

THE INTERNATIONAL FACE OF THE PHILIPPINE SUGAR INDUSTRY, 1836-1920

By John A. Larkin*

The role of international trade in the development of the sugar industry in the Philippines is explored here. It is established that the formation of the Philippine sugar industry during the crucial 84-year period from 1836 to 1920 presents an example where outside forces supplied both the initial impulse for change and the guiding force of development. Moreover, Filipino entrepreneurship was essential for the creation of new sugar estates, and native labor transformed the Philippine jungle into prime agricultural land. These actions led to the creation of a sugar society decidedly colonial Filipino in structure, culture and outlook.

This paper examines the role of international trade in the development of the Philippine sugar industry during the important and formative period from 1836 to 1920. For the past 400 years, change in Philippine society and its institutions has resulted from the interaction between foreign impact and indigenous response. The degree to which international or domestic influence has dominated that interaction varies from region to region and from institution to institution, depending on time and differing conditions. Change, for example, in early colonial times in areas around Manila was much more motivated by Spanish influence than was true in Samar; moreover, religious practices were affected much more than were agricultural ones. In the case of Philippine sugar during that crucial 84 years of the 19th and 20th centuries, outside forces acted as the driving imperative for growth and transformation of that industry and the society associated with it.

The years between 1836 and 1920 constitute a distinct period in the history of the Philippine sugar industry, one characterized by an enormous growth in production induced by a burgeoning international demand. Encouraged by foreign entrepreneurs, native Filipinos responded to this insistent market by extending sugar agriculture onto the Philippine frontier. New plantings swelled exports, changing the face of the Philippine economy and altering settlement patterns in the archipelago. All the while the sugar industry reacted

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Table 1 — Philippine Sugar Exports
1836-1920
Metric tons

Year	Export	Year	Export	Year	Export
1836	15,097	1865	56,062	1893	264,657
1837	12,478	1866	55,722	1894	196,651
1838	12,561	1867	65,596	1895	233,694
1839	15,867	1868	75,270	1896	232,673
1840	16,815	1869	69,922	1897	204,518
1841	15,581	1870	79,469	1898	180,818
1842	18,819	1871	88,869	1899	85,828
1843	22,644	1872	97,060	1900	65,191
1844	21,842	1873	89,337	1901	56,673
1845		1874	105,528	1902	98,596
1846	20,791	1875	128,225	1903	85,308
1847	24,925	1876	132,887	1904	87,053
1848	17,970	1877	124,342	1905	108,499
1849	23,901	1878	119,559	1906	129,454
1850	29,090	1879	135,698	1907	127,917
1851	26,439	1880	183,698	1908	144,735
1852	27,197	1881	212,683	1909	129,328
1853	34,910	1882	155,086	1910	121,472
1854	45,291	1883	215,271	1911	209,044
1855	49,194	1884	124,000	1912	197,076
1856	51,992	1885	205,933	1913	157,334
1857	44,840	1886	188,029	1914	236,498
1858	35,208	1887	181,299	1915	211,013
1859	52,552	1888	187,847	1916	337,490
1860	55,126	1889	221,553	1917	205,908
1861	53,970	1890	149,297	1918	273,258
1862	82,063	1891	168,411	1919	136,060
1863	76,212	1892	249,905	1920	180,341
1864	64,810				

Sources: Ramon González Fernández and Federico Moreno y Jeréz, *Manual del viajero en Filipinas* (Manila: Est. tip. de Santo Tomás, 1875), p. 185; M.J. Lannoy, *Iles Philippines* (Brussels: Delevingne et Callewaert, 1849), endchart # 5; Robert MacMicking, *Recollections of Manilla and the Philippines: During 1848, 1849, and 1850* (Manila: Filipiniana Book Guild, 1967), pp. 170-171; Angel Martínez Cuesta, O.A.R. *History of Negros*, trans. Alfonso Felix, Jr. (Manila: Historical Conservation Society, 1980), p. 365; Carlos Recur, *Filipinas: Estudios Administrativos y Comerciales* (Madrid: Imp. de Ramon Moreno y Ricardo Rojas, 1879), p. 95; Russel, Sturgis and Co., "Principal Articles of Export in 1854 and 1855," *Market Reports*, January 7, 1856 (Harvard Library); Alexander R. Webb, "The Sugar Industry in the Philippines," *U.S. Consular Reports*, XXXI (October 1889), p. 371; Edward W. Harden, *Report on Financial and Industrial Conditions of the Philippine Islands* (Washington: Government Printing Office, 1898), p. 20; *Sugar News*, VII (1927), pp. 186, 698; Philippine Islands, Bureau of Customs, *Annual Report of the Insular Collector of Customs to the Honorable Secretary of Finance for the Fiscal Year Ended December 31, 1922* (Manila: Bureau of Printing, 1923, p. 69).

to differing market conditions, it proved remarkably unresponsive to political circumstances. The turmoil, for instance, at the turn of the twentieth century, associated with the Philippine Revolution and the switch from Spanish to American overlordship merely curtailed production temporarily. A return to normal conditions led to a resumption of the patterns of the previous century. It was, finally, a long-delayed revolution in sugar processing which brought the era to a close.

