APPENDIX 5

THE FRENCH AND DUTCH OPIUM FACTORIES

Probably the oldest modern opium factory is the Bengal one in Gaziphur (1820), which is still in operation: in 2008 it produced for the USA and Japan together not less than 200-250 metric tonnes of opium (*Wikipedia*)! This is twice the total sold in the whole of Ceylon and Southeast Asia in the best year of 1926. Impressions of this early factory (Patna, 1850) are given on p. 62.

However, the French opened the last factory in the craftsmen era and the Dutch, the first in the machine age. In addition, they both functioned within the new *Opiumregie* system. This was developed in the French Southeast Asian colony of Cochinchina.

From both factories specific numerical data are given below, to show how they operated in detail. First, the French opium factory (*bouillerie*), which operated from the revenue farm period and came under the *Opiumregie* in 1881. It was established ca. 1874 in Cholon near Saigon.

The production process was carried out largely with manual labor. It followed, in short, the steps described in detail in W. Groeneveldt's report (p. 46-49).

The raw opium arrived in the harbor of Saigon from Bengal and was immediately brought to the storehouse of the tjandoe factory. It was packed in chests of 40 balls. The quantity of the balls needed is carried to the first section of the factory (*bouillerie d'opium*), in which four large stoves (*fourneaux pour grandes bassines*) are situated, each provided with two large kettles of 300 liters for opium water. The water is used for boiling the opium and later the peelings of the balls for making the *écorces* (opium bark), a product which was in high demand among poorer people. In this part of the building there were also other stoves, each with 34 fireplaces (altogether thus 136).

The laborers started by cutting the balls in two and taking the opium out of them with wet hands; the peelings were put aside for later boiling, while the inner parts were first boiled in the large kettles. The opium content of 2½ balls was put in a copper pan (52 x 12 cm) together with four liters of opium water and boiled on a charcoal fire until sufficiently concentrated. After it was removed from the heat, stirring continued to prevent the substances from sticking to the wooden spoon. From this a ball was prepared, and two of them had to fill a pan.

This stage took two hours, and then a new procedure was started. The pan was put upside down on a soft charcoal fire, whereupon the substance fell apart in small slices which were removed immediately. These black-brown "pancakes" (*crêpes*) were so crispy within a few minutes that they fall apart if touched. The pieces were gathered in other copper pans (69 x 18 cm), each containing the equivalent of five balls. Twelve liters of opium water were added, and after soaking for about 18 hours, the "pancakes" had disappeared.

This result was filtered twice after the substance was boiled on a hot charcoal fire. After 2½ hours it was beaten until it was cold. The final product was weighed and transported to the factory storage.

In the store it was saved for four months in large, closed, copper barrels (300 liter), filled halfway so some fermentation could take place. After this period the *tjandoe* with a 9.15% morphine content was ready to be packed. This was done in flat square boxes, and the cover was fastened by a drop of solder.

Table 73. Raw opium import, Preparation and Revenue in French Cochinchina, 1881-1889¹

Years	Imported chests	Average price per imported chest in Saigon in \$*	Number of worked up balls (40 per chest)	Quantity in thails		Opium revenue x 1000 \$*	
				Tjandoe	Écorces	Tjandoe	Écorces
1881	350	616	---	---	---	---	---
1882	560	601	24 159	716 604	31 406	1 252	43
1883	725	544	29 000	886 589	42 630	1 532	37
1884	956	578	37 758	1 156 003	51 082	1 697	35
1885	850	568	33 038	1 040 068	43 419	1 763	54
1886	1050	543	40 904	1 276 711	61 061	1 891	44
1887	1070	511	38 080	1 192 372	50 638	1 840	53
1888	850	498	31 385	958 459	66 250	1 724	58
1889	800	512	30 609	957 213	71 402	1 407	58

* This \$ is not an American dollar, but the indication of piasters. One piaster in this period is valued at 5.55 French francs; until 1913 this is nearly equal to 1 US\$.

The Dutch Opium Factory in Batavia was established in 1898 following a secret proposal of W. Groeneveldt (1890). Many discussions for and against exist (J. Rush, chapter 10 and 11). About the technicalities of such a factory, the opinions of Groeneveldt, Struick, Haak or Winselius varied widely. The first had studied the case the best.

A most important aspect of this debate concerned the morphine content of the raw opium and of the *tjandoe* made from it. Today a normal, unadulterated opium of any type, in the air-dry condition, usually has between 8% and 19% of morphine. The principal commercial opiums generally have approximately the following morphine contents: Yugoslavia 15%; Turkey 13%; Iran 11%; India 11% (www.poppies.org).

In the Groeneveldt debate Haak wrote

'that from one catty (16 thails) raw opium 8 thails *tjandoe* are derived, so that the good quality *tjandoe* (from Bengal opium) has to contain at least 16% morphine, *if during the process no morphine is lost*. According to the same calculation the Levant opium must give a *tjandoe* of 26% and more morphine content. However, Haak found in the *tjandoe* of the lease contracts [in East Indies. H.D.] ... not more than

¹ The table is a combination of the tables from W. Groeneveldt, p. 44, 49 and 63.

