THE RISE AND DEMISE OF COCA AND COCAINE:
As Licit Global 'Commodity Chains', 1860-1950

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"..the rising cultivation, consumption and export of this so precious article of our agricultural production [coca]--once widely known and used for health purposes--will replace tea and coffee themselves.." *INFORME SOBRE LA COCA* (*La Crónica Médica*, Lima, 31 Oct. 1889)

"The present is an age of commerce. Up and down the Andes the man of business is seeking treasures that lie more easily within his reach" *COCA: A PLANT OF THE ANDES* ("Commodities of Commerce Series," Pan-American Union, 1928)

INTRODUCTION: Coca/Cocaine/Commodities

This paper treats coca and cocaine as essentially export "commodities" rather than menacing drugs. This commodity perspective makes perfect sense for the period at hand, 1860-1950, from the years Andean coca-leaf first hit world markets to the beginnings of today's circuits of illicit cocaine. During this intervening century both were still seen as legitimate or even progressive articles of commerce. Taking coca and cocaine as goods--rather than singularly spiritual or pariah substances--may also temper some of the passionate thinking (and policies) that surround these Andean products today.[1]

Andean coca-leaf and cocaine make a strong case-study on commodity chains in Latin American history. Neither existed as significant commodities until the late-nineteenth century, so one can closely observe their complex social transformations into marketable and exportable goods. And coca and cocaine--rather than entering undifferentiated depersonalized world markets--became organized into distinctive commodity networks, and these have analytical significance, or so as I will argue here. Coca, responsive to external prices, became embedded in long transnational social and political networks. This sort of spatial chain of relationships is also a useful way of demystifying drugs, so often interpreted in loaded binaries of "supply" and "demand."

I'll make two caveats before moving on. First, conceptually speaking, tensions clearly exist between sociological commodity-chain approaches and neoclassical or institutional economics, though it is laudable for this symposium to try to bridge them. After all, the concept of global commodity chains ("GCC"), in which world markets are socially-structured and unevenly- segmented by power, came out of (horrors!) Wallersteinian World-Systems theory. If materialistic, it shares constructionist and relational concerns with a more qualitative Polanyesque "social life of things" anthropological lens.[2] It gives credence to huge power- differentials between actors in the "core" and "periphery" of the chains. And by focusing on flows rather than objects or sites, it tends to blur distinctions between national economies or national polities still dear to neoclassical or institutional economists. In this militant (exaggerated?) holistic view, it is not easy to separate or to measure "internal" or "external" factors or "economic" versus "non"-economic factors.

The second caveat concerns my own contribution, which is derived from a larger archival project on the global history of Andean cocaine. The effort here is obviously sketchy, as I try to show the utility of thinking about coca in global commodity chains over long periods. The quantitative data comes from motley sources which do not easily make for natural aggregates or comparisons.[3] Nor does this paper much attempt to cover illicit trades or tastes for cocaine, which were (save for a brief eruption around 1905-20) minor before 1950 anyway.

The paper is divided into two periods. The first, 1860-1910, saw the creation of world commodity networks around coca and cocaine. Two distinctive commercial chains linked nascent Andean coca to overseas markets, the “Germanic”/European-Andean circuit and the U.S.-Andean circuit. The second period, 1910-1950, saw mounting political and market constraints on coca and cocaine, in part related to international narcotics control. Here, three commodity chains arose which worked to marginalize existing Andean coca/cocaine: a managed U.S. hemispheric network, a Dutch-European colonial network and an imperial Japanese pan-Asian network. These commodity chains, which crumbled during World War II, were prelude to the illicit cocaine circuits which re-connected the Andes to the outer world by the 1970s.

1. MAKING GLOBAL COMMODITIES COCA & COCAINE, 1860-1910

With deep roots in Andean culture history, coca did not become an exportable commodity until the late-nineteenth-century. In the Incan realm, coca was largely a prestige or spiritual substance, with no explicit exchange value; in the early colonial period, the Spanish partially commercialized coca (after heated religious debates), establishing *montaña* (upper Amazonian) plantations for supplying and stimulating upland mine-workers. By the end of the eighteenth century, coca-“chewing” (it’s not really masticated) had become a widespread marker of degraded Indian caste. It remains an open question why coca could not become, like tobacco or chocolate, one of Europe’s coveted and profitable colonial stimulants.[4]

Nineteenth-century economic and scientific revolutions sparked renewed interest in and appreciation for coca, and to its alkaloid cocaine, first isolated in 1860. Many of these signals emanated from abroad but were met by active responses in the Andes. Much had to change for coca to become a world commodity: its scientific, medical and ethnic prestige had to rise (in Peru, Bolivia and Europe and North America), it needed “modern” uses and outlets, new spokesmen and the interest of merchants, colonizing planters, not to mention labor recruitment, capitalists, shippers, consumers and governments. To make a complex story short, these all came about quickly after 1850 as European botany and medicine settled coca’s stimulant power (before debatable), as industrializing societies searched for new health stimulants (famously developed in *Vin Mariani* and *Coca-Cola*) and modern medical marvels (cocaine as local anesthesia/or panacea after 1885) and as Andean nations desperately sought new modern export goods (as Peru and Bolivia recovered from the Pacific war).

a) The Germanic-Andean Connection

Broadly speaking, the first impulse to Andean coca/cocaine production came from “Germanic”-Europe (and to a lesser extent France and Britain) in the mid-nineteenth century and by 1900 Germany was the lead scientific and producer interest in cocaine. These influences were felt deeply in Peru (the largest exporter) and how it organized the initial coca trades.

Interest in coca as a modern stimulant was awakened by the development of German alkaloid science. Reports of early nineteenth-century travelers Humboldt and later (Swiss) von Tschudi and Poeppig sparked a race to discover coca’s active principle. Major German chemists (Wohler) requested bulk samples of fresh coca (extremely rare in Europe) from the late 1850s Austrian *Novara* scientific mission, which chemistry student Albert Niemann used in his isolation of "Kokain" in 1860. Austrian medical-men, most famously Sigmund Freud, played a major early role researching and promoting cocaine's medical uses world-wide. Particularly galvanizing was Koller's 1884 discovery of cocaine's local anesthetic properties, revolutionary in the progress of western surgery.[5] All of them used scarce medicinal cocaine hydrochloride made by E. Merck of Darmstadt, based on modest but now regularized imports of dried Bolivian and Peruvian leaf. European interest in coca had steadily awakened since the 1850s: after 1885, a decade-long coca boom began.

Along with "scientific" alkaloid cocaine, medical, commercial and popular fascination grew with herbal coca-leaf as well. Felt globally, "coca-mania" was particularly pronounced in France and Britain (and later even more in the United States) and had distinctive cultural roots and associations (some with imported Andean accents). In 1863, Angelo Mariani launched his remarkably successful *Vin Mariani* coca-Bordeaux wine elixir, which took the world with its sophisticated and arty marketing campaigns. Between 1863-1885, Mariani became the single largest user of Andean coca and French medical interest filtered to Peru. British medical-men, both obscure and famous, also focused on coca as a health stimulant (rather than on German cocaine) and would long defend coca tonics and medicine on their own therapeutic terms. With the mid-1880s boom, Royal Kew Gardens, which had worked similar tricks with Amazonian cinchona and rubber, began a crash program of coca research and colonial botanical experiments in Indian, Ceylon and elsewhere (as did the Dutch, French and even Germans in Cameroon).[6]

German interests, however, and the port of Hamburg, dominated the field (See TABLE 1). Merck enjoyed the experience, best Andean connections and product prestige, if in modest quantities (less than a kilo a year) before 1884. After adoption in surgery, production rose quickly to over 500 kilos annually in 1890, 1,500 in 1898, and to more than 2,400 kilos by 1902. Merck made about a quarter of world cocaine and for a decade; it was the firm's most profitable single product line. Other German firms also jumped into cocaine, among them, Gehe & Co., Knoll, Riedel, and C.H. Boehringer & Sohn, some with American branches. The turning point for Merck was 1884-86 (i.e., the start of anesthesia and other medical uses) when prices and output jumped five and twenty-times respectively. The spike caused a much-discussed and alarming international "crisis" in coca supply. Merck's strategy was to encourage Peruvian suppliers of "crude cocaine" (and likely sent agents to Lima to this end), a semi-processed (80-90% pure) jungle cocaine-sulfate cake. This shipped far easier and efficiently than dried leaf, and was processed into medicinal grade cocaine in Germany for Merck's global distribution network. It also fit the German cultural-medical preference for "pure" scientific cocaine. By 1900, almost all German imports--more than 6,000 kilos a year at peak in 1903-5, worth nearly 100,000£--arrived in this form, superceding coca-leaf. German success in promoting crude cocaine was also a major reason that rival colonial *coca* projects (British, Dutch, or the American Rusby coca mission for Parke-Davis) were largely abandoned by the 1890s.[7] Crude cocaine was also *too* successful: with world production exceeding 15 metric tons by the early 1900s, medicinal markets became saturated (there was also modest national cocaine output in England, France, Italy, Switzerland, Russia). Merck soon diversified into many other lines. As profits and prospects fell, German firms quickly formed a cocaine "syndicate" (1905--) with monopsonistic buying, cartel-pricing agreements and strong organizational ties with the German state. By 1910, the European cocaine network was no longer predominantly market-driven.

