COMPARATIVE STATEMENT OF THE IMPORTS OF THE VARIOUS KINDS OF TOBACCO DURING THE FIVE YEARS 1879–83.

	Maryland.	Virginia and Kentucky.	Java.	Seed-leaf.	Brazil.	Sumatra.
	Hhds.	Hhds.	Packages.	Packages.	Packages.	Packages.
In 1879	7,234	85	102,791	192	1,548	44,477
1880	4,775	147	34,037	1,007	339	52,151
1881	2,989	151	81,225	454	1,098	59,468
1882	3,405	26	103,384	905	Nil.	73,444
1883	4,240	976	30,975	2,500	675	10,111

India.—An immense area is occupied in producing tobacco in India. In Madras, Dindigul is the great tobacco district, and cheroots are manufactured at Trichinopoli. The islands in the delta of the Godavari also yield *lunka* tobacco, the climate being suitable, and the plants being raised on rather poor, light soil, highly manured and well watered. Manilla seeds have been tried on the lower Palnai Hills, but the Wynaad has proved to be the best locality. In Bombay, the Kaira and Khandesh tobaccos are superior; altogether over 40,000 acres were under the crop in this presidency in 1871–2, and the exports were 3 million lb. Shiraz and Manilla seeds yield good plants in Gujrat and Khandesh. The total areas under tobacco in 1871–2 were thus returned:—Bengal, about 300,000 acres; Punjab, over 90,000; Oudh, 69,500; Rungpore, 60,000 (affording the so-called "Burma cheroots"); Central Provinces, 55,000; Tirhoot, 40,000; Cooch Behar, 24,000; Mysore, 20,000; Dinagepore, 20,000; Purneah, 20,000; Behar, 18,500; Burma, 13,000; Monghyr, 9–10,000; Nuddea, 9–10,000. The best tobacco districts are said to be Sandoway and the island of Cheduba, in

Arracan; Rungpore, in Bengal; and Bhilsa, in the Central Provinces. The results of many analyses of South Indian tobaccos show that their ash seldom contains more than 5–6 per cent. of carbonate of potash, while American range from 20–40 per cent., indicating the poverty of the Indian soils in this important ingredient. It might, however, be supplied at moderate cost in the shape of saltpetre, which is actually exported largely from the tobacco-growing districts.

The bulk of the Indian tobacco exported consists of leaf, the kinds chiefly shipped being the "Bispah" and "Poolah" varieties of the Rungpore kind; the quantities of cigars and other manufactured tobacco exported are very small. The exports in lb. for the four years 1875–79 were :—

	1875–76.	1876–77.	1877–78.	1878–79.
Unmanufactured	22,861,711	10,508,720	10,594,604	13,279,158
Manufactured :				
Cigars	152,189	190,136	189,742	196,759
Other sorts ..	232,720	205,033	317,887	247,743
Total ..	23,246,620	10,903,889	11,102,233	13,723,660

On the other hand, a considerable quantity of manufactured tobacco, averaging over 1½ million lb. yearly, is imported, showing that India is still merely a producer of raw material, and is dependent upon other countries for the manufactured article in a condition fit for consumption. Even as regards the raw material, India might do a great deal more than at present, for there would be a large and constant demand on the continent

of Europe for Indian leaf, if it could be obtained of somewhat better quality. The French and Italian tobacco departments are prepared to take Indian tobacco in large quantities, if it can be supplied of a quality suited to their purposes; and there would also be an extensive demand from Austria and Germany. Although the shipments consist mainly of leaf tobacco, and that not of good quality, tobacco manufacture is now making a promising beginning. In the enterprise being carried on at Ghazipore, in the North-West Provinces, and at Poosah, in Bengal, both the cultivation and manufacture are under the supervision of skilled American growers and curers. Some of this tobacco sent to the *Administration des Tabacs* in Paris has been very favourably reported on. The factory at Ghazipore is now turning out about 500 lb. a day of all classes, the greater part being black cavendish and honeydew, for the army. The machinery is capable of turning out 3500 lb. a day, as soon as sufficient hands have been trained.

