



Opium as a Commodity and the Chinese Drug Plague

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My aim is to examine the relationship between two processes. The first is the commodification of opium. The second is the onset and growth of the great Chinese drug plague of the nineteenth century. My main aim is to call attention to the close relationship between the two series of events. It is difficult to demonstrate direct sequences of cause and effect, because it seems that the two processes worked together and influenced each other over time.

It is necessary however, to first explain why the opium plague started when it did, at least from an external standpoint. Opium had obviously been available to the Chinese for centuries. Both Asians and Europeans had been trading in the drug and carrying it to China since the Song period (ie. CE 900) and there is no evidence that use of the drug was seen as a social or moral problem prior to the eighteenth century. What things had to change in the process of delivery, of manufacture, of usage not only within India, but also within Southeast Asia and within China itself, to set off the great drug plague that appeared in China during the nineteenth century?

I would argue, first of all, that a drug plague, as we understand what has become a fairly commonplace modern phenomenon, was a new thing in the nineteenth century. I would further propose that the great Chinese drug plague of that era was perhaps the first of its kind. There do not seem to have been reports of such widespread drug epidemics in any place in the world before the great opium plague hit China. Since the beginning of recorded history, civilisations had risen and fallen, and their collapses have been linked to any number of causes, but none have been attributed to, much less shown to be, the result of widespread drug addiction. Granted, we may have a difficult time proving that opium addiction was a true cause of the fall of the Chinese empire, but few will disagree that the opium trade and the

high levels of opium use among the Chinese population, and the inability of the Chinese government to control its import, usage and production were important areas of weakness in the Chinese state and the society as a whole during the nineteenth century and early twentieth centuries.

By way of example, in 1880, China was importing from British India approximately 80,000 chests of raw opium, or about 5,500 tons. In 1980, the entire world's supply of opiates (ie. heroin, morphine, codine, paregoric, etc.) both legal and illegal, was extracted from a total global production of just over 2,000 tons. Today, that has risen to about 5,000 tons. However, in 1880, China itself produced at least as much as they imported, and India was not the only source of Chinese imports. They also consumed Turkish and Persian opium. I have estimated that at the beginning of the twentieth century, China was consuming something like 50,000 tons of opium annually (Trocki 1999).

In some respects the opium phenomenon in China had parallels in other parts of the world. Since the beginning of the seventeenth century, Europe had been transformed by virtual explosions of consumption of an entire range of newly-introduced drug foods and alkaloids. These included coffee, tea, tobacco, sugar and distilled spirits. Jordan Goodman has called attention to this development:

The Age of the Enlightenment embraced a new lifestyle in which tea, coffee, chocolate and tobacco together with sugar, the fruits of overseas expansion and commercial capitalism, played a critical cultural role. It was not, as might first be supposed, embraced by only the ruling or even the middle classes: all of these commodities were being mass consumed by the 1720s or 1730s in large parts of Europe. (Goodman 1995)

Something very similar happened in China, and we should keep the experience of Europe in mind, as we consider events in Asia, however there was a crucial difference in the

two areas. The creation of the drug plague, was not simply a matter of consumer demand, although that was certainly a factor. The factors that link the Chinese experience to what are considered drug plagues today are first its illegality within China and secondly its outside agency. Despite a few isolated attempts at prohibition in Europe, there were no significant legal or moral obstacles to the expanded consumption of the new drugs. Likewise, it was largely European companies and European governments that organised and managed the production, distribution and taxation of the new drug trades, and it was these agencies that drew the subsequent profits. David Courtwright in his recent book has described the manner in which the economic and political power elite of Europe embraced the profits resulting from the caffeine, tobacco and alcohol trades within Europe (Courtwright 2000:9-30).

He has also discussed the puzzle of why similarly powerful alkaloids like opium, cannabis and coca did not gain the acceptance, not to mention the respectability of drugs such as tea, coffee and tobacco (Courtwright 2000:31-52). Ironically, however, cannabis and opium were well-known, widely available and for the most part legal substances throughout Europe and the United States during all of the eighteenth and much of the nineteenth centuries. The very period in which opium was sweeping unchecked through China and Southeast Asia, saw Europeans only mildly attracted to the use of these substances and relatively oblivious to their supposed social and moral ill-effects (Berridge and Edwards 1987:21-37).

Unlike the upsurge of drug use in Europe, opium usage in China fell under prohibition from 1729 (Owen 1934) when the Chinese government, acting largely in its capacity as upholder of Confucian virtue, enacted legislation against the sale of the drug. Opium was associated with gambling, crime and indulgence. In these first prohibitions, only sellers and opium den keepers were punished, and not the smokers themselves (McMahon 2002:36). The Chinese government also associated opium with foreigners. The habit of smoking opium was

believed to have spread to China from Southeast Asia, and it was westerners who were then involved in carrying opium to China. This was only the first in a series of legislation to ban opium that remained in force (at least technically) until 1860. The prohibitions never had the desired effect, and the usage of opium as well as its import and trade within China persisted, gradually increasing at first and, finally reaching a crescendo by the middle of the nineteenth century.

It is important to see the development of the Chinese drug plague in the light of what was happening in Europe. There are many parallels, but there are also important differences. Among the parallels are the events or conditions that were necessary to create the upsurge in drug use, both domestically and internationally. As Goodman and his colleagues have shown, Europeans created their own drug cultures to situate the use of coffee, tea, tobacco, cocoa and alcohol within their societies. Coffee and tea, for instance, came to be consumed together with sugar and milk, something unknown in the lands of their origin. Likewise, European tobacco use ultimately came to differ substantially from the American Indians. In addition to the cultural change was the development of the mass consumer market infrastructure that accompanied the spread of the new drug cultures in Europe. Similar developments also took place within China.

The thing, I believe, that first changed the trajectory of opium within China, was the purely accidental "discovery" or "invention" of the process of smoking it. Prior to the seventeenth century, opium was generally consumed by ingestion, either swallowed as pills or drunk dissolved in some other liquid, occasionally, with alcohol. The practice of smoking was transferred from tobacco to opium around the second half of the seventeenth century.

Certainly by 1690, the drug was already being consumed in this fashion. The first users, possibly Javanese, began to smoke opium with tobacco (Kaempfero 1712). We should assume

that the habit was imitated. In any case, a connection was made, either by Chinese in Java or by Chinese in Taiwan, where the Dutch had maintained a colonial outpost from 1624 to 1662.