TABLE 1: IMPORTS OF COCA AND CRUDE COCAINE BY MERCK, 1879-1922

(All Tables on appended file)

A decisive factor defining this as a discrete “commodity chain” is how European (largely German) interests infiltrated and shaped the Peruvian end of things. In the 1860s and 1870s, Peruvian medical and cultural spokesmen, men such as M.A. Fuentes, Dr. Tomás Moreno y Maiz, Drs. J.C. Ulloa and José de los Rios, overcame traditional elite prejudices and began to seriously re-evaluate native coca, as a good and now marketable thing. The enlightened sway of French medicine was felt and indeed the major post-Pacific war Peruvian worker in the field, the remarkable Alfredo Bignon, was a naturalized French pharmacist in Lima. But commercial developments--which made Peru the monopoly supplier of world coca *and* cocaine by 1900, followed German cues and connections (and some American coca trends). In a burst of little- known 1884-87 pharmaceutical experiments on cocaine in Lima--a local version of Freud’s famed “Coca Papers” of the same years--Bignon perfected an original simplified method for distilling “crude cocaine,” soon promoted by Lima medical circles and by two official Peruvian “Coca Commissions.” But it was German pharmacists in the capital--men like Meyer and Hafemann-who quickly established themselves (by 1886) as the main cocaine processors, sending their product on via German merchant houses (Pruis, Dammert and others) to Hamburg.[8] Rumor has it that Boehringer sent chemists to Lima as early as 1884 for these ends. But it was the dedicated Arnaldo Kitz, a migrant German merchant to the capital, and commercial agent for Merck, who went further to the source of supply: the eastern Andes, ancestral homeland of coca. Kitz marched off to isolated Pozuzo (significantly home to the legendary “lost” Austrian peasant colony from the 1850s) and by 1890 established the region’s first working cocaine factory. Bignon’s became known as the “Kitz’”formula in producing zones. By 1892, crude cocaine earnings surpassed Peru’s revenue from coca-leaf itself. By the mid-1890s, Kitz had shifted operations to nearby Huánuco, with its rich montaña (Chinchao-Derrepente zone) haciendas. For the next sixty years, this district would remain the Andean capital of cocaine- grade coca, delivering most output to Germany until World War II. Much *Peruvian* enthusiasm went into colonizing “industrializing” these *montaña* coca-lands from 1885-1910, with the help of a few Croatian immigrant clans, and thousands of migrating peasant workers and sharecroppers. By 1900, greater Huánuco province was home to about a dozen cocaine manufactories (of about 20 scattered nationally), with the industry soon concentrated and dominated by the flamboyant regional and national political boss Augusto Durand. These complex local structures of production--particularly of this central Huánuco region--were oriented and connected over thousands of miles, to German pharmaceutical interests.

Around 1901 (according to *German* consuls), Peru’s legal cocaine zenith, total production peaked at 10,700 kilos of crude cocaine, which required the use of some 160 (metric) tons of raw coca-leaf. Peru still also exported 610 tons of coca-leaf (more than half of that northern Trujillo coca to the United States) out of a guestimated national production of 2,100 tons. That is to say the export boom left some two-thirds of Peruvian coca in traditional Indigenous circuits, much of that grown in the far Cuzqueño south.[9] Together, coca and cocaine were fleetingly Peru’s *fifth*-highest export earner and continued to excite the developmental imagination of liberal national elites. Peru’s success here, guided by German cues, was likely at neighboring Bolivia’s competitive expense, the only other known commercial coca producer. By 1900, Bolivia had failed to industrialize any of its productive Yungas coca zone (which in the 1880s had exported to France and the United States) and Bolivian coca exports to modern commercial uses in the northern hemisphere faded away. But to grasp these Andean circuits roundly we need to explore another coca commodity chain: the one between the United States and Peru.

b) The U.S.-Andean Chain

North-American interest in coca and cocaine grew after 1860 (explosively after 1884) but in contrast to Germany's scientific cocaine, had a pronounced cultural and political-economic bias towards coca-leaf. By 1900, Americans were the world's largest and most avid consumers and boosters of both substances--seemingly "domesticated" all-American goods. By 1910, however, American thinking and policies dramatically shifted *against* both coca and cocaine, and the United States began its long global campaign to banish both goods. Over the long-term, U.S. attitudes towards coca must be seen in the larger optic of expanding informal ("core- periphery"?) influence in the Andean region.

North-American fascination with coca leaf, sparked by European curiosity, took on distinctively American tones. By the 1870s American medical-men, pharmacists, entrepreneurs and hucksters were actively discovering coca. It was soon among the most widespread additives in popular patent remedies and tonics, prescribed for a vast range of conditions and ills, real and imagined. Most were related to "neurasthenia," the American condition of "nerve exhaustion" linked to fast-paced modernity and urbanization. Thus coca began as a "brain-workers" salve though by the 1880s use was spreading across (or down) the social (and racial) spectrum, including products spiked with pure cocaine instead.[10] Pioneering American drug firms, such as Detroit's Parke-Davis Company, specialized in coca medicines. Dozens of leading U.S. physicians experimented with, wrote on and debated the benefits of coca (and later cocaine), though its appeal derived mainly from herbalist or "eclectic" healer tradition, still a vibrant native alternative to European-style allopathic medicine. The American romance with coca resounds in Dr. W. Golden Mortimer classic 1901 tome "*History of Coca: The Divine Plant of the Incas"* (still a wonderful source on coca) and of course lives on in our national 'soft-drink" *Coca-Cola*, launched in 1886 as a "dry" southern imitation of Mariani's popular health beverage. By the early 1900s, the United States imported 600-1,000 metric tons of coca annually, mainly for this popular market.

FIGURE 1 : U.S. COCA IMPORTS & COCAINE, 1882-1931

The United States actively promoted initial Andean coca trades. In 1877, Peru only exported 8,000 kilograms of coca; Bolivia was an early modest supplier too. During the 1884-87 coca scarcity/price crisis, coca supply debates (including domestic growing schemes) raged in American pharmacy journals. Parke-Davis sent pioneer ethno-botanist Henry Hurd Rusby--a towering figuring in American pharmacy--on a legendary coca mission to Bolivia, to scout out new supplies, processing methods and native coca therapies. The U.S. Navy and Andean Consuls in La Paz and Lima worked to identify and secure coca supply routes. In the 1890s, U.S. Commercial Attachés in Lima developed contacts with local cocaine-makers (even Germanic Kitz) and aided Peruvians to upgrade their shipping and leaf-drying practices. Peruvian coca producers responded well to these and to market signals, more than doubling coca exports during the 1890s. Bolivia, saddled with more tortuous transport and other costs, gradually dropped out of overseas sales, by 1910 focusing on regional commerce to migrant "chewers" in Bolivia, Northern Argentina, Chile and even southern Peru.

American pharmaceutical companies and physicians reacted enthusiastically to the 1884 discovery of cocaine's anesthetic powers and expanded its gamut of "modern" medical uses (though realizing soon enough cocaine's dangers and illicit lures). By the mid-1890s, major firms--among them Parke-Davis, Schlieffelin, Mallinkrodt, New Jersey Merck--competed vigorously with German suppliers.[11] By 1900, they refined 5-6 metric tons of cocaine, about a third of world supply; total U.S. consumption (i.e., including Euro-imports) peaked around 9 tons in 1903, or some two-thirds of total global usage of some 15 tons (see FIGURE 1). Even tariff politics played their part: high effective tariffs on cocaine, with herbal coca entering free, strongly favored home production of cocaine from imported leaf. Peruvian cocaine processors themselves saw this bias. Combined with the American consumer taste for coca, still expanding with *Coca-Cola's* (and countless imitators) spectacular successes after 1900, and proximity to the Andes (which meant fresher cheaper leaf) the United States never made the German switch to large-scale imports of Peruvian crude cocaine. Indeed after 1900, U.S. buyers focused increasingly on a distinctive northern coca-leaf circuit in Peru, of western La Libertad, instead of Huánuco's Amazonian cocaine lands or Cuzco's Indian-leaf zones. Grown under drier conditions, Trujillo-branded leaf was deemed more flavorful, less alkaloid, best for tonics. La Libertad's Sacamanca and Otuzco districts evolved into the long-term supply shed of leaf (after 1903 specially *de-cocainized*) for Coca-Cola, organized by regional merchant clans such as the Goicochea's and Pinillos.[12] In short, German and North-American "chains" developed around different cultural, business and political principles and even articulated to distinguishable zones and networks within the Andes.

