



PHILOSOPHICAL
TRANSACTIONS.

XIII. *An Account of the Tabasheer. In a Letter from Patrick Ruffell, M. D. F. R. S. to Sir Joseph Banks, Bart. P. R. S.*

Read March 11, 1790.

S I R,

SHOULD the following remarks on the Tabasheer, a medicine in high repute in many parts of the East, appear deserving a place in the Transactions, you will do me the honour to present them, together with the accompanying specimens, to the Society.

This drug was, I believe, first introduced to the knowledge of the western world through the works of the Arabian physicians,

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ficians, all of whom mention it as an important article in their *Materia Medica*; and, from what I could observe in Syria, it still continues to be in much more general use in Turkey than in this part of India.

To the Arabs and Turks it is known under the name of *Tabasheer* only; at least I never heard any other name given to it in Syria, nor even at Constantinople; under that name also it is mentioned by the Arabian writers.

In this country, besides that of *Tabasheer*, which they had from the Persians, it is known under several other names.

In the Gentoo language it is called *Vedroo-paloo*, Bamboo-milk; in the Malabar, *Mungel Upoo*, Salt of Bamboo; and in the Warriar, *Vedroo Carpooram*, Bamboo Camphor.

DON GARZIA DALL' HORTO has long ago exposed a dangerous error, common to the old translators of the Arabian writers, respecting this drug. In the Latin versions of Rhazis and Avicenna, *Tabasheer* is constantly rendered *Spodium*; and this interpretation has been adopted by most of the subsequent translators of other Arabian medical writers.

The late Mr. CHANNING, when engaged in the translation of RHAZIS on the Small-pox, applied to me, then in Syria, for such information as I might be able to collect on the subject of *Tabasheer* at Aleppo. I accordingly transmitted to him various specimens of the drug, together with several extracts relative to it, from books found in the Aleppo libraries. Some of those specimens differed considerably from those now laid before the Society; and, from what I have had occasion to observe during my residence here, I am convinced, much of the drug commonly vended in Turkey is fictitious or adulterated.

Having none of the Arabian medical writers at hand, I cannot pretend to strict accuracy; but, to the best of my recollection,

lection, they generally agree in the *Tabasheer* being a production of the Indian reed; more especially of such as have suffered from fire, kindled by the friction of the reeds one against the other; an accident supposed to happen frequently in the dry season, among the hills, where the bamboo forms vast and impenetrable thickets.

Several of the mountaineers, with whom I have conversed on the subject, affirm, that the bamboo is not the only tree subject to accidental ignition by friction, and named one or two other trees liable to the same accident; but added, they never looked for *Tabasheer* in the half-burnt fragments of the bamboo, though they doubted not it might sometimes be found there as well as in others.

The genuine *Tabasheer* is undoubtedly a production of the *Arundo Bambos* of LINNÆUS, the *Ily* of the *Hortus Malabaricus*, and the *Arundo Indica arborea maxima, cortice spinoso*, of HERMAN. It is no less certain, that fire is not a necessary agent in its production, whether the conflagrations in the mountains just now mentioned be reckoned fabulous or not.

The bamboo in which the *Tabasheer* is found is vulgarly called the Female Bamboo, and is distinguished by the largeness of its cavity from the male, employed for spears or lances. They are said to be separate trees; but this fact I have not had it in my power to ascertain.

Of the seven pieces of bamboo which accompany this Paper, four are from the mountains in the vicinity of Vellore, and three from a place twenty miles from hence. The former were perfectly green on their arrival at Madras; and the others were selected from a large parcel, which were green also when they came to my hands. These were all selected on a con-

jecture of their containing Tabasheer, from a certain rattling perceived upon shaking the bamboo, as if small stones were contained in the cavity.

This, by the natives, is considered as an indication of Tabasheer being contained in one or more joints of the bamboo, and they are seldom disappointed; but it does not always follow, that there is no Tabasheer where a rattling is not perceptible; for, upon splitting a number of reeds, it was sometimes remarked, that where the quantity of the drug was inconsiderable, it was found adhering so closely to the sides of the cavity, as to prevent any rattling from being perceived upon shaking. In general, however, the rule of the natives for choosing the bamboos proved a good one.

In the month of April, one of the bamboos, consisting of six joints, received from Vellore, being cautiously split, each joint was examined separately. In two of them no vestige of the drug was discovered; each of the others contained some, but in various quantity; the whole collected amounted to about twenty-seven grains.

The quality also was various. The particles reckoned of the first quality were of a bluish white colour, resembling small fragments of shells; they were harder than the others, but might easily be crumbled between the fingers into a gritty powder, and when applied to the tongue and palate had a slight saline testaceous taste: they did not exceed in weight four grains. The rest were of a cineritious colour, rough on the surface, and more friable; and intermixed with these were some larger, light, spongy particles, somewhat resembling pumice-stones. It is probable, that the Arabs, from these appearances of the drug, were led into the opinion already mentioned of its production.

