A BOTANICAL *and* ECONOMICAL ACCOUNT *of* BASSIA BUTYRACEA, *or* EAST INDIA BUTTER TREE

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BASSIA BUTYRACEA

Polyandria Monogynia

GENERIC CHARACTER

CALYX beneath, four or five leaved. Corol, one petaled: Border about eight cleft. Berry superior, with from one to five Seeds.

Bassia Butyracea. ROXBURGH.

Calyx five-leaved; Stamens thrity or forty, crowning the subcylindric tube of the Corol.

Fulwah, Phulwarah, or *Phulwara*, of the inhabitants of the Almorah hills, where the tree is indigenous. Flowering time, in its native soil, the month of *January*; Seeds ripe in *August*.

Trunk of the larger trees, straight, and about five or six feed in circumference. Bark of the young branches smooth, brown, and marked with small ash-coloured specks.

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Leaves alternate, about the ends of the branchlets, petioled, obovate-cuneate, obtuse-pointed, entire; smooth above, villous underneath; veins simple; and parallel; length, six to twelve inches; breadth, three to six.

Petioles, from one to two inches long.

Stipules, if any, minute, and caducous.

Flowers numerous, round the base of the young shoots, and from the axils of the lower leaves, peduncled, large, pale-yellow, drooping.

Calyx, four, five, or six leaved (five is by far the most common number); ovate, obtuse, covered externally with ferruginous pubescence, permanent.

Corol; tube subcylindric, length of the calyx; border of eight, spreading, oblong, obtuse divisions, longer than the tube.

Stamens; filaments from thirty to forty, about as long as the tube of the Corol, and inserted on its mouth. Anthers linear-oblong.

Pistil, germ conical, (ten or twelve celled, one seeded,) downy, surrounded with a downy nectarial ring. Style longer than the stamens; stigma acute.

Berry oblong, generally pointed by a remaining portion of the style; smooth, fleshy, containing one, two, or three, rarely more, large seeds; the rest not ripened.

Seeds oblong, rather round than flat, but differ-

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ing in shape according to the number contained in each fruit; smooth, shining, light brown, with a long, lanceolate, lighter coloured, less smooth, umbilical mark on the inside.

This tree, which is rendered interesting on account of its seeds yielding a firm butyraceous substance, resembels *Bassia Latifolia*, (see *Coromandel* Plants, Volume I, No.19, also *Asiatic* Researchers, Volume I, Page 300,) so much as scarce to be distinguished from it, except by the Corol and Stamina.

Here (in *Bassia butyracea*) the Corol is of a thin texture, with a tube nearly cylindric, and border of eight, large, spreading, oblong segments. There (in *Bassia latifolia*) it is thick and fleshy, with a gibbous, indeed almost globular tube; and border of generally more than eight, small, cordate, rather incurved segments.

Here, the Stamina, from thirty to forty in number, have long filaments inserted on the mouth of the tube of the Corol. There they are fewer in number; have very short filaments, and are arranged in two, or three series, completely within the tube, to which they are affixed.

It may not be improper to notice here some other species of the same genus. The following Botanical description of *Bassia longifolia*. LINN. Mant. Page 563, I have been favoured with by Doctor KLEIN, of

Tranquebar, and the account of its economical uses by the Reverend Doctor JOHN, of the same place.

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DESCRIPTION *by* DOCTOR KLEIN

Calyx, Perianth: monophyllum, 4-partitum; laciniis ovatis, acutis, coriaceis, extus tomento ferrugineo obduetis, persistentibus.

Corolla monophylla, campanulata; tubo cylindraceo, inflato, carnoso, limbo 8-partito; laciniis lanceolatis, erectis.

Stamina, filamenta 16, brevissima, in duos ordines divisa, quorum octo ad incisuras laciniarum, octo in tubo corollae inserta. Antherae lineares, setaceae, acutae, extus pilosae, limbo breviores.

Pistil: Germen superum, ovatum. Stylus sectaceus, corolla duplo longior. Stigma simplex.

Pericarp: drupa oblonga, 1-3 sperma, carnosa, lactescens. Seminibus subtrigonis oblongis.

Arbor magna; ramis sparsis, erectis, horizontalibusque.

Folia sparsa, petiolata, lanceolata, acuta, integerrima, glabra, venosa.

Flores longe-pedunculati, axillares, solitarii, et aggregati.

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ECONOMICAL USES *of the* OIL, *or* ILLEEPEI TREE

Bassia longifolia

BY THE REVEREND DOCTOR JOHN

1st. The oil, pressed from the ripe fruit, is used as a common lamp oil, by those who cannot afford to buy the oil of the coco-nut. It is thicker, burns longer, but dimmer, smoaks a little, and gives some disagreeable smell.