Finally, one should note the first impact of American anti-cocainism. A long story itself--told elsewhere--growing American fear and loathing of cocaine (and less rationally coca) was the flip-side to early enthusiasm, the ambivalent love-hate "American disease" (David Musto's term) of drugs as cure-all and scourge. By 1900, dominant medical and governmental opinion began to turn against licit coca/cocaine (along with alcohol and narcotics) and spreading "fiend," racialized or underclass illicit use.[13] By 1915, the United States was the lonely crusader in world anti-cocainism, portraying to begin with Germany as an evil drug empire. U.S. coca/cocaine controls, legally erected between 1906-1922, worked many paradoxical effects, some still with us today, such as the prohibition of harmless consumer coca-leaf. As cocaine demand became regulated and reduced, and an intricate system of coca controls introduced, the outcome was a high-degree of state-pharmaceuticals cooperation in defining the trade--and U.S. interests in or against it. Indeed, by the 1920s only two New Jersey firms (nationalized Merck and Coca-Cola partner Maywood Chemical Works) dealt with coca and cocaine, and the business assumed a monopoly character. For another thing, U.S. legislation systematized (for control purposes) the longer American penchant for leaf imports.[14] The effect was a cartelized and state-governed coca chain--in that sense, not so different from the cartelized European chain of cocaine.

c) Global Coca Under Pressure: Circa 1905-10

By 1905-10, licit cocaine's apogee, two coca distinctive commodity chains articulated the Andes, and increasingly to two differing products and zones within Peru. A pair of revealing documents of the era speak eloquently to the far global reach of cocaine after two decades of expansion, and to political tensions already emerging along its chains. One, from 1909/10, was a detailed memorandum on cocaine of the British Foreign Office (and official Imperial Institute). It was created at behest of Chinese officials to inform them about this strange and "pernicious" western drug (which they feared would swiftly replace their nineteenth-century opium scourge). The memo surveyed the "bodily effects" of the drug and Peruvian sources of commercial supplies of coca-leaf (and interestingly now Java) as well as abandoned colonial growing experiments. It laid out Peru's trade routes: export series of leaf to the United States (in 1905-6 2,650,141 lbs worth $488,545) and of crude-cocaine to European Hamburg (6,313 kilos for 108,600£ in 1906). The Imperial Institute version still vaunted the prospects of coca in colonial Ceylon, strictly for English coca preparations (quickly achieved, for about 24,000 kilos year). The Foreign Office memo considered the habits of "cocainists" (in American English, "fiends"), its formal ban in China, the new home "Poisons" Acts and their ramifications in the Colonies (Britain already had a cocaine problem of sorts in India). To the British, this was a global drug with an ambiguous future.[15] The second documents are serial reports of the Peruvian Consul-General in New York, Eduardo Higginson, as he observed coca trades shift in its principal port of entry over the critical juncture 1904-12. Besides statistics and business advice for Peruvian suppliers, Higginson gloated in 1904 about the remarkable growth of "refreshing and invigorating soda beverages" in the United States (offsetting the decried tariff bias against Peru's cocaine-makers). The coca-leaf business, Peru's alone, should continue up. Mid-way in his tenure in 1907 (the same year Finance Minister Garland lauded cocaine as "the essentially Peruvian industry") Higginson's coca reports suddenly turn sour. He notes mounting new U.S. *anti*-cocaine sentiment and laws, the sharp drop in New York imports (by some 50%), and calls for Peruvians to form a "trust" to handle this volatile market (something cocaine magnate Durand was trying to do). By 1912, Higginson's reports read more like coca's post-mortem: relating the bad news of new Asian competition that swiftly dampened Peruvian prospects; Peru's sole salvation in this business was to shift itself into fine-grade "elaborated cocaine." As such documents tell, not only was cocaine by 1910 a truly global commodity--it was rife with global contradictions.

2. DIVVYING-UP GLOBAL COCA, 1910-1950

1910-50 represents cocaine's declining middle age between the drug's licit peak and its global post-1950 (source and end-market) prohibition. From production of more than 15 tons or more in 1905, total use likely halved by 1930; by 1950 the U.N. set legal world medicinal needs at under 4 metric tons. Three factors drove this steady fall: a narrowing of medical usage (anesthesia) by substitutes and by medical opinion; anti-cocaine laws and campaigns by states and international organizations (efforts most focused on narcotics); and market withdrawal and diversification of vulnerable producers and coca planters. As yet, illicit cocaine barely compensated, after a fleeting emergence (from surplus pharmaceutical stocks) from the teens to early 1920s. The United States, the largest consumer-market, initiated national restrictions in the 1906 FDA Acts followed by a federal ban (in the 1914 Harrison Act) and a full import- control system by 1922.[16] Less successfully, they also pushed global cocaine controls at the Hague (Opiates) Conventions of 1912-14 and at successive League-of-Nations' sponsored Geneva anti-narcotics Conventions starting in 1924-25.

Rather than vanish, cocaine divided into a trio of more politically-constructed and geographically-defined global commodity chains. The first was an unexpected Dutch colonial- mercantilist Java-European chain, which by 1915 swiftly displaced Peruvian producers. The second was Japan's state-promoted and shadowy pan-Asian circuit, launched in the 1920s-30s in response to League and industrial imperatives. The third chain was the surviving U.S.-Andean nexus: increasingly tied to corporate privilege (mainly Coca-Cola's) and drug control (under Harry Anslinger's FBN), and on the Peruvian end, dividing into coca and cocaine circuits and nationalist hopes of rescue. This market encrustation is hardly unexpected for such a now politicized and declining commodity. A global market of coca and cocaine, built in the prior period, ceased to exist.

a) The Dutch Colonial Coca Boom, 1905-1930

The speed of the Dutch rise to predominance in world coca and cocaine trades took the world by surprise, especially the Peruvians, who in 1900 still felt they enjoyed a natural (Incan) birthright to the global coca market. In 1904 Dutch Java (now of Indonesia) exported only 26 tons of coca leaf; this soared to 800 in 1912 and a mass industrial supply of 1,700 tons in 1920, to a glutted world market. The Dutch built an especially productive and integrated industrial cocaine regime, yet it was also dismantled by decree almost as quickly as it arose.

TABLE 2: COCA EXPORTS FROM JAVA, 1904-1935

Dutch scientific-commercial interest in coca dates to the 1850s, but plantings began in the mid-1880s when such botanical experiments spread among the European colonial powers. One advantage was accidental: the abnormally high-alkaloid coca-bush Javan planters got from the colonial botanical gardens at Buitenzorg descended from one strand of Peruvian *Erythroxylon novogranatense*, originally from Kew. It contained twice (up to 1.5%) the cocaine content of quality Huánuco leaf but in a tricky to refine ecgonine crystallized form, practically useless for herbal coca products. Given Peru's rapid move into crude cocaine in the 1885-1900 era, not much interest was evinced in Javan coca, though small lots reached European markets.

