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ROYAL GARDENS, KEW.

BULLETIN

OF

MISCELLANEOUS INFORMATION.

No. 52.]

APRIL.

[1891.

CXCV.—PERSIAN TOBACCO OR TOMBAK.

(*Nicotiana Tabacum*, L.)

A curious confusion has long existed as to the botanical identity of the tobacco plant cultivated in Persia. Flückiger and Hanbury in their Pharmacographia, one of the most accurate books ever published, remark (2nd ed., p. 469), "*Nicotiana persica*, Lindl., yields the tobacco of Shiraz." Bentley and Trimen, Medicinal Plants, vol. iii., sub. tab. 191, attribute Persian or Shiraz tobacco to the same species. These statements are adopted from the account and figure published by Lindley in the Botanical Register (tab. 1592). He says, "We are happy to have the opportunity of laying before our readers a genuine figure and description of the plant which produces the far-famed *Tobacco of Shiraz*. The common Virginian tobacco is also cultivated in Persia; but this it is from which the finest quality is manufactured. Seeds of it were brought from Persia by Sir Henry Willock, upon his return from his late residence at the Court of Ispahan, and communicated to the Horticultural Society, in whose garden it blossomed in September and October last."

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Dunal, in his monograph of the Solanaceæ in De Candolle's *Prodrômus* (vol. xiii. 1, p. 567), adopts Lindley's species with the remark, "celeberrimum tabacum e Shiraz productit." Yet, of the half a hundred species of *Nicotiana* which have been described, only two are ordinarily grown for smoking, namely, *Nicotiana Tabacum* and the more hardy yellow-flowered species, *N. rustica*.

A curious fact to start with is that under *N. persica* Lindley has redescribed a well-known species. As Alphonse De Candolle remarks (*L'Origine des Plantes Cultivées*, 2nd ed., p. 115), "Lindley has failed to observe that *N. persica* is precisely the same as *N. alata*, figured three years before by Link and Otto (*Icones plant. rar. Horti ber. t.* 32). This was raised from seeds sent by Sello from S. Brazil. It is a species certainly Brazilian, nearly allied to the Australian *N. suaveolens*. I am unable to offer an opinion as to how this species has been introduced into Persia. It must have been as a garden escape, or through seeds introduced by accident from America. It is improbable that its cultivation is common in Persia, for Olivier and Bruguère, as well as other naturalists, who have seen the cultivation of tobacco in that country, made no mention of *N. persica*."

The difference between the two plants is unmistakeable. *N. persica*, or, rather, *N. alata*, has white flowers, with a long slender tube, terminating in a nearly flat or salver-shaped limb, while the corolla of *N. Tabacum* is red, and funnel-shaped.

A *Nicotiana*, now much cultivated in gardens under the name of *N. affinis*, is probably only a cultivated form of *N. alata*.

As long ago as 1876 steps were taken to settle the point by procuring from Persia authentic seeds of Shiraz tobacco.

Mr. W. TAYLOUR THOMSON to ROYAL GARDENS, KEW.

MY DEAR SIR,

Tehran, 30th November 1876.

IN accordance with a request received some time ago, I have much pleasure in sending you by to-day's mail a bag of the best Shiraz tobacco seed.

I have also received the instructions as to the sowing, watering, and growing them, but as there is no time in which to have them translated for sending by to-day's courier they shall be sent on by the first opportunity.

I am, &c.

Dr. J. Hooker, C.B.

(Signed) WM. TAYLOUR THOMSON.

The seed was grown at Kew, and largely distributed. It was undoubtedly "merely a form of *Nicotiana Tabacum*." This was stated in the Kew Report for 1877 (p. 40).

About ten years later attention began to be attracted to a mysterious article of commerce mentioned in consular and trade reports as *Tumbek*, or *Tombak*. The following extracts are taken from an interesting paper by Mr. E. M. Holmes, F.L.S., the Curator of the Museum of the Pharmaceutical Society, printed in the *Pharmaceutical Journal* for February 13, 1886 (p. 681).