8.85 % morphine, because—according to him—this was mixed with other ingredients to increase the weight. Now, if the Opiumregie should make tjandoe without such a mixture, the users would get tjandoe with 20-30% morphine, which is to a large extent ruinous for them.”²

Therefore, Groeneveldt wisely proposed that the factory produce tjandoe of about 10% morphine content. During his visit of the opium factory in Saigon, he found that the tjandoe there had a 9.15% morphine content.

Haak missed the mark because he supposed that raw opium consists only of concentrated poppy juice (*heulsap* in Old Dutch). To a certain degree, however, raw opium also contains poppy leaves. The weight of this element is at least 5 thails in every ball of Bengal opium of 2.5 catty. Therefore, per catty there remains only 14 thails of raw opium.

The above knowledge is incorporated in the following account of the factory process. I have chosen the example of the year 1913, which is in principle not different from the other years. All figures are in *kg* and rounded. The production process is in the sequence 1, 2 ... etc. to 8.

In the factory accounts and elsewhere, the designations A, B, C ... to G, or H and K boxes are used for different contents, cost price and weight: A has 200 small tubes, B 100, etc. to K with two larger tubes. A thousand tubes of the smallest kind weighed about half a kilo; the tubes in box K weighed 24.5 kilo. The smallest measure was 193 mg (*1/2 mata*).

As the pictures show, the Dutch Opium Factory was not small, and it was well equipped with modern machinery. A staff of a dozen Europeans managed it with about a thousand indigenous workers. The Europeans received monthly salaries; the workers' wages were paid per day and calculated per *thail*. In 1912 they were paid 9.4 cents per *thail*, in 1913 it was 8.6 cents per *thail*. That made between 10 and 15 guilders a month; the Europeans got about 50 times more, excluding a specific “bonus” and/or privileges like trips to the Netherlands or Dutch pensions.

In 1913 the factory had already reached its maximum production capacity. However, by expanding the storage buildings, the mixed *tjandoe* could be stored for three months before being used to fill the tubes. This improved the quality of the product and was an argument to increase prices.

Apart from the preparation of the raw opium, mainly imported from Bengal, the factory made specific products like *tikee*. Furthermore, there were opium pills (in tubes I) which were sold only among the tin miners on the islands of Bangka (Banka) and Belitung (Billiton). A special kind of raw opium was also prepared for some elite customers in Java.

² Idem, p. 130.

1. STOREHOUSE RAW MATERIALS	2. MECHANICAL OPIUM PREPARATION
added to stock:	from 1: 189,684
Bengal raw opium 182,875	added:
Levant raw opium 4,209	a. leaking tubes 145
<i>djitjing</i> 2,216	b. from smuggling 332
total stock 234,554 100%	total 190,161 100%
from this:	from this:
a. to mechanical opium prep. 189,684 80%	a. to mixing 2,903 2%
b. to <i>tikee</i> department 894 1%	b. to storeroom prep. 122,573 64%
c. to storeroom 43,976 19%	c. lost in preparation 64,655 34%
3. STOREROOM OPIUM PREPARATION	4. MIXING ROOM
added:	added:
a. from Mech. O. Prep. 122,573	a. from storeroom op. prep. 111,284
b. from stock 17,656	b. sugar 2,540
total 140,229 100%	c. increase 906
from this:	total 100% 114,730
to mixing room 111,284 79%	from this:
	to storeroommixed opium 114,730
5. STOREROOM MIXED OPIUM	6. FILLING ROOM
added:	added:
a. from mixing room 114,730	a. storeroom mixed opium 113,950
b. in stock 10,716	b. stock filling room 1,853
total 125,446 100%	total 100% 115,803
from this:	from this:
a. to filling room 113,950 91%	a. filling of tubes 98% 113,561
b. to <i>tikee</i> storeroom 654 0.5%	b. filling losses 2% 4,973
c. to stock mixed opium 10,842 8.5%	
7. PREPARATION TIKEE, RAW OPIUM, PILLS	8. STOREROOM PACKED TJANDOE
from several stocks:	added:
a. <i>tikee</i> 647	a. from filling room 113,561
b. raw opium Bengal 153	b. from preparation <i>tikee</i> , etc. 6,594
c. raw opium Levantine 657	total 100% 120,155
d. opium pills 5,137	
total 6,594 100%	

from this:

to storeroom packed *tjandoe* 6,594

from this:

- a. tubes A to G 92% 110,674
- b. *tikee* 662
- c. raw Bengal opium 191
- d. raw Lev. opium 660
- e. opium pills 218
- f. stock storeroom *tjandoe* 7,750

These last items from 8 are the end products (weighing 120,155 kg) packed in wooden boxes with tubes. They are sent to *Opiumregie*, which had to take care of the selling and distribution. So, very roughly, 200,000 kilo of raw opium were needed to make 110,000 kilo of prepared opium in tubes (excluding the weight of the lead tubes).

Figure 13. East Indies: Production Cost of Opium Factory and Sales Revenue of Opium Regie, 1900-1935 (x 1 million guilders)

Figure 14. East Indies: Production Cost of Opium Factory and Sales Revenue of Opium Regie, 1900-1920 (thail per guilder)

Figure 15. East Indies: Opium Factory, Production cost, 1900-1940 (x 200,000 Dutch guilders)

Figure 16. East Indies: Opium Factory, Production cost, 1900-1940 (per thail x 10 cents)

Source: The data for the figures 13-16 are all derived by H. Derks from the *Year Accounts of the Opium Factory and Opiumregie*, (Batavia; 1913-1940).