Hitherto no Indian tobacco has realized any valuation approaching that of American. The average price of the American "shipping tobacco" is 5–6*d.* a lb., higher classes of bright leaf from Virginia realize as much as 7–13*d.* a lb., while the price of Indian tobacco has generally been 1–2*d.* a lb. But the 15,000 lb. of Poosah leaf from the 1877 crop reached England when American shipping leaf was at 4–5*d.* a lb., or 25 per cent. below the normal rate. The consignment was, moreover, packed in rather damp order, and contained a quantity of moisture which caused it to be assessed under the highest rate of the new tariff, which imposes 3*s.* 10*d.* duty when the moisture is

over 10 per cent., against 3*s.* 6*d.* under 10 per cent. This made a difference in the value, estimated at 1*d.* a lb. The price obtained was $3\frac{3}{4}d.$, which would have been $4\frac{3}{4}d.$ had the tobacco been drier, and the sale has been followed by orders of large shipments.

The high prices, too, realized for the best samples of the 1876 and 1877 crops, indicate that Indian leaf can be turned out equal to the best shipping tobacco from America. A tierce of strips from the 1876–77 crop from Ghazipore sold for 7*d.* a lb., and the greater part of the rest for 5*d.* or more, while a portion of the Poosah leaf of 1877–78 was valued at 5*d.* when the market was 25 per cent. below normal rates. These facts seem to guarantee future success, since the quantity of the higher classes can be largely increased, and a greater portion of the crop be brought to the same higher level. The chief point to be ascertained was whether a sufficiently high level could be attained at all. It has been attained. The cured leaf of 1878 is very much superior to any hitherto turned out, especially that from Ghazipore. A new market is not unlikely to open in France. The French Government have already asked for a consignment for trial of 1000–1500 lb.

The reason why the manufacture of smoking-tobacco for Indian consumption has occupied so large a share in the operations is, that the Indian market, though small, pays far more handsome profits than the English market.

The price paid for reasonably good American manufactured tobacco in India ranges from one to three *rupees* a lb. Ghazipore and Poosah tobacco is sold at half that

price, at a much higher profit than can be obtained by sending cured leaf to England.

While Indian cured leaf can find a sale in the English market at prices which will enable it to compete there with American cured leaf, Indian manufactured leaf is proved to compete successfully with American manufactured leaf in India itself, with a fair prospect of success in a similar competition in the colonies. It may be stated in general terms that 4*d.* a lb. for cured leaf in England, and 6–10 *annas* for manufactured leaf in India, will secure sufficient or even handsome profits. The opening for profits will perhaps be better understood if it is explained that 1*d.* a lb. represents an asset of about 5*l.* an acre. The one great advantage which India has over America is cheap labour. It is now proved that the leaf is, for all practical purposes, as good as the American leaf, and there is hardly any doubt that America cannot afford to send home leaf at the price at which India can sell.

The exports of tobacco from British India during the years 1874–5 to 1878–9 have been as follows:—

		1875.	1876.	1877.	1878.	1879.
Unmanufactured	lb.	33,411,504	22,861,711	10,508,720	10,594,604	13,279,158
Manufactured.	lb.	425,040	384,909	395,169	507,629	444,502
	No.	2,999,940	..	..	..	..

The following letter from the manager of the Poosah tobacco farms, Tirhoot, describes the system of growing and curing now adopted in India.

"Preparation of Soil.—Tobacco land should be well-drained upland which has lain fallow some time or that has had some light crop in it; this land should be well manured with well-rotted manure. We plough our lands twice monthly. Just before the time for transplanting the soil is ploughed up and well pulverized by a henger or beam of wood drawn by bullocks over the upturned soil so as to bend it and to break up any lumps of earth. The soil should be sufficiently dry for this purpose so as not to cake and harden.

"Seed-beds.—These should be made up in a suitable situation, that is, protected from the afternoon sun, having some building or grove of trees on the west side. The seed-beds should be raised some six inches off the ground and have trenches dug all round so as to carry off any superfluous moisture, the beds should be well worked with a kodalie and good, rotted manure well worked in. After pulverizing the soil and levelling it, pick off any stones or other rubbish and it will be ready for sowing the seed. The size of the bed should be about 4 feet by 15 feet; this is more convenient than square beds, as it enables the plants to be attended to without risk of destroying them by trampling on them.

"Sowing the Seed.—The seed is sown broadcast with the hand, mixed with some sand or ashes so as to sow evenly; care should be taken not to sow too thickly. About one chittak of seed ought to be found sufficient for one of these beds which would furnish enough plants for one beegah of land. After having sown and if there is a hot sun, it would be advisable to cover the beds with light mats. This seed should germinate in seven or ten days at least.