TUMBEKI.

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 Trebizond.

Two or three years ago an inquiry was made at this institution concerning the nature and botanical source of *tumbeki*, and the only information I was then able to give was that in the "Treasury of Botany" *tumbeki* 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 Trebizond, 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 Trebizond, 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 Book 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 Persia. *Teymbeki* is smoked in a special apparatus known as the *narghileh*. The apparatus is found in every coffee house and even in a great number of private houses. It resembles somewhat the wash bottle used in laboratories for washing filters with distilled water, but is often made of metal. The *teymbeki* is placed in a small reservoir on the top of the flask and burns in contact with a piece of incandescent charcoal. The vapour is drawn through the tube, which passes to the bottom of the water and collects above it, whence it is inhaled through the longer tube. It is in fact a water-pipe."

Having ascertained then that *tumbeki* was a species of tobacco, I sought for further confirmation of the statement that it is the produce of *N. persica*, and wrote on the subject to Professor Hausknecht, who is well known as one of the best authorities on the botany of Persia. He kindly replied as follows:—

"*Tumbeki* is the produce of *Nicotiana rustica*, and is almost exclusively used for the water-pipes called *kallian* or *narghileh*. The plant is cultivated throughout the whole of Persia, especially in Ispahan and Shiraz, whence the best kind comes."

But the statement of M. Zanni that *tumbeki* contains more alkaloid than tobacco, and that of Professor Hausknecht that *tumbeki* is the produce of *N. rustica*, seemed to conflict with the statements in books that *N. rustica* is less active than *N. Tabacum*.

In the "Commercial Report," No. 25, 1883, p. 1056, under "Smyrna," Consul Dennis confirms M. Zanni's statement concerning *tumbeki*. He

says:—"It is much stronger than ordinary tobacco, and cannot be smoked in the usual way, therefore it is exclusively used for the "narghili." He also adds that a large quantity is consumed in the district of Smyrna, but much is also re-exported to Egypt and other parts of Turkey. It is imported from Persia, both through Trebizond and Bushire on the Persian Gulf.

Mr. J. B. Fraser, in his work on Persia (1826), remarks, "The tobacco smoked in the kalia is called *tumbaku* in distinction to *tootoon*, or that smoked in pipes or cigarettes. It is sold in the leaf, which is packed dry in layers, and is preserved in bags sewn up in raw hide. It improves by age, but is quite unsmokable the first year. The best comes from Jaroum, south of Shiraz."

In an interesting article in "Harper's Magazine" (January, 1886, p. 224) on the "Domestic and Court Customs of Persia," the writer remarks concerning tumbeki: "The kalia or water-pipe differs from the Turkish narghileh by having a short straight stem. In it is smoked the tobacco called tumbakee—a species grown only in Persia. That of Shiraz is very delicate in flavour and is the best. The *tumbakee* must be first soaked in water and squeezed liked a sponge or it will cause vertigo. A live coal, made from the root of the vine, is placed on the tobacco, and the smoke is drawn through the water with a gentle inhaling, depositing the oil in its passage through the water."

The leaves of tumbeki which I have received from Trebizond and Constantinople both correspond with *N. persica* in character, but not with *N. rustica*, since they have no trace of a petiole. So far as it is possible to ascertain, therefore, in the absence of flowers, the weight of evidence is in favour of tumbeki being the produce of *N. persica*."

A sample of Shiraz *tumbeki* was submitted to chemical examination by Messrs. Ernest J. Eastes and Walter H. Ince (Pharm. Journ., l.c., p. 683), with the following results:—

Nicotine	-	-	-	5·835
Saccharoid matter	-	-	-	3·355
Saccharoid matter after Pb treatment	-	-	-	3·49
Soluble in water	-	-	-	55·6
Insoluble in water	-	-	-	44·4
Ash	-	-	-	26·15

The following further account appeared in the Journal of the Society of Arts for August 9, 1889, p. 744.

