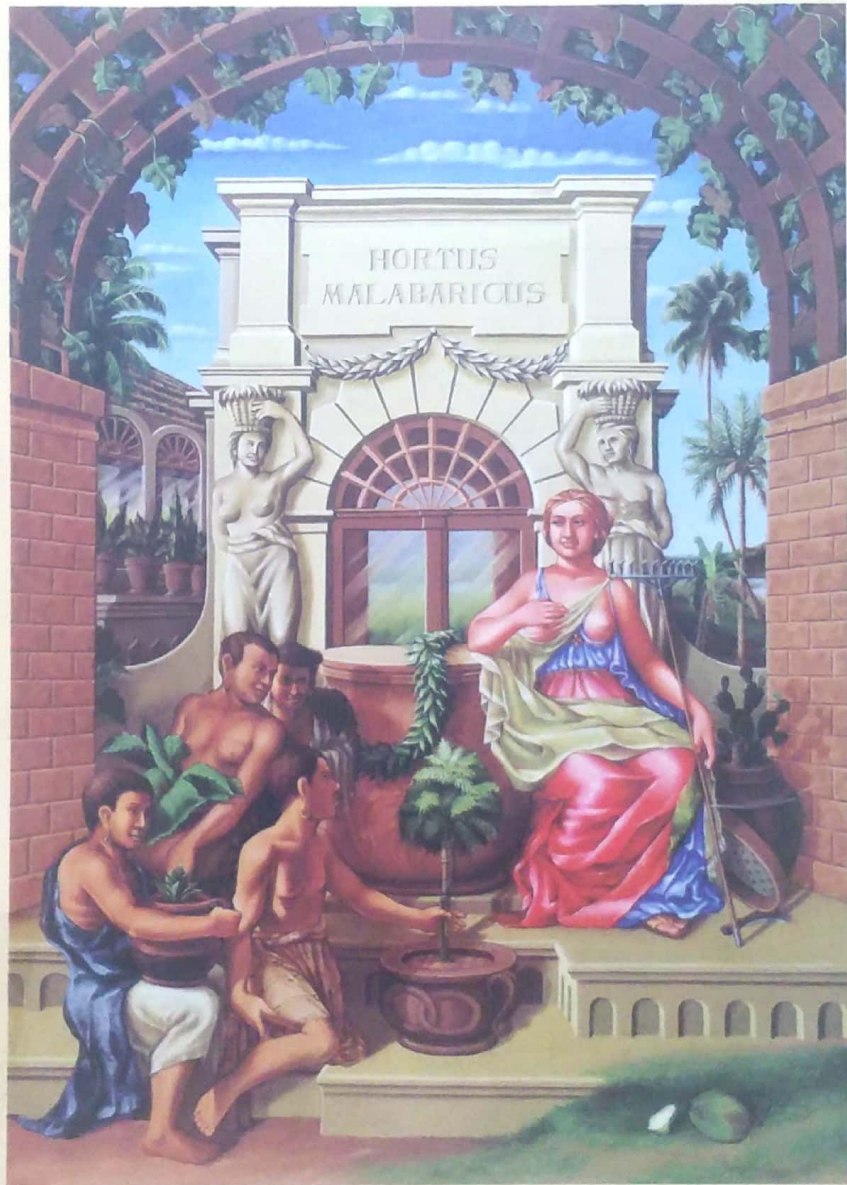


VAN RHEEDE'S HORTUS MALABARICUS ENGLISH EDITION

With Annotations and Modern Botanical Nomenclature

By
K.S. MANILAL

VOLUME - 3



UNIVERSITY OF KERALA



Hendrik Adriaan Van Rhee de (1636 – 1691) was the compiler and promoter of *Hortus Malabaricus*, written in Latin and published from Amsterdam in 12 volumes during 1678-1693. He was born in a noble family in Utrecht, Netherlands and came to India as a soldier in the army of the Dutch East India Company. Rhee de was in Malabar (the present federal state of Kerala) during 1667-1677, first as the Captain, then as the Commodore and finally as the Dutch Governor of Cochin. His fame as an eminent soldier and a shrewd administrator is overshadowed by his contribution to the botanical science through the compilation of the monumental work *Hortus Malabaricus*. This work was the result of about 30 years of compiling and editing by a team of specialists working under the guidance of Rhee de.

VAN RHEEDE'S
HORTUS MALABARICUS
ENGLISH EDITION

VAN RHEEDE'S
HORTUS MALABARICUS
(MALABAR GARDEN)

ENGLISH EDITION
VOLUME 3

WITH ANNOTATIONS AND
MODERN BOTANICAL NOMENCLATURE

by
K. S. MANILAL
Emeritus Professor

Research Supported by the Department of Science & Technology
Government of India, New Delhi



Published by
UNIVERSITY OF KERALA
Thiruvananthapuram
2003

Van Rheedé's
HORTUS MALABARICUS
(Malabar Garden)
ENGLISH EDITION
Volume - 3

With Annotations and Modern Botanical Nomenclature
by K. S. Manilal
Emeritus Professor

© University of Kerala, 2003

Published by
UNIVERSITY OF KERALA
Thiruvananthapuram-695 034
Kerala, India
E-mail : keralauniversity@vsnl.com
Website : www.keralauniversity.edu

June 2003

Price : Rs. 20,000 (in India)
US \$ 950 (outside India)
(for 12 volumes)

Printed at
St. Joseph's Press, Thiruvananthapuram

ISBN: 81-86397-57-4

PART THREE
HORTI
INDICI
MALABARICI

ON
THE TREES

OF THE KINGDOM OF MALABAR

*Described in Latin, Malabaric, Arabic and Brahmanic characters and names
together with the Flowers, Fruits and Seeds most skillfully represented by
sketches of natural size and exhibited as if live.*

*Added to this there is accurate description of these regarding their colour, smell, taste,
practical value and chiefly their medicinal powers that are exactly described.*

Adorned by

The Most Noble and Generous D.D.

HENRY VAN REEDE TOT DRAAKESTEIN

Chief Ruler of Meydrecht, at one time Governor of Malabar Kingdom,
Extraordinary Senator of the Supreme Council among the Indian Belgians

Known by the name of the illustrious nominee of the Equestrian Order
Of the most powerful Ultrajectine Province assigned,

and

JOHANNEM MUNNICKS, M.D.

Of the same faculty of Anatomy and Botany in Ultrajectine Academy
Professor & Reip. Ultraj. Poliatrum

With Notes and Illustrated Commentaries
JOHANNES COMMELINUS



Printed at Amsterdam

With the expenses met by the widow of John van Someren,
Heir of John van Dyck & Henry & widow of Theodore Boom.
In the year 1682.

**THE FIRST NOBLE IN MALABAR
THE MOST POWERFUL
NOETAVILE-VIROLA
KING OF**

Pedinbodappe-Sourowan, Courour, Peratevide,
Ellerta-Sourowan, Cochin, Etc.

HENRY VAN REEDE TOT DRAAKESTEYN

S.P.D.

(Offers Very Many Salutations)

Whenever I observe Malabar plants it seems to me I am given an opportunity to make a collection of them with a view to depict and describe them. I often keep a memory of these plants and they make me think how useful it would be to make a collection of them. It is Your Majesty's name that above all occurs to me, you being the Lord of the huge Malabar Gardens. The memory of the benefits I have received from Your Majesty and your subjects and neighbours gives me sufficient strength to carry on the pursuit of my work of making collection from the immense number of trees, fruit-bearing plants and herbs. Encouraged by such recollections when I look back on the period of former days I spent with you, I find how change of fortune struck you. My good days with you suffered a turn when you were forced to go into exile and seek solace from others, while you were providing me the solace I seek. The dignity of your memory, your

outstanding example, bring out the signal way of carrying on the responsibility of the reign entrusted to you. How exalted and worthy of your nobility it is that you could carry on the reign of the kingdom for two thousand and fifty years in succession, subjugating the Indian Kings. Then I remember what change of fortune took place. The enemies adopting occult and open ways of attack expelled you from the highest position of a ruler. Your own subjects turned out to be your enemies and forced you to go into exile. Although fortune turned against you, your admirable constancy in the midst of misfortune was kept up in such a way that neither the attack on your honour nor the deprivation of wealth affected Your Majesty. Before long your exalted pristine position was restored; you were crowned King of such vast Kingdom again. I had the fortune to witness all the happenings from the time when Your Majesty was cast into darkest calamity and adversity, and for a while without any hope of remedy. Then dawned the bright days of triumph. With the help of the Belgians the enemies were subdued, triumphantly ascended the seat of the dignity of the Kingdom. At that time I was fortunate enough to serve Your Majesty for seventeen years. In gratitude for all I have received I am impelled to make it known that I am indebted to pay respect to Your Honour during the whole course of my life. Whether present or absent, whether living in diverse places, I do not want to be free of this obligation. It is for the above reasons that the illustrated work of Malabar plants is offered to Your Majesty. Thus, attached to the name of Your Majesty it will spread throughout the world; Your Majesty will be counted among the Dukes and Princes of the Republic of Maecenates.

PREFACE
BY THE NOBLE
HENRY VAN REEDE
VAN DRAAKENSTEIN, ETC., ETC.
TO THE
BENEVOLENT READERS:

*In which an account is given of this work and
moreover many curious things about the Brahmans
and Malabaris and their religion, polity, and
customs are incidentally mentioned.*

If there are any persons who know me and are well aware that from the beginning of my fourteenth year I have done nothing but travel beyond the borders of my native country and that during those constant journeys I have traveled practically the greater part of the earth, then they are bound to know that I do not excel either in varied and profound learning or in accurate knowledge of botany, spices, and simple medicaments. I should think that anyone who attains to such knowledge ought to apply himself diligently to this one discipline all the days of his life. However, I myself do not enjoy such felicity, since I have been occupied all but continually by a different mode of living. For these reasons it appears altogether absurd to those people whom I have mentioned that my name appears on the title-page of the HORTUS MALABARICUS, a book which treats of the descriptions

of exotic plants and their use in medicine, and they accuse me, not without reason, of an absurd action, for they consider that, if I had done it in bad faith, rashly, and arrogantly, I should deserve nothing but disgrace.

Others who do not know me and perhaps promise themselves greater things from me than I am able to perform, will undoubtedly be convinced that the first two volumes constitute the whole of the HORTUS MALABARICUS, or, if they are more kindly disposed, will think that the book abounds with serious errors and has been published without any order, as is to be expected of a man who does not have much knowledge and applies himself to publishing books. Some people will also be annoyed by the foreign and unknown names of the exotic plants, and the omission of similarities and comparisons of these plants with those of Europe. Likewise, the omissions of eulogies of the very learned men who have written about these plants at one time or other or have mentioned them will annoy others who wanted to convince themselves through the testimony of these men that these plants really exist in nature. There will also be people who will find it tedious that in the descriptions of the plants there are so many minor details, on which indeed we have bestowed great care. Some people again will perhaps find fault with us because in describing the plants we have not used those terms by which more learned botanists have been accustomed according to their practice to distinguish the various parts of the plants. In the same way, others will accuse us of other things, which we ourselves indeed will not deny.