American seed does; Sumatra takes much longer. The plants may require watering, which should be done with a watering-can with a rose, when the plants are well up and large. Only water seed-beds in the evening. As soon as the seedlings have leaves of the size of a penny, they are capable of bearing transplanting. Before taking up the seedling to transplant, water the beds well an hour beforehand; this is done to loosen the earth about the roots so that the plants may be taken up without injury. To take up the seedlings they should be seized by the under side of the two largest leaves by the finger and thumb, having one leaf on each side, not by the stem, then pull up gently, taking care not to break the leaves. They may then be placed in an open basket. When the basket is full it should be covered with a cloth if the sun is hot, and the seedlings slightly sprinkled with water and then carried off to transplant. The seedlings are planted out in rows 3 feet by 2 feet apart, for which purpose a knotted cord is used, the knots being 3 feet apart. This cord is drawn by two men—one at each end. Across the field or portion of the field at a distance of 2 feet from the outer edge, the cord is drawn out and then trampled upon by coolies. The knots leave an impression in the soil where the seedlings have to be planted. The cord is then raised and put down again at another distance of 2 feet from the first, and so on till sufficient land has been marked off. This work can be done during the day, and the transplanting in the evening.

"Transplanting.—Transplanting should be done in the evening if there is any sun; in cloudy weather it can be done all the day long. Rainy weather is most suitable as

it dispenses with watering and the plants settle better. A boy takes a basket of seedlings and walks up the row, dropping a plant here and there where the marks have been made; he is followed by a man who makes a hole with a *kurpie*, into which he places a seedling, and then presses the soil around the roots firmly with his fingers, and then goes on with the rest. As transplanting can hardly be done here without watering, a boy carrying a can without a rose follows the man who is transplanting, and waters each plant he comes across; but, as I mentioned above, if the transplanting could be done in rainy weather, the watering would be unnecessary. When growing the young plants require some attention. After the plants have been planted a week or so, weather permitting, it is advisable to loosen and open the soil around them with a kurpie, and also to eradicate weeds which may appear. Later on a kodalie may be used to work the earth between the rows. As soon as the plants have made growth and begin to throw out flower or seed-heads, which will take place in about eight weeks or so, they should be topped, viz. the flower heads should be broken off before they flower in this way. The stem on which the head was found should be seized about two to three feet from the ground and snapped clean off by the hand or fingers. This topping will cause the plant to throw out heavy leaves. The higher up the stem is broken off, so will the leaves of the plant become thinner and smaller. We generally leave about ten to twelve leaves to each plant. After topping, numerous suckers and offshoots will spring up; these should be promptly broken off as soon as they appear, as they take a lot of nourishment from the

plant. The plant ripens in about three months. We cut here in January, and none but ripe plants should be cut.

"How to Cut Ripe Plants.—A tobacco plant is known to be ripe if the leaf cracks when taken between finger and thumb and pressed, and also when the leaves present a swollen appearance and have a heavy look. The stem when cut is full of sap, very thin rind on edge, the leaves are carved over and look mottled, the ribs of the plant get brittle, and are easily broken off; when fully ripe, the plant is cut at one stroke close to the ground. The best instrument to cut the plant with is a kurpie. When cut, the plant is allowed to hang over on its side and wilt or droop in the sun. This wilting takes from one to two hours according to the strength of the sun. When sufficiently wilted (which is known when the plants look drooping and the ribs can be bent slightly without breaking) the plants are placed in a cart and taken to the curing-house. Plants should not be cut in rainy or cloudy weather, as it is obvious the sun would not be hot enough to wilt were the weather cloudy, and the rain washes off the gum and thereby decreases the weight of the plant. Plants should not be cut after the rain unless the gum has returned to the leaves, which is known by their sticky, gummy feeling."

The results of many analyses of the tobacco of South India show that the ashes of these tobaccos seldom contain more than 5 or 6 per cent. of potash carbonate, while the ashes of American tobacco contain from 20 to 40 per cent., proving the poverty of Indian tobacco soils in this important plant-food—a plant-food, however, easily obtainable

in the shape of saltpetre, and at a moderate cost. But, though saltpetre is largely exported from the tobacco-growing districts, it is never employed as a manure for tobacco.