PRODUCTION OF PERSIAN TOMBAK.

"This narcotic, which is known under the name of *Nicotiana persica*, is cultivated in Persia exclusively, in the provinces of Chiraz, Kechan, and Ispahan. Its quality varies with the place of production. The best *tombak* is that which is derived from Chiraz. The production of this province varies between 1,500 and 2,000 bales a year, which is almost entirely consumed by members of the Imperial family. The *Journal de la Chambre de Commerce de Constantinople* says that *tombak* of this superior quality is not very abundant, and the price paid for it is about fifty or sixty francs the oke, the oke being equivalent to 2·8 lbs. avoirdupois. The province of Kechan produces the second quality of Persian *tombak*. With small leaves like the Chiraz *tombak*, the product of Kechan is not even so abundant. The province of Ispahan is the centre of the product for exportation. Its cultivation is

carried on on a large scale, and the plant, which has a large leaf, forms the third quality of Persian *tombak*. It has been vainly endeavoured to grow this plant in other localities of Persia and Turkey, and experiments which have been made in growing Chiraz *tombak* in the districts of Ispahan and Kechan have not been attended with successful results. This is attributed to the quality of the soil. *Tombak*, which is used in the same way as tobacco, is cultivated in a manner almost identical with that followed in tobacco cultivation. The seeds are sown in the month of May, and as soon as the young plants have attained a height of from fifteen to twenty centimetres they are watered once a fortnight. The harvest takes place in September or December, when the leaves are cut and spread upon the ground, where they are exposed to the dew for a period of forty-eight hours, and to this exposure they owe the fact of their being slightly stained with little black patches on the leaves. When carried to the warehouses the leaves are piled one upon the other. A slight smoking to which they are subjected in the warehouses gives to the leaves a greenish tint. The warehouses are then carefully closed so as to exclude all air, and at the expiration of a fortnight the leaves are sorted and packed. In the latter operation the following is the method employed:—After having separated the leaves one by one, they are placed one upon the other, and pressed in bundles of from forty to forty-two okes. They are then wrapped in pieces of American cloth, which are stretched and sewn up in the form of bales, called *torba*. These *torba*, which are covered with sheepskins, half dressed, are then ready for delivery to the trade. *Tombak* in good condition, packed in bales, and warehoused in places not too dry, may be kept without any deterioration for several years.”

It seemed worth while, as the results of Mr. Holmes's inquiries had not proved absolutely conclusive, to make further inquiries. An application to Her Majesty's Legation at Tehran led to the following correspondence.

Dr. CASSON to ROYAL GARDENS, KEW.

Her Majesty's Legation, Tehran,
3rd March 1890.

DEAR SIR,

I HAVE to-day received your letter respecting the *tumbaki*. I was engaged at the moment in smoking some Shiraz *tumbaki*, which is by far the best to be found here, in my callian or water-pipe. My own impression is that it is simply a form of tobacco. I will do my best to obtain you seeds and leaves of each variety, and send them by messenger to the Foreign Office for you. I will also lay myself out to gather all possible information respecting the plant.

I am, &c.
D. MORRIS, Esq. (Signed) J. HORNSEY CASSON.

Dr. CASSON to ROYAL GARDENS, KEW.

MY DEAR SIR, Tehran, 17th May 1890.

I SEND you herewith such information respecting Persian *Tanbaku* as I have been able to collect at present. Later on I hope to send you the specimens promised, and I also append information and specimens from the Ispahan district.

I am, &c.
D. MORRIS, Esq. (Signed) J. HORNSEY CASSON.

TUNBAKU OR TUMBAKU.

Her Majesty's Legation, Tehran,
16th May 1890.