2d. It is a principal ingredient in making the country soap, and, therefore, often bears the same price with the oil of the coco-nut.

3d. It is, to the common people, a substitute for ghee, and coco-nut oil, in their curries and other dishes. They make cakes of it, and many of the poor get their livelihood by selling these sweet oil cakes.

4th. It is used to heal different eruptions, such as the itch, &c.

5th. The cake (or *Sakey*) is used for washing the head; and is carried, as a petty article of trade, to those countries, where these trees are not found.

6th. The flowers, which fall in *May*, are gathered by the common people, dried in the sun, roasted, and eaten, as good food. They are also bruised, and boiled to a jelly, and made into small

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balls, which they sell or exchange, for fish, rice, and various sports of small grain.

7th. The ripe fruit, as well as the unripe, is eaten by the poor, as other fruits. Of the unripe, the skin is taken off, and after throwing away the unripe kernel, boiled to a jelly, and eaten with salt and *Capsicum*.

8th. The leaves are boiled with water, and given as a medicine, in several diseases, both to men, and to cattle.

9th. The milk of the green fruit, and of the tender bark, is also administered as a medicine.

10th. the bark is used as a remedy for the itch.

11th. The wood is as hard, and durable, as teak wood, but not so easily wrought, nor is to procurable of such a length for beams, and planks, as the former; except in clay ground, where the tree grows to a considerable height; but, in such a soil, it produces fewer branches, and is less fruitful, than in a sandy, or mixed soil, which is the best suited for it. In a sandy soil, the branches shoot out nearer to the ground, and to a greater circumference, and yield more fruit. These trees require but little attention; beyond water them during the first two or three years, in the dry season. Being of so great use, we have here whole groves of them, on high, and sandy grounds, where no other fruit trees will grow.

12th. We may add, that the owls, squirrels, lizards, dogs and jackals, take a share of the

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flowers; but the vulgar belief is, that the latter, especially in the time of blossom, are apt to grow mad, by too much feeding on them.

Bassia *obovata*, FORSTER'S *Prod.* No. 200: a native of the Isle of *Tanna*, in the South Sea. Of this species, I posses no other account than the definition, which corresponds with the habit of the genus. If FORSTER has left us no account of the uses of the tree, it may be worth while to make inquiry, when an opportunity offers.

PARK'S *Shea*, or butter tree of *Africa*, we have reason, from his description, and figure, as well as from analogy, to suppose a species of this same genus. At page 352 (of his travels in the interior of *Africa)* he says, "The appearance of the fruit evidently places the Shea tree in the natural order of Sapotae, (to which *Bassia* belongs,) and it has some resemblance to the Madhuca tree (*Bassia latifolia*), described by Leiutenant CHARLES HAMILTON, in the *Asiatic* Researches, Volume I, page 300.

"The people were every where employed in collecting the fruit of the *Shea* trees, from which they prepare a vegetable butter, mentioned in the former part of this work*. These trees grow in great abundance all over this part of *Bambarra*.

* This commodity, *Shea toulou*, which, literally translated signifies *Tree-butter*, is extracted, by means of boiling water, from the kernel of the nut, has the consistence and appearance of butter; and is in truth an admirable substitute for it. It forms an important article in the food of the natives, and serves also for every domestic purpose in which oil would otherwise be used. The demand for it is therefore great. PARK'S Travels in *Africa*. Page 26.

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They are not planted by the natives, but are found growing naturally in the woods; and in clearing woodland for cultivation, every tree is cut down but the *Shea*. The tree itself, very much resembles the *American* oak, and the fruit, from the kernel of which, first dried in the sun, the butter is prepared, by boiling the kernel in water, has somewhat the appearance of a *Spanish* olive. The kernel is enveloped in a sweet pulp, under a thin green rind; and the butter produced from it, besides the advantage of its keeping the whole year without salt, is whiter, firmer, and to my palate, of a richer flavour, than the best butter I ever tasted made of cows milk. The growth and preparation of this commodity, seem to be amongst the first objects of *African* industry, in this and the neighboring states; and it constitutes a main article of their inland commerce." PARK'S Travels in *Africa*, page 202-3.

In the following account of *Bassia Butyracea*, by Mr. GOTT, we find the people of *Almorah* eat the dregs, left after the finer parts have been extracted; consequently there can be little doubt of the wholesomeness of the pure *vegetable butter* itself. The thick oil of *Bassia Latifolia*, and *longifolia*, the natives of various parts of *India*, either use alone, or mixed with ghee (clarified butter), in their diet.