After 1900, several factors suddenly focused Dutch interest in coca/cocaine, spurred on by national botanical specialists like de Jong and Reens. One was establishment in 1900 of Amsterdam's large state-bank subsidized "Nederlandsch Cocainefabrieck (NCF), based on copying advanced German patents for ecgonine-cocaine extraction. The second were steady investments in plantation productivity and quality. Cheap Chinese field labor, four-crops yearly, economies of scale and technical rationalization, inter-cropping with colonial rubber and tea projects, all made Javan plantation efficiency dwarf the haphazard peasant-style coca culture of the Andes. By 1911 they captured a quarter of the world market, filtered through Amsterdam into a high-margin fully-integrated cocaine industry (see TABLE 2).[17] World War I spurred further European reliance on this coca corridor. Dutch industrial-grade coca also made it to Japan, Belgium, France and even to the United States; in the 1920s, impressed by its reliable quality, New Jersey Merck acquired its own Javan plantation, which performed well into the 1930s. Three world "cores"of cocaine now existed: Darmstadt, northern New Jersey and Amsterdam, with an enlarged NCF the biggest single producer. Together, they dramatically reduced prospects for Peruvian coca (wiped off of European markets from 1908-15) and crude cocaine (confined to a now struggling German sector). Peruvian coca/cocaine export values dropped by some 95% by the 1920s. Peruvians watched these developments helplessly, without the time, capital or technical expertise to respond.[18]

Paradoxically, almost as quickly as it arose the Dutch cocaine network receded. By 1920, Java coca could basically satisfy full world cocaine demand of 12 tons; prices plummeted and profits zigzagged throughout the 1920s. The NCF even began making Novocain, cocaine's latest synthetic substitute. Price controls emerged to manage the surplus. Assisted by the League of Nations itself (interested mainly in drug-control formulas) a new formal European cocaine syndicate (no puns on Colombian "cartels") was formed in 1924 with eight firms: "The European Convention of Cocaine Producers." It included the NCF and the three largest German makers (only domestic French, British, German and Russian firms stayed apart). At first, this meant more directed purchases from Java but also steadily declining cocaine quotas. A Dutch national "Association of Coca Producers" also formed, which soon worked to downsize itself and diversify into alternative crops. In the late 1920s, Dutch production shrunk systematically (see FIGURE 2) From 1929-31, the Netherlands, in contradictory political moves, opted to comply fully with the coca-cocaine export controls of the League's Geneva Manufacturing limitation agreements (despite disagreements with U.S. anti-drug strategies and with a fiscal favoritism for colonial opium farmers). With a tiny home market, NCF output withered to 250-300 kilos annually.[19] Japan's World War II invasion of Java mortally disrupted the corridor and the subsequent U.S. occupation led to the (mandated) destruction of remaining coca plantings in Java. It had been a brief but spectacular political marriage of colonialist state, industry and planter. (And a reminder today that coca could easily escape the Andes for other tropical realms if enough pressure is applied.)

FIGURE 2: RISE & FALL OF JAVA COCA-LEAF, 1904-1941 (GRAPH)

b) **Japanese Imperial Cocaine**

The Japanese cocaine network of the 1920s and 1930s is even less known and may have been spurred by the dramatic Dutch example, as well as a number of intriguing chain-crossings. By the 1930s, Japan was one of the largest producers and purveyors of cocaine to east and south Asia, though the statistics (and licitness) of this state-sanctioned trade remain clouded in mystery and controversy.

The first Japanese involvements with coca and cocaine were responses to Western initiatives. Jokichi Takamine, a brilliant Japanese chemist (still know for Adrenaline) had worked for Parke-Davis in the 1890s, at height of their cocaine age, and brought this expertise back to Japan's growing Sankyo Pharmaceuticals, before becoming its vice-president in the late teens. Colonial sugar interests in Formosa (Taiwan) began investing in coca around the same time, though processors began by purchasing Java and Peruvian coca (and crude cocaine) until self- sufficiency was achieved in the 1930s. In 1917, Hoshi Pharmaceuticals actually acquired a major coca tract smack in the middle of Peru's Huallaga valley, the Tulumayo property; this was not only a source of coca but likely of knowledge about the larger business. Other firms obtained Java plantations.[20] Another influence were a number of German pharmaceutical firms, which after 1912 export-controls on cocaine and opiates, began using Japanese companies for transshipments (especially to forbidden China) from the teens through 1920s (see TABLE 3).   Given the European cocaine surplus, these transfers became substantial: some years saw more than 4,000 pounds of cocaine pass through Japan in this semi-licit trade.

TABLE 3:   DRUG IMPORTS TO JAPAN, 1903-1924

Japan's role, in narcotics in general, has been read in two contrary ways, and international warnings sounded from the start. In one sense, it fit Japan's Asian-oriented industrialization process and expansive trade sphere. Starting during World War I, Japan sought self-sufficiency in the face of trade disruptions and a close relation of state and large firms was a basic feature of Japanese business. Pharmaceuticals constituted an important sign of scientific "modernization." So to Japan, drug exports were a normal business. Japan--which experienced no domestic drug scare--did not share in novel western ideals of demarcating "illicit" and "licit" substances (and later of course dropped from the League). A second view--rooted in U.S. and League concerns of the 1920s and in testimony at the Tokyo War Crimes trials--considers Japan's involvement extraordinary or nefarious. It was based on deliberate deception (to western drug-control bodies) and on militarist or imperialist profiteering in illicit sales across Asia.[21] Without subscribing to conspiracy or Japan-bashing, we can at least conceive of the Japanese chain as emerging from the shadows of growing League jurisdictions over cocaine. An increasing autonomous Asian coca-cocaine network appeared from 1920-45.

TABLE 4: JAPANESE DRUG PRODUCTION: 1919/23--1935/39

By 1920, Japan itself produced more than 4,000 lbs. of cocaine, which then doubled to 8,000 by 1922 (see TABLE 4). Officials figures for the 1930s shrunk to just under 2,000 lbs., if considered by some historians and contemporary League officials as doctored for international consumption. (This is a hard charge to prove, though Karch has tried by putative estimates of coca-alkaloid capacity.) Exports across Asia officially dropped to negligible levels, though complaints registered about Japanese firms and reporting, as well as cases of deliberate smuggling (such as the "Fujitsuru" and "Taiwan Governor" brand vials in India). Other specialists have noted growing diplomatic cooperation between Japan and international drug officials, at least until the invasions of Manchuria and China, when opiates became a major issue. The firms making cocaine and morphine were among Japan's largest: Hoshi, Sankyo, Koto and Shiongo Pharmaceuticals, and enjoyed growing links to major trading trusts (such as Mitsui and Mitsubishi) and to interlocking governmental, colonial and military officials. In 1934, we know that Taiwan's Kagi district kept 694 acres under intensive coca cultivation (by Taiwan Shoyaku and Hoshi); earlier plots on Iowa Jima and Okinawa fall off the record. About 300,000 pounds of Formosan leaf were harvested annually in the late 1930s. Peruvian imports were officially discontinued in 1938 (in fact, Peru nationalized Tulumayo, which had a colorful subsequent history of its own).[22] By World War II, the whole pharmaceutical industry, self- sufficient in imperial Japan, came under war-government jurisdiction. In that sense, if cocaine was indeed marketed for non-medical purposes across occupied Asia--and the evidence mainly concerns opiates--the state bore responsibility. In any case, Taiwanese coca was demolished by war and the entire pharmaceutical industry reorganized (without cocaine) under the U.S. Occupation of Japan in 1945 (its previous practices an explicit charge of U.S. tribunals). A two- decade autonomous coca sphere abruptly ended.

c) The U.S.-Andean Chain, 1910-1950

Though not self-evident, I maintain that despite such competitors and its relative quantitative decline, the U.S.-Andean (Peruvian) chain proved the most resilient and significant in the long- term histories of coca and cocaine. Modern coca/cocaine commodity trades germinated in 1890's Peru, with the United States the defining core consumer market; modern U.S. anti- cocaine policies incubated (1910-50s) in this particular relationship. And in the 1960s-70s, when *illicit* cocaine took off, the chain that reinvented itself in this novel form began in eastern Peru and made its way famously to Miami and Hollywood. It is the historically-loaded chain, even if marked by shrinking licit exchange during most of the twentieth century (see TABLE 5).

TABLE 5: PERUVIAN EXPORTS OF COCA & CRUDE COCAINE, 1877-1933

The aggregate statistics of decline (as seen from Peru) show that coca trades (which went mainly to the United States) fell from on average 584,000 kilos (over a million lbs) from 1909- 1913 to 242,000 (1919-23) to 128,000 (1929-33), before climbing to the 300-400,000 lb range during World War II (for emergency Coca-Cola and war uses). Crude cocaine exports, mainly from greater Huánuco, fell from over 10 metric tons in its peak (1905-6, mainly to Germany) to *one* ton (i.e., 1000 kilos) in 1927 and a fluctuating 200-900 kilos throughout the 1930s. By the 1920s, no crude cocaine entered the United States (strictly prohibited by law) though Peruvians had diversified a bit with a surge of new buyers from Japan and France. However by the mid- 1930s, a politically-risky Germany was Peru's sole remaining cocaine mart. Combined export revenues slumped below 200,000 *soles* for most of the 1930s. Because of wobbling downward prices as well, the full fall of coca/cocaine export values from its early twentieth-century peak was on the order of 95%. It was a painful collapse, especially given the early national hopes for cocaine. Economically, coca and cocaine remained significant for Peru only in regional terms.