We know very little about the origin and spread of the habit of smoking opium. What we do know comes from the reports of Englebert Kaempfer, the German physician and pharmacologist who visited Java between September, 1689 and May, 1690 after spending a number of years in Persia. Awaiting a posting to the Dutch factory in Japan, he spent his time studying the plants of Java, many of which are described in his *Amoenitatum Exoticarum* (Kaempfero 1712), where he described also the flora of Persia, Sri Lanka, Siam, Japan and the other countries he visited.

He endeavoured to make his observations useful to mankind, and took a great deal of pains to enquire into the manifold uses of the Plants he describes, whether relating to Physick, Agriculture, Manufactures, and the like, as also into the way of cultivating and preparing them to make them serve for these several purposes. (Scheuchzer 1998:9)

Kaempfer reports that he saw Javanese smoking opium:

There is also another strange use of opium among the nigritas [Javanese] for they mix with it, tobacco diluted with water so that when kindled the head spins more violently. In Java, I saw flimsy sheds [made of] reeds in which this kind of tobacco was set out [for sale] to passers-by. No commodity throughout the Indies is retailed with greater return by the Batavians than opium, which [its] users cannot do without, nor can they come by it except it be brought by ships of the Batavians from Bengal and Coromandel. (Kaempfero 1712: 650)

This marked the first step in the cultural transition that the drug would make in its journey to becoming a mass commodity for the Chinese market. In itself, this was not initially a major innovation, so far as tobacco use was concerned. While tobacco use introduced the habit of

smoking to the Eurasian world, it should be remembered that during the sixteenth and seventeenth centuries, both Amerinds and Eurasians rarely smoked it neat. It was quite common to mix tobacco with a wide range of other herbs, spices and aromatics. Thus, the addition of opium to the smoking mixture was a relatively minor variation on a fairly common theme. Even today, Javanese commonly smoke *kretek*, cigarettes made with a mixture of tobacco and cloves.

The preparation of the smokeable product, what Malays came to call *madat*, must have been the result of some experimentation. John Marsden has described the persistence of this habit among Sumatran Malays as late as the early nineteenth century.

The raw opium is first boiled or seethed in a copper vessel; then strained through a cloth, to free it from impurities; and then a second time boil [sic]. The leaf of the TAMBAKU [tobacco] shred fine, is mixed with it, in a quantity sufficient to absorb the whole; and it is afterwards made up into small pills, about the size of a pea for smoking. (Marsden 1811:277)

Information on the process and experiments that ultimately produced *chandu*, opium prepared for smoking, are unknown, but we can see from Marsden's description, that the process was quite similar to that of madat, only the tobacco was left out and dissolved opium was simply reduced to a heavy paste, which was then packaged in small quantities and sold. It was also necessary to make some innovations in the method of smoking: a new kind of pipe and some other paraphernalia were necessary to complete the transition. Samuel Wells Williams described the process of Chinese opium smoking:

Lying along the couch, he holds the pipe, aptly called yen tsiang, ie. smoking pistol, by the Chinese, so near to the lamp that the bowl can be brought up to it without stirring himself. A little opium of the size of a pea being taken on the end of a spoon-

headed needle, is put upon the hole of the bowl, and set on fire at the lamp, and inhaled at one whiff, so that none of the smoke shall be lost. (Williams 1907:388)

Again, we are in ignorance about how and when and by whom the discovery was made. Some things seem certain, however, and these are that it was done by Chinese, most probably in China, sometime around the end of the seventeenth century.

This discovery made it possible for opium to make the transition to a recreational drug. A purely Chinese culture of opium consumption had come into being. Like coffee, tea, tobacco and alcohol in Europe, opium in China was embedded in ritual, in a setting and thus became a part of everyday life for some. With this came the invention or appropriation of implements: the pipe, the spirit lamp, the needle, and the devices necessary for the manufacture of the smokeable drug. All of these had to be created or integrated before the great Chinese opium plague could begin.

The earliest reports of opium smoking in China date from the early eighteenth century. By that time, it appears that the method of smoking described above had already become more or less standard. Use of the drug seems to have been confined at first to the island of Taiwan and to the neighboring coast of Fujian province in southeast China. The habit seems to have been practiced by young men of wealthy families who gathered together to indulge in this novel pastime. By 1729, the news of the new drug habit had reached the capital and the Chinese government took the first steps to restrict it.

A second factor that facilitated the spread of opium use in China was the consumer economy. As early as the fifteenth century, China can be said to have developed many of the features that we associate with a mass consumption economy. There was an integrated system of transportation and distribution serving an extensive network of markets. While the level of integration was rather loose and it could be said that China had seven or eight macro-regions, each with its own economy, the entire system was far more efficient and productive than

anything Europeans had devised. There was a cash economy that served about 300 million people by the beginning of the eighteenth century. There was also a well-developed financial system to support the trade in both luxuries and everyday necessities.

When opium smoking developed into an upper class fad the prior existence of a well-oiled and efficient domestic marketing system facilitated the rapid spread of the drug throughout Chinese society. Finally, there was a sophisticated level of consumer consciousness that sought high levels of quality in the marketplace. Brand names and trademarks were already in common use in China by the time Europeans arrived there.

Other things had to happen on the upstream side of the production and delivery processes that turned opium into a "mass market commodity". These are the sort of processes that Sidney Mintz has indicated took place in the development of the sugar industry (Mintz 1985). They also affected industries like tobacco, cotton and coffee. These changes ranged through the agriculture, manufacture, process, marketing and wholesale distribution of the drug.

It was necessary to organize production with a force of cheap, unfree labor. Land for use in production had to be confiscated or controlled for a similarly low price, or for virtually no price at all. The system allowed the ryots only the thinnest of profit margins and in bad years, they could easily go into debt, in fact it is probable that they were chronically in debt. Nevertheless, they needed silver in order to pay their taxes and cultivating opium was often the only way to get it. Collection and processing of the product had to be centralized and standardized. It also had to be possible for others, similarly inclined, to reproduce these conditions and to enter into competition with other producers, offering a more-or-less similar, replaceable product. Ultimately, this would mean the descent into "commodity hell", as producers cut prices, increased productivity and consolidated with their competitors.

Ultimately, we would see the development of a monopoly or near-monopoly over most phases

of production. The process of capitalist competition that created the monopoly would be driven by the need to seek the economies of scale and comparative advantage. These developments created the "best" or most readily saleable product for the intended market (Courtwright 2000).