The extent and course of the transformation of the sugar industry is illustrated in Table 1 which details annual sugar exports during this era. Between 1836 and 1916 exports rose some 2235%. That growth was steadily and spectacularly upward until near the turn of the century, at which time a series of conditions, economic and political, caused a temporary but drastic drop. Following this setback, exports resumed their upward path, but at a much slower rate, and not until 1916 did they surpass those of 1893. By the end of the period, sugar producers began to fear that, under current conditions of operation, exports had peaked and that only with major technological change could the situation improve.

The foremost impetus to this dramatic transformation was the enormous growth in demand for sugar, especially among the industrial nations, which started before the mid-nineteenth century. The extent of that rise in demand is revealed in the sugar consumption figures for Great Britain and the United States (Tables 2 and 3), two of the largest markets for Philippine sugar.

Table 2 — Consumption of Sugar in the United Kingdom,
pounds per capita (annual),
1830-1919

1830-1839	17.8	1875-1879	53.2
1840-1844	16.4	1880-1889	67.9
1845-1849	22.6	1890-1899	78.9
1850-1859	30.1	1900-1909	84.7
1860-1869	38.7	1910-1914	90.8
1870-1874	49.2	1915-1919	70.1

Source: Noel Deerr, *The History of Sugar* (London: Chapman Hall, 1949-50), II, 532.

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Table 3 — Sugar Consumption in the United States,
Total and Per Capita, 1836 to 1920

Year	Sugar Consumption Raw Value		Year	Sugar Consumption Raw Value	
	Total 1,000 Tons	Per Capita Pounds		Total 1,000 Tons	Per Capita Pounds
1836	97	12.6	1879	997	40.5
1837	101	12.8	1880	1,147	45.6
1838	123	15.2	1881	1,191	46.2
1839	128	15.4	1882	1,272	48.2
1840	128	15.0	1883	1,403	51.9
1841	139	15.7	1884	1,501	54.2
1842	131	14.3	1885	1,503	53.1
1843	141	14.8	1886	1,625	56.1
1844	167	17.1	1887	1,669	56.4
1845	201	20.0	1888	1,746	57.7
1846	216	20.8	1889	1,725	55.9
1847	241	22.6	1890	1,825	57.9
1848	270	24.5	1891	2,244	69.7
1849	258	22.8	1892	2,221	67.6
1850	287	24.7	1893	2,284	68.2
1851	349	29.0	1894	2,412	70.7
1852	409	32.8	1895	2,337	67.2
1853	467	36.3	1896	2,325	65.6
1854	472	35.5	1897	2,482	68.8
1855	437	31.9	1898	2,400	65.4
1856	437	31.0	1899	2,490	66.6
1857	429	29.5	1900	2,660	69.9
1858	484	32.4	1901	2,843	73.3
1859	527	34.4	1902	3,075	77.7
1860	514	32.6	1903	3,055	75.8
1861	588	36.4	1904	3,316	80.7
1862	412	24.8	1905	3,154	75.3
1863	317	18.6	1906	3,432	80.3
1864	330	18.9	1907	3,588	82.5
1865	393	22.4	1908	3,818	86.1
1866	505	27.6	1909	3,904	86.3
1867	544	29.1	1910	4,015	86.9
1868	580	30.3	1911	4,016	85.6
1869	651	33.3	1912	4,199	88.1
1870	728	36.5	1913	4,486	92.3
1871	795	38.8	1914	4,507	90.9
1872	849	40.5	1915	4,556	90.6
1873	897	41.7	1916	4,384	86.0
1874	939	42.6	1917	4,414	85.4
1875	949	42.1	1918	4,189	80.1
1876	929	40.3	1919	4,875	92.8
1877	893	37.9	1920	4,895	92.0
1878	927	38.5			

Source: *Sugar: Facts and Figures . . . 1952* (Washington: United States Cuban Sugar Council, 1952), p. 44.

Only during periods of major war did the rate of consumption dip in either country. All the while per capita consumption was rising, population, too, was multiplying: in the United States from 17 million in 1840 to 125 million in 1920, and in Great Britain from 19 million in 1841 to 43 million in 1921. Hence, although the Philippines remained only one of many suppliers, exploding world demand almost guaranteed the islands a bigger export market each year.

The destination of sugar exports varied considerably over the period, reflecting changing realities in world market conditions. The figures in Table 4, though derived from sometimes conflicting sources, offer some sense of the shifting terminals of Philippine sugar exports. The United States purchased on the most consistent basis, although Great Britain bought more in the 19th century. Even so, these figures may be somewhat misleading, for sugar sometimes originally consigned to Great Britain ended up in American East Coast refineries (Regidor and Mason, 1905, p. 39). Beginning in the 1880s and continuing through the rest of the period, China, and to a lesser extent Japan, became big buyers, taking up the slack as European purchases waned. At the dawn of the era, Australia served as a significant outlet but faded after the 1870s, because it commenced acquiring more sugar from other sources and to develop its own sugar cane industry. Spain remained only a small customer for its most far-flung colony. More aggressive buying practices by British and American merchants in the Philippines partially account for the Spanish weakness, but Spain had other sources closer to home, in the Caribbean and in Europe. California, which early promised to be a large market, eventually came to depend on Hawaii's rising export as its main source.