Italy.—Tobacco is cultivated in Italy in the provinces of Ancona, Benevento, Terra di Lavoro, Principato Citeriore, Terra d'Otranto, Umbria, Vicenza, and Sardinia. The area and produce in the following years were:—in 1870, 9544 acres, 67,192 cwt.; 1872, 12,256 acres, 82,349 cwt.; 1874, 8202 acres, 90,300 cwt. The exports from Naples in 1879 were 2006 *kilo.*, value 401*l.*

The British Consul at Cagliari reports that the cultivation of tobacco is only carried on in the district of Sassari, and in tho plains of Sassari, Portotorres, Nurra, Sorso, and Sennori. No positive data on this branch of industry can be had, it having been exclusively carried on till 1883 by a private company, called the Regía Cointeressata. Without fear of being wrong, it may be calculated that the tobacco cultivators reach the number of 100, who employ during the period of five months from 600 to 700 labourers; the plantation varies from 4,000,000 to 5,000,000 plants, producing a harvest from 2000 to 2500 *quintals* of tobacco leaves, at a value of about 125,000 *lire.*

Japan.—Japanese tobacco is well known in the London market, but it is often in a soft condition, and then scarcely saleable. More care is needed in drying it before packing.

Java.—Tobacco, termed by the natives *tombáku*, or *sáta*, is an article of very general cultivation in Java, but is only extensively raised for exportation in the central districts of Kedu and Banyumas. As it requires a soil of

the richest mould, but at the same time not subject to inundations, these districts hold out peculiar advantages to the tobacco-planter, not to be found on the low lands. For internal consumption, small quantities are raised in convenient spots everywhere. In Kedu, tobacco forms, after rice, by far the most important article of cultivation, and, in consequence of the fitness of the soil, the plant grows to the height of 8–10 feet, on lands not previously dressed or manured, with a luxuriance seldom witnessed in India. Cultivated here alternately with rice, only one crop of either is obtained within the year; but after the harvest of the rice, or the gathering of the tobacco leaves, the land is allowed to remain fallow, till the season again arrives for preparing it to receive the other. The young plant is not raised within the district, but procured from the high lands in the vicinity, principally from the district of Kalibéber, on the slope of the mountain Diéng or Práhu, where it is raised and sold by the hundred to the cultivators of the adjoining districts. The transplantation takes place in June, and the plant is at its full growth in October. The exports in the year 1877–8 were 212,500 *piculs* to Holland, and 213 to Singapore; in 1878–9, they were 248,566 *piculs* to Holland, and 872 to Singapore. The value of the export to Holland in 1879 was stated at 1,250,000*l*. The exports in 1884 were 140,351 *piculs* to Holland, and 2490 to Great Britain.

New Zealand.—This colony has not yet figured as a tobacco grower, but the duty on locally produced tobacco is only 1*s*. a lb., and this is expected to stimulate the home industry.

Nicaragua.—It appears that the total exports of tobacco

were 13,787 lb., value 4830 dollars, in 1883, but only 300 lb., value 240 dollars, in 1884. At present it is a Government monopoly.

Paraguay.—Consul Baker, of Buenos Ayres, states that one of the most valuable crops of Paraguay is tobacco; in 1829, its production amounted to only 2,675,000 lb., while in 1860, the crop amounted to 15,000,000 lb.; but the war with the allies almost ruined this source of wealth. It has, however, somewhat recovered its importance, the exports alone last year amounting to 8,975,000 lb. A large proportion of the crop is annually worked up into cigars, a branch of industry which is almost entirely in the hands of the women. The tobacco planted in Paraguay originally came from Havana, with the exception of a particular kind which is called in Paraguay, blue tobacco, *peti-hoby*, the origin of which is unknown. The favourite leaf is a yellow tobacco, *peti-para*, grown chiefly in Villa Rica, which possesses about 6 per cent. of nicotine.

Persia.—The whole of the eastern coast of the Black Sea, i. e. Mingrelia, Lazistan, Abkhasia, and Circassia, is admirably suited for tobacco cultivation. The country between Poti and Súkhúm Kalé contains admirable sites for tobacco plantations, labour for which can be got from Trebizond. A great demand for tobacco of good quality exists in the country, and a practical planter should do well. A quantity of coarse, badly-cured tobacco, of no commercial value, is produced in Imeritia and Georgia. Great success has attended the culture in Ghilan. The first seed introduced was from Samsoun; since then Yenija seed has been tried, and some parcels attained the standard of the best Turkish tobacco. It can be produced at about

20*s.* a *pood* (of 36 lb.), giving a profit of 22*s.* a cwt. Hitherto the cultivation has been confined to the plains, where both soil and atmosphere are damp, but it might be worth trying the hill-skirts. About 2000 cwt. were produced in 1878. The exports of tobacco, the produce of Ghilan, from Resht to Russia, were valued at 4615*l.* in 1878, and 6154*l.* in 1879. The values (in rupees) of the exports in 1879 were 13,000 from Bushire, 73,500 from Lingah, and 35,000 from Bahrein.