On Captain HARDWICKE'S departure for *England*, in the beginning of 1803, he gave me a small quantity of the above-mentioned substance, observing, that the only account he could give me of it was, that it was reported to him to be a vegetable product from *Almorah*, or its neighborhood, where it is called *Fulwah*, or *Phulwarah*. In consequence of this information, I applied to

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Mr. GOTT (who is stationed in the vicinity of that country,) to make the necessary inquiries; and from him I procured an abundance of well preserved specimens, at various times, in leaf, flower, and fruit. From these, and that gentleman's account of the tree, and its product, the foregoing description, and the annexed figures, were taken.

The same sample, which I got from Captain Hardwicke, in *January* 1803, I have still by me. It remains perfectly sweet, both in taste and smell. Its flavour is that of cloves; having, I presume, been perfumed with that spice, previously to its falling into his hands, a practice mentioned in the following narrative. At this instant the thermometer is at ninety-five, and for these six weeks, it has rarely been below ninety, and has often risen to one hundred, or more, yet it continues about as firm as butter is in *England* during winter.

Mr. GOTT'S account of the tree, and its product, is as follows: -

The tree producing a fat-like substance, known in this country by the name of *Phulwah*, is a native of the *Almorah* hills, and known there by the same name. The tree is scarce, grows on a strong soil, on the declivities of the southern aspects of the hills below *Almorah*, generally attaining the height, when full grown, of fifty feet, with a circumference of six. The bark, of such specimens as I have been able to obtain, is inclined to smoothness, and speckled; it flowers in *January*, and the speed is perfect about *August*, at which time the natives collect them, for the purpose of extracting the above substance. On opening

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the shell of the seed or nut, which is of a fine chesnut colour, smooth, and brittle; the kernel appears of the size and shape of a blanched almond: the kernels are bruised, on a smooth stone, to the consistency of cream, or of a fine pulpy matter; which is then put into a cloth bag, with

a moderate weight laid on, and left to stand, till the oil, or *fat*, is expressed, which becomes immediately of the consistency of hog's-lard, and is of a delicate white colour. Its uses are in medicine; being highly esteemed in rheumatism, and contractions of the limbs. It is also much esteemed, and used by natives of rank, as an unction, for which purpose, it is generally mixed with an *Utr* of some kind. Except the fruit, which is not much esteemed, no other part of the tree is used.

This tree is supposed to bear a strong affinity to *Mawa*, (*Madhuca, or Bassia latifolia*;) but the oil or *fat*, extracted from the seeds, differs very materially. The oil from the *Mawa*, is of a greenish-yellow colour and seldom congeals. That from the *Phulwah* congeals, immediately after expression, is perfectly colourless; and, in the hottest weather, if melted by art, will, on being left to cool, resume its former consistency. The oil from the seed of the *Mawa*, if rubbed on woolen cloth, leaves as strong a stain as other oils or animal fat. The fatty substance from the *Phulwah*, if pure, being rubbed on woolen cloth, will leave no trace behind.

The oil of *Mawa* is expressed in considerable quantities, about *Cawnpoor*, and *Furruckabad*, and being mixed with, is sold as ghee.

This fatty substance very rarely comes pure from

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the hills, and receives more and more adulteration, (by adding the purest ghee,) as it passes down to the lower provinces : age gives it the firmness of pure tallow.

ADDITIONAL REMARKS BY THE SAME, IN CONSEQUENCE OF A FEW QUERIES TRANSMITTED TO MR. GOTT.

It is supposed there might be annually procured from twenty to thirty maunds, at the price of fourteen or fifteen rupees the maund.

1st. It is never taken inwardly as a medicine, nor is it used in diet; further than that the dregs, after the purer fatty substance is expressed, are eaten, as a substitute for ghee, by the peasants, or labourers, who extract the fat.

2d. I have some pure, which has been by me ten months, and it has neither acquired colour, nor bad smell.

3d. After it is imported into *Rohilkhund*, it is scented with *Utr*, (an essential oil,) and a little of the flour of the *Indian corn* (*Zea Mays*) is added, to increase its consistency. N.B. This flour is added on account of its peculiar whiteness.

4th. If it is clean, and free from dirt, it never undergoes any purification; if the contrary, it is heated, and filtered through a coarse cloth.

5th. The flowers are never used. The pulp of the fruit is eaten by *some;* it is of a sweet and flat taste.

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The timber is white, soft, and porous; and is never made any use of by the natives. It is nearly as light as the *Semul*, or cotton tree (*Bombar heptaphyllum*).