Figures in Table 4 convey some sense of the complexity of shifting world markets throughout the period, and for merchants to find profitable outlets required good access to current commercial intelligence. As Legarda, and Regidor and Mason have pointed out, British and American trading firms, including such giants as Ker and Co.; Smith, Bell and Co.; Warner, Barnes and Co.; Russel, Sturgis and Co.; and Peele, Hubbell and Co., possessed the expertise, contacts, finances, and facilities to make the sugar trade a success (Legarda, 1955; Regidor and Mason, 1905; *Under Four Flags: The Story of Smith, Bell and Company in the Philippines*). Throughout the 19th century these and other foreign houses controlled the export trade, although the Spanish tried to end that stranglehold in the 1890s. Spain's efforts came too late, however, and the only change in leadership of the trade arose from the vastly increased role of Philippine Chinese exporters during the last decade of the 19th century. British,

Table 4 — Destination of Philippine Sugar Exports, 1840-1918 (Metric Tons)

Year	Europe* %	Great Britain %	Europe Continent + Spain %	U.S.** %	Calif. & Pacific Ports %	Australia %	China*** %	Other %	Year
1840	7581	48		3359	21	0	2846	18	1840
1841	6199	42		3137	21	0	2846	19	1841
1847		6594	26	5828	23	262	11055	44	0
1848	4638	29		4899	31	0	6479	40	0
1849	11684	50		5660	24	0	6165	26	0
1850		9293	32	4928	17	1843	9004	31	0
1851	8081	28		7363	26	1992	10961	39	0
1852	7821	29		9036	34	389	9460	35	0
1853	12557	36		12877	37	274	9210	26	0
1854		28063	62	6465	14	102	9320	21	636
1855		16029	33	12903	26	1038	12737	26	4576
1856	25119	51		9421	19	511	14483	29	0
1858		19972	57	1014	3	2849	9321	26	8
1860		24699	57	13862	31		2511	6	0
1861		26723	77	4944	14		2766	8	0
1862		6429	12	38501	73		6404	12	0
1863		27796	66	3463	8		3419	8	6670
1873		39954	47	29642	35			0	11572
1874		42581	48	33234	38			0	99
1875		64221	50	53773	42			0	74
									7472
									6
									1804
									1
									1875

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Table 4 (Continued)

Year	Europe*	%	Great Britain	%	Europe Continent + Spain	%	U.S.**	%	Calif. & Pacific Ports	%	Australia	%	China***	%	Other	%	Year
1881	110213	52	9585	5	80119	38	5009	2	3157	1	2231	1	2369	1	2869	1	1881
1882	67985	44	4200	3	76818	50	2106	1	1894	1	1488	1	658	0		0	1882
1883	55955	26	9325	4	140826	65	8980	4		0	185	0		0		0	1883
1884	18946	15	8170	7	78117	63	12587	10		0	6581	5		0		0	1884
1885	33691	16	4225	2	140362	68	4887	2		0	22768	11		0		0	1885
1886	26766	14	5509	3	132460	70	4048	2		0	19237	10	1	0		0	1886
1887	30246	17	4564	3	120425	66	4554	3	92	0	21411	12	1	0		0	1887
1891	46268	27	2365	1	101458	60		0		0	18930	11		0		0	1891
1892	74723	30	3068	1	95246	38		0		0	77133	31		0		0	1892
1893	99755	38	4395	2	81682	31		0		0	78994	30		0		0	1893
1894	61904	31	4343	2	57567	29		0		0	72906	37		0		0	1894
1895	86870	37	3994	2	66744	29		0		0	76249	33		0		0	1895
1896	57004	24	3539	2	85294	36		0		0	89056	38		0		0	1896
1897	50571	27	1826	1	2166	1		0		0	130362	70		0		0	1897
1898	47736	26	183	0	32938	18		0		0	105017	56		0		0	1898
1899	8399	9	10375	11	22370	24		0		0	53026	56		0		0	1899
1900	12901	20		0	2125	3		0		0	48023	76		0		0	1900
1901		0		0	5161	9		0		0	50903	91		0		0	1901
1902	6291	7		0	2580	3		0		0	84305	90		0		0	1902
1903		0		0	34211	38		0		0	56424	62		0		0	1903
1904	4402	5		0	21144	26		0		0	57091	69		0		0	1904
1905	506	0		0	43445	41		0		0	62302	59		0		0	1905
1906		0		0		0		0	11867	9				0		0	1906
1907	11802	10		0	8804	7		2	2026	2				0		0	1907

Table 4 (Continued)

Year	Europe*	%	Great Britain	%	Europe Continent + Spain	%	U.S.**	%	Calif. & Pacific Ports	%	Australia	%	China***	%	Other	%	Year
1908	10859	8	0	46046	33	0	6730	5	0	81554	59	0	1908				
1909		0	0	45565	37				0	72420	58	0	1909				
1910		0	0	98886	84	0		0	0	19267	16	0	1910				
1911	4753	2	0	188395	90	0		0	0	16557	8	0	1911				
1912	3542	2	0	132618	68	0		0	0	58724	30	0	1912				
1913		0	0	30628	20	0		0	0	124366	80	0	1913				
1914	5384	2	0	169463	72	0		0	0	60537	26	0	1914				
1915	20361	10	0	82869	39	0		0	0	106981	51	0	1915				
1916	63121	19	0	134601	40	0		0	0	140345	42	0	1916				
1917	3987	2	0	64858	31	0		0	0	138356	67	0	1917				
1918		0	0	102506	40	0		0	0	155469	60	0	1918				

*Where no separate figures for England and Continental Europe exist.