In order, therefore, to satisfy those people as well as myself, I have not considered it unsuitable to recall a little more accurately the first beginnings, the progress, and the good outcome of the HORTUS MALABARICUS, from the beginning to end, as they say. For I do not doubt but impartial judges of botanical matters will not only admire but also gratefully receive our publication of so many exotic and unknown plants, from a region which is very well known and has been visited by many people, and which the Portuguese inhabited for at least one hundred and seventy years and adorned with magnificent cities. They will marvel, I say, and gratefully remember that those plants are now shown for inspection for the first time by one who, being occupied with other and more important matters, might have refrained from this labour. However, the prosperity of this age and of Europe and the number of scholars is so great that the products of printing already seem to be merchandise, which is flooding the world with innumerable books. Hence

it has also happened that stale repetitions have been dished up again a hundred and a thousand times; most people, by altering a few words and varying the order a little, copy other, earlier writers' work and publish this most ambitiously as their own. It is, therefore, a small wonder that a great many erudite people only attach value to whatever commends itself by some novelty, since the old things are all too well known to them. By this work of ours we therefore give the copyists ample opportunity to collect plants and incorporate those, which were known in our part of the world to this day in the general index of plants.

After I had been with the Indians for a considerable number of years and on account of my office fairly often had to make journeys through very well-cultivated regions, on the way I observed large, lofty and dense forests. I saw that they were pleasing through the marvelous variety of trees, which was so great that it would be difficult to find two trees of the same kind in the same forest if one were to search for this. I have seen a great many trees encircled by and entangled with other plants, while the latter, fixed in the soil with their roots, had formed such a confused mass with the tree with which they had become entangled that it could hardly be distinguished. I rather frequently saw (to put it thus generally) many ivies of various kinds climbing to one tree and moreover shooting up in the very branches of the trees, and also various plants against the bare trunk, so that it was often very pleasant to see on one tree displayed leaves, flowers, and fruits of ten or twelve different kinds. And yet they did not harm this tree in any way, so that the trunks of such trees were very close to each other and very thick, or at all events they lifted their heads in the air to an elegant height of as much as eighty feet (of the ordinary length), adorned all round with green herbs of all kinds, so that there was not left any part that was not covered. The branches also, wide spreading and shady on all sides, finally rose to a very great and really extraordinary height. Nay, sometimes they bent down and, taking root again in the fertile earth, sprouted again and shot up. One might regard one such tree as a magnificent, elegant, and delightful palace, whose vaults were supported by as many columns as one could discern branches. And in such a palace many people could easily be sheltered, in order to shun the inclemency of the climate, for instance excessive showers and heat of the sun; and thus these forests were like a house of a very elegant structure rather than virgin forests. And I have observed that not only the fertile soil extending in the plains was thus adorned, but that even the rough rocks and the steeps of the

mountains were equally full of luxuriant forests, nay, the most barren rocks abounded nevertheless with the splendor of a rich vegetation of trees and herbs; some of these plants had settled on the top, others had made cracks, into whose fissures they penetrated with their roots. Every land and field extending in the plains abound so much with plants and trees of every kind (as I have said above of the forests) and radiated such fertility that indeed every piece seemed to have been cultivated by the careful hand of some gardener and planted in a very elegant order. Indeed, even the pools- and one may wonder about this!-, the marshes, nay the borders of the rivers which carried salt water displayed several plants, with which they were almost completely covered. Did I say abundance? There was no piece, not even the smallest, even of the most barren soil, which did not display some plants.

Since I perceived all this repeatedly, this had led me to believe that I judged not without reason that this part of India was truly and rightly the most fertile part of the whole world and that it was largely similar to the island of Taprobana (which nowadays is called Ceylon), especially to that part which is situated in the same climate as the Malabar region.

I was also seized by the desire to explore and examine the leaves, flowers, bark, and roots of those plants. And then I found that they frequently had a very sweet smell and a penetrating taste. And when I asked the natives who accompanied me on my journeys whether they know anything about these plants, they not only disclosed the names, but also knew very well their curative virtues and use. I have often experienced this on the way, when one of our companions suffered from some complaint, either an internal or external one, although they- these Indians- were not endowed with their medical or botanical knowledge; indeed they spend their whole life in the military service, in agriculture, or in some craft. I think it would not be unpleasant or unsuitable, now that we are mentioning these Indians and their region, if we referred to these things somewhat more exactly for those readers for whom it would be worthwhile to read these writings of ours.

The Malabar region, which is bordered on one side by the sea, extends from the city of Goa to the promontory of Comorin, covers a length of about one hundred and twenty German miles (*Note:- A German mile is 7.4 km; so 120 miles is 888 km. This accords quite well with modern maps, on which the distance from Goa to Cape Comorin is about 900 km as the crow flies. cf.-H.K.s'Jacob, 1976*), and in some places is about ten miles broad, in other places thirty miles.

Precisely this region is inhabited by so many people that it looks as if it consisted of nothing but continuous cities, villages and gardens. It is subject to various princes, who have more than 30,000 subjects or, as is quite certain, 31,000,000 nobles, solely fitted for military service, not to speak of the innumerable number of other people. They usually live to a very great age and their health is cared for by native physicians, who do not fetch medicaments from other regions, or at all events as few as possible, since they are content with only those medicaments which their own region supplies bountifully, a custom which is imitated with success by the Europeans in those places. The Dutch, however, who are staying there under the auspices of the East India Company, indifferently use medicaments which, after being fetched from these regions, are conveyed via Persia and Arabia to Europe and thence again by sea to India, in almost decayed and spoiled condition, not without a waste of large sums, which are spent without any advantage on this matter.

These and similar considerations had therefore urged me to wish very much to find a man who is well fitted and qualified for this and who can depict the plants of this region from nature if he applies himself to it, and can explain them in a description, including their curative virtues and use. I myself was of course convinced that if this matter yielded good results, it would please many students of botany in Europe. Moreover it would involve great profit for the Illustrious East India Company, which indeed would be able to save those expenses it spends on transporting medicaments to India. Indeed, it would be possible to make use, at less expense and with greater profit, of Indian medicaments, either the same or at any rate with the same, if not superior curative virtues, for the above-mentioned reasons.

But indeed, this could not be accomplished by wishes alone. For no one goes to Malabar to apply himself to this, but all those who have gone there under the auspices of the Illustrious East India Company are compelled so much to perform their office accurately that they have no leisure to undertake this, even if they wished to. Therefore I have in no way been able to carry out this excellent work at any time. At last, when I had all but abandoned the hope of accomplishing this work, I learned that under the sovereignty of the King of Cochin there lived a certain man endowed with the greatest possible knowledge of Indian plants, which he had drawn from nature. This man, whom I have mentioned just now, was a very learned man of sixty, living a sober life, by profession a pontifical priest of the order of the Discalced

Carmelites; his name was Father Mathew of Saint Joseph, a born Neapolitan. He had lived for many years in Arabia and Persia and at that time had been sent a future coadjutor to the Archbishop of the St. Thomas Christians of Malabar. When summoned, this venerable man did not hesitate to come to me in the town of Cochin and, when he had understood my purpose, viz., that a list and description of the plants of Malabar had to be made, for which I promised this venerable father my assistance, he very kindly and promptly offered me his services in turn. At the same time he showed me some rough sketches of plants which he had formerly drawn as an aid to his memory with pen and ink, viz., one leaf, one flower and one fruit of each plant, of which he had noted down in particular the curative virtues, with the aid of which this pious old man had helped, on his journeys, not only himself but also very many others.

Thus the first beginnings of this HORTUS were that from the first sketches of plants, copied on other paper, arose a more accurate delineation of them through the care of Rev. Father Mathew, who, relying solely on memory, turned out the natural forms of the plants in a wonderful way from the rough sketches. But then, because he delineated everything with a pen, and that only in outline, being inexperienced in painting with a brush, the pictures were not very much like the living plants. Moreover, the minor parts of the plants could not be shown accurately, or at least not distinctly, so that the true forms of the living plants could not be recognized at all there from, especially in those pictures made with a pen neither light nor shadow could be shown somewhat accurately. Of course the excellent old man had not imagined that it would be necessary to greater and more accurate pains in depicting and describing those plants, because he himself with the aid of his memory was indisputably acquainted thoroughly with the plants presenting themselves to him and their curative virtues. Moreover, these rough sketches had nearly always been made on his journeys, so that fairly often now the fruit of one plant, now the flowers of another plant were missing, and sometimes both. Nevertheless I corrected these defects as well as I could by seeking precisely for those plants and supplying the deficiencies. But still many plants have not been traced, either because he had not noted down the names accurately, or the venerable old man had received them from men who did not know the common names of the plants by which the botanists of Malabar designate each plant, or because they were plants from another climate. These

approximately were the obstacles, which disturbed the beginnings of HORTUS MALABARICUS. Among them the greatest was that if you compared the drawings with the plants themselves, you would hardly have said the pictures had been made from them, so poorly did they accord therewith. As to the description, this often cohered so little through perfunctory and fleeting attention that it might have referred to several plants, even if they were quite different.

While I got stuck, being impeded by these vexations, there arrived in Malabar from the island of Ceylon the famous Paul Herman, doctor of medicine, who had just been appointed professor of botany at the illustrious University of Leiden. When he had seen that the beginnings of our HORTUS were impeded by so many obstacles and by the rather inaccurate nature of the descriptions as well as the pictures, with modest kindness he saw fit to give us to understand that in this way it would hardly become a book of any importance. Nevertheless, the shortness of his stay with me was the cause that I could not discuss my collectanea of the HORTUS MALABARICUS, with him, neither could he assist me with wise advice in this very complicated work. Circumstances being such, I wanted to begin the whole enterprise anew, and I devoted myself to describing the plants as well as I could and working at this HORTUS in another way. But scarcely had I started when I perceived how greatly I was hindered in this, by the office I held; it took almost all my time, so that I could hardly find leisure to work at the HORTUS properly.

I do not relate these things, as may be thought, to disparage the work and the exertions of the most honest Rev. Father Mathew, rather on the contrary. Indeed, we owe this man, who was leading a very honest life of true piety, the greatest possible gratitude, because he assisted us so honestly, faithfully, and with such untiring exertion. Nay, we rather mention this excellent man in order to show that we venerate his memory and shall always do so, and renew the pleasant recollection of his friendship and goodwill towards us. I frankly declare that this first founder and originator of this HORTUS has also subsequently been a sedulous cultivator. Since he has always very much occupied with the holy office for which he stayed in this country, at last at his advice I solicited for part of the work the aid of a highly revered man, Johannes Casearius, a vigilant minister of God's Word in the church united in Christ in the city of Cochin, a man greatly versed in every branch of knowledge, except only botany, to the study of which he had never devoted himself. For that

reason he feared that his style, to which the terminology of botanists and physicians was unknown, would not be up to the dignity of so great a work. However, being persuaded by many important reasons, he agreed to undertake a part of the task.

In order that the work might make progress without annoying vexations, I observed the following arrangement: some physicians, both Brahmans and others, at my orders made in their own language lists of the best known and most frequently occurring plants, on the basis of which others again divided the plants according to the season in which they attracted notice, because they bore either leaves or flowers or fruit. This catalogue according to the time of the year was then given to certain men who were experts in plants, who were entrusted with collecting for us finally from everywhere the plants with the leaves, flowers and fruit, for which they even climbed the highest tops of the trees. Having generally divided them into groups of trees, I sent them to some forest. Three or four painters, who stayed with me in a convenient place, at once accurately depicted the living plants readily brought by the collectors. To these pictures a description was added nearly always in my presence. Moreover, I had courteously asked all the princes of Malabar kindly to inform us of plants which were rather well known by their form and their use. Thus, it happened that from time to time plants were brought to us from a distance of fifty or sixty leagues and that there was not one among these kings and princes but had cultivated some flowers in our HORTUS. The plants which had thus been collected by botanists, depicted by painters, described by capable men, were subjected, if this was worthwhile, to the examination of skilful physicians and botanists, whom I had convoked for the purpose, both from my staff and from among people of some reputation. Naturally I took care that the pictures of the plants were shown to this board, which sometimes consisted of fifteen or sixteen scholars, and that by means of an interpreter they were asked whether they knew those plants and their names and curative virtues. The answers were recorded in a commentarium. However, this board had been together from various parts of Malabar, so that, because they did not know each other, they were moved by ambition, sense of honour, and suspicion- of course, in order to win favour- if they ignored something, to cloak and conceal it. And they did all they could not to disagree themselves if they dishonestly attributed either superior or indeed inferior virtues to the plants.