The following interesting particulars with regard to the cultivation, &c. of the *tunbaku* plant have been kindly furnished by the Nawab Haider Ali Khan, British agent at Shiraz. A translation, as nearly as possible literal, of the original Persian of his communication is here given. *Hākān* and *Lars*, from which the samples most in request by the higher class Persians come, are both in the immediate neighbourhood of Shiraz, from whence the Nawab promises to send in the autumn specimens of leaves, flowers, and seed, with samples of the soil and water. On receipt of these I will forward them at once to Kew. I append also an abstract of information on the same subject afforded me by Mr. Wright, the English head gardener of H.I.H. the Zil-é-Sultan.

J. HORNSEY CASSON.

[Enclosure I.]

About the beginning of February the seed is sown broadcast on the ground, which is first ploughed and reploughed two or three times, and well manured, mixed animal manures and nightsoil being used for this purpose. Ridges, about a yard apart, are made, and the intervening furrows are flooded, and while the water still remains on the ground the sowing takes place. One and a half "mands" (one mand = 6½ lbs.) of seed are used on the same extent of land as would be sown with five (5) mand of wheat. The seed sinks with the water into the ground, which is then covered thickly over with camel-thorn as a protection principally against birds. When the plants begin to show above ground they must be watered once a week, so that the ground remains slightly moist. Later on the watering must be continued every second week until about the 10th of April, when the thorn is removed. The ground is then weeded and bat and pigeon manure is scattered broadcast over it. About the commencement of May the transplantation into other ground is effected. Old fallow land should be selected; two consecutive crops of good *tunbaku* cannot be expected. The course generally adopted is to plant *tunbaku* one year, wheat the following, and the third year the land is left fallow. The ground must be reploughed four or five times and arranged in ridges and furrows (*Pūshteh vé Lūleh*), the latter being flooded, leaving the crests of the ridges dry. The transplants are then put in at the water-line about eight (8) inches apart, and a week later the ground is again flooded, which process is repeated the second time after an interval of two weeks, and again continued weekly until the plants attain the height of about one yard. The crowns are then cut off, leaving five or six good leaves. After the cutting, smaller leaves begin to sprout, and these must be cut away, the larger and thicker the leaves, the better the *tunbaku*.

At the middle of "Zibra" (about the first week of October), the maturity is known by the appearance of red spots on the leaves, which also crackle on pressure between the fingers. The ground is again flooded, and the plants are cut off near the root, the stalks being again stuck into the ground at the water-line, the leaves remaining dry above ground. When the prickles on the leaves are quite dry, the ground

is once more flooded. Next day when the water has well subsided, and the mud is beginning to dry up, the plants are pulled up and thrown into the furrows, where they are left for about 24 hours. Before sunrise the following morning they are collected and removed into a shady place, *e.g.*, into tents, where the leaves are separated from the stalks as rapidly as possible before drying takes place. A pit about two yards square is made, and the leaves, arranged in layers, the stalks being placed on the top as a protection against the sun, are firmly trodden in. Ten to fifteen days later they are taken out and spread over the floor of a store-room, where they are well turned over for two or three days, and in this manner carefully dried. They are then closely packed into canvas bags, which are generally cased over with skins for protection during transport. Tobacco seeds of cold countries will grow in hot climates, and vice versâ. The points most to be considered are the water, soil, and climate. In all good *tanbaku* districts either the water or the soil, or both, are brackish or salt (*shūr*). The peculiar aroma most appreciated by Persians is only to be obtained by growth in warm climates. The produce from the non-brackish districts is exported and not relished for home consumption. *Tūtūn*, pipe tobacco, and *tanbaku*, are two different plants, but the cultivation is the same. *Tūtūn* can never become *tanbaku*, or *tanbaku*, *tūtūn*. In a good year 10 paimans of land (one paiman = 100 square yards) will yield one thousand (1,000) to twelve hundred (1,200) mands of *tanbaku*.

(Signed) HAIDER ALI KHAN OF SHIRAZ.

Shiraz, April, 1890.

[Enclosure II.]