**Figures from 1891 include small shipments to Canada as well.

***Figures from 1891 include both China and Japan.

Sources: *Guía de forasteros en las Islas Filipinas, para el año de 1842* (Manila: Sanchez, 1842), p. 216; MacMicking, pp. 170-171; Henry T. Ellis, *Hong Kong to Manila and the Lakes of Luzon, in the Philippine Isles, in the Year 1856* (London: Smith, Elder, 1859), p. 288; Russel, Sturgis and Co. "Principal Articles of Export . . ."; John Bowering, *A Visit to the Philippine Islands [in 1858]* (Manila: Filipiniana Book Guild, 1963), p. 194; Manuel Azcarraga y Palermo, *La libertad de comercio en las Islas Filipinas* (Madrid: José Noguera, 1871), p. 246; González Fernández and Moreno, pp. 200, 210-211; Ramon González Fernández and Federico Moreno y Jeréz, *Anuario Filipino para 1877* (Manila: Est. tip. de Plana y Cia., 1877), p. 59; Alexander R. Webb, "Sugar and Rice Culture in the Philippine Islands," *U.S. Consular Reports, XXVII* (1888), p. 244; Chamber of Commerce of the Philippine Islands, *Yearbook of the Philippine Islands: 1920*, p. 154.

American, and Chinese firms maintained their dominance of that sector into the 20th century as well.¹

Constantly expanding world consumption explains overall rise in sugar exports, but more specific events and factors account for the short-term fluctuations. In the 1840s the decline in West Indian production stimulated British demand for Philippine sugar (Aykroyd, 1967, p. 106). Sharp rises in the 1850s and early 1860s followed upon the temporary curtailment of alternate sources and greater military need associated, first, with the Crimean War and, then, with the American Civil War. Limitations of American cane production, especially in Louisiana, in the period following the Civil War favored increased use of Philippine sugar by American East Coast refiners (Eichner, 1969, pp. 38-39).

This upward course persisted until the mid-1880s when two factors began to work to the detriment of the industry. First of all, the expansion of the beet sugar industry, initially in Europe and later in the United States, offered new competition to the cane industry. France, Austria-Hungary, and Russia put down wide plantings between 1850 and 1900, as did such American states as California, Michigan, and Ohio. In order to protect this new industry, countries on the Continent legislated a bounty system of rebates which rewarded local production of sugar. Great Britain commenced purchasing more of its sugar from other, closer sources and established its own beet sugar industry in the twentieth century (Aykroyd, 1967, pp. 99-100; Robertson, 1934, p. 2). The McKinley Tariff Bill, passed in Washington in 1890, included a two cents per pound bounty on homegrown sugar. Although this bounty was repealed three years later, the Dingley Tariff of 1897 raised the duty on imported sugar at a time when world prices were low.²

The second factor affecting the Philippine sugar industry in the mid-1880s was the drop in world sugar prices following upon the depression of that decade. A look at prices on the London market (Table 5) illustrates the dimension of the dilemma. Since the beginning of the period prices had been dropping, in part due to overproduction, but mainly because of lowered processing costs; how-

¹ Edgar Wickberg, *The Chinese in Philippine Life, 1850-1898* (New Haven: Yale University Press, 1965), pp. 84-88. For a list of the twentieth century exporters and the relative size of their operations see: *Sugar News*, I (1919), 43.

² On the history of U.S. tariff policy towards sugar, see *Handbook of the Philippine Sugar Industry* (Manila: Philippine Sugar Assn., 1929), pp. 39-42.

Table 5 — Range of Prices and Average Price of Raw Sugar (Cost, Insurance, Freight) in London, 1836 to 1921, in shillings per cwt.

Year	Price	Year	Price
1836	38-45	1879	19/0
1837	33-37	1880	20/6
1838	33-42	1881	21/3
1839	39	1882	20/0
1840	49	1883	19/0
1841	40	1884	13/3
1842	37	1885	13/6
1843	37	1886	11/9
1844	33	1887	11/9
1845	33	1888	13/0
1846	33	1889	16/0
1847	27	1890	13/0
1848	26	1891	13/6
1849	22	1892	13/6
1850	23	1893	14/3
1851	23	1894	11/3
1852	20	1895	10/0
1853	22	1896	10/9
1854	20	1897	9/3
1855	24	1898	9/6
1856	28	1899	10/6
1857	34	1900	11/3
1858	24	1901	9/3
1859	23	1902	7/3
1860	24	1903	8/6
1861	22	1904	10/3
1862	20	1905	11/0
1863	21	1906	8/6
1864	26	1907	9/3
1865	22	1908	9/9
1866	21	1909	10/3
1867	22	1910	11/0
1868	22	1911	11/6
1869	24	1912	11/0
1870	23	1913	9/6
1871	25/6	1914	11/7
1872	25/6	1915	14/4
1873	22/6	1916	24/3
1874	21/6	1917	31/6
1875	20/0	1918	33/0
1876	21/6	1919	38/5
1877	24/6	1920	58/0
1878	20/0	1921	18/3

Source: Deerr, II, 531.

ever, after the 1840s prices held more steady due to growing demand. In the 1880s they fell by almost half and, after a brief surge in 1889, remained depressed until the boom years of World War I. At the heart of the matter lay oversupply: too much cane and beet sugar combined.