I often attended a most delightful entertainment, for instance when these Brahman of gentile philosophers disagreed and disputed with each other by weight of arguments, which they took from maxims, rules, verses from Antiquity, and books of their ancestors who were renowned for their learning. Indeed, they disputed and strongly defended their own opinions, but with incredible modesty, such as you might even miss in the most distinguished philosophers of the world, without any acerbity, mental disturbance, or neglect to respect each other's opinions. They honour Antiquity and the first inventors of their sciences with the most pious reverence, and by them they judge their own views and also their own experiences, and they subject them to *their* authority. And as regards medicine and botany, the knowledge of these sciences is preserved in verses, the first line of which begins with the proper names of the plant, whose species, properties, accidents, forms, parts, location, season, curative virtues, use, and the like they then describe highly accurately. And they did this so skillfully, so that if anyone mentioned the proper name of some plant, any Brahman will at once answer you, stating whatever has been and can be said about it. Although, however, this method of teaching, which requires a tenacious memory, seems to be rather difficult, still they impress these verses with playful ease on the memory of the young, which they say is then strongest. Later the docile minds of adolescence and manhood retain them faithfully. The first invention of these disciplines (namely, medicine and botany) is considered to be so old that they show books by authors of whom all affirm by constant asservation that they lived four thousand years ago. But truly, these men do not exercise a discipline by free choice, but profess it through the accident of their birth, which bestows on everyone the honours, the servitude, in short the office with which it invests him by this law of birth, with a more than Stoic inevitability. Hence, through continuous grades and successions of generations and families, parents hand over to children, as it were from the one to the other, all those things, which are required for the perfect execution of the profession, which the law of birth has ordained from time immemorial to this or that family. Either some king has imposed this inevitable and even more than adamant law on his highly submissive people, or a mutual agreement of this people has introduced it, or some very faithful reverence for certain holy mysteries or a superstitious fear of oracles and divine revelations to which this people is extraordinarily devoted has given rise to this law, supported it, and confirmed it through so many centuries. But this is not the place to discuss about this, nor are we

inclined to do so. However, we can affirm one thing and testify by experience to its being quite true, namely, that this law, which demands that everyone shall follow a special mode of living by virtue of his birth, is observed so rigorously, so strictly, and so scrupulously to the present day that no mortal man could finally alter even trifle of this law either by deceit or by even Herculean audacity. Thus, farmers and fishermen, through the whole course of the years and the flight of time, will never beget any but farmers and fishermen. The same is also the case for the other crafts and profession. Through this virtually fatal law, however, no professions or crafts ever get lost, and all people lead a very peaceful and blameless life of incredible tranquility, since those who, owing to the accident of their birth, do not desire higher things and do not envy their elders, are only occupied with those things to which this fatal law through descent from their ancestors has condemned them. And hence, being rendered more and more capable through this continuous instruction of their elders and relations, they finally acquire the striking and exquisite knowledge of their profession, which they now display.

And yet it is not so much the long history of these peoples that one admires, but rather the firm constancy and authority of the laws and customs through so many centuries. Anyone who possesses a slight knowledge of the laws, manners, privileges and customs, which are observed most scrupulously by them, ought to admit that in the act of constituting this State very great care has been bestowed on the foundations, which are so solid that so to say they can render the State eternal and secure from any change. For this theology and their polity agree so ingeniously and wisely with each other are also so cautiously distinguished from each other, and maintain each other's authority so much that it is a matter of uncertain judgment to which must be given the first place. Indeed, the polity accords very well with the theology and *vice versa*. Thus, the same law which keeps malefactors from the temple also deprives them of their civil rights as well as their right of consanguinity, nay, even of humane treatment and, what is more, of life itself; or, if they are treated with greater clemency, it takes away their liberty for life. Their State is pervaded with such mysterious harmony that it is necessary to have known them a long time before you find out from what kind of State they come. The free people enjoy so many privileges that it seems a democracy. And yet the very people from this region venerates its princes and renders them such great and numerous servile duties that you might think that the right to

decide about life and death and the fate of all has been vested in one king. They do not contract marriages with persons of another nation or foreigners, and yet they permit any people of whatever religion to live freely among them. They never pass beyond the boundaries of their native country and yet they do not resent the travels of foreigners. Their king do not govern either by the right of succession or by that of election, but by both. In fact, a rank of such standing is hereditary in one family, nay, in the whole house from which the princes are chosen, and the eldest of them is the king. Those who have the care of the ceremonies and of religion are also very numerous, and they live in the greatest tranquility and are favoured by very ample benefices and great esteem, to which are added the gifts of the pious people, so that those men can quite rightly be proclaimed the happiest men of the whole world.

Nobles of this region are also widespread and very numerous. They are altogether exempt from exercising any trade or profession; they are distinguished from the others by their great privileges and high dignity. And thus it is clear that for this people a change of their way of life and manners is not to be expected or desired. The same system, which preserves uninterrupted peace among this people, also suppresses any rebellions the moment they arise, so that at all events they could not threaten any change of the situation. Being untouched by wars with another empire, they do not fear them either, being bordered on one side, in the west, by the vast Indian Ocean and protected on the other side, in the east, by a steep, inaccessible, and immense mountain range, which could only admit very few people at a time via very narrow and all but impassable passes, if any people should want at all to invade the country with hostile intentions. And indeed they do not fear their neighbours, since they know that these neighbours lack the forces for attacking them. The Malabaris themselves, on the contrary, can assemble within two days several armies consisting of an incredible number of men- hence I dare not mention their number, because it can hardly be believed- excellently and appropriately armed, and second to none in warfare. Their soldiers surpass all other Indians in audacity and courage, because they earn the eternal salvation of their soul beyond any doubt if they die in a war for their native country, for hearth and home, for the law and the king, in the discharge of the duty for which they were born. The Malabar nobles whom we have mentioned fulfill this task best and most courageously. Where occasion presents itself, they bravely show themselves to be sons of the

fatherland and, as if seized by some frenzy, they then charge the enemy with fire and sword, so readily are they prepared to die. Hence, this people have never from time immemorial been subject to any enemy or any change of the situation. For this reason we can assert, by no means unjustly, that they belong to the oldest people of the world, since the name of Brahmans even in the days of Alexander the Great was greatly esteemed and was praised in the books of historians.

But about this we have already spoken more than enough, although we have said that we wanted to oblige our reader therewith, for we considered it not unreasonable, when submitting to you this HORTUS MALABARICUS, first to mention a little in what regions and by whom and what manner of men it was cultivated. Once the order, which I had mentioned above, according to which the HORTUS was to be cultivated very felicitously, had been established, the two volumes were completed. We have now published them, and in any case the first describes trees and the second, shrubs. For my part I had resolved that it would be better to refrain from publishing this HORTUS in Europe until the collecting of plants should have been finished. But at the same time I pondered in my mind how unstable, uncertain, and changeable are man's affairs, how meaningless and fruitless this whole labour of mine would be if the sum of a short life should cut off a long hope, were God to wish it. Indeed, I could not conceive myself that I should have successors in the numerous and great difficulties which I had indeed endured when working at this HORTUS with unwearying perseverance. Moreover, I myself had determined neither the time required, nor the number of plants with which our HORTUS ought to be cultivated. I therefore continued to work at it insofar time and occasion permitted. Since indeed most of the persons whose labour I could use perform their duty, one in this, another in that service of the Illustrious East India Company, they could not very often find leisure for the other work of cultivating our HORTUS unless they neglected their duty, so that the HORTUS repeatedly lacked workers. Still, meanwhile the description of the plants which grew around the city of Cochin and whose curative virtues were proclaimed by the indigenous physicians as having been famous from extreme antiquity was rapidly approaching its end. And yet, quite often there were plants for which we had to wait a whole year, and sometimes even longer, until we could secure one of their flowers or fruits. These plants were noted down as it were at random, in order that the deficiencies might be supplied properly when an occasion presented itself.

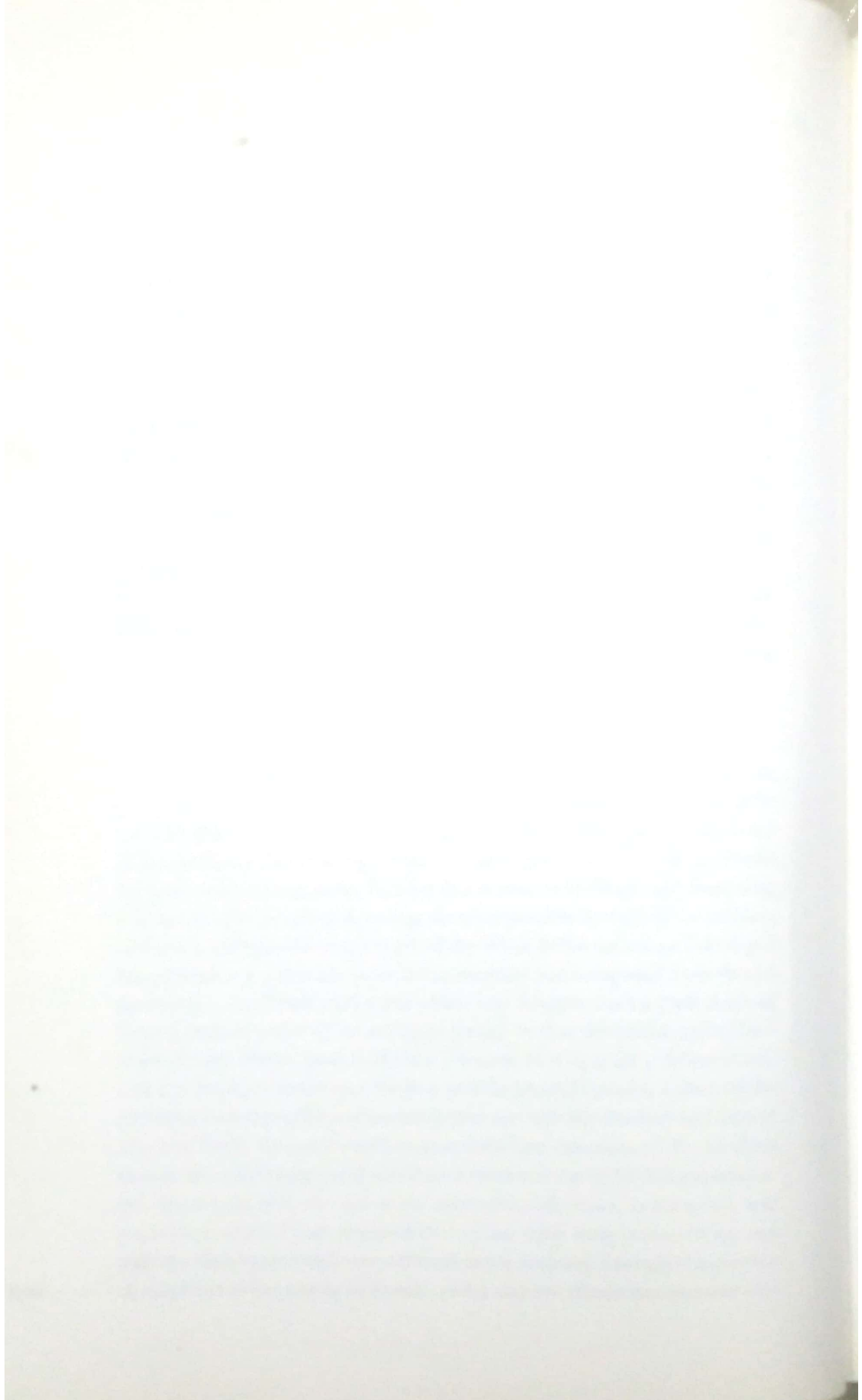
Sometimes, if the nature of the office or other weighty causes required it, accompanied by all those whose work consisted in cultivating this HORTUS and by a good many others, I traveled by water to the adjacent interior in order to rebuke on behalf of my superiors some Malabar prince or other, which was fairly often necessary in the public interest. When then on my journey, as it were to while away time, I observed the luxurious forests and the delightful plains, I ordered my whole party to leave the ship. They then wandered in groups through the forests, some of them in order to find booty, some of them because I delighted very much in it, many of them in order to satisfy their curiosity about new things, and the others because they worked at our HORTUS, ravaging all sorts of plants, especially those which they saw adorned with fruits and flowers. When this party, which often consisted of two hundred men, had collected plants there for some hours, they returned, laden with plants they had collected from here, there, and everywhere, to our war ships, which the Malabaris call *Mansjous*. Here we examined and looked at our spoils and the painters roughly depicted plants we had not yet seen, to which was added a rather short and rough description, these descriptions being later perfected in a more convenient place and time. When the affairs of the Illustrious East India Company had been dispatched at the royal courts, the princes were so inquisitive and so kind that they provided us plentifully through their men with all sorts of plants. Nay, these princes even themselves came to our tents to see, and they contemplated with great delight our unremitting labour and the pictures of the plants, which were true to nature, and thus, as happened fairly often, our HORTUS was cultivated more, and more, and the number of plants increased from day to day. Nay, more, not seldom in one day more plants were roughly sketched than several painters, and even the famous Caesarius, could deal with in months. While in the meantime I continued diligently the work undertaken in this way, very weighty reasons obliged me unexpectedly to leave Malabar suddenly. Indeed, while I was indulging in these honourable and innocuous pleasures, I perceived snares and traps by which they assaulted me secretly; snares, I say, which I never feared even in the most horrible solitude of Malabar. Still I intended to complete the work I had begun both on the way, and at Batavia. But oh, what a heavy loss! While I was pondering about this, our faithful Achates (*Note:- by this, Rheede probably means the God of protector of the vegetable world*), that associate in the work, that Apollo, the irrigator of this HORTUS, that most learned and reverend man, whom we loved so much, Casarius,