If we look at the history of the opium trade between the sixteenth and nineteenth centuries, we can see a number of these processes at work. When Europeans arrived in Asia, opium was already being grown for export, particularly in the regions of Bengal, or Bihar and Varanasi in eastern India and in the area around Cambay in western India. The English merchant, Ralph Fitch, reported the export of opium from both Patna and Cambay as early as the mid-sixteenth century (Fitch 1583).

Europeans, particularly the Portuguese and the Dutch began to develop the carrying trade in opium between India and Southeast Asia, and to some extent, to China. During the seventeenth century, opium use spread throughout the region. As already noted, this is where the smoking of opium became a habit. It was a regime that seemed to be peculiar to Southeast and East Asia. Malay rajas, Javanese peasants, Malay and Sumatran miners and pepper planters, anyone with access to cash, were the first Southeast Asian consumers. When it arrived in China, the habit was taken up by wealthy Chinese: bureaucrats, gentry and even bannermen, or soldiers. By the end of the eighteenth century, laboring Chinese who were then moving into Southeast Asia found the drug an almost necessary partner while they labored in the jungles.

These seem to be the initial markets for the new wave of drug use. Europeans have little to do with production or its organization. They only buy the drug from fairly large South Asian merchants. There is some disagreement about the extent to which Mughal rulers and courts monopolized production on the subcontinent, but it appears that something of this sort existed. This seems to have been farmed out to some lower officials who would have

either been merchants themselves, or people who had connections with the merchants who handled the drug.

Already by this time, many aspects of the product had been standardized. The size, shape, weight and quality of the opium cakes or balls seems to have been established. The 3 to $3\frac{1}{2}$ lb. [1.1-1.6 kg] ball of raw opium, which contained about 30% water content, was wrapped in poppy leaves and petals and packed into chests of about 130-140 lbs [60-65 kg.], or about a pikul in weight: these were common features of the product which East India, at least, exported to eastern parts of Asia. While these relatively rough standards were to be greatly refined by the mid-nineteenth century, they were already there in the seventeenth.

Clive's victory at the Battle of Plassey and his acquisition of the right of *diwani* marked a watershed in the history of the opium trade. It ushered in the period of rapid and widespread confiscation of financial and economic resources of Bengal by the East India Company (EIC) servants. The members of the councils of Patna and Ghazipur, in particular, seized upon the opium trade which flourished in their districts and pushed aside the Indian and other merchants who had controlled it. They immediately placed themselves between the Indians and the Dutch, French and Portuguese who had become the primary exporters of the drug eastward. Shortly after this, we see the fairly rapid expansion of the British country trade in opium from Calcutta. Thus from the early 1760s until 1783 control, if not a monopoly, of the opium trade was in British hands, the senior members of the EIC councils of Patna and Ghazipur.

In 1773, Warren Hastings declared a monopoly of the opium trade on behalf of the EIC itself, meaning the right to control its cultivation and to forbid others to cultivate it within their domains. The right to actually run the cultivation was let out on a contract. It was in the letting of these contracts that Karl Marx, commenting on the trial of Hastings, at a later date,

observed their impact on capital accumulation. Stephen Sullivan, one of Hastings's clients received the contract for opium:

His favourites received contracts under conditions whereby they, cleverer than alchemists, made gold out of nothing. Great fortunes sprang up like mushrooms in a day: primitive accumulation went on without the advance of a shilling...Sullivan sold his contract for £40,000 to Binn, Binn sold it the same day for £60,000 and the ultimate purchaser also made enormous gain. (Marx quoted in *Capital* I, p. 777, in Sinha 1956:213)

These sort of profits, while they appeared large at the time, were really quite paltry in comparison with the money which the trade would bring in later years. Hastings's contract system was never very successful. Either the contractors were accused of oppressing the peasants, or the peasants were accused of cheating the contractor, or both were suspected of cheating the EIC, and so at last, in 1783, Lord George Cornwallis took the trade over and placed its management under an agency of the Company. From this time on, the trade burgeoned.

Before Britain became involved in the trade, it is doubtful that the total quantity probably did not exceed 2,000 chests of about one pikul of about 60kg each, and very possibly was not much over 1000 chests. By the 1780s, this had risen to about 4,000 chests, or about 280 tons of raw opium. This was still a relatively small amount compared with the levels it would reach in the nineteenth century, but it should be seen as a true watershed, since production then stayed at that level for the next four decades.

The early years of this period were important for the full-commodification of the trade. Production was restricted to the provinces of Bihar and Benares and centralized in the towns of Patna and Ghazipur respectively. The company built factories in these towns where the total production of each province was gathered and processed and packed for export. The

production process was thus completely standardized and overseen by corps of EIC servants and later by British bureaucrats in the employ of the government of India. At the height of the system in the 1880s and 1890s, the factories would employ thousands of Indian men and boys and would be producing in excess of 50,000 chests, or about 3,000 tons of raw opium annually.

In the countryside, a system of advances was organized where the EIC loaned money to the individual peasants. These funds were distributed through a hierarchy of moneylenders, and regional and village headmen. Peasants were paid in silver, which they needed to pay their land taxes to the Company. Peasants received the money in 4 installments: one when the fields were measured; one when the crop was sown; one when the pods were ready to tap; and a final one when accounts were settled and the peasants delivered the raw opium in specially produced pots at locations specifically designated by the Company and at the peasants' own expense.

Before the beginning of the nineteenth century, opium was a standardized, regulated commodity produced for export by the British East India Company. It had found a regular market in China where the practice of opium smoking had found a place in the culture of at least a few strata of the society and its use had been ritualized. It should be understood, however, that despite consuming something like 3,000 chests of opium annually, (as they did in about 1800) opium was not really a major problem for China. The habit was still very much a luxury, and was still limited to the wealthy classes. Nevertheless, the groundwork had been done. The infrastructure was in place, the culture had been created and the pipeline that took opium from the fields of Bihar and Benares to the homes and shops of the Chinese consumers had been laid.

Even at this point, it is still probably possible to say that the British were only responding to consumer demand. In fact, the EIC had decided, quite deliberately to limit their

production of the drug once the monopoly was seen to be secure. Overproduction led to lower prices. Managers of the opium crop, conscious of the nature of their market, had decided around 1780 to restrict the "provision", as they called the opium destined for China, to about 4,000 chests annually. This was seen as the optimum amount. The market was served and the Company received a reasonable profit. Generally speaking, it remained at that level for about four decades. As it turned out, by the second decade of the nineteenth century, the EIC was making a better than reasonable profit. The price of opium, which had been around \$500 or \$600 per chest in the 1790s, had risen to nearly \$1,000. This was too great a temptation to keep out interlopers.