Manila prices did not fall so drastically (see Table 6), but the amount exported dipped and the European market fell off permanently from its 1881 high. The cost of transportation and the bounty systems made Philippine sugar no longer competitive in Europe. Beginning in the mid-1880s, China and Japan served as ever larger outlets for the Philippine product as the American market also started to contract. Were it not for a growing Asian trade, the Philippine sugar industry would have faced a major crisis much earlier. The 1890s saw the perpetuation of low world prices, the diminution of the American market, and the onset of the Philippine Revolution. Only the increasingly active role of Chinese traders and the China market maintained Philippine exports at their previous levels; moreover, in 1893 they actually reached their nineteenth century peak.

The Philippine Revolution caused the diminution of the export trade, but mostly that of Luzon. Disruptions at the port of Manila and the fighting in Central Luzon curtailed deliveries of sugar from that northern island, but sugar shipped through the ports of Iloilo and Cebu remained strong throughout the period of struggle against Spain, reflecting the less severe fighting in the south (see Table 7). By and large, sugar farmers and merchants did not go to war and still conducted their business as best they could (Larkin, 1972, Ch. 5; McCoy, 1977, pp. 92-102). The drop in exports in the early years of the American occupation had more to do with other causes, the most serious being the devastating outbreak of the cattle disease rinderpest which decimated the carabao population throughout the archipelago. The disease had apparently arrived from French Indo-China in the 1880s, but reached a high intensity for the first time only in 1897. Not until late in the first decade of the 20th century did farmers manage to replenish their stock almost to pre-outbreak levels (Youngberg, 1922, pp. 205-208).

Rinderpest and war did not represent the only sources of difficulty for Philippine sugar; a shortage of market outlets was beginning in earnest. The Philippines increasingly had to compete with Java in the China market, and Japan began to acquire its sugar from its new colony, Formosa, obtained as a result of the Sino-Japanese War.³ In

³Memo from José R. de Luzuriaga to William H. Taft, Philippine Commission, February, 1904. Bureau of Insular Affairs Section, U.S. National Archives, File 4122, incl. 7.

Table 6 — Prices For Muscovado [Mat] Sugar At Manila — Selected Years 1836-1920, Pesos Per Picul of 63.25 Kilos — High and Low Price Where Given

Year	Price	Year	Price	Year	Price
1836	₱5 1/4	1881	₱4 7/8 — ₱4 3/8	1896	₱4 3/8 — ₱3 1/4
1840	₱5	1882	₱5 1/2 — ₱4 1/2	1897	₱4 1/4 — ₱3 1/2
1844	₱4 1/8	1883	₱5 — ₱4 1/2	1910	₱6.32
1850	₱4 3/8	1884	₱4 1/2 — ₱3 1/4	1911	₱6.32
1856	₱4 1/8	1885	₱4 1/4 — ₱3	1912	₱6.32
1875	₱4 5/8 — ₱2 1/2	1886	₱4 1/8 — ₱3	1913	₱5.06
1876	₱5 1/4 — ₱3 1/8	1887	₱4 1/4 — ₱2 7/8	1914	₱4.57
1877	₱6 3/4 — ₱4 3/8	1888	₱4 1/8 — ₱3 1/2	1915	₱5.41
1878	₱5 5/8 — ₱4 3/8	1889	₱5 1/4 — ₱3 5/8	1916	₱5.65
1879	₱6 1/4 — ₱4 3/8	1890	₱4 — ₱3 1/4	1917	₱6.20
1880	₱5 5/8 — ₱4 1/4	1891	₱4 — ₱3 3/8	1918	₱5.75
		1892	₱4 1/4 — ₱3 1/2	1919	₱11.38
		1893	₱4 7/8 — ₱4	1920	₱23.66
		1894	₱4 5/8 — ₱3		
		1895	₱4 — ₱3		

Note: Nineteenth century figures in pesos and reales of eight to the dollar; twentieth century figures in pesos and centavos.

Sources: González Fernández and Moreno, (1875), p. 258; *Centenary of Wise and Company* (n.p., n.d.), p. 101; González Fernández and Moreno, (1877), p. 79; *Singapore Free Press*, September 12, 1844; Russell, Sturgis and Co., Newsletter for January 7, 1856; Harden, p. 20; *Philippine Agricultural Review*, XIV (1921), 132.

the United States, the Dingley Tariff inhibited sales in spite of the fact that the Philippines received a twenty-five per cent reduction in duty after 1903. Philippine sugar lobbyists fought hard and won duty free status for their product when in 1909 the Payne Aldrich Bill permitted free entry of 300,000 tons. In 1913 even that quota was eliminated under the Underwood Tariff and all Philippine sugars entered duty free. In spite of this advantage, the Philippines still had to compete with such offshore suppliers as Cuba, Puerto Rico, and Hawaii. In most years of the second decade of the new century the Philippines had to sell substantial amounts of their product on the less lucrative China market. What was hurting Philippine exports most was the quality gap: Philippine processors were still trying to sell the same low grade sugar they had turned out for the past eighty years, but on a world market which now demanded a higher grade of purity.