Looking at those regions provides a sense of the reconfiguration of Peruvian coca/cocaine circuits (Bolivia's now were confined entirely to traditional users). The notable fact is that as Peruvian cocaine came under market and legal adversity it neither "modernized" itself (as some called, into a fully-integrated or technologically-upgraded sector) nor converted into illicit trades from the source areas (which did not appear anywhere until the 1950s).

A major shift was the move of coca-leaf back into the "home market" of traditional users. During the late 1890s boom, as much as a third of Peruvian coca went into export channels (though I still wonder about that figure), but by the 1930s-1940s the tradeable was a far smaller share, by most estimates around 3%. In part, this market involution reflected the steady multiplication of Peru's rural folk (Indians) during the twentieth century. Coca for traditional uses went from under 4.8 (thousand) metric tons in the mid-1920s (i.e., 4.8 million kilos) to 5.4 by 1930 to over 6 by 1940, and onto 8-11 million kilos by the 1950s. Regionally, this reflected an advancing coca frontier, heralded by national agronomists, mostly to the newer southern tropical regions (especially Cuzco's La Convención valley) close to the indigenous "Mancha India," which had once taken in Bolivian coca. In the early 1940s, in a crude guess, one U.S. expert estimated Peru entire leaf crop at 6,840,000 pounds with 6,000,000 used by the nation's two million male chewers (females, who certainly did use it, somehow didn't count). Peru's three coca circuits would have been defined as: Northern (La Libertad, largely for export-cola flavorings) 1,600,000 lbs or 16.5%; Central Area (i.e., greater Huánuco, for crude cocaine and central regional leaf trades) at 2,240,000 lbs or 33%; and Southern (mostly Cuzco) at 3 million or 47% (See FIGURE 3). Even the specialists evidently jumbled coca numbers, for example here pounds and kilos [23] In terms of regional networks, northern leaf growers (in Otuzco or Sacamanca districts) remained tied into the powerful Pinillos export clan, who worked exclusively for Maywood Chemical Company (Coca-Cola's agent in the trade), for about two- thirds of all local coca. A few took occasional forays here into crude cocaine-making. Huánuco's economic hub remained crude cocaine, however depressed and technologically backward. Local Chinese merchants plied provincial coca trades to upland Junín and peasant- driven coca frontiers were opening in Monzón and downstream Tingo María. About 6-10 crude- cocaine workshops, still using Kitz's 1890s techniques, worked the industry, mainly part-time, largely on demand. They were led by a new regional magnet, merchant Andrés Avelino Soberón, who kept close ties to German consigners and lenders but who was always trying to diversify (especially into the closed U.S. market for cocaine). The southern hot zone of colonizing haciendas was deemed less strategic, with its low-alkaloid non-export leaf, though here registered the only campaigns to upgrade coca agricultural practices.

FIGURE 3: PERU'S COCA REGIONS AND USES, c.1940

Peruvian politics of coca/cocaine after 1910, treated in detail elsewhere, also connected to developments at the other end of the chain. Growing world anti-cocainism filtered to Peru, in a great turnabout around 1905-25, via science, politics and markets. In medical science, the idea of cocaine as a poisonous or addictive narcotic paradoxically mutated in Peru into growing anti- *coca* sentiments, coca as backwards and harmful to development. Combined with prejudice against the country's Indian majority, this fueled novel anti-coca hygienics movements by the 1930s; cocaine, paradoxically, was still considered a modern western good with no local abusers. U.S. and League pressures to restrict cocaine and coca after 1920 were actively ignored by Peruvian officials, whose main strategy was to avoid (or drag their feet on) international drug fora.[24] In part defending Huánuco interests, officials sincerely felt that anti-drug campaigns discriminated against Peru. By the mid-1920s, Peruvian health officials embraced a few modern (i.e., U.S.-style) narcotics controls; only in the mid-1940s did such regulation turn into police functions, prelude to criminalizing of legal cocaine-making in 1947-49. Meantime in the 1930s a vociferous counter-movement arose--led by Dr. Carlos Enrique Paz Soldán--to nationalize and modernize the entire coca/cocaine industry, in a large state monopoly, in outright resistance to encroaching global constraints on cocaine. One of Peru's most outspoken national medical figures, Paz Soldán was appalled by cocaine's falling fortunes as well as spreading Indian coca use (see FIGURE 4). The idea, which gathered some support, was for Peru to face the world as the sole sanctioned exporter of this medicinal necessity. In short, external market and political pressures led to a schizophrenic and increasingly statist discourse on coca and cocaine. Commodity segmentation worked in strange ways.

FIGURE 4: THE EXPORT DECLINE OF PERUVIAN COCA & COCAINE, 1904-1933

The United States still managed the far end of this hemispheric chain (save for the modest Hamburg entrepot until the eve of World War II) with controls increasingly sealed around coca and cocaine. The chief characteristics of the U.S. cocaine network were: specialization in coca chains (and de-cocainized coca syrup); state-assisted monopolies in cocaine processing; a total (and largely working) prohibition in the domestic market; and the intensification of global of campaigns against still-licit coca and cocaine elsewhere. Prohibitions only bore fruit after World War II with the destruction of the three extant chains (Dutch, Japanese, German) and Peru's entry into the Allied sphere.

The United States had been the undisputed world capital of coca/cocaine use, and a pioneer in its popular abuse, and after 1910 worked passionately to reverse that equation. And there is little doubt that illicit (as well as medicinal) use of cocaine largely dried up in the United States after 1920, though the reasons remain unclear. Popular coca products became entirely banned and eliminated, with the notable exception of booming and cocaine-free *Coca-Cola*. One factor was a "political economy" of cocaine control that emerged out of the prior North American penchant for coca-leaf and (by 1920) the concentration of coca handling in two firms, New Jersey Merck and nearby Maywood Chemical.[25] Rather than regulate thousands of pharmacists, dentists or physicians at the retail level, the United States pinched cocaine at the top. By 1920, these two firms had become close intermediaries of the emerging federal anti-drug bureaucracy (FBN), exchanging intelligence and favors and ensuring that only bulky supervised coca-leaf entered the port of New York. Every detail of the distillation process--of "Merchandise No. 5" (*Coca- Cola's* secret de-cocainized extract, made by Maywood from Trujillo leaf) and of Merck's high- grade medicinal cocaine--were religiously regulated by the FBN. For a time this system functioned well, hastening the disappearance of illicit cocaine in the 1920s as well as helping to ensure the monopoly successes of Coca-Cola against competitors (and its monopsony with coca sellers in Peru). Coke/Maywood focused exclusively on northern Peru, forging a closed corporate-family commodity chain with the Pinillos clan; they even won its own Congressional legal status, as "Special-leaf imports." As legal and illegal cocaine shrank, and consumer *Coca- Cola* addiction rose, these special or non-medicinal imports grew to a larger and larger portion of Peruvian shipments (see TABLE 6). By World War II, the United States consumed twice as much coca in beverages (more than 200,000 kilos annually) than was used in making residual medicinal cocaine (less than 1,000 kilos a year). By the mid-1920s, a diversified Merck, the monopoly U.S. cocaine maker, turned to imported leaf from its own plantations (in Tjitembong, Java) in effect, building its own in-house state-governed coca-cocaine commodity chain. Merck looked to Peru only during and after the war; by the mid-1950s, they gave up making cocaine and simply bought and distributed Maywood's *Coca-Cola* cocaine residue. In effect, all legal American cocaine became a byproduct of the Coca-Cola empire.

TABLE 6: U.S. COCA IMPORTS, MEDICINAL (COCAINE)
& 'NON-MEDICINAL' (COLAS), 1923-1959

American cocaine politics abroad were partly a side-show of more general "anti-Narcotics diplomacy," where the United States (with few colonial interests) became the major force behind erecting and extending a world system of cocaine prohibitions, via ongoing Geneva Conventions of the League of Nations. The first target were the Germans, then the Japanese and finally an errant Peru and Bolivia. To some extent this campaign slowly worked, by defining and reducing "legitimate" cocaine spheres after 1920; it also backfired, for example by spurring the expansive shadow Japanese chain. Overall, the inter-war era presents a major paradox in drug control: while a multiplicity of global cocaine chains existed, the United States experienced an idyllic era in terms of cocaine as an active domestic social problem. Moreover, the United States still exerted little or no limiting control at the periphery--coca-growing areas--which as early as 1915 American diplomats had voiced as their ultimate solution. In the 1920s and 1930s, partly to pressure Peru, and partly to back *Coca-Cola*, U.S. officials began taking a deep interest in Peruvian coca and cocaine. Their biggest achievement was establishing a FBN-State Department drug-intelligence web in Peru, facilitated by Maywood and Coca-Cola Company executives and contacts. Slowly, more North-American notions of modern drug control filtered to Peru, though (in the forms just noted) the Peruvians (and more so Bolivians) resisted imported anti-coca strategies.[26] Poring over DEA records, one finds scant evidence of direct American meddling in Andean drug policies prior to World War II (though a lot after). However, in the largest sense the United States increasingly structured the options available for Peru in this realm (by its ban on cocaine imports, by slashing world markets and by obstructing national schemes of drug control).