During the first two decades of the nineteenth century, the EIC attempted to stifle competition coming from a number of quarters. The first was from the newly independent traders of the United States, who entered the Chinese market to procure the tea which they had once been forced to buy from the EIC. They found however, that ultimately there was little they could offer the Chinese except for Spanish silver dollars. After exhausting the supply of fur seals in the Pacific northwest, they too turned to opium. Americans pioneered the trade in Turkish opium, and during the 1820s, they managed to carve a place for themselves in the competitive commercial world of Canton.

The British also faced competition from the independent India states on the western side of the subcontinent. The region, generally known at this time as Malwa, had possibly been producing opium in the sixteenth century and exporting it through Cambay (Fitch 1583). Production appears, however, to have gone into abeyance and then begun again in the early nineteenth century. In any case, opium from the Malwa region was being sold to Portuguese and other local traders based in the ports of western India including Goa, Diu, Demaun and others. John Wong has argued that the primary objective in the systematic conquest of western India during the second decade of the nineteenth century was largely driven by the

aim of cutting off this uncontrolled supply of "surplus" opium. (Wong 1997) Despite the measures of the EIC government, it proved impossible to eliminate the Malwa supply, and the upshot was that the supply of opium coming from India to China began to increase at an unprecedented rate. Not only was the new supply from Malwa now going to China, but the EIC itself made a decision to increase its own supply in view of falling prices. By 1820, however, even Malwa opium was forced to pass through Bombay in order to reach an entrepot and there the British were able to collect a "pass duty" on it. This brought its price roughly into line with the Company's opium from Calcutta.

Between 1820 and 1830, exports from both sides of India (ie. Calcutta and Bombay) rose from just over 4,000 chests of opium to over 16,000 chests and by 1839, the beginning of the Opium War (1839-42), Indian exports were over 40,000 chests (Trocki 1999: 95). While the burst in production drove down prices, it also broadened the market and thousands more who had never used the drug now took up the habit. Individual dealers may have suffered reverses due to unforeseen fluctuations in price, but overall, the EIC maintained its profits and in the long run, all of the opium got sold. This excludes 20,000 chests that were confiscated and destroyed by the Chinese Commissioner Lin Cexu in Canton in 1838. This expansion of Indian production, which continued for the next four decades served to make opium a true mass market consumable. The Chinese government continued to uphold its prohibitions against the trade and opium use until 1860, but this too was a failure. Following the second Opium War (1856-1860), the trade in opium was finally legalized (Trocki 1999:111).

These are the elements that made this upsurge in drug use in China a true drug plague. So far as the Chinese authorities were concerned, the entire economy was out of control. Opium flowed into the country in an unceasing and ever-increasing stream. The drug habit was progressively taken up by more and more people. What was worse, and what was, to my mind, even more damaging to the social and political fabric of the country was that the vast

illegal traffic had corroded the economy and the integrity of the administration. Like today's drug plagues, not only was the Chinese government powerless against the trade, but it also became thoroughly corrupted. Government officials at almost every level were susceptible to bribery and collusion in the traffic. By 1860, the integrity as well as the efficacy of the state seems to have been permanently damaged so that no level of reform seemed capable of repairing it.

The fact that Chinese economic leaders had little control over the upstream side of drug production deprived China of much of the profit that might have been made out of the drug enterprise. Instead, the money went elsewhere. First it supported the British Empire, both in India and throughout Southeast and Eastern Asia, often to the detriment of the Chinese state. Secondly it supported the growth of British and other European economic interests on the Chinese coast and in Southeast Asia. Finally, even within China, where Chinese interests did gain profits, the illegal drug economy supported new and usually criminal interests, strengthening them against what had been the economic interests of the traditional political economy.

The third stage of the commodification of opium within China was the growth of the domestic opium industry. Even before the opium trade was legalized within China, a substantial area had already been devoted to opium cultivation. Although estimates of Chinese domestic cultivation are quite speculative, I have estimated that as of 1850, possibly as much as 50,000 pikuls, (or chests) of opium were being produced within China. Usually, production flourished in peripheral areas such as Yunnan and Sichuan, but there was said to be extensive cultivation in Guangdong province and in Fujian at this time (Trocki 1999:120).

Once the trade was legalized, both the international as well as the domestic production skyrocketed. The cultivation of opium in Yunnan, Guangxi and Guangdong seems to have fed right back into the Canton-based trading networks that had come into being to service the

British opium trade. Carol Benedict has traced the internal trade routes through which the domestic Chinese opium trade flowed in the early nineteenth century. Never a very easy trek, the best routes into China proper from the Yunnan frontier led either southeast into Vietnam and down the Red River and then by sea to Hong Kong and Canton, or eastward through Bose and down the Yu and West Rivers to Canton. Later on, an alternative route opened up from Nanningfu to Beihai on the Gulf of Tongkin. These routes were little used before the early nineteenth century and only the development of the domestic opium trade made them viable avenues of commerce between the Yunggui and Lingnan macro regions. Cantonese merchants dominated this trade. Because the supplies of domestic opium flowed first to Canton and then into the same distribution networks that had been established for Indian opium it was probably natural that it too came to be controlled by the same group of wholesale merchants. (Rowe 1984; Rowe 1989; Benedict 1994:6-10; Benedict 1996: Ch.2)

Chinese opium cultivation and trade grew rapidly in the years after the Opium War.

The domestic product was also about half the price of the imported drug because it was generally considered to be of inferior quality. The elite market continued to favor Indian opium. Regardless of perceived quality, the increased supplies and the lower prices meant that opium was now moving even further down the Chinese socio-economic scale and being made available, in some form, to even the poorest of consumers. The world's first and largest drug plague had now reached epidemic proportions, and this was still only the beginning.