In the 19th century Filipinos manufactured two major kinds of muscovado sugar: in Central Luzon, a semi-refined grade called *pilon*

Table 7 — Philippine Sugar Exports By Port — 1894-1903

	1894	1895	1896	1897	1899	1900	1901	1902	1903
	Tons	Tons	Tons	Tons	Tons	Tons	Tons	Tons	Tons
Manila....	94,656	107,221	97,705	57,382	5,041	27,473	5,567	421	868
Sugar Cebu....	10,198	13,335	7,701	15,257	12,363	3,751	8,283	4,595	6,202
Yloilo..	88,533	110,527	124,648	130,542	71,982	36,312	45,070	97,129	81,308
Total....	193,387	231,083	230,054	203,181	89,386	67,536	58,020	102,145	88,378

Under American Occupation.

Source: John Foreman, *The Philippine Islands* (4th ed.; New York: Charles Scribner's Sons, 1906), p. 641.

sugar, named after the clay containers in which the sugar was drained of molasses and shipped to market; and in the Visayas, "mat" sugar, hardened on open tables and transported in palm leaf woven sacks called *bayones*. Use of these two methods continued in the archipelago even as worldwide technology in the sugar industry changed radically. In 1812 an Englishman, Charles Howard, invented the steam heated vacuum pan that saved energy by boiling sugar, under reduced pressure, at a lower temperature. Invention of the centrifugal separator, a steam-driven cylinder that removed molasses from crystal sugar cleanly and efficiently, followed in the 1840s. By late 19th century Java, Hawaii, and Cuba, the major competitors of the Philippines for the cane sugar market, were already using both these innovations. In combination, the vacuum pan and the centrifugal separator produced a raw sugar with a 96° polarization (degree of purity), compared to the average 85° polarization for the better grades of muscovado: however, the cost of erecting modern steam-run factories, called 'centrals, ran very high, reaching hundreds of thousands of dollars.⁴

The Philippines possessed neither the resources nor incentive to invest in these expensive centrals. The Spanish colonial government, more inclined to worry about paying its burgeoning bureaucracy, took little interest in industrial development. Few individual investors had the available capital, and not until the 20th century did the persistence of bad market conditions convince them of the necessity for such an outlay.

A small group of Spanish entrepreneurs tried to employ a vacuum pan in 1885, but this project failed, and a single British refinery at Malabon, near Manila, supplied the limited local and Spanish market with refined sugar. Steam-driven cane grinders, more efficient boiling furnaces, and better quality open boiling pans came into fairly common use in the archipelago, replacing the more crude machinery of an earlier time. Nevertheless, the major purpose of this machinery was not seriously to improve the quality of sugar, but, rather, to conserve fuel and process the sugar more quickly with higher extraction rates. For the introduction of even those relatively inexpensive devices, much credit should be given to foreign entrepreneurs: Nicholas Loney and Yves Germain Gaston on Negros

⁴G.E. Nesom and Herbert S. Walker, *Handbook of the Sugar Industry of the Philippine Islands* (Manila: Bureau of Printing, 1912), part I, 15-16; Deerr, II, 559-577; Eichner, pp. 31-36. The cost, e.g., of the machinery and railway of the first central constructed at San Carlos, N.O. in 1910 came to ₱700,000. See *Prospectus of the San Carlos Milling Company, Limited*, 1912.

Island, and Paul de La Gironiere, Adolphe Delaunay, and M.M. Vidie on Luzon. The big foreign trading houses supplied this machinery and financed its purchases by native planters.⁵

The volume of Philippine sugar export expanded because of improved extraction rates and vastly extended planting. In processing and growing sugar cane native Filipinos made their chief contribution to the growth of the industry. In both these areas native and mestizo entrepreneurs proved to be the great risk takers, and their efforts altered the Philippine landscape, turning unused areas of such places as Negros, Cebu, Panay, Batangas-Laguna, and Central Luzon into flourishing sugar haciendas. The labor for such conversion came from native peasants and rural farm workers who then became the laborers on the plantations. While it was the local population which undertook this great expansion, Spanish families such as the Arrastias and Gils in Pampanga and the Montillas and Luzuriagas in western Negros were also among the pioneers (Piquing, 1935, p. 11; Sonta, 1977, p. 85 n). Planters preferred to put their resources into land, agricultural loans, and conspicuous consumption rather than expensive processing machinery.

The economics of the international sugar trade did not hurt the Philippines until the mid-1880s. Because of ad valorem duties on sugar imported into America and England (until 1874), it remained economical for these two countries to take in 85° muscovado. But with the rising availability of high quality beet sugar, first from the Continent and, then, from domestic growers, both countries began to favor importing 96° centrifugal. As the century ended, muscovado was losing the competition for the valuable European and North American markets. The Payne-Aldrich Tariff of 1909 salvaged something of the U.S. market; however, large quantities of Philippine sugar still found their way only to Asian outlets. Even during times of great world shortage, as in the period of World War I, muscovado