The two middle joints were of a pure white colour within, and lined with a thin film; it was in these chiefly the Tabasheer was found. The others, particularly the two upper joints, were discoloured within, and in some parts of the cavity was found a blackish substance in grains or in powder adhering to the sides, the film being there obliterated. In two or three of the joints, a small round hole was found at top and bottom, which seemed to have been perforated by some insect.

In the month of July, forty-three green bamboos, each consisting of five or six joints, were brought from the hills fifty miles distant from hence. Six, appearing to contain more Tabasheer than the others, were set apart; the remaining thirty-seven were split and examined in the manner before-mentioned. The result was as follows.

In nine out of the thirty-seven there were no vestiges of Tabasheer. In twenty-eight some were found in one, two, or three joints of each; but never in more than three joints of the same bamboo. The quantity varied, but in all was inconsiderable; and the empty joints were sometimes contiguous, sometimes interrupted, indifferently.

The drug consists of very dissimilar particles at first when taken from the bamboo, as will appear in looking into the small specimen, N^o 1.; which, having collected myself, I am certain has undergone no adulteration.

The whiter, smooth, harder particles, when not loose together with the others in the cavity, were mostly found adhering to the septum that divides the joints, and to the sides contiguous; but never to the sides about the middle of the joints; and it may be remarked, that, instead of being chiefly found at the lower extremity of the joint, as might be expected from

the juice settling there, they were found adherent indifferently to either extremity, and sometimes to both. In this situation they formed a smooth lining, somewhat resembling polished stucco, which usually was cracked in several places, and might easily be detached with a blunt knife.

In some joints the Tabasheer was found thus collected at one or both extremities only, and in such no rattling was perceived upon shaking the bamboo; but generally, while some adhered to the extremities of the joint, other detached pieces were intermixed with the coarser loose particles in the cavity.

The quantity found in each bamboo was very inconsiderable; the produce of the whole twenty-eight reeds, from five to seven feet long, not much exceeding two drams.

It is remarked by GARZIUS, that the Tabasheer is not found in all bamboos, nor in all the branches indiscriminately; but only in those growing about Bifnagur, Batecala, and one part of the Malabar Coast.

From the inconsiderable quantity procured from twenty-eight bamboos, it seems very probable, that, though not absolutely confined to certain regions, it may be produced in greater abundance in some soils than in others; but that, in all regions where the bamboo grows favourably, some proportion of the drug will be found, however it may vary in quality or quantity.

RUMPHIUS on this subject refers to GARZIUS, candidly acknowledging, that he had not himself had opportunities of making particular enquiry. I expect answers from CEYLON to some queries sent thither some time ago; and, in respect to Bifnagur, have been lately informed in a letter from Hydrabad, from a medical gentleman attending the present embassy to the Nizam, "That though Tabasheer be in great request at Hydrabad,

“drabad, and bears a high price, it is never brought thither
“from Bishnagur; that some of what is found in the Bazars is
“brought from the Atcour pafs in Canoul, and some from
“Emnabad at the distance of about eighty miles to the N.W.;
“but that the greatest part comes from Masulipatam.

“That there are two sorts sold in the Bazars; one at the
“rate of a rupee a dram; the other, of inferior quality, at
“half the price; but that this is said to be chiefly composed
“of burnt teeth and bones.

“That he was informed by a Persee, who had been in
“Bengal, that the Tabasheer was produced in great quantities
“at Sylhet, where it sold by the pound from one rupee to one
“and a half, and formed a considerable article of trade from
“Bengal to Persia and Arabia.”

N^o 3. is a specimen of the prime sort from Hyderabad. It differs materially from the others, not only in its superior whiteness, and the being less mixed with impure particles; but in the being much harder than the purest particles of my specimens, much heavier, and hardly in any degree friable to the finger.

Submitting the specimens to examination, I refrain from experiments on them which may more successfully be made in England, and shall proceed to offer a few observations on the juice of the recent bamboo supposed to form the Tabasheer.

RUMPHIUS remarks in Amboina, “*Juniores arundines plerumque in inferioribus suis nodis semi-repletæ utcunque sunt*
“*lympida aqua potabili, quæ hisce in terris sensim evanescit,*
“*in aliis vero regionibus exsiccat in substantiam albam et*
“*calceam, quæ Tabaxir vocatur.*”

GARZIUS gives an account somewhat different from this. I am obliged to cite from an Italian translation. “*Fra tutti*
“*gli*

“ gli intermezzi de' nodi, si genera un certo liquore dolce
 “ e grosso, e ridotto in guisa di farina d' amido, e della istessa
 “ bianchezza, et alle volte se ne genera assai, alle volte poco,
 “ ma non tutte le canne, nè meno tutti i rami generano tale
 “ humore. Questo liquore dopo d' essere appreso,
 “ mostra d' essere di color nero, over cinericcio, e non perciò
 “ é tenuto per tristo, imperocchè questo avviene, ò perchè sia
 “ troppo humido, ò perchè sia stato lungo tempo nel legno rin-
 “ chiuso, si come s' hanno pensato alcuni: conciosia che in molti
 “ rami, che non sono stati toccati dal fuoco, intravenga questo *.”