The only factor that slowed the progress of the drug epidemic in the years immediately following the Opium War was the series of uprisings that struck southern and western China. In addition to the Taiping Rebellion, there were the Nien Rebellion, the Miao Rebellion and the Muslim Rebellion, all of which deeply affected the vast hinterland of China's frontier provinces during the 1850s and 1860s. This was the area which Lin Man-huang has styled "interior China", the isolated western regions that were then underpopulated, or populated by

minorities, and generally out of touch with the Chinese mainstream. These interfered with the opium trade, because the Taiping ideology included a strict ascetic code which banned opium smoking along with prostitution and alcohol consumption. The Muslims likewise banned opium use. Aside from such deliberate policies however, the sheer chaos which marked these uprisings and their subsequent suppression was a great hindrance to agriculture and commerce.

While Indian production figures continued to rise through the 1840s and 1850s, prices, particularly after 1845, tended to fall steadily until 1856. This suggests that the market was somewhat oversupplied. While these wars continued however, domestic producers were obviously hit harder than the importers of Indian opium. Since the shipping routes from Yunnan and Guangxi went though territory held by the Taipings, it was far more difficult for the domestic drug to reach Chinese markets. The Jardine Opium Circulars also show that the movement of opium from the coast to its interior markets was often disrupted by the Taipings. Even then, the rebellions only slowed growth rather than cause any measurable contraction in the trade.

Although these upheavals may have hindered the trade for a time, the poverty and disruption that they left in their wake created both an increased demand for opium as well as creating conditions which favored its cultivation. Loss, injury and the trauma of life in the midst of civil war certainly must have driven many to seek comfort in the pipe. The wars had also mobilized millions of young men. The return of peace left tens of thousands of wandering "braves", who had been demobilized from the various armies. For them, opium may have become a way of life. At the same time, the prospect of rapid profits must have been a strong temptation to those impoverished by the wars and who were willing to cultivate or trade opium.

Although the dynasty had been saved, most historians date the creation of local militias, regional armies and other elements of regional autonomy from this period. These conditions are generally identified as one of the chronic weaknesses in the Chinese state which eventually brought about its downfall in 1911. It is important to understand that this new regionalism was very often intimately connected to the emergent opium economy. In fact, it is difficult to see how regional autonomy could have been maintained without the sudden availability of the new wealth that came from opium.

From the 1870s on, opium cultivation expanded at an extraordinary pace. By the end of the nineteenth century, opium had become an enormous enterprise in Sichuan, Yunnan and Guangxi, as well as in the coastal provinces of Zhejiang and Fujian and other parts of southern China. It may have become even more popular than grain as a crop. In the area around Hankou, opium was one of several cash crops that began to appear toward the end of the nineteenth century. Others included tea, cotton and tung seeds. Together they reduced the acreage of grain crops and by the 1890s caused a contraction in the city's grain supply (Rowe 1989:210).

There is some uncertainty about impact of these increases in opium cultivation on the production of food crops and the welfare of the peasants, at least in the short term. Lin Manhuang argues that as opium cultivation grew, it was largely taken up by people who had newly migrated from the densely settled regions of the coast and major alluvial plains, or "exterior China", to the relatively underpopulated and isolated areas of the interior. The opium crop was an expeditious way for them to support themselves. Opium actually financed the settlement of these regions. In particular during the period after 1870, migrants flocked into unsettled, hilly areas that were generally unsuitable for food crops, and there they planted opium. By 1879, the provinces of interior China (eg. Sichuan, Yunnan, Guichou, Shanxi, Shenxi, Kansu, Honan, Guangxi, and Sinjiang) were producing nearly ninety percent of

China's domestic opium crop. These areas maintained a similar share in national production for the next three decades until the 1911 Revolution (Lin 1993:11).

Initially, this upsurge in Chinese opium production did not seem to decrease the amount of land, or effort devoted to the production of food crops. Not only was it grown on land that had been considered unsuitable for food, it was an autumn and winter crop, as it was in India. Thus it was planted in October-November and harvested in April-May. Finally, since it also used "surplus" labor, it had a minimal impact on the cultivation and production of food crops. In Manchuria, Sichuan and other important poppy areas, the cultivation, harvesting and processing of opium was the work of women and children. Lin generally supports Spence's conclusion:

...there were plenty of advantages in growing opium as a cash crop. It would yield at least twice the cash of an average cereal crop on a given acreage; it could be planted in the tenth month and harvested in the third when nothing else would grow; it could survive on very poor soil, as long as there was a reasonable amount of fertilizer; it could be interspersed with food crops such as beans or potatoes, or planted in alternate rows with tobacco. Winter growing was especially profitable to tenants holding lands on metayer tenure -- that is, paying the landlord a fixed percentage of the yield of the summer crop. Furthermore, though the techniques for gathering poppy juice were labor intensive, they were very simple. (Spence 1975:153)

Later on, the situation changed. Even Spence, reporting on the cultivation in Ningxia and Shenxi, notes that opium did cut into land and labor formerly used for food production. (Spence 1975:169) As time passed, poppies were increasingly grown on good soil. By 1880, in southwest China, opium came down from the hills to the valleys, and started to take over land formerly used for food crops.

Dr. J. Edkins, the American Presbyterian missionary who wrote a general history of opium in China at the end of the nineteenth century, claimed that poppy cultivation was the root cause for suffering during famines in Shanxi. Opium cultivation had been started by the governor of Shanxi in 1852. During the famine in 1867-68 most of the deaths took place in the areas where poppy cultivation was the greatest (Edkins 1898:66-7). These are only incidental reports and it is still difficult to sustain any general conclusions about the impact of increased opium production in the nineteenth century. It is obvious that more data, and further study is needed to clarify the relationship between famine, food supplies and opium cultivation at this period. One could also argue that opium cultivators would have been better able to purchase rice and other foods with their increased incomes.

For China in the twentieth century, the picture may be less ambiguous. Jonathan Marshall linked large-scale opium cultivation to a series of famines in the 1920s and 1930s including one in central China in 1925, in Shaanxi in 1928-33 and in Sichuan in 1934. The Shaanxi famine took an estimated 3 million lives during the five-year period. At the time about thirty-two percent of the fertile land in the province was devoted to opium (Marshall 1976: 24-25). Over the longer term, and particularly in situations where cultivators had little control over their choice of crops, it seems clear that opium had the capacity to drive out less remunerative grain cultivation. We might also ask the same questions with regard to famine and opium production in India. There does not seem to be a clear body of data on the two phenomena that would show a causal relation. By the late nineteenth century Indian officials were generally quite defensive about the opium business and would have been reluctant to offer information suggesting a famine in Bihar or Benares was the result of excessive opium cultivation.