⁵ Philippine Commercial Agencies (comp.), *Economic Resources and Development of the Philippine Islands* (Manila: Philippine Commercial Agencies, 1920), p. 50; Letter of the Luzon Sugar Refining Co. to the Philippine Commission, May 27, 1907, Bureau of Insular Affairs Section, U.S. National Archives, File C-1275, incl. 4; J. Mallat, *Les Philippines* (Paris: Arthus Bertrand, 1846), I, 132-133; Ellis, p. 96; Legarda, pp. 459-460; *A Gathering of the Descendants of Yves Leopold Germain Gaston, Hda. Sta. Rosalia, Manapla, Neg. Occ., Philippines* (Souvenir Program: n.p., n.d., 1981), pp. 9-11; Francisco Gutierrez Creps, *Memoria sobre el cultivo, beneficio y comercio del azúcar* (Manila: Celestino Miralles, 1878), *passim*; Nesom and Walker, p. 14.

sold from five to ten pesos lower per picul than centrifugal.⁶

As the second decade of the twentieth century began, it became obvious that the Philippines needed to produce centrifugal sugar if the industry was to survive, and, again, foreigners made the initial investment. American capital built the first three big centrals in the archipelago: at San Jose, Mindoro (1910), at San Carlos, Negros Occidental (1914), and at Calamba, Laguna (1914). Native investors joined in quickly, and their smaller centrals went up at Talisay (1912) and Bago (1913), Negros Occidental, and Calatagan, Batangas (1914) (Handbook of the Philippine Sugar Industry, Table 1). Difficulties associated with the war delayed construction somewhat, and not until the 1920s was the new era of the sugar industry truly launched. The progress of transformation can be gauged from the export figures by type of sugar between 1916 and 1921, the latter being the first year in which centrifugal sugar surpassed muscovado (Table 8). The succeeding era marked the emergence of different market arrangements, more scientific farming and processing, and the altered socioeconomic structure of Philippine sugar society.

Table 8 — Philippine Sugar Exports — 1916 To 1921
Given by Type of Sugar (Metric Tons)

Year	Centrifugal	Muscovado	Refined	Total
1916	35,000 (estimated)	337,355	135	374,990
1917	47,224	158,685		205,909
1918	64,018	209,240		273,258
1919	29,860	106,173	27	136,060
1920	53,196	127,141	3	180,340
1921	162,427	127,433	17	289,877

Source: *Compilation of Committee Reports for the Fourth Annual Convention of the Philippine Sugar Association, Manila, P.I., September Sixth to Tenth, 1926*, p. 2.

In comprehending change in Philippine society and its constituent parts, both foreign and domestic influences must be considered and weighted as to the relative strength of their impact. The formation of the Philippine sugar industry presents an example where out-

⁶Robertson, pp. 63-64; Jack T. Turner, *Marketing of Sugar* (Homewood, Ill.: Richard D. Irwin, 1955; Indiana University School of Business, Bureau of Business Research Study no. 38), p. 10; Roy A. Ballinger, *A History of Sugar Marketing* (Washington: U.S. Department of Agriculture, 1971; Economic Research Service, Agricultural Economic Report No. 197), pp. 9-15; Deerr, II, 441-443; *Sugar News*, VIII (1927), 237; Cleve W. Hines, "Notes," *Philippine Agricultural Review*, X (1917), 300-302.

side forces supplied both the initial impulse for change and the guiding force of development. In other areas of Philippine life, foreign impact was far less significant. Moreover, even in the case of the sugar industry, native Filipinos played an important and formative role. Filipino entrepreneurship was essential to the creation of new sugar estates, and native labor transformed the Philippine jungle into prime agricultural land. The social ramification of these actions was the creation of a sugar society decidedly colonial Filipino in structure, culture, and outlook. The extensive role of the native Filipino in the formation of the industry and its society, however, constitutes another study beyond the scope of the present essay.

REFERENCES

- Aykroyd, Wallace R. (1967), *Sweet Malefactor: Sugar, Slavery and Human Society*, London: Heinemann, pp. 99-100, 106.
- Azcarraga, Manuel P. (1871), *La libertad de comercio en las Islas Filipinas*, Madrid: Jose Noguera, p. 246.
- Ballinger, Roy A. (1971), *A History of Sugar Marketing*, Washington: U.S. Department of Agriculture.
- Bowering, John (1963), *A Visit to the Philippine Islands [In 1858]*, Manila: Filipiniana Book Guild, p. 194.
- Centenary of Wise and Company* (n.p., n.d.), p. 101.
- Chamber of Commerce of the Philippine Islands, *Yearbook of the Philippine Islands: 1920*, p. 154.
- Compilation of Committee Reports for the Fourth Annual Convention of the Philippine Sugar Association, Manila, P.I., September Sixth to Tenth, 1926*, p. 2
- Creps, Francisco Gutierrez (1878), *Memoria sobre el cultivo, beneficio y comercio del azucar*, Manila: Celestino Miralles, *passim*.
- Cuesta, Angel Martinez, O.A.R. (1980), *History of Negros*, trans. Alfonso Felix, Jr., Manila: Historical Conservation Society.
- Deerr, Noel (1949-50), *The History of Sugar II*, London: Chapman Hall, pp. 441-443, 531-532, 559-577.
- Economic Research Service, *Agricultural Economic Report No. 197*, pp. 9-15.
- Eichner, Alfred S. (1969), *The Emergence of Oligopoly: Sugar Refining as a Case Study*, Baltimore: Johns Hopkins Press, pp. 31-36, 38-39.
- Ellis, Henry T. (1859), *Hongkong to Manila and the Lakes of Luzon in the Philippine Isles, in the Year 1856*, London: Smith, Elder, pp. 96, 288.
- Fernández, Ramon González and Moreno, Federico Jeréz (1877), *Anuario Filipino para 1877*, Manila: Est. tip de Plana y Cia., pp. 59, 79.
- Fernández, Ramon González and Moreno, Federico Jeréz (1875), *Manual del viajero en Filipinas*, Manila: Est. tip. de Santo Tomas, pp. 185, 200, 210-211, 258.
- Foreman, John (1906), *The Philippine Islands*, 4th ed., New York: Charles Scribner's Sons, p. 641.
- A Gathering of the Descendants of Yves Leopold Germain Gaston, Hda. Sta. Rosalia, Manapla, Negros Occ., Philippines* (Souvenir Program: n.p., n.d., 1981), pp. 9-11.
- Guia de forasteros en las Islas Filipinas para el año de 1842*, (1842), Manila: Sanchez, p. 216.

