened to foreign trade. This brought about the increased demand for rice. Thus, Pampanga whose rice production before this time was 25,000 to 28,000 *pilones* (each *pilon* weighing one quintal), exported

¹⁵⁵ "Noticias de las especies e arros que se cultivan en los montes de la provincia de Yloilo," by Jose Garcia Armenteros. MNM ms. 313, fol. 75

¹⁵⁶ Delgado, *Historia*, pp. 705-706.

in 1793, 28,307 piculs of rice, or the equivalent of about 44,000 *pilones*.¹⁵⁷

Regarding wheat, corn, cacao, coffee, etc., what was mentioned in the first article suffices since not one of these figured significantly in the balance of trade of the Philippines.

¹⁵⁷ "Informe de la Dirección de la Real Compañia sobre los medios de que se ha valido para adelantar la agricultura, industria y comercio de estas," fol. p, AGI *Filipinas* 988.