The question of whether opium cultivation had a positive or negative impact on the peoples of China's frontier provinces is a complicated one. Clearly, it provided a much

needed income for those who might otherwise have starved or been forced to migrate. It also provided an immediate income for new emigrants. It seems to have jump-started the economies of these areas after the devastation of the great civil wars of mid-century. In conjunction with this, opium was the catalyst for trade and communication between China's interior and exterior provinces. We see a clear pattern if we look at the evolution of opium trade routes during the nineteenth century. In the early part of the nineteenth century, the Indian drug rode along established trade routes, moving from the Canton delta area, or the Lingnan macroregion, to the mid-Yangtze nexus of Hankou. After midcentury, the drug began to create its own trade routes, its own settlements, and indeed, its own economy.

Benedict's study of the beginnings of opium cultivation in Yunnan and Sichuan shows that there was little regular communication between these provinces and the dense population nodes of coastal and central China, before the opium trade. The high value of the opium crop moving out of Yunnan and Sichuan financed trade along these routes. She shows quite convincingly that the spread of the bubonic plague, from Yunnan, where it was endemic, to the South China coast, occurred simultaneously with the activation of the opium trails running from Kunming to the various outlets of South China. The opening of regular traffic between the Yungui macro-region and the Lingnan area was made possible only with opium. The drug thus provided a vector whereby this new and virulent form of bubonic plague could escape to the outside world (Benedict 1994). Into the balance too must be thrown the fact that increased production of opium invariably led to increased consumption by those who grew it. In the 1930s, it was reported that Chinese peasants tended to consume about twenty-five percent of the opium that they produced (Spence 1975:153).

The question of whether opium was a benefit or an evil may be almost irrelevant. Its impact was so multifarious, pervasive and so profound that the question of the fate of individual human beings may seem insignificant. By the turn of the century, opium was the

largest single item of Chinese interregional trade in domestic productions: The value of the rice trade was Ts100 million; salt was Ts100 million and opium was Ts130 million (Spence 1975:154). Opium transformed China, economically, socially, politically and culturally.

All sources agree on one important fact, and that is that opium, no matter where it appeared, came to function as both a source of, and a substitute for, cash. As the British, Dutch and other Europeans had discovered long before, and as many Chinese already knew, opium was as good as money, and if it could not be spent, it could always be eaten or smoked. Ultimately everyone who could seems to have sought to reap a share of the increased bounty flowing from opium. If it enriched migrant peasants in the first instance, it was not long before their landlords and tax collectors saw the possibility of added revenue. At all levels, it came to be an additional and important medium of exchange both in the Chinese private economy as well as in the fiscal support of localities, provinces and even the Chinese state itself. Income from the opium economy served the peasants, the landlords, the large and small traders, the magistrates and the tax collectors. Even though prohibitions against the cultivation of opium persisted in many localities after the legalization of opium imports, the laws were rarely enforced in any consistent fashion. Ultimately, most officials decided that money was better than morality.

Chinese domestic production probably did not surpass imports until about 1870.

Between 1870 and 1906, domestic production of opium is estimated to have increased by five times. By the end of the nineteenth century China was producing nine times the total import from India (Lin 1993). Available statistics from the period show staggering estimates ranging between 330,000 pikuls and 584,000 pikuls annually, in the years just prior to 1908 (Lin 1993:42 Table 4). It is probably safe to say that China was then producing between 30,000 and 40,000 tons of opium annually. China had become the largest producer of opium in the world. However, unlike India, little of this was exported. At the same time, China continued

to import between 70,000 and 80,000 chests of Indian opium from 1870 to the early 1890s and between 50,000 and 60,000 chests thereafter until 1908. Chinese also consumed significant portions of opium produced in Turkey, Egypt, Persia, the Balkans and that of a few other minor producers.

Opium smoking increased as fast as production. Nearly all of the opium produced in China was consumed in China except for some minor exports to northern Vietnam² (Descours-Gatin 1992:210). This was an insignificant amount, however, compared to the spread of opium epidemic throughout China. At the beginning of the twentieth century, China was consuming ninety-five percent of the world's opium supply. In Taiwan, under Japanese rule, only Chinese were allowed to smoke. There was a population of 323,940 in about 1890, one-seventh of whom were opium smokers. In Taipei, out of a population of 59,905, there were 13,299 smokers, and Tainan had 7,209 smokers in a population of 18,871 (Edkins 1898: 65). There are local estimates of as high as sixty to eighty percent of opium smokers in the populations of Shanxi and Kansu. None of these estimates, however, are systematic or comprehensive. Spence estimates that about ten percent of the entire Chinese population were opium smokers of some regularity. In 1890, this very conservative estimate suggests that there may have been around 15 million actual opium addicts in China. This number must have increased considerably by 1908 (Spence 1975).

In every city of China, opium dens, or divans, or shops, or whatever they were called, came to be the most common form of retail business. In Shanghai, in the mid-nineteenth century, opium dens were fashionable places frequented by intellectuals, merchants, bureaucrats, artists and other Chinese of this rank. But, as time passed and opium became cheaper, the ordinary people developed a taste for opium and the dens spread. By the end of the century, "outside of these specialized establishments, every section of the city had at least one salon reserved for (opium) smokers" (Perrott 1992:27). Random reports from the late

nineteenth century show opium shops numbering in the thousands in many cities throughout China. Chongqing had 1,230; Chefoo (with a population of 30,000) had 132; Wenchou had 1,130; and in Suchou there was a crackdown in 1869 which closed 3,700 opium shops and dens (Spence 1975:166). By 1911, there were 1,492 opium dens and shops in Hankou alone (Rowe 1989:191). By comparison, Hankou had only 286 wine shops and 696 tea shops, and even many of these probably sold opium as well (Rowe 1989:86).

Teahouse operators...were sharply constrained by the modest buying power of their clients in the level of profit they could derive from the legitimate sales of tea, so in order to remain in business they were virtually compelled to supplement this with illegal activities such as sheltering refugees, running games of chance, distributing opium and staging pornographic shows.

Tea houses were also routine hangouts for criminal elements. During times of disturbance (eg. 1850s, 1880s, and 1920s) these were frequented by "wandering braves" who also engaged in salt and opium smuggling (Rowe 1989:196, 225).

Opium had entered into the very fabric of Chinese life. It supported the state, it supported the economy and paradoxically, it undermined both. Spence and others make its importance clear: "...for at least the last fifty years of the nineteenth century, opium played an important role in the Chinese economy, and it did so in three major areas: it served as a substitute for money, it helped local officials meet taxation quotas, and it helped finance the self-strengthening program" (Spence 1975:167). At the same time, it also financed the forces that would destroy the Chinese social and political order.