World War II was the definitive turning point here. During the war itself--ever significant for commodity chains--the United States closed Peruvian participation in the Japanese and German outlets and Java (occupied by Japan) fell off the map. The American focus fell on Peru just as state-to-state (Good-Neighbor) ties intensified through the course of the conflict, and afterwards with the advent of the Cold war. Cocaine became defined strategically along with broader war- time meanings of "licit" and "contraband" trades, with now collaborating U.S.-Peruvian agents watching all facets of the network.[27] By 1945, even many Peruvian officials saw the need for coca and cocaine restrictions and commercial prospects for the dying Huánuco industry became unmistakably constricted by post-war U.S. hegemony. As an anti-coca consensus gathered at the new American-inspired U.N. drug agencies, exemplified by the well-known 1947 U.N. "Commission of Enquiry into the Problem of Coca-Leaf," Peru rushed dramatically in 1947-49 to outlaw cocaine-making and even begin on paper regulating the Indian coca bush, under the auspices of a new national coca monopoly. Thus in 1950, a commodity chain born almost a century before, ended--at least in its licit market phase.

c) Global Cocaine Under Pressure: Circa 1940

A rich set of documents epitomizes both the global character and Peruvian vector of declining commercial coca by the 1940s. In 1943 New Jersey Merck sent chemist Emile Pilli on a mission to scope out the decrepit Peruvian industry, as the war cut off Merck's Asian leaf supply. His 50- page monograph "The Coca Industry of Peru" surveys all three of Peru's coca-growing and cocaine-making zones--Central, Northern, Southern--in firsthand detail. It was industrial espionage at its best. The firm coveted at least some of Peru's 6.6 million pound crop, which Pilli fleshes out in terms of cultivation culture, uses (coca-chewing an official worry now), exports, labor costs, climate, harvests, drying, sales and distribution networks. Virtually every leading merchant, *hacendado* or cocaine-maker is accounted for, in each regional cluster. If willing to tread on competitor Maywood's northern territory, Pilli as a cocaine-maker focused on the rapidly changing situation and post-war prospects in greater Huánuco--with its severed German and Japanese connections, primitive factories, rising Chinese entrepreneurs and nascent jungle coca frontier. What would happen after a temporary war-boom? Pilli vied for "modernization" of commercial links to coca zones and even the U.S.-sanctioned local production of "pure salts"of cocaine-hydrochlorides.[28] (The one thing he did not foresee was *illicit* cocaine). This report exudes a businessman's distance and pragmatism--unlike the suspicion-laden official intelligence reports of U.S. Commercial attaché William Burdett (who inspected Huánuco's industry in 1931), the missionary new Embassy (anti-)"Coca Reports" on the Andes, or the classic romantic coca "boosterism" of William Reid's "Commodity of Commerce" pamphlet "Coca: A Plant of the Andes"--which saw its last printing for "the average reader" in 1938.

This U.S. optic on Peru, rather than on distinctive global coca chains, was indicative of the dramatic shifts at work during World War II. The last world-wide accounting of coca/cocaine had registered in the mid-1930s, when the League of Nation's (with State-Department prodding) attempted to assess the then-globalized final production of all legal "narcotic drugs." For cocaine per se, they counted 10 small export "crude" factories across Peru; Merck and Maywood, naturally, in the depressed U.S. home market; Amsterdam's centralized NCF factory (with its gamut of products); 6 diversified German plants (Boerhinger, Hoffman-La Roche, Knoll, E. Merck, Riedel, Chininfabrik, for Nazis at home and abroad); 4 reported authorized firms in Imperial Japan (domestic and export) plus the Shinei plant of the "Taiwan Drug Manufacturing Co. Ltd." making crude and refined cocaine. And internal-market coca alkaloid lines still existed in such scattered nations as Argentina, Belgium, France (two), Britain, Brazil (for coca extracts), Poland, Russia, Switzerland (some export) and Czechoslovakia.[29] The dream was to build a formal international regime around all drug "Manufacturing"--managing from these heights the progressive extinction of medicinal cocaine before eradicating the coca-fields at the other end of the chains in the Andes, Java and Taiwan. It never happened: the dislocation and destruction of these commodity chains in the war, and the rise of a novel illicit one in the decade to follow, doomed hopes for ending cocaine.

3. EPILOGUE: Illicit Cocaine Chains, 1950-2000

Such were the commodity chains developed and traveled by licit coca and cocaine, during its rise and demise as a modern global drug between 1860 and 1950. These were not just inter- connected markets of supply and demand, but institutionalized channels for the flow of science and medicine, political ideas and influences, and varied attempts at monopoly and drug control. They were segmented by changing cultural tastes for coca-cocaine and by shifting colonial and neo-colonial spheres. They reflected varied levels and forms of (often core-periphery) power as well, between motley unequal actors and relationships involved in the growing, processing, marketing, regulation and use and misuse of these substances.[30] In many ways, over the long run these commodity chains (and the tensions along and between them) helped construct the initial nineteenth-century "legitimacy" of coca and cocaine, and in reverse, structured their progressive criminality over the twentieth century.

Since 1950, in some sense, commodity chains of coca and cocaine have become both a more and less "market"-driven phenomena, and may indeed reflect, as some cynics have suggested, the "revenge" of the coca periphery. This era is the transnational stuff of covert police records and drug-culture legends (most recently in Hollywood's *Traffic* and *Blow*). After 1950, Andean cocaine, outlawed by authorities everywhere, escaped all state regulation and carved out its own underground niches and chains, invoking a cast of now criminalized actors. Clearly (except to politically-blinded DEA types) it was government and international prohibitions that pushed cocaine so radically into "free" and illicit markets. One intriguing plot of the story is that once illegal, Cold-war circuits of *illicit* cocaine basically reverted to their original geographic spaces in the eastern Amazon and to their long links with the United States. One clue is that 1970s jungle "pasta básica" of cocaine was still basically Kitz's 1890s "crude cocaine" sulfates, now forwarded to outside criminal refiners in Colombia rather than onto Merck in Darmstadt. A few of the experienced specialists of the Huánuco industry became pioneers in illicit cocaine, which had barely existed before. Through newly-declassified DEA/FBN archives, one can trace such developments back to 1950, to precisely where legal cocaine ends.[31] Cocaine then follows a sinuous path between 1950s-1960s Peru and Bolivia, marked by intensifying struggles between U.S. drug agents and Andean peasants and would-be entrepreneurs, the pioneering and regularizing of smuggling and transshipment routes through Chile, Cuba, Panama and Mexico, and the taste-testing of incipient coke markets in Havana and New York. An underground culture and chain of illicit cocaine was constructed between 1950 and 1970, well before the deluge of the 1970s. It becomes a visible historical chain through intelligence records and via mounting quantities of Peruvian "coke" seized at U.S. borders starting in the late 1950s. It was pushed into being by the repressive policies of the United States itself.

After 1970, cocaine flooded in to replace the market niches carved out by speed, heroin and marihuana, products of the 1960s "drug culture," all under pressure in Nixon's novel war on drugs. "Coke" arises here with elite (Hollywood, rock-star) connoisseurs, who broadly publicized their new gourmet "soft" drug. New Colombians of Medellín (well-located seasoned entrepreneurs with a weak state) soon emerged as the best-placed middlemen in this trade, refining and passing on with spectacular mark-ups Peruvian and Bolivian product to a diaspora of far-flung Colombians in Miami and New York. As American cocaine suppression heated up after 1980, huge new retail markets were discovered ("middle America," ghetto "crack," Dominican gangs) and coca frontiers for illicit export spread massively into the deep jungle recesses of the Huallaga and Bolivia's Chaparé. By the early 1990s, illicit cocaine enveloped a productive capacity estimated in the range of 1,000 metric tons (with literally hundreds of thousands of employees, workers, peasants, guards, money launderers, corrupted officials, smugglers and street dealers along the chain, and revenues ranging from $50-100 billion annually). This was some *100-times* greater than Peru's peak legal output around 1900.[32] Further crackdowns by the United States (the Reagan-Bush "drug wars") led to spirals of illicit production and violence, and further price drops, exactly the opposite of U.S. aims. The chains shifted too: the famed mid-1980s rerouting from Medellín-Miami to Cali-northern Mexico, obeyed some basic laws of drug repression and commodity chains. The latest stage, which has pushed coca largely out of eastern Peru and Bolivia into southern Columbia itself, and transshipment from Mexico to fresh Caribbean sites, has not yet played itself out, especially given the concentrating U.S. war on Colombian coca (and now) heroin. New links are being forged as we write through Brazil and Africa and onto Europe and fragments of the ex-Soviet empire. Let's hope cocaine--goaded on by foolhardy drug policies--doesn't end up replicating the geography of early twentieth-century commodity coca, globalized to exotic places like Indonesia, Taiwan, West Africa--indeed, anywhere the helicopters and herbicides can't yet reach.