The existence of this fluid in the bamboo is known by shaking the joint. In a considerable number of bamboos split in order to procure it, I never found water in more than two joints, and generally not more than two or three drams in each; the largest quantity procured at one time was one ounce and a half. Very few joints in proportion contained any.

The fluid was always transparent, but varied in consistence; when thicker it had a whiter colour than common; when more dilute it differed little to the eye from common water, or sometimes had a pale greenish cast. Applied to the tongue and palate, it had a slight saline, sub-astringent taste, more or less perceptible in proportion to the consistence of the fluid. After evaporation in the sun, the residuum had a pretty strong saline taste, with less astringency. Some of the fluid, of a darkish colour, thickened in the reed to the consistence of honey; and some, in another joint of the same reed, was perfectly white and almost dry: both had the sharp salt taste, which the Tabasheer itself loses in a great degree by keeping.

From two green bamboos, each of five joints, which had been cut only a few days before, I procured above two ounces

* Capitolo XII.

of fluid; it had a slight saline taste, and in colour had a greenish cast.

One ounce was put into a phial, N° 1. and about ten drams into another phial, N° 2.; both were stopped with glass stoppers. After two days they had both deposited a small sediment; but the sediment in N° 1. was three times more than that in the other. At the end of the week, the water in both was found sweet, and the sediment increased, but most in N° 1.

At the end of a fortnight, the water in N° 1. had a fetid smell, with a whitish cottony sediment, and a thin film of the same kind suspended at top. The whole, well shaken together, was poured into a glass vessel, and left to evaporate slowly. The residuum consisted of small particles of a whitish brown colour, resembling the inferior sort of Tabasheer.

The water in N° 2. had hardly any fetid smell at this time; and at the end of the month remained in the same state: the sediment had increased very little.

The recent green bamboos, which, upon shaking, appeared to contain water in the cavity, lost this appearance after standing a few days, some sooner, some later. When split, after they no longer gave any sound by shaking, sometimes no fluid was found in the cavity, as if the whole had escaped. The interior thin pellicle, however, was discoloured, as if by recent moisture; but generally some of the fluid remained in a mucilaginous state, more or less thick, at the lower part of the joint. It may be remarked, that small worms were sometimes found in the same joints with the water, which survived several hours, swimming about in the water after its extraction.

In the latter end of October, a green bamboo of five joints was brought to me, which appeared to contain both water and

Tabasheer. After three days, the found of water, upon shaking the reed, could hardly be perceived; on the fifth day it was intirely imperceptible.

Upon splitting the bamboo, about half a dram of the fluid, now thickened into a mucilage, was found at the bottom of the upper joint. The second joint contained some perfect *Tabasheer* loose in the cavity. The third joint was empty, excepting a few particles of *Tabasheer*, which adhered to the sides near the bottom. The fourth joint, at the bottom, contained above a dram of a brownish pulpy substance, adherent. The last joint, in like manner, contained half a dram of a substance thicker and harder in consistence, and nearly of the colour of white wax.

This specimen exhibited at one view the progress of the *Tabasheer* through its several stages. The found distinctly perceived in the first joint on the 23d of October was produced by the water in a fluid state; on the 31st, having become thicker, the found, upon shaking, was very obscure; on the 2d of November, no found was perceptible; and when the reed was split, the water was found reduced to a mucilage. The fourth and fifth joints contained the drug in a more advanced state. In the first, it was thicker than a mucilage of a brownish colour; in the second, more of the fluid part having evaporated, the colour was whiter, and it wanted but little of the consistence of the perfect *Tabasheer* found in the second joint.

I am, &c.

P A T. R U S S E L L.

Vizagapatam,
Nov. 26, 1788.

P O S T

P O S T S C R I P T.

Weymouth Street, July 16, 1796.

FOUR of the seven reeds presented to the Society on the night this Paper was read, being carefully split, the contents, upon comparing them with the specimens sent from India, then on the table, were found to agree in all respects, as well as with the description of the more recent drug given in the above Paper. The specimen, N^o 3. sent from Hydrabad, and reckoned the prime sort, differed somewhat in hardness, as mentioned above, from the purest particles in the Tabasheer collected by myself; but in the opinion of several of the Members present, who compared them, were the same substance with the particles mixed, in a small proportion, in some of the other specimens, as likewise with a few particles taken from the reeds opened in their presence; which puts it beyond doubt, that the substance is produced in the cavity of the Bamboo.

The several specimens are now under chemical trial; and the result of the experiments will, I hope, be communicated to the Society.