The Chinese attempts to eliminate the opium scourge at the beginning of the twentieth century are instructive. They tell us two things. The first is, that given the constant presence of an uncontrolled and substantial outside source of opium, domestic suppression measures were ineffective. The fact that as soon as the British agreed to cooperate with the Qing state in

suppressing the opium trade within India at the same rate as the Chinese suppressed the domestic cultivation, it became possible for the agencies of the imperial Chinese government to nearly eliminate opium cultivation and trade within China. Britain and China agreed to suppress the opium cultivation within their domains by ten percent a year for ten years, beginning in 1908. Within three years, China succeeded in significantly reducing opium production and consumption. This was largely due to the efforts of two brothers Zhao Erfeng and Zhao Erxun, who served successive terms as the governor-general of Sichuan. By the end of 1910, the two had virtually eliminated the cultivation in Sichuan, one of the two largest production areas. Similar successes took place in other parts of China (Trocki 1999:130).

Whether or not these efforts would have succeeded in the longer term is difficult to say. In 1911, the Qing state was overthrown and in the power struggles that followed China fell into civil war. Following the collapse of the Yuan Shikai regime in 1916, China literally broke up into group of regional regimes controlled by local warlords and even bandits. In those circumstances opium cultivation and trade rapidly resumed and became the major financial support of these new warlord governments. The combination of warlord armies and opium revenues became the great bane of China during the years from the 1920s to the 1930s. It was clear that any political order, meaning anyone able to secure a monopoly of coercive power, that could control opium could use it as an economic resource. Actually, this was not much different from what the EIC and the European colonies of Southeast Asia had done. They monopolized opium and lived off the profits. This reliance on opium became a feature of every Chinese regime until the People's Republic finally eliminated opium in about 1953 or 1954.

Conclusion

What is to be made of the unchecked spread of opium throughout China in the eighteenth and nineteenth centuries? Clearly a complex group of forces was at work, some

external to China, but many internal. Opium moved down the social scale; from the luxury of a narrow elite in the eighteenth century and it became a drug for the masses by the 1880s. While the British and Americans brought opium to China and sold it to the Chinese, they did not distribute it to Chinese consumers. Chinese wholesalers, Chinese distributors, Chinese dealers and most of all, Chinese officials all took part in the trade. Indeed, they made it work, not only in China, but also throughout the European colonies. There, the wealthiest Chinese capitalists got rich by selling opium to their own countrymen. Moreover, once the market for the drug had been established, many Chinese were quite willing to develop the domestic opium industry to a scale far beyond that ever imagined by Europeans. Understanding the Chinese demand for opium and the facility with which it was served remain the unsolved problems.

There were strong forces that led Chinese to consume the drug. Among them was the simple fact of the Chinese innovation of smoking the drug. This reduced the danger of overdosing and at the same time produced a much more immediate and intense high. It is also a mark of the creation of a specifically Chinese culture of opium use in which the drug found a context. The nineteenth century crisis of Chinese culture also had a part in the drug epidemic. The intellectual and moral bankruptcy of Confucianism; the failure of the Chinese state to combat the western incursion; the chaos of domestic upheavals and finally the simple struggle to stay alive in a world that was collapsing; all of these factors lay behind Chinese drug use. They seem to have left many Chinese with little more than a desire to escape what appeared a hopeless situation. In that way, our own drug plagues in Europe and the United States at the present time may seem to parallel China's situation at that time.

Despite its dangers, it is clear that opium had other properties and uses. It was very often taken for its medicinal as well as for its psychotropic properties. At least some of the users saw it as a convenient method of self-medication for a wide range of complaints. Some

of these, no doubt, used it only so long as they needed it and stopped when they no longer had a need. In the case of the coolies and peasants and others who used very small amounts of highly adulterated opium, it is difficult to get an accurate idea about how many were actually addicted and how many could have been classed as "moderate" users.³ (Kramer 1979) It is probable, however, that many Chinese users were aware of its dangers when they began smoking it. They were willing, however, to take the risks. Many in our own society take such risks as well. While there were many moderate users there were probably many who could not stop. Impressionistic reports from the nineteenth century suggest that a significant number of smokers were in fact addicted to the drug, and that a considerable number of lives were ruined as a result of that addiction.

There is a problem here however, in estimating the long-term cost of that addiction. There is no historical evidence that sustained drug use destroyed Chinese civilization, nor is there a case that I know of, where any civilization has been seriously or decisively weakened because of the drug-induced demoralization of the population. While we should not dismiss the individual human cost of drug addiction, it seems that most reasonably healthy social formations can tolerate a certain level of drug addiction without serious consequences, so long as that phenomenon is not accompanied by economic and legal complications. Indeed, it may be a powerful force, but the enormous swings that appear in the import and apparent consumption levels in nineteenth century China suggest that in times of scarcity, many addicts did without the drug. Many others seemed quite capable of stopping altogether when circumstances required. Still others seem to have maintained habits for decades without self-destruction. There is, it seems, much more to be learned about the phenomenon of addiction. We still know little of its long-term social and historical effects. Existing accounts of nineteenth century China show that Chinese civilization was already in decline at the time

opium use became a drug epidemic. Perhaps opium use hastened the decline, but even this is not clear.

The real damage which the drug did to China was economic and political, and to some extent these were self-inflicted wounds. The fact that the drug was a foreign import meant that money flowed out of the country and thus impoverished certain sectors and caused dislocations in rates of exchange, inflation and similar difficulties, but these problems seem to have been temporary and rather limited in scope. On the other hand, even this ill-effect could have been prevented had the opium trade been legalized. It was the illegality of the trade for nearly a century of its remarkable growth (from 1760 to 1860) that did the real damage. That damage was to both the legitimate economy and the legal political system. A great deal of "new wealth" suddenly appeared in China and it did not always flow into the hands of those who were already wealthy. It must have provided much in the way of new opportunities, but in most cases those opportunities were there for those who were willing to overlook or break the existing laws. It is necessary to ask where did the money go? Who got rich? Who got poor.? What social and economic and political institutions were corrupted? What really changed?