NOTES

1. See Paul Gootenberg, ed., *Cocaine: Global Histories* (Routledge, 1999), Introduction, esp.12- 14, for economistic (interests) versus post-structural (passions) approaches to drugs; the volume itself is organized around global "commodity chains." For drugs as global commodities, see e.g., Paul B. Stares, *Global Habit* (Brookings, 1996) or Steven Topik and Pomeranz, *The World that Trade Created* (1999), ch. 3, "The Economic Culture of Drugs." An important new SSRC working group,"Beyond Borders" (in which I participate) labors to approach today's huge world illicit economies in terms of (modified) commodity-chain flows; its conceptual novelties are impossible to convey in a single footnote.

2. Gary Gereffi and Miguel Korzeniewitz, eds., *Commodity Chains and Global Capitalism* (Greenwood Press, 1994), Introduction--the final essay by Wilson & Zambrano, relevantly enough, deals with 1980s illicit cocaine. See also Korzeniewicz and Willian C. smith, eds, *Latin America in the World-Economy* (Greenwood, 1996), including ch. 2, by Amy Bellone, "The Cocaine Commodity Chain and Development Paths in Peru and Bolivia," also presentist. Arjun Appadurai, ed., *The Social Life of Things: Commodities in Cultural Perspective* (Cambridge, 1986) which invokes the similar idea of "commodity ecumene" or Sidney Mintz, *Sweetness and Power: The Place of Sugar in Modern History* (Viking Penguin, 1985) for the cultural life of commodity chains.

3. A recent notable contribution to such aggregates is David F. Musto, "International traffic in coca through the early 20th century," *Drug and Alcohol Dependence*, vol. 49/2 (Jan 1998), 145- 56--actually a vast team effort to collect and piece together global statistics on historical licit coca trades.

A commodity-chain approach should address flaws of such aggregates, by stressing *differences* in providence and in coca and cocaine flows rather than seeking falsely-unified quantities. For example, using a poorly-defined "Cocaine Equivalent" (based on the "pharmaco-centric" fallacy of reducing all coca commerce to cocaine-alkaloid refining or content), Musto et.al. erase the robust regional trade in coca-leaf for traditional usage ("chewing" in the case of Bolivia) or for coca preparations (such as U.S./European beverage syrups from northern Peru). He thus seriously over-estimates world cocaine production/consumption in the early 20th century, as well as misses the social significance of alternative coca trades. However, the large and unsurprising trend noted--an American usage peak around the teens and Europe in the 1920s) is probably not off. I make slight use of Musto's misleading figures here.

4. See Jordan Goodman, *Tobacco in History: The Cultures of Dependence* (Routledge, 1993), 49-51, on 16th-century tobacco-coca; Wolfgang Schivelbush, *Tastes of Paradise: A Social History of Spices, Stimulants and Intoxicants* (Vintage Press, 1992) for early drug-commodity transformations; Joseph Kennedy *Coca Exotica: the Illustrated History of Cocaine* (Cornwall Books, 1985), chs.5-7, provides a good pre-history. For a recent

comparative focus on global “commodification” of drugs, see David T. Courtwright, *Forces of Habit: Drugs and the Making of the Modern World* (Harvard, 2001).

5. Robert Byck, ed., The Cocaine Papers by Sigmund Freud (Stonehill Pub., 1974); Kennedy. *Coca Exotica*, 57-58, for linkages around the *Novara* mission (which also left an interesting primary account)--the same ship took Maximilian to Mexico.

6. ”Coca,” *Bull. of Miscellaneous Information* (Royal Botanical Gardens, Kew), Jan. and Sept. 1889, or William Martindale, *Coca, Cocaine and its Salts* (London, 1886). The French cultural circuit begs research, though there are several “popular” essays on Mariani, his product and world-famous coca advertizing.

7. From H. Richard Friman, “Germany and the Transformation of Cocaine,” in Gootenberg, *Cocaine,* ch. 4. H.H. Rusby, *Jungle Memories* (McGraw-Hill, 1933), chs. 1, 8 (or 1887 essay “Coca at Home”*;* also “Production and Use of Coca Leaves,”--“Exports of Crude Cocaine from Peru,” *Bull. of the Imperial Institute,* (London) , vol. VII, 1910, 388-92; an essay by “Mr. Clements R. Markham on ‘Coca-Cultivation” (London, *Chemist and Druggist*, 17 March 1894, 387-9) explains why Peru came to dominate field over abandoned colonial experiments (Markham of chinchona fame was Britain’s top tropical commodity promoter of the century).

8. I’ve a chapter on this remarkable Peruvian scientific movement “From Imagining Coca to Making Cocaine: Idealizing a National Commodity in Peru, 1850-1890," ms., The Wilson Center (Washington, 2000), based on study of 1880's Lima medical journals such as *La Gaceta Médica de Lima* and *El Monitor Médico*. Joseph F. Spillane, *Cocaine*: *From Medical Marvel to Modern Menace in the United States, 1884-1920* (Johns Hopkins, 2000)--a remarkable new study on American cocaine-- broaches “crude cocaine” and German missions (p. 51).

9. On Kitz and start of central jungle crude cocaine, see P. Gootenberg, “Rise and Shine of a National Commodity: Peruvian Cocaine, 1885-1910," ms, The Wilson Center, 2000; or Augusto Tamayo, *Informe sobre las Colonias de Oaxapampa y Pozuzo....* (Lima, 1904), 111-12. Statistics from “Cocaine-Manufacture in Peru,” *Chemist and Druggist* (9 April 1904). Alejandro Garland, *El Perú en 1906* (Lima, Imp. del Estado, 1907), 180-2, 213, for official and liberal effusiveness.

10. W.S. Searle, *A New Form of Nervous Disease together with an Essay on Erythroxylon Coca* (New York, 1881); W. Golden Mortimer, *History of Coca: The Divine Plant of the Incas* (New York, 1901). P. Gootenberg, “Between Coca and Cocaine: A Century or More of U.S.-Peruvian Drug Paradoxes, 1860-1980” (forthcoming, *Hispanic American Historical Review,* 2003¿?), on U.S. coca promotion and this chain.

11. Spillane “Making Cocaine,” ch. 3 of *Cocaine: Modern Marvel,* or Joseph F. Spillane, “Making a Modern Drug: The manufacture, sale and control of cocaine in the United

States, 1880-1920," ch. 2 in Gootenberg, *Cocaine.* Unfortunately, even some of Spillane's statistics suffer from the lumping noted above in n. 3.

12. For this syrupy circuit, see P. Gootenberg, "Merchandise No 5: A Secret Ingredient in the Making of U.S. Cocaine Policy in Peru, 1915-1965" (forthcoming, *Diplomatic History*, 2003¿?); or "Peru. Coca and Cocaine," *Bureau of the American Republics,"* 4, 1896/97, 111-2; a fine descriptor of the mature coca circuits is Emile Pilli's "The Coca Industry of Peru," (Merck, Rahway NJ, 1943).

13. David F. Musto, *The American Disease*: *The Origins of U.S. Narcotics Control* (Oxford, 1973, and subsequent editions); Spillane's later analysis of rising anti-cocainism is best (*Cocaine: Medical Marvel*, chs 5-8).

14. Detailed in Gootenberg, "Merchandise No. 5"--analysis based on newly-released FBN materials (U.S. National Archives, Record Group 170) around coca-leaf and *Coca-Cola*.

15. British Foreign Office (PRO), Foreign Office FO 228/2202, Imperial Institute, "Memorandum on the Production, Distribution, Sale and Physiological Effects of Cocaine," (ms. Dec. 1909-June 1910); the Imperial Institute (dedicated to colonial economies) published the distinctive version, "Production and Use of Coca Leaves," *Bull. of the Imperial Institute* VIII, 388-392. For series of Higginson's reports, *Boletín del Ministerio de Relaciones Exteriores del Perú,* (Lima, 1904, 1907, 1912, vols. 1-9*)*; A. Garland, *El Perú en 1906*, 180.