was snatched away from us in the prime of life by bitter death and departed this life. However, this loss was mitigated to some extent by a highly cultivated man, Christian Hermansz de Donep, who had a fluent pen and was sufficiently conversant with the Latin language, who arranged with me the *adversaria* and the *collectanea* insofar as it could be done, for which it was very helpful that most of those plants were still fresh in my memory. At Batavia I found again certain plants, some parts of which had been missing in Malabar. I filled up the gap with the aid of the painters. Further, a man of rich experience and great learning, William ten Rhijnen (who on account of his great knowledge of medicine was sent to Japan by the Illustrious East India Company, at the request of the Japanese Emperor), added thereto in Latin the curative virtues and use of the plants, which I had noted down in certain *adversaria*, in order that, if an unfortunate incident should disturb our work, at least something might still be left of it. I myself certainly intended, if I found enough leisure for it, to review the whole work, correct the errors, supply many deficiencies, and from time to time complete the descriptions; for this noxious lolium grew up in our HORTUS upon our sudden departure from Malabar and the premature death of the excellent Casarius of blessed memory. Scarcely had I started to review my work when very valid reasons urged me to leave the Indies altogether. And I therefore took care that the pictures of the plants were depicted anew and that the descriptions which had been made up to that moment were copied. I left this copy behind with the distinguished Doctor ten Rhijnen, in order that, if either shipwreck or the necessity to throw things overboard upset our voyage, he might again send another copy of the HORTUS MALABARICUS to Europe. He might repeat this until at last they should have reached a suitable port. But it pleased the Almighty God to restore us safe and sound to our parental home again. When I had landed in these regions and had returned to my native country, I perceived, not without some dismay, that the first part of the trees had been published, and this in quite a different way from that in which I myself had wanted this publication, which had been sent from the Indies for its preparation, to be carried out. For I had resolved that the trees, subdivided according to their genera and species, should be contained in one volume. But the printer, at least as it seems, had thought that a book of a rather large size would cost too much, and certainly not unjustly so, for the illustrations engraved in copper, which represent the natural size and form of the plants exactly, the regal paper of optimum quality, and indeed the magnificent and

neat type determine the price for a book. Most people are not prepared to pay such a price for a book which simply describes new, unknown, and exotic plants, in which also very few people take pleasure. For this reason he divided the first part into two or three volumes. Hence, because in this or that volume trees were lacking to give the volume a convenient size, some shrubs were combined therewith. Moreover, the printer indeed had already taken care to have so many illustrations engraved in copper that without heavy costs the order could not be changed or the illustrations reserved for a more convenient place. Hence the matter was so arranged that the second volume should follow the first in the same footing, namely, in a confused order. Indeed, in that volume which was destined for the shrubs, herbs or a minor genus were included by way of supplement. However, the first volume was better than the second, because it contained a commentary, illustration, and comparison with the European plants, made by the most learned and widely famed Arnold Syen, Doctor of Medicine and Professor of Botany at the illustrious university of Leiden, an excellent botanist, incomparable in the experience of plants, to whose most erudite care I intended to leave also the other parts of our HORTUS. But how vain and uncertain are the cares of men! He who was the prince of botanists in our age was taken away from us and the university of Leiden, by a bitter death, and the university deplored with incredible and sad grief the talents of so great a man and his untiring learned exertions in the prime of his life. Nor was this disaster the only one; it also carried off the excellent and cultivated Johannes van Someren and Johannes van Dijk, who had undertaken to publish the HORTUS and who were about to make themselves highly useful for botany. These heavy losses greatly interfered with the prosperous growth of our HORTUS. Meanwhile, however, the cultivated Johannes Commelinus, a man second to none in botanical knowledge, inflamed by love of botany, illustrated the second volume with very elegant notes; hence it was at last published. To such great trouble have been put. So many dangers, so many mishaps, so many expenses, and in short so many difficulties assailed this HORTUS that it would seem that one difficulty arose out of another and that every next step gave rise to the subsequent one. Add to this the complaints of the printer, who feared a waste of money. There were very few purchasers, so that one might believe that so important a work was little appreciated. It appeared that each of the remaining laborious and cumbersome volumes, which were still being prepared by me, would have the same fate as the earlier ones. I assure you that all this caused

me the greatest disgust at incurring such great expense and spending our money for the pleasure of others. I therefore saw the HORTUS, which I had laid aside as a memento of our former exertions, through utterly different eyes than I did before, not caring much about fame or libel or gossip. And thus our HORTUS, which had been composed little by little, was dropped, until a considerable number of well wishers of botany almost daily nagged at us with exhortations. They gave as their reason the deplorable fact that so many exertions and plants from another climate were entrusted to only one book; there were people enough who were eagerly looking forward to the remaining volumes. The printer, too, roused from his lethargy again, urged me anew to brace myself for the publication of a second HORTUS, and to arrange its order as correctly as possible. For, as I warned you before, that part which contained the trees had been divided without my knowledge into more than one volume, so that it would be quite impossible to arrange the whole work neatly. Indeed, though I were to combine the trees again in the third volume, still the second volume, which contains mostly shrubs, would disturb the order. Hence, I judged it would be best to combine those species of plants which each *per se* were not sufficient for one volume, but were indeed sufficient in combination, so that the order of the remaining volumes would not be disturbed. But Mr. Commelinus gave as his opinion that it would be unfavourable to proceed in that way, because thus only a less suitable order of the species would be brought about. He thought it more suitable to present the trees in the correct order. And for that reason he arranged the remaining volumes in such a way that there was the least possible doubt that the students of this discipline would accept it gratefully. While in the meantime I arranged the *adversaria* I had made as an aid to memory and composed from them a description, I saw that, contrary to what I had thought, such a great deal was lacking that, in order to do sufficient justice to that delightful time (*Note:- means the time Rheede spent in Malabar*), I must do it in quite a different way, and this the more so because the first and the second volume, written by the excellent Casarius of blessed memory, have met with the mockery and censure of critics. Hence the latter would undeservedly have calumniated that excellent man in the next volumes and would have rendered the HORTUS unpleasant. For this reason, with the aid of my *adversaria*, *collectanea*, annotations, and experience which I had acquired during the fairly long period of my stay with the Malabaris, which was still fresh in my memory, I myself composed a description of the plants in Dutch, and I did not doubt but persons who

could translate these descriptions neatly into Latin would be available to the printer, which he himself affirmed before me. But when we tested this translation, we found that it was bad and altogether unsuitable. I then disclosed this delay to Johannes Munnicks, an excellent and learned man, ordinary professor of anatomy and botany at the illustrious university of Utrecht, hoping that through his unique interest in botany and the public position he held he might in his spare time aid this HORTUS, which was growing so slowly, and seek for a man who would be capable of translating the descriptions. He not only most kindly devoted all his spare time to the matter, but he also generously took upon himself the care of all the descriptions and everything relating thereto, so that this third volume, which we now present to you, benevolent reader, is due to the care of that excellent man. He has arranged it in this convenient order by his untiring exertions. And these are the things which we thought it fair to tell you beforehand and which you, benevolent reader ought to know.