Mr. Wright, late head gardener to his Imperial Highness the Zil-é-Sultan, considers that *tanbaku* is the ordinary tobacco plant, and that the difference between the *tūtūn*, used principally in this country for cigarettes, and *tanbaku*, used for smoking in the *ghkaliān* or water-pipe, consists in the fact that the *tūtūn* is almost exclusively grown in the moister climate of the Rescht and the rice-growing districts. The *tanbaku* is produced in a very dry district, where dew is absent. The leaves are stripped before they become yellow, laid out singly to dry in the sun at about 140° Fahr., and then closely packed into skins. The Shah's *tanbaku*, which is of a specially fine quality, grows in a very limited district known as Hakūn or Hākān, at the foot of the mountains some 14 miles from Shiraz. This ground is irrigated by a stream of very brackish water (*Āb é shūr*) and the natives attribute the superiority of this particular sample entirely to that cause. Cotton and grapes grow to great perfection in the same region. This peculiarity of water greatly affects other products, for instance, at a place a few miles from Ispahan, melons of a specially luscious flavour are found, the seeds of which, sown in the garden of the Zil-é-Sultan at Tehran, where the water is sweet, produced melons entirely devoid of their native distinctive flavour. The inhabitants of the district are well aware that the same melons cannot be produced elsewhere, and attribute this circumstance entirely to the water, which is so strongly impregnated with salt as to be undrinkable. After the *tanbaku* is packed in the skins no fermentation takes place. As required for use the leaves are taken out and beaten with a sharp-edged mallet. The broken leaf is then sifted, the coarse pieces, such as the ribs and the snuff dust being rejected. The preparation of the *ghkaliān*

for smoking is a work of some technical detail. The *tanbaku* is moistened with water and then pressed, *secundum artem*, into the *ghkālīān* "head" not too tightly or too loosely. Live charcoal is then placed on the *tanbaku* and the pipe is ready, the smoke being drawn through the water in the body of the pipe into the mouth of the smoker.

(Signed) J. HORNSEY CASSON.

Tehran, 16 May 1890.

Dr. CASSON to ROYAL GARDENS, KEW.

MY DEAR SIR,

Tehran, 24th December 1890.

THREE days ago I received from the Nawab Haider Ali Khan of Shiraz, the promised specimens of fruit, flower, and seed from the Shiraz district, which I have much pleasure in sending on to you, through the Foreign Office. I hope our messenger will make his way safely over the mountains to Rescht; there is a very deep snow, and at an altitude of some 12,000 feet it is no easy or safe journey. A year ago I was lost at the highest spot for eight hours in a snow drift, having under my charge a poor widowed lady, with her two young babies, on her way home after the death of her husband. On that occasion our courier lost the dispatch bags for four days in the snow! However, I hope these specimens may reach you safely and be useful. I have not translated the writing on the packets, as they are only the addresses of the Nawab at Shiraz; each of the bags, however, is inscribed *Tockhin é Tunbaku*, "seeds of *Tumbaku*." So you may depend upon the authenticity of the specimens.

I shall be interested to hear the result of your researches.

Yours, &c.

D. Morris, Esq.

(Signed) J. HORNSEY CASSON.

The material sent by Dr. Casson required a good deal of soaking and manipulation before it could be brought in to a form in which it could be compared botanically. This, however, having been done, the conclusion was incontestable that the plant of the Shiraz *tunbaku* was nothing more, as had indeed been expected, than ordinary *Nicotiana Tabacum*.

CXCVI.—BOTANICAL ENTERPRISE IN THE NIGER PROTECTORATE.

The following geographical account of the Protectorate is extracted from the Colonial Office List for 1890, p. 299:—

"The British Protectorate over the entire basin of the Lower Niger, including the Benin and Cross Rivers, was formally assumed in July 1884, when regular treaties of protection were concluded by Consul Hewett with all the principal Chiefs. It extends along the coast of Africa from the Benin River (where it joins the boundary of Lagos), to the mouth of the Rio del Rey at 9° east longitude. Inland, the Protectorate includes the whole basins of the Lower Niger and Binué up to and beyond the Boussa rapids on the former, and Jin on the latter, in