16. Overview in P. Gootenberg, "Reluctance or resistance?: Constructing cocaine (prohibitions) in Peru, 1910-50" ch. 3 in Gootenberg, *Cocaine.*

17. Marcel de Kort, "Doctors, diplomats, and businessmen: conflicting interests in the Netherlands and Dutch East Indies," ch. 6 in Gootenberg, Cocaine (based on de Kort's Dutch doctoral thesis); some aspects of Java origins treated in Steven B. Karch, *A Brief History of Cocaine* (CRC Press, 1998), chs.2, 6. (Reens 1917 for primary?)

18. See remarkable trans-chain source M.A. Derteano, "Informe que presenta el Consul sobre la coca de la isla de Java," *Boletín del Ministerio de Relaciones Exteriores del Perú*, 15/1918, 347- 48; for Peruvian decline, see Carlos E. Paz Soldán, *La Coca Peruana: Memorandum sobre su situación actual* (Lima, SNA, 1936).

19. De Kort, "Doctors & diplomats," 126-43: Americans made coca-eradication one condition of allowing (the brief) Dutch re-occupation of Java after 1945.

20. H. Richard Friman, *NarcoDiplomacy: Exporting the U.S. War on Drugs* (Cornell, 1996), ch. 3; on some origins; Karch, *Brief History*, chs. 6, 10, or Karch, "Japan and the cocaine industry of Southeast Asia, 1864-1944," ch. 7 in Gootenberg, *Cocaine*. A fascinating document on Tulumayo is "Alleged Traffic in cocaine and other alkaloids by

Japanese Agriculturalists" (US State Dept,. RG59, DecFile 823.114, Peru/Narcotics, 15 Jan 1923).

21. Friman, *NarcoDiplomacy* offers a balanced analysis from larger historical comparisons of Japan and Germany; Karch employs no Japanese sources in his indictment. A recent monograph (Jennings: *Japan and the Narcotics Trade*, source??) reveals little about cocaine, but also interprets Japanese actions dispassionately.

22. Karch *Brief History*, ch. 10--which (fancifully) estimates Japan's production at 7 metric tons (above world licit supply) using acreage and alkaloid ratios. The Tulumayo tract in the Huallaga had a colorful history; originally owned by Kitz then Durand, nationalized (with loud controversy from its Japanese managers) in 1937, it became the base for the later U.S. Tropical Agricultural Station near Tingo María--and then an epicenter of illicit cocaine starting in the 1960s.

23. Pilli, "Coca Industry in Peru," 1943, p.4-5, 8; Pilli also has a different estimate--by bulk?-- with 70% for chewing, 15% in exports, and 15% cocaine manufacturing. Paz Soldán, "La Coca Peruana," 1937 (p. xvi) has Cuzco with 50%; Huánuco 21%; La Libertad 7%, Ayacucho, 17%, and 5% others. A good set of stats is also in *El Perú en Marcha: Ensayo de Geografía Económica* (Lima, Banco de Crédito, 1943), 183-87 and Table 18.

24. Gootenberg, "Reluctance or resistance," 56-63 analyzes this debate; see Carlos Enrique Paz Soldán, "El problema médico-social de la coca en el Perú," *Mercurio Peruano* 19 (1929) or throughout the 1930s in his house journal *La Reforma Médica.* Coca debates described in Joseph Gagliano, *Coca Prohibition in Peru: The Historical Debates* (Arizona, 1985), esp. chs. 6-7.

25. Most of this is from Gootenberg, "Merchandise No. 5," based on FBN documents and especially de-classified FBN materials on coca and beverages from NA RG170, Boxes 19, 20. For figures, e.g. Pilli, "Coca Industry," or U.S. Treasury, Federal Bureau of Narcotics and Dangerous Drugs, *Traffic in Opium and Other Dangerous Drugs...*Table 10, "Opium and coca leaves imported into the U.S., by calender Years, 1929-59" (1960 report). I recently became aware (through FDA "FOIA" requests) of Merck's abandoning of cocaine-making to Maywood. The official end of "Special Imports" in 1948 was heralded by Coca-Cola (and some historians) as the end of *coca* in "Coke" which it was not. Instead, *all* U.S. coca imports became "non- medicinal," and Congress mandated the FDA destroy all prior records on the regulatory system.

26. Cocaine diplomacy treated in depth in Gootenberg, "Reluctance or resistance?," which is based on DEA-FBN overseas documents RG170 O660 (Peru and Bolivia), 1930-62, and parallel State Department RG59 Decimal Files (primarily 823.114, Peru/Narcotics) and LOTS files (Subject Files, Peru). (Also: 1920s/30s League of Nations docs for occasional open debates or Peruvian Health Ministry for adaption). William B. McAllister, *Drug Diplomacy in the Twentieth Century: An International History* (Routledge, 2000), for the whole drugs story.

27. Gootenberg, “Reluctance or resistance,” 63-70 for these transformations, based on RG170 series; war-time NA cocaine documentation is intensive.

28. Emile Pilli, “The Coca Industry in Peru” (Rahway NJ, Merck, Ms), 1943, *passim*--the only existing copy that I know of (even Merck Archives don’t have one) is from the DEA’s Library and Information Center (Pentagon City VA). (Coca Reports?) Cf. W.C. Burnett, “Manufacture of the derivative of the coca leaf in Peru” in RG 59 Decimal-File 823.114 Narcotics/Peru, April 1932, or William A. Reid, *Coca: A Plant of the Andes* (Pan-American Union, 1918, 1928, and 1938?).

29. RG170 (FBN Subject Files), Box 18, File 0605, “World Narcotics Factories.” These detailed surveys (some with capital, productive capacity and commercial agents) began in 1928 lasting through 1938. Although some contain Geneva League of Nations enumerations, these were classified documents not found in League deposit collections.

30. In conceptual terms, commodity chains share affinity with two now influential (and spatial) conceptions of power: Bourdieu’s “fields” of contested/capitalized power (which could use some trans-nationality) and Mann’s theory of (four) bundled territorialized lines of power. Loic Waquant/Pierre Bourdieu, *An Invitation to Reflexive Sociology* (Chicago, 1992) or Michael Mann, *The Sources of Social Power: A History of Power from the Beginnings to AD1760* (Cambridge, 1986), vol.1, Introduction. The political-economy commodity-chain approach could be enriched by wider theoretical/historical constructions of power.

By free-illicit “market” (right below), I do not mean to suggest that routine markets lie outside governmental norms and jurisdiction; competition is embedded as well (as now well theorized by Mark Granovetter) One of the advantages of the GCC approach is its assumption of continuity/complicity between “state” “market,” “society” and even between illicit and illicit spheres (as in Wilson & Bellone on cocaine cited in n.2). Following Gereffi & Korzeniewicz (*Commodity Chains*, 7) one wonders also about drugs and shifts between “producer-driven” and “buyer-driven” chains, and the subsequent risk-laden distributional patterns, especially during this murky transition to major illicit trades. Andean peasants and smugglers clearly took grassroots initiatives, with Colombian’s eventually moving (in Wallersteinian fashion) into a “semi-peripheral” role. But as many people know, the majority of drug profits still cling to the “core” actors and institutions and not to impoverished coca farmers. I can’t quite fit Gereffi’s notions of innovation or product migration to this transformation.

31. Gootenberg, “Between Coca and Cocaine,” 24-34 tries to sketch these emerging illicit networks from newly de-classified FBN, DEA and INTERPOL documents. For example, NA RG170 0660 Box 8 (Ecuador), “Illicit Narcotic Traffic in Peru” (1953); INTERPOL, “Traffic in Narcotic Drugs,” --”Clandestine Laboratories, 1945-61"; or “Illicit Traffic in Cocaine,” UN/ Inter-American Consultative Group on Coca-Leaf Problems (La Paz, 1964).

32. For stats and networks, see Patrick L Clawson and Rensselaer Lee III, *The Andean Coca Industry* (St. Martins, 1996), esp ch. 1, Table 1.1, and Fig .1.4; James Painter,

Bolivia and Coca: A Study in Dependency (Lynne Reinner, 1994), Table 3.10, “Coca-Cocaine Economies...”; for recent (rosy?) developments, U.S. Bureau of International Narcotics and Law Enforcement Affairs, *International Narcotics Control Strategy Report* (Washington, 2000), “Policy and Program Overview,” 35-45.