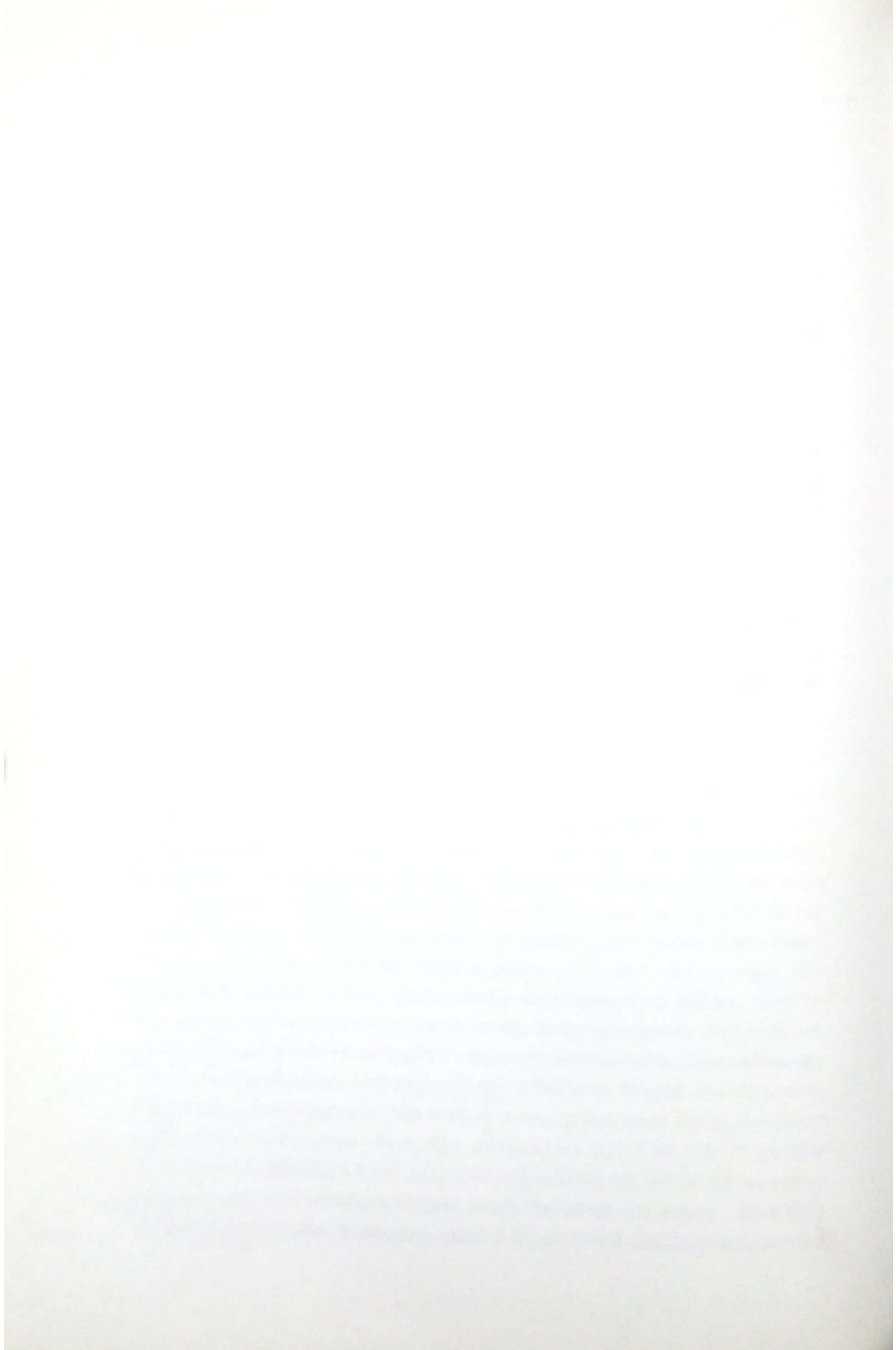
JOHN MUNNICKS
SALUTES
BOTANY READER

Most noble and generous D.D.HENRY de REEDE of DRAAKESTEIN, Chief Ruler in Mydreht, once Governor of the Kingdom of Malabar, an example of most famous and magnanimous of rulers; When you were engaged in your duties as a ruler you could not get rid of the din and clashing of arms, and as a politician you had all the distractions of a public servant. And yet, you found time to follow your main interest, the study of the herbs and plants that sprout on the soil. You took delight above all in the knowledge and treatise of these herbs and plants. It is not surprising that you, although a ruler, take more interest in the loving investigation of these things and that their variety appeals to you. They have both a utility value and also a pastime for you. You can be included among the vast number of Kings and Emperors who did not find it beneath their dignity to occupy themselves with such studies. KING SOLOMON was the anointed King of Israel. Besides immense wealth, he was provided with wisdom and knowledge of the secrets of the universe, so that none of the Kings on earth were comparable to him. He was admirably well versed in the

knowledge of herbs. He knew not only about flies, quadrupeds, insects, but also about trees and plants from Lebanon to the far Hyssopus. His knowledge stretches from the minutest herbs to the loftiest trees, all of which he had well explored. CYRUS, LEGANDARY KING OF THE PERSIANS; he planted seedlings with his own hands; ALEXANDER, LEGATE OF LACEDAEMONIANS, differing from him placed it in a more prominent place, more to his liking. ATTALUS, KING OF PERGAMUS is also an example. There was in his palace the splendor of household goods and furniture, as fortune continued to favour him. But none of these held him back from occasionally suspending the royal administration to devote his mind to the study of plants and horticulture. At one time this sort of study of plants kept busy the ROMANS to such an extend that KINGS AND FOUNDERS OF EMPIRES setting aside all other cares took delight in this one pursuit alone. SCIPIO, THE DESTROYER OF CARTHAGINIANS, THE CONQUEROR OF HANNIBAL AND OF ANTIOCHUS, as is well known, put his triumphant hands to the subjugation of his own garden at home. DIOCLETES CAESAR was a sweet mild character, but an expert in the operation of gardening; he preferred to enjoy herbs like tulips and their smell, rather than the royal head bands.

Thus inspired by the examples of eminent persons of venerable antiquity, MOST NOBLE DE D. REEDE, you did undertake botanical expedition with a view to provide accurate description of trees, fruit-bearing plants and other plants that grow in Malabar Kingdom. It is worth mentioning that for such descriptions he did not depend on the narration of other experts, but on his own proper and most diligently carried out inquiry and accurate observation. For this he had to undertake many journeys often not without risks. His method of procedure after getting the collections was as follows. First he would note down and make a rough sketch of the specimens as they struck his eyes in various places and different times. At times to make these collections he received helps from very many Kings of Malabar Region and Brahmins and other learned persons. His next step was to put them down specifying each one's order and class. He persuaded REVEREND D. JOHN CASEARIUS, MINISTER OF THE DIVINE WORD AT COCHIN, to add to all these accurate descriptions and finally build up the entire HORTUS MALABARICUS. But death prevented REV. D. CASEARIUS from carrying

the allotted work; only two volumes of his edition saw the light, the rest remained incomplete. In this situation MOST NOBLE D. de REEDE asked us to join him to complete his work; later the work was carried on by REV. D. CASEARIUS together with DOCTOR TEN RHYNE AND MATHEW, OF THE ORDER OF THE DISCALCED CARMELITES. Other noble persons also have shared in the work. We were asked to join them with our sketches of plants and the results of our own hard studies. The request came at a time when we were busy with our own pastoral duties very much distracted by prescribed programmes of visiting the villages. Yet in spite of all these engagements we could not deny the request, nor did we wish to do so. In order to comply with the request we put ourselves to adorn the pages of the work with sketches drawn of the plants and herbs, descriptions as befitting a Botanical Work, with brief and succinct notes. In this we were following the foot steps of CLUSIUS, BAUHIN, PROSPEROUS ALPINUS and other "Botanographers". If we observe that these works are not unwelcome, we promise that we shall finally complete the HISTORY OF THE PLANTS OF MALABAR. In the meantime, good health & farewell.



JOHN COMMELIN
TO
BENEVOLENT READER

Do not be surprised, *Benevolent Reader*, at the want of order of the various parts: Now we are at the Third Part of the HORTUS MALABARICUS; dealing as it is with trees this should have come after the First Part. The Second Part dealing with the herbs had better come last in order, rather than precede in order. We want to have the previous volumes printed ahead with full description before being sent from India. Before doing so we should like to bring everything to a perfect end, nothing should remain wanting. When I accompany the *Noble D. de Reede* from India back home, it would be a convenient opportunity for us to send our collections. We knew that sketches of plants and herbs needed careful placements and the pictures of plants set in their proper order. We did our utmost to this task. Therefore in order to publish the remaining parts in order of HORTUS MALABARICUS it is clear we are forced to begin with trees again. But as in the Third Volume trees whose species in First Part are described, it would have been better to follow it here. We request *Reader* to accept it in good part. We hope to obtain it easily, as mistake committed there we are not able to correct. In the meantime you may observe and pay close attention to the fact that this part of MALABAR GARDEN should adorn this Kingdom of Malabar. The wonderful Divine Goodness seemed to take pleasure in lavishly

distributing in Malabar so many and such varieties of plants hitherto unknown in Europe. These plants now with their exact sketches and drawings are spreading all over the world. And their knowledge far from mediocre will be promoted. For it is certain that many did hard work in their drawings and none left out their genuine figures and descriptions. People chose everything from one another. Hence there arose such great distinction between us and others, especially in the case of lack of proper experience, which was not wanting to our collections. He observed everything, and saw to it that everything accurately notified and depicted, so that not mere images but the very objects seemed to be present. To these we again add our own commentaries. We hope this will be acceptable to the *Reader*. They are free time jobs, labours undertaken when we are free from public duties. Therefore you may use the fruit of our labour, which we spent on this delightful work. You may have a look at the plants of Malabar; it will not be difficult for you to gather from all this that all things of the world narrate the magnificence of God.

KUL



G33133

PART THREE
OF
THE MALABAR GARDENS
ON
TREES

Codda - Panna

or

Mountanous Palm of Malabar

Fig. 1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 11. 12.



HIS tree is called *Codda-Panna* by the Malabaris, and for them *Panna* is a general name which is attributed to any species of palm; and therefore the Indian palm is also called *Tenga-Panna*. For the Brahmins however *Karetela*; to the Simhalese *Tala-Gas* and *Talagaija*; it is called *Arvore dos Sombreiros* by the Portuguese, i.e. (which means) a shade tree. It however has great similarity with *Tenga*, *Karim-Panna*, and *Ampanna* described in the first part, where in the commentary on Figure 9, the most learned Arnold Seyn of pious memory, describes its leaf for *Karin-panna*, sent to him from the Island Ceylon by most renowned Paul Herman, a great Botanist.

After this plant has grown to a height of sixty or seventy feet within thirty five or thirty six years, never in the meantime having brought forth (produced) either any flowers or fruits, sends out an almost new stem from its middle apex, which rises to the height of almost thirty feet within the space of three

or four months; during which time most of the leaves fall down and the tree is quite similar to a very tall and light apple-tree. Then this new stem sends out from every where (from all sides) within the course of about 12 or 13 weeks, long, round and light branches, provided with no leaves or lateral