- Handbook of the Philippine Sugar Industry* (1929), Manila: Philippine Sugar Association, pp. 39-42; Table 1.
- Harden, Edward W. (1898), *Report on the Financial and Industrial Conditions of the Philippine Islands*, Washington: Government Printing Office, p. 20.
- Hines, Cleve W. (1917), "Notes," *Philippine Agricultural Review*, X: 300-302.
- Indiana University School of Business, Bureau of Business Research Study No. 38, p. 10.
- Lannoy, M.J. (1849), *Iles Philippines*, Brussels: Delevingne et Callewaert, endchart # 5.
- Larkin, John A. (1972), *The Pampangans: Colonial Society in a Philippine Province*, Berkeley and Los Angeles: University of California Press, ch. 5.
- Legarda, Benito Jr. (1955), "Foreign Trade, Economic Change and Entrepreneurship in the Nineteenth-Century Philippines," unpublished Ph.D. dissertation, Harvard University.
- MacMicking, Robert (1967), *Recollections of Manila and the Philippines: During 1848, 1849 and 1850*, Manila: Filipiniana Book Guild, pp. 170-171.
- McCoy, Alfred (1977), "Ylo-ilo: Factional Conflict in a Colonial Economy, Iloilo Province, Philippines, 1937-1955," unpublished Ph.D. dissertation, Yale University, pp. 92-102.
- Mallat, J. (1846), *Les Philippines I*, Paris: Arthur Bertrand, pp. 132-133.
- Nesom, G.E. and Walker, Herbert S. (1912), *Handbook of the Sugar Industry of the Philippine Islands*, Manila: Bureau of Printing, part I, pp. 14-16.
- Philippine Agriculture Review* (1921), XIV: 132.
- Philippine Commercial Agencies (1920), *Economic Resources and Development of the Philippine Islands*, Manila: Philippine Commercial Agencies, p. 50.
- Philippine Islands, Bureau of Customs (1923), *Annual Report of the Insular Collector of Customs to the Honorable Secretary of Finance for the Fiscal Year Ended December 31, 1922*, p. 69.
- Piquing, Rafael Mateo (1935), "The Philippine Sugar Industry," unpublished Ph.D. dissertation, Michigan State College of Agriculture, p. 11.
- Prospectus of the San Carlos Milling Company, Limited, 1912.
- Recur, Carlos (1879), *Filipinas: Estudios Administrativos Y Comerciales*, Madrid: Imp. de Ramon Moreno y Ricardo Rojas, p. 95.
- Regidor, Antonio M. and Mason, J. Warren (1905), *Commercial Progress in the Philippine Islands*, London, p. 39.

- Robertson, C.J. (1934), *World Sugar Production and Consumption: An Economic-Geographical Survey*, London: John Bale, Sons, and Danielsson, pp. 2, 63-64.
- Russell, Sturgis and Co. (1856), "Principal Articles of Export in 1854 and 1855," *Market Reports* (7 January), Harvard Library.
- Russel, Sturgis and Co., Newsletter for January 7, 1956.
- Singapore Free Press*, September 12, 1844.
- Sonza, Demy F. (1977), *Sugar is Sweet: The Story of Nicholas Loney*, Manila: National Historical Commission, p. 85n.
- Sugar: Facts and Figures . . . 1952 (1952), Washington: United States Cuban Sugar Council, p. 44.
- Sugar News I*, (1919), p. 42.
- Sugar News VII*, (1927), pp. 186, 698.
- Sugar News VIII*, (1927), pp. 237.
- Turner, Jack T. (1955), *Marketing of Sugar*, Homewood, Illinois: Richard D. Irwin.
- Under Four Flags: The Story of Smith, Bell and Company in the Philippines* (n.p.: n.d.), *passim*.
- U.S. National Archives, Bureau of Insular Affairs Section (February 1904), Memo from José R. de Luzuriaga to William H. Taft, Philippine Commission, File 4122, incl. 7.
- U.S. National Archives, Bureau of Insular Affairs Section (May 27, 1907), Letter of the Luzon Sugar Refining Co. to the Philippine Commission, File C-1275, incl. 4.
- Webb, Alexander R. (1888), "Sugar and Rice Culture in the Philippine Islands," *US Consular Reports*, XXVII, p. 244.
- Youngberg, Stanton (1922), "A Brief History of Rinderpest in the Philippine Islands," *Philippine Agricultural Review*, XV, pp. 205-208.