At the time when I wrote the article on tobacco in Spons' Encyclopædia, the true source and history of an article called "tumbeki" was still in doubt. From researches made at the instigation of my friend E. Morell Holmes, F.L.S., the Curator of the Pharmaceutical Society's Museum, it is now clear that it is a Persian tobacco, and as such calls for mention here. The following paragraph reproduces what I said on the subject in Spons' Encyclopædia.

"Tumbeki.—This word, under a multitude of forms, is the common name in several Eastern languages (Bengali, Hindustani, Telugu, Sunda, Javanese, Malayan, Persian, Guzerati, Deccan) for ordinary tobacco. But in Asia Minor, it is applied to a narcotic leaf which is spoken of as distinct from tobacco, and is separately classified in the Consular Returns. Botanical authorities are at variance as to the plant which affords it, some attributing it to a *Lobelia*, while others consider it a kind of tobacco. The latter appears to be the more correct supposition. The flower resembles the tobacco in being trumpet-shaped; the leaf is broader, larger, and rounder than that of the tobacco raised in Turkey, and is also wrinkled like the inner leaf

of the cabbage. The plant is raised from seed in nurseries, and when it has 4 or 5 leaves, is planted out in April in the prepared field, and watered sparingly. It is 'set' in a day or two, and is then hoed occasionally to free it from weeds. After inflorescence, and when the plant is sufficiently 'cooked,' it is cut down, or pulled up bodily, and re-set in the ground till the leaves are wilted. These leaves are dried, and, after exposure to the dew, are pressed heavily, when they undergo a kind of fermentation which develops the aroma. It is exceedingly narcotic: so much so, that it is usually steeped in water before use, and placed in the pipe (a *narghilé* or water-pipe) while still wet. The exports of this article (the produce of Persia) from the port of Trebizonde are considerable:—In 1877, they were 13,342 bales (of $1\frac{3}{4}$ cwt.), value 106,736*l.*, to Turkey; in 1878, 11,571 bales, 92,568*l.*, to Turkey; in 1879, 9659 bales, 77,272*l.*, to Turkey, and 866 bales, 6928*l.*, to Greece. Aleppo, in 1878, sent 4 tons, value 320*l.*, to Turkey, and 11 tons, 880*l.*, to Egypt. The exports of the article, the produce of the interior of Persia, from Resht to Russia, were valued at 5000*l.* in 1877, and 3846*l.* in 1878."

It will be interesting to compare this with Holmes' paper read before the Pharmaceutical Society on February 10, 1886:—

"Tumbeki is the name under which an article of regular commerce between Persia and Turkey is mentioned in the consular reports, especially in that for Trebizonde.

"Two or three years ago an inquiry was made at this institution concerning the nature and botanical source of umbeki, and the only information I was then able to

give was that in the 'Treasury of Botany' tumbeky is stated to be the narcotic leaf of a species of lobelia.

"From its frequent occurrence in the Blue Books in the same list with tobacco, and from the large quantities mentioned as an export from Trebizonde, my correspondent suggested that it was probably something used for smoking like tobacco. In the hope that tumbeki might prove to be some drug possessing important narcotic or possible medicinal properties, I wrote to Mr. A. Biliotti, Consul at Trebizonde, for information. In reply, he forwarded samples of tumbeki of different growths and qualities. This proved on examination to be unquestionably some kind of tobacco, and being puzzled to know why it figured in the Blue Books as a distinct article, I asked Mr. Thomas Christy, F.L.S., to make inquiries for me in Persia. He received the following note through Mr. Zanni, the well-known chemist at Constantinople, from whom I received the following information :—

"'There are three qualities of the teymbeki, all derived from the *Nicotiana persica*.

"'1. Shiraz teymbeki, valued at twenty gold piastres per oke.*

"'2. Kechan teymbeki, valued at ten gold piastres.

"'3. Teheran teymbeki, equal in value to No. 2.

"'The Shiraz is the best quality, the leaves are four decimetres long and half a decimetre wide. The leaves of the two other qualities are not so large. The quantity of alkaloid in the leaves of teymbeki is more than in the leaves of *Nicotiana Tabacum*; it is much used in Constantinople, but more so in Egypt, Syria, and particularly in

* The oke equals ten kilogrames; a piastre, 2½*d*.