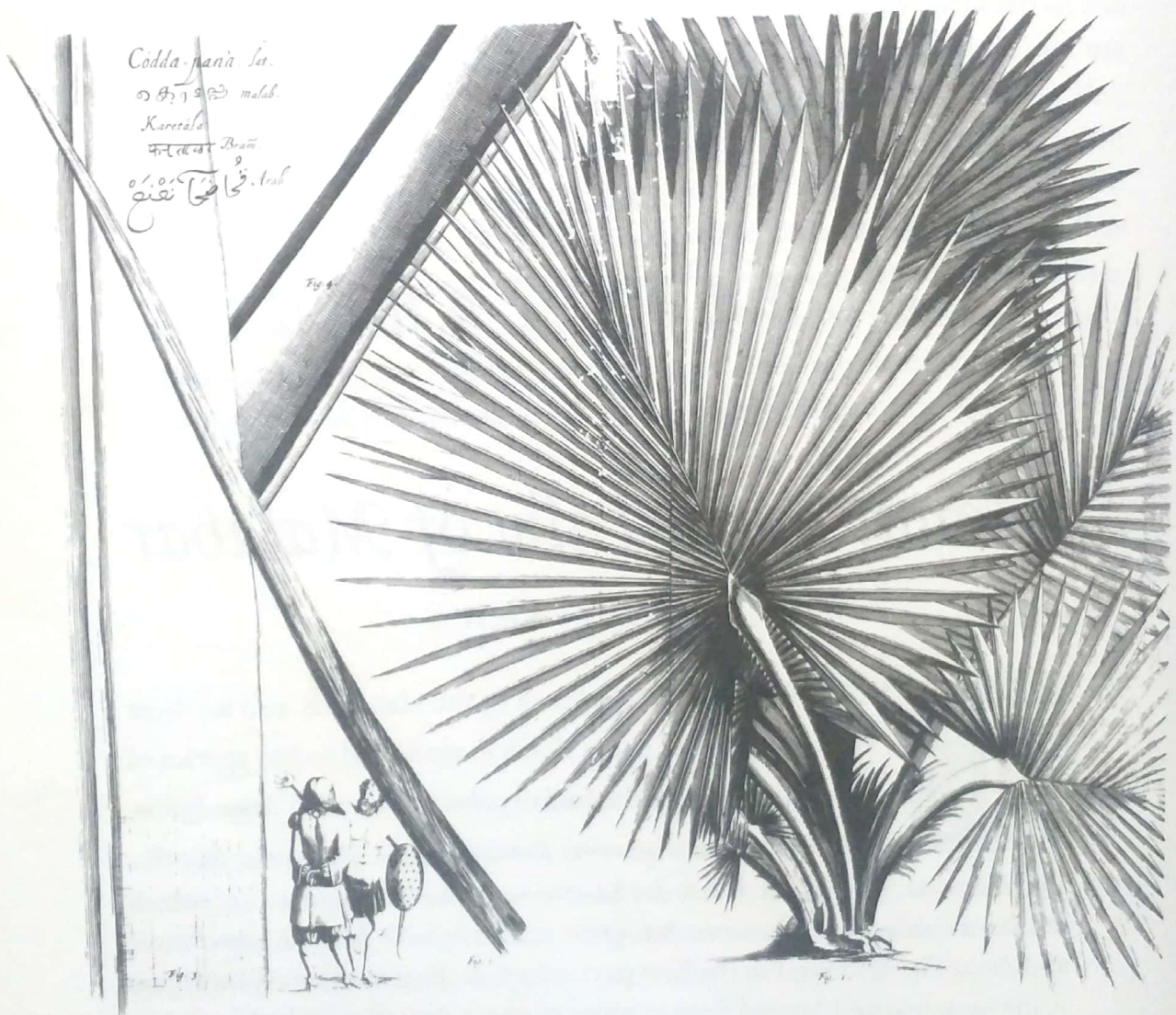
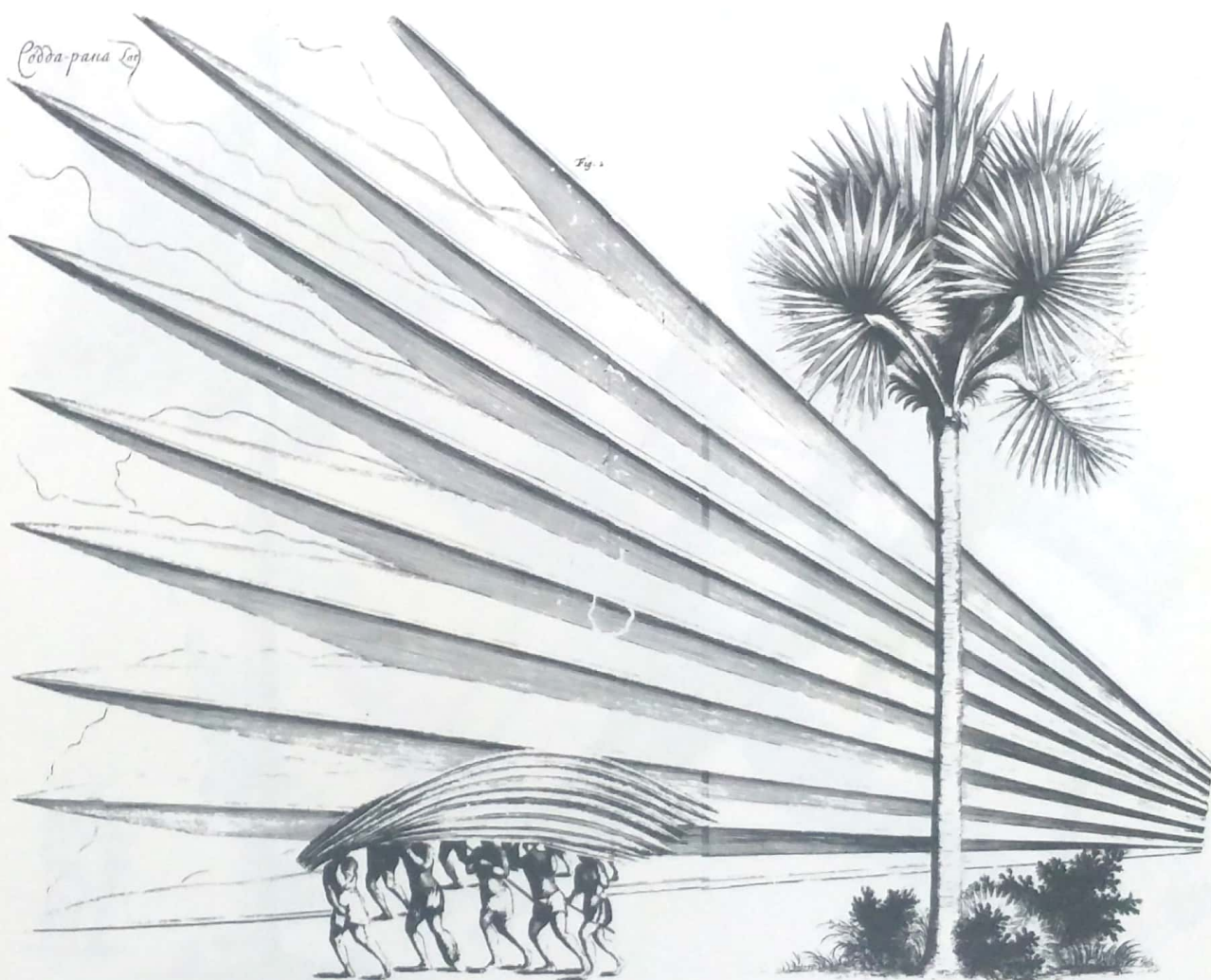


Fig. 1

branch-lets, the lower ones of which attain the length of twenty feet. And from these branches finally many branch-lets come out, provided with abundant, minute white florets, collected together in bunches, give a pleasing sight to those who look at. After these florets having fallen down after two or

three weeks, minute berries appear which enlarge with time and in the space of about six months they show perfect and mature fruit, which when will have fallen down, this new stalk decays and the whole tree dies. And indeed, anyone wishes to look at the various parts of this tree and their many shaped



figures, may go through these appended Tables, where Fig.1 the tree is shown new (as when it is a seedling), with its foliaceous branches, during which time (it is) not dissimilar to *Ampanna* of the First Part, described (delineated in figures 1. to 10). Fig. 2 part of a leaf in which flaps and division appear exactly. Fig.3 full (whole) leaf of its own size, that it can serve in the place of

Fig. 2

shade to ten or many men: for which end (purpose) the natives stitch together the terminal flaps of the leaf, to get a certain rotundity (round shape, by which some men can be defended (shielded) from rain and sun's rays under it cover.

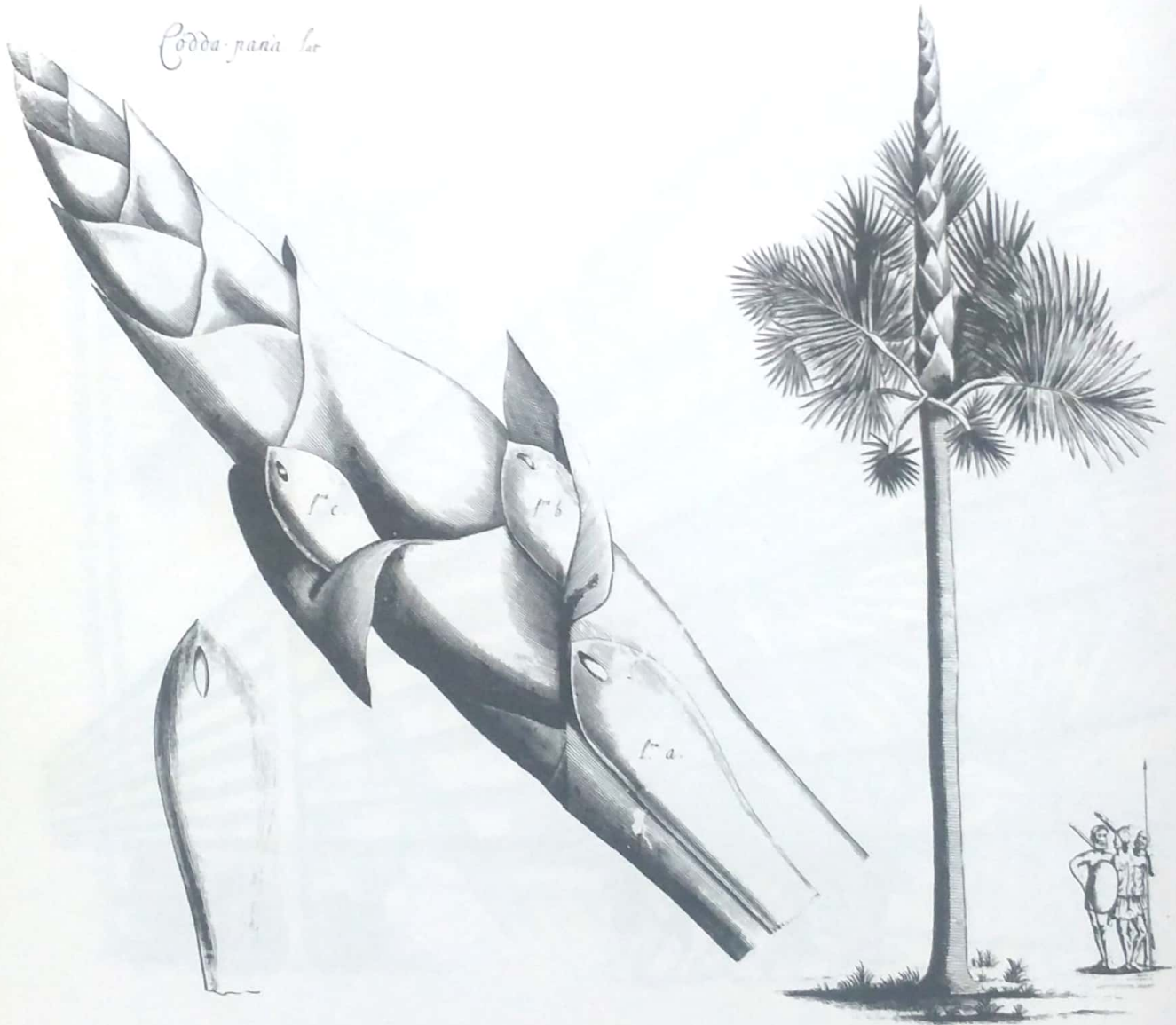


Fig. 3

Tab.1. Fig.1. The tree is shown in its full vigour, before it sends out any branches; moreover the genuine (real) construction of the unfolded leaf, as it is attached to the tree, exceeding 14 feet in width and 18 feet in length, excluding the stalk. For indeed during this time leaves of astonishing size

are seen, which later when the tree send out branches in all directions (from everywhere) and grows taller, gradually become smaller. And because this tree, like *Tenga*, produces new leaves from the middle apex of the trunk, hence the figure 2 shows a placated leaf of this sort, round, attaining the