From the late eighteenth century until the middle of the nineteenth, opium was the major commodity of the Asian trade. It was the single most valuable export from India for many of these years. It was the single most valuable commodity that China imported. Opium also flowed to all of the ports and states of Southeast Asia. Wherever people had cash to buy it, or wherever a valuable commodity could be offered in exchange, opium was sold. Opium pushed old commodities, such as Indian cloth, out of the market, and at the same time, brought new ones into the market. Opium seems to have supplied an irresistible incentive to produce, or at least to make others produce. In China, it was not long before others began to produce opium themselves.

Opium became new money and thus a new form of exchange medium as well as a consumer commodity. As appears typical of newly established drug trades, the opium trade created massive transfers of wealth, new accumulations of capital and new owners of capital. As an aside, if we look at current global conditions, we can make some rather sobering conclusions about the direction of the current global economy. The annual turnover of the world drug trade (the illegal one) in 1997 amounted to \$US400 billion or eight percent of the value of world trade. That was more than the global trade in iron and steel or in motor vehicles. In the decade between 1986 and 1996, opium production tripled, from about 2,000 tons about 6,000 tons. Coca leaf production doubled over the same period (Taylor 1997). There appears an enormous potential for the further growth of legal and illegal drug trades in the future. Their potential for further undermining and influencing the non-drug economy is also even greater.

The rise of a drug trade does not mean, however, that everybody in a drug-using country loses out. Looking at nineteenth century China, we can see that there were many Chinese who benefited. Beyond the stereotypes of Chinese users and European dealers, there is the fact that so many other Chinese were willing to produce and trade in the drug at the expense of their fellow countrymen. The entire distribution network inside of China, as well as those in the various European colonies of Southeast Asia and in Siam, were all entirely managed by Chinese. Ultimately the largest and most pervasive system of opium cultivation was the one in China. Perhaps there might be some justification for the perception that opium was something that belonged peculiarly to the Chinese. If we look closely at the new Chinese power configurations of the late nineteenth and early twentieth century, it seems that many of them were related, in some way or other, to the trade in opium. The new merchant classes, the provincial powers, the warlords, the Qing state, the new political parties all relied on opium incomes to some degree. Most of the new Southeast Asian state structures were built on

opium profits as well. While it is true that these were colonial states, those administrative entities have been inherited by the new nations of Southeast Asia, so too are their economies. These were largely built and operated by Chinese using opium-derived capital. Indigenous power relations were built around the opium revenue systems.

A question that arises from this study is the role that commodification played in the opium trade. If we compare the opium commerce of the eighteenth and nineteenth centuries, it seems to be similar in structure to the trades in the "softer" drugs that swept into Europe during the eighteenth century. These "excitania" as Jordan Goodman has called them exploded into the European market and became true mass market commodities (Goodman 1995). The opium economy of nineteenth century Asia does not seem terribly different from those of coffee, tea, tobacco, chocolate and even sugar. Of course, we do not label these economic developments "drug plagues" or epidemics, because they were not illegal.

Nevertheless, the purely economic phenomena are similar. It is also true that these commodities were controlled by European capitalists, not foreign ones.

In many respects, opium was the first mass-produced commodity in Asia. The British takeover of the commerce had led to well-organized production systems, standardized packaging, portioning and pricing. The British created a regular supply that was carefully adapted to suit what were perceived as the current tastes of the market. Behind these developments lay the creation of vast enterprises. These included the considerable agricultural preserves in Bihar, Benares and the Malwa states, together with their large indentured labor forces. The infusion of significant amounts of silver into the hands of these agriculturists sustained entire classes of tax and rent collectors in India, not to mention the revenues of the colonial and Asian governments that ultimately got the taxes. There were also extensive collection, administrative and industrial processing facilities for the opium itself, which were embodied in the organization of the Indian Opium Monopoly. The next link in the chain were

the extensive shipping, wholesaling and financial networks. To a certain extent, the creation of all of these were financed by the accumulations of capital generated by the opium trade. Even such innovations as the clipper ships and certain Indian railroad lines appear, at least in the first instance, to have been wholly dependent upon the opium commerce to underwrite their cost.

These developments matched changes in China itself. Chinese culture had already developed many of the aspects of a consumer society even before the opium trade took off.

This is another reason why opium moved into China so rapidly. It is quite clear, however, that opium made a very big place for itself in the consumer economy. Opium shops and divans had come to outnumber every other form of retail establishment in most Chinese cities by the end of the century. The opium trade restructured the Chinese economy and political relations in much the same way that the "soft" drugs had affected Europe and America.

Even though it was a "foreign" commodity, the Chinese themselves developed an entirely new relationship with this product and created a subculture and rituals to accompany its use. This process paralleled the acculturation of foreign drugs such as tea, coffee, tobacco and chocolate in Europe and America. Europeans created their own specific rituals and artefacts around which the consumption of their drugs was built. So too did the Chinese. Opium was different because it was illegal. It also came from foreign sources beyond Chinese control. It was also highly addictive and was a powerful and dangerous poison. Because of all these things, opium brought a new dimension to the drug commerce, the drug plague. Like these other substances, opium became a market commodity, but it became a true "drug on the market" in that it not only created a market where none had previously existed but it glutted the market in such a way that it seemed at least for a time to drive other commodities out of the market.

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Endnotes

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¹It was possible to achieve a "high" by ingesting opium, and indeed, many did (including Thomas DeQuincy), but the practice of smoking it considerably enhanced the experience. First of all, it made the onset of the high much quicker. One could feel it within a few minutes, rather than 30 to 60 minutes, if one inhaled the drug rather than ingesting it. It was, moreover, much more difficult to overdose if one smoked, whereas, if one swallowed too much, the result could easily be fatal.

²Initially some was smuggled into northern Vietnam, or Tongkin as it was then called, but later on the French began to purchase Yunnanese opium for local sale. By 1907, opium smokers, principally in Tongkin (many of whom may have been Chinese immigrants) were consuming over 75,000 kg of Chinese opium. (Descours-Gatin, 1992).

³ Dr John Kramer has determined that one needs to consume at least 30 milligrams of opium daily for at least 30 consecutive days before physically measurable withdrawal symptoms are evident. This includes such phenomena as changes in body temperature, heart rate, observable trembling, sensory disorientation, etc. Even though most nineteenth century users smoked far more than 30 milligrams a day, it is doubtful that their body actually absorbed much more than ten percent of what was smoked. In any case, it is really impossible to get any exact measure of how much opium is actually absorbed by a smoker since so much of it goes up in smoke or is exhaled (Kramer, 1979).