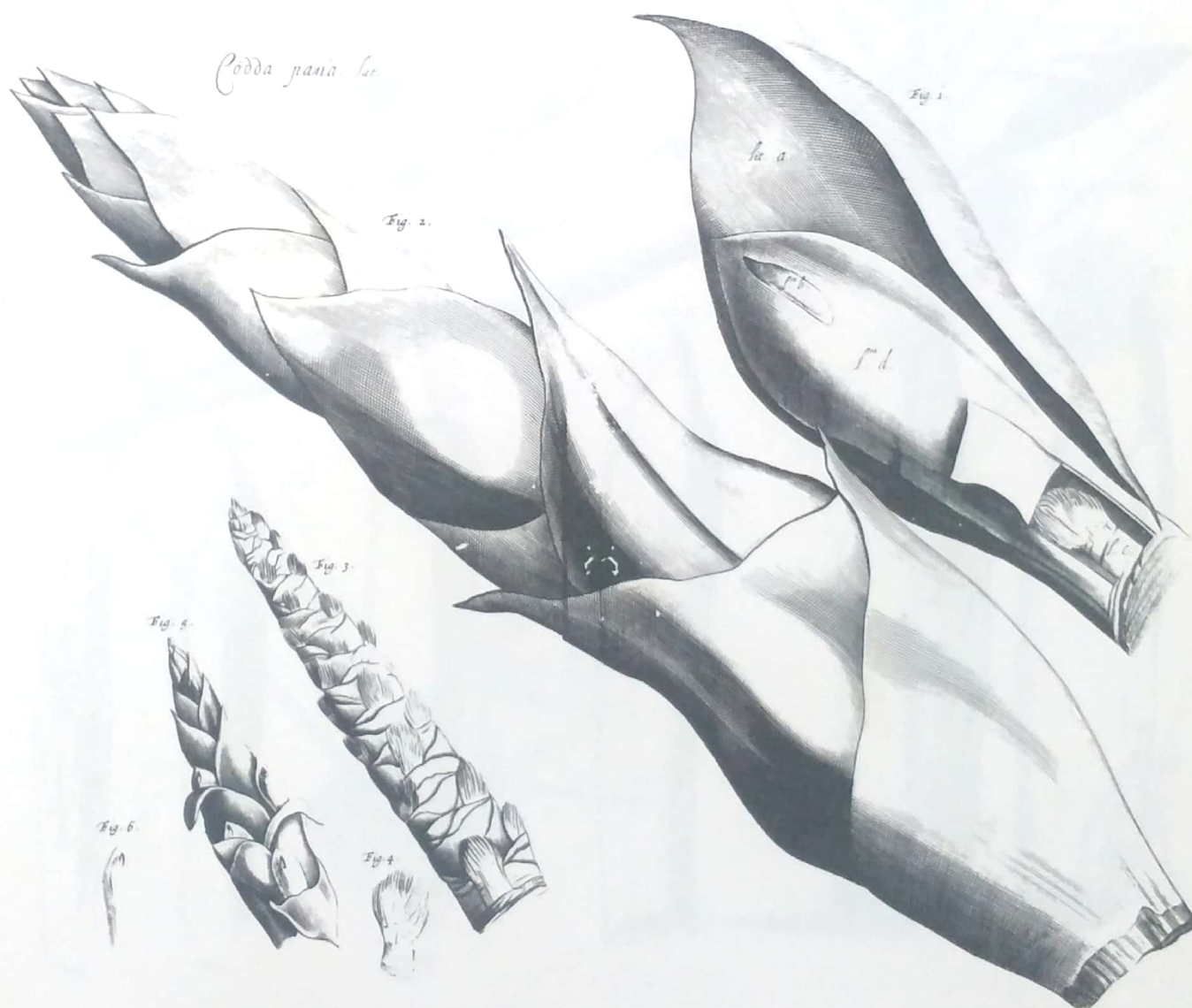


Fig. 4

length of twenty feet, which when opened and unfolded cautiously, offers itself the whole leaf (shows the whole leaf). Fig.3. a small fragment of the unfolded leaf with its middle nerve, by which it can be folded and again opened, and Fig.4 the same piece folded, six feet in length, but six digits in width, not rarely exceeding.

Tab. 2. Fig. 1. A tree of 35 or 36 year is seen, with its new stalk or rather theca, from which later fruits emerge. Tab. 3. The exact theca or sheaths of the fruits drawn, which (as is reported) grows to the measure of 30 feet from the middle apex of the trunk: and it consists of very many joints, each one of

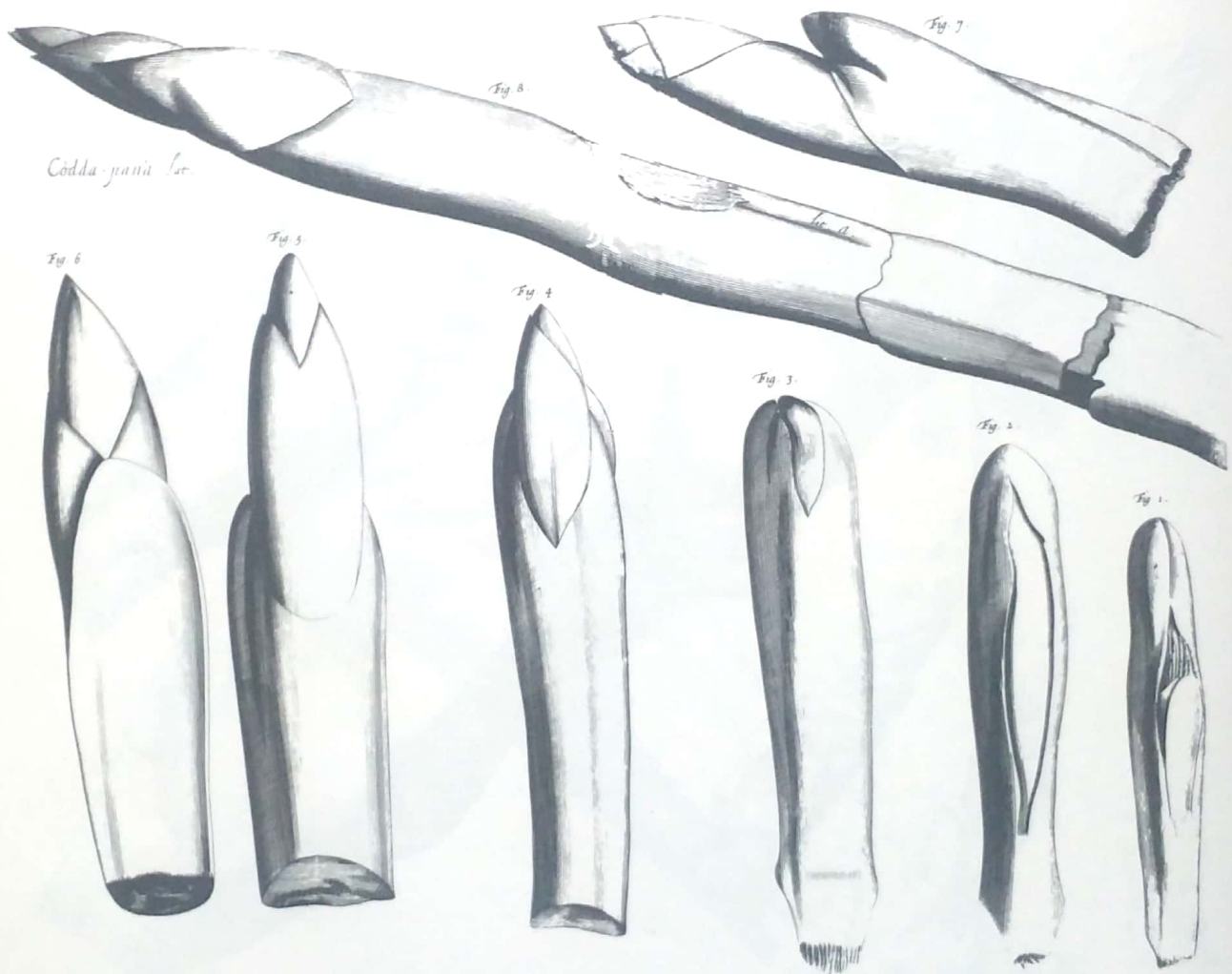


Fig. 5

which is covered with green, flexible and interiorly white, leathery involucre corresponding to it from the region; beneath which other smaller thecae or sheaths are hidden as from the letter a,b,c and the attached figures 3 can be easily understood. And in such a small sheath, which never exceeds one span in length and a palm in width, more than 20,000 fruits are hidden.

Codda-pana. Loe.

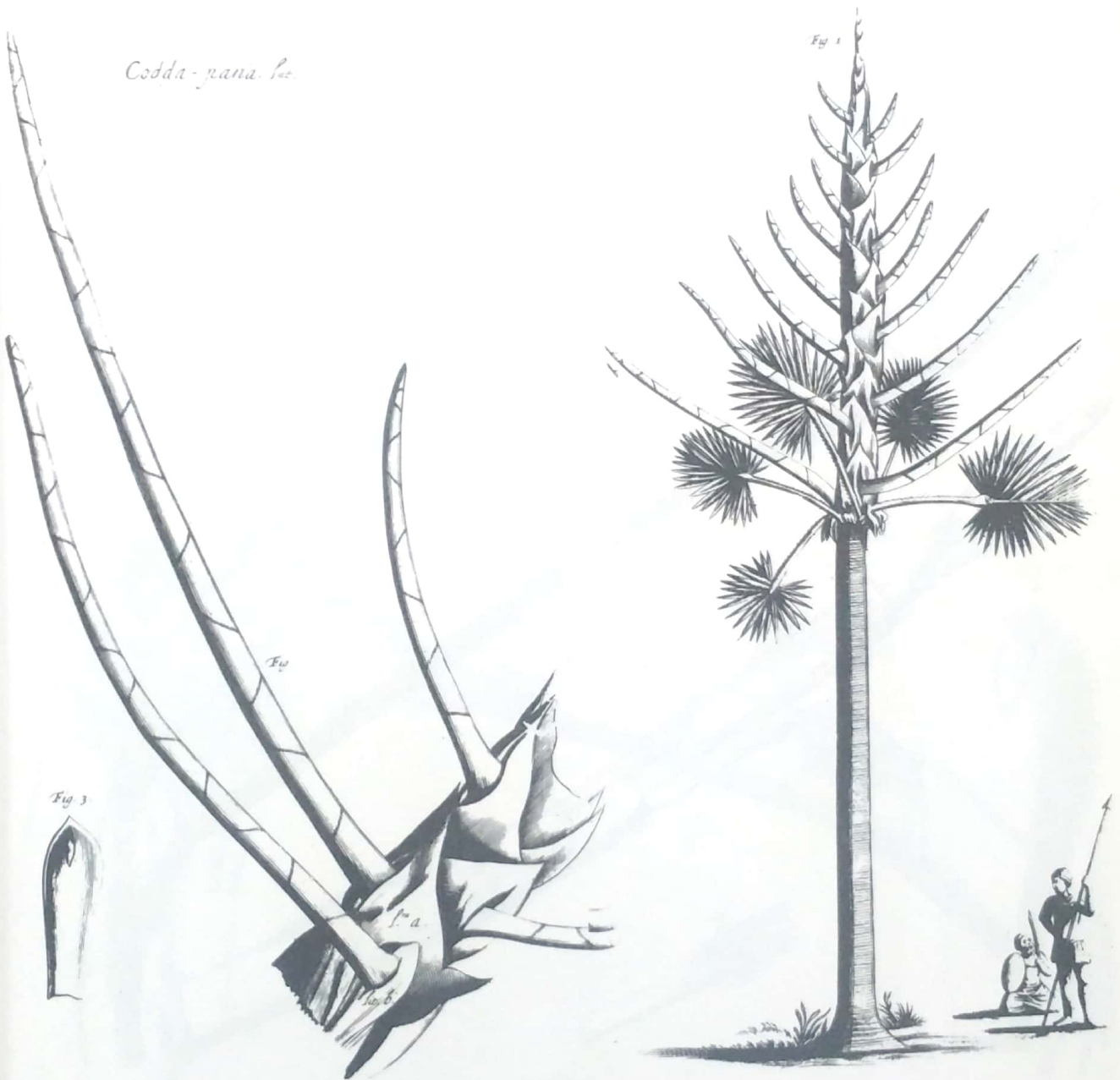


Fig. 6

Tab. 4. Fig. 1 a certain small sheath is seen with its involucre, letter a Fig. 2. With the larger sheath removed, within which the primordium of the shoot of the Flowers, letter c. and Fig. 4. separately depicted, appear exactly. Fig. 3. a small branch of the primordia of the flowers comes into light. But this theca, when is young, is formed of foliaceous integuments, mutually wrapped on themselves, and always standing open by an open cleft (aperture) at the

apex, to which adhere innumerable buds of cases in a decussate order. So that fig.4 from fig.3. and that Tab. 5. Fig.1 and this from fig 2 appear (succeed). Who indeed cares to look at the many sided changes of the first figure of this

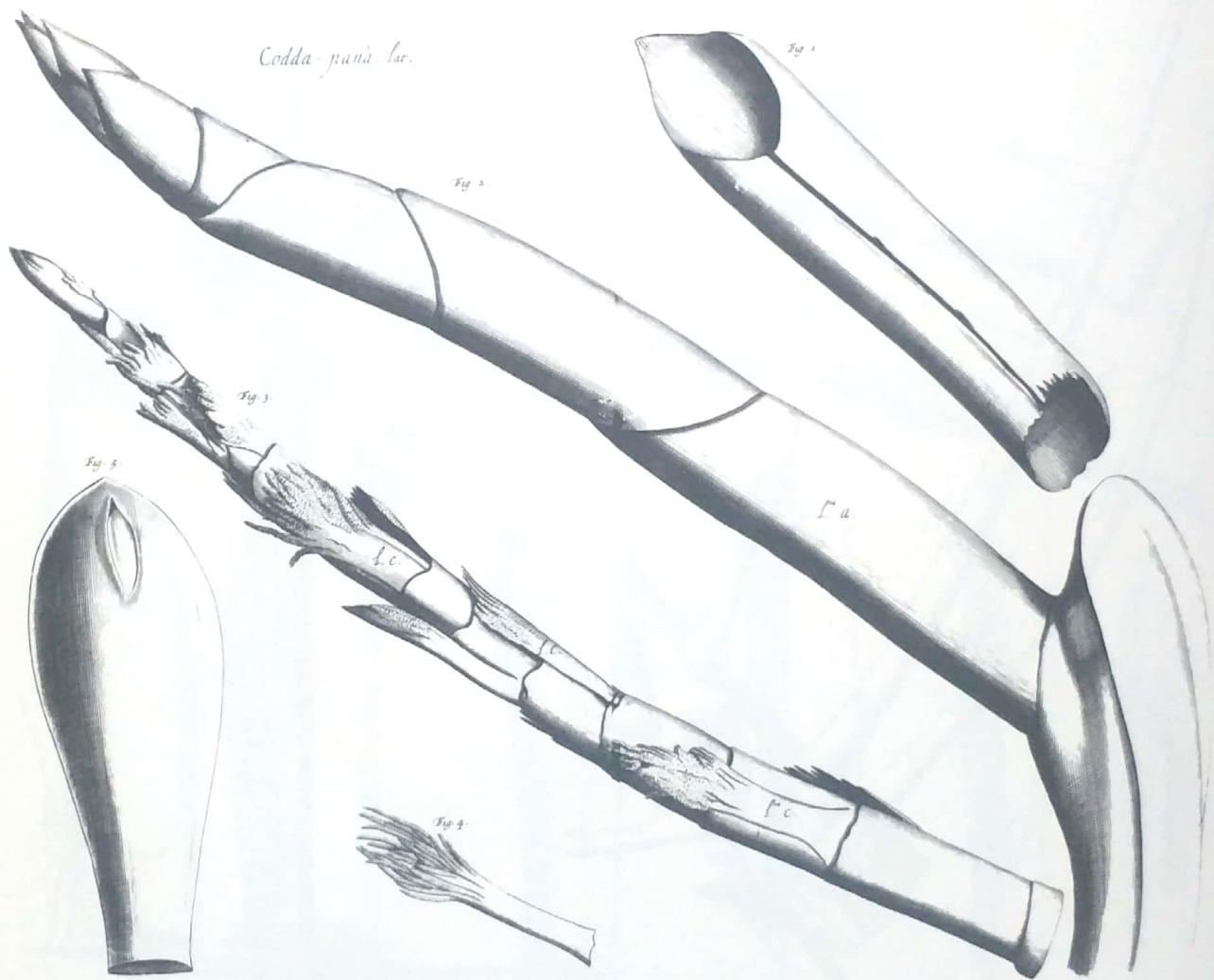


Fig. 7

table, should look at all the following tables, where Fig.3 in this theca in the side considerably (where is the flower-bearing shoot), Fig.4 more open, figs 5, 6, 7 "turiones" fig.8 three stalks in front, uncovered.

Tab. 7. Fig.2. A lateral branch, letter a., is shown coming out from its sheath, and being nodally marked with its own branch bearing capsules and starting

from its involuere which is shown (delineated separately Fig.1.); which having been removed Fig.3, the stalk is shown surrounded by flower-bearing or fruit-bearing shoots (letter c.d, e, jointly noted and Fig. 4 separately noted) in an alternating order: which all changes of these parts originate (Fig.5.) from the small sheath.



Fig. 8

Tab. 8. Fig.1. A lateral branch, from which come out flower bearing shoots letters b,b,b, and Fig.2 a flower-bearing shoot is separately traced (portrayed)

Tab. 9. Fig.1. Flower bearing shoots in the very whole tree, fig.2. piece of theca with the attached shoot, in real size, Fig.3. a separated shoot with the

covering of the theca, fig.4, a small lateral branch of the flower-bearing shoot with flower-buds, are represented in life-like image.

Tab.10 Fig.1. A flower-bearing branch, with its lateral branch-lets showing a delightful sight with their conceptacles and receptacles and primordia of the



Fig. 9

fruits; fig.2. a trifid segment of the branches with attached partly closed and partly open florets (which Fig.3 are exactly sketched with all their constituent parts) are represented. Thus therefore, after the branches of all the parts of the flower-bearing shoots and the shoots themselves have reached the greater

length, flowers sprout out from the open buds, and these many and numerous are attached to the shoots, contiguous in threes, fours, provided with three leaflets and six stamens.



Fig. 10

Tab.11. Fig.1. The tree itself deprived of its leaves and having the primordia of fruits, Fig.2. a, severed lateral branch is shown with very small fruits.

Tab.12 Fig. 1. A singular cutting of that lateral branch with adhering fruits in their natural size. (Note:- In this edition the illustrations are much reduced in size, than in the original edition) Fig.2. a detached fruit with its shell. Fig.3. a transversely dissected fruit (in which is shown letter a the rind with flesh,

letter b. stony Kernel, Letter c. medullary core, which never hardens, but is consumed with time and leaves a cavity, Fig.4. the very kernel is shown in its real shape. These fruits however which adhere to the shoots, are exactly

Pōdda-panā. Lat.

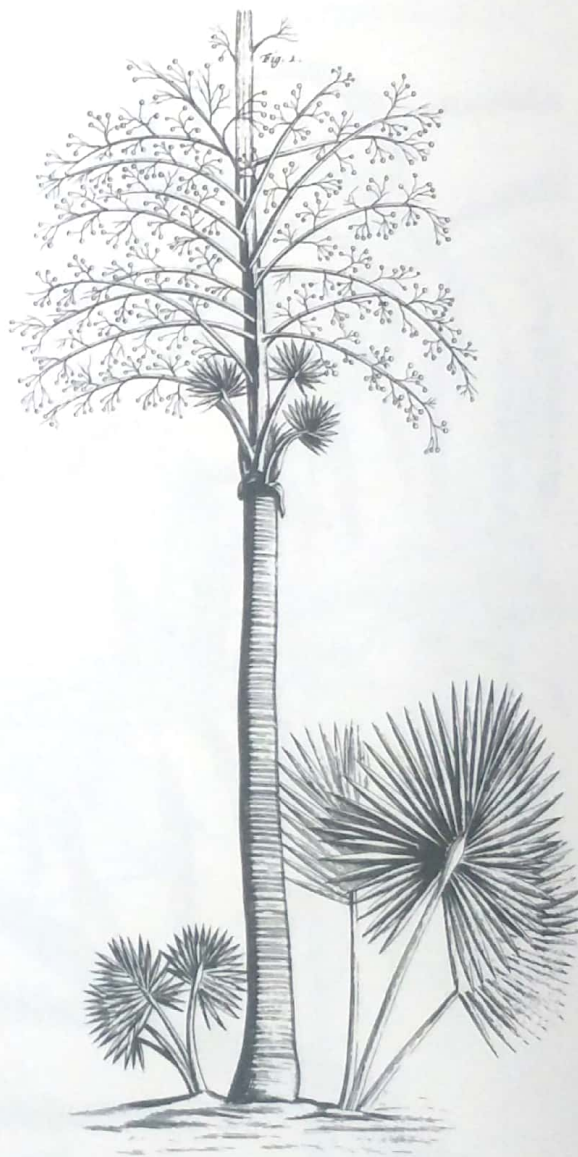
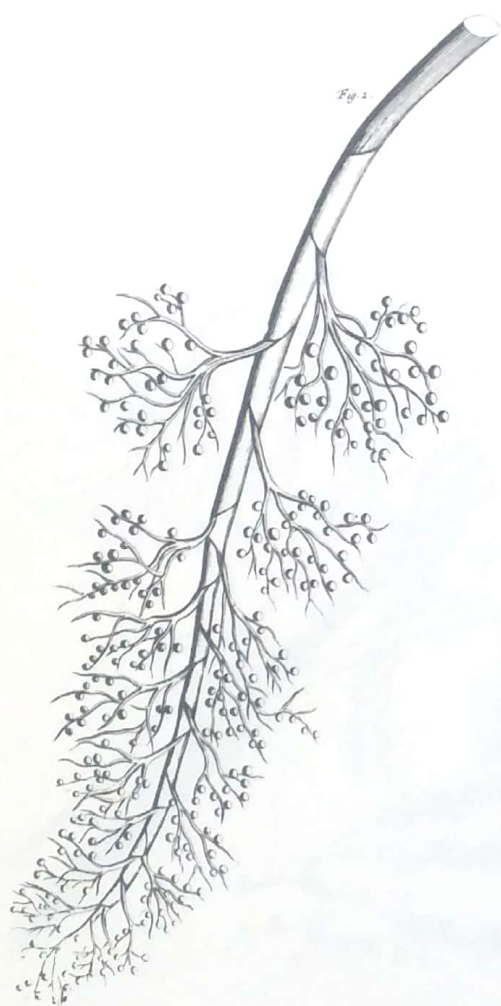


Fig. 11

spherical, and are clothed with a glabrous, green, fleshy, succulent, aqueous, slightly fat and slightly bitter rind; but the kernel, which is contained in this fruit (is) rather big, round, white and ivory coloured, and is surrounded by hard and stony flesh .

This tree grows in mountainous and stony places in Malabar, chiefly in the provinces of Mangatti, Tirtsjour, Katour and in many other places. Grows

also in the Island of Ceylon, in the Provinces of Menda Corla, Agras and near Bhoudhou-Malec or Adams Peak. Flowers indifferent in any time of the year, although these florets are observed often in August, which within fourteen months scarcely show mature fruits, before bearing which, this tree needs (takes) more than thirty years and after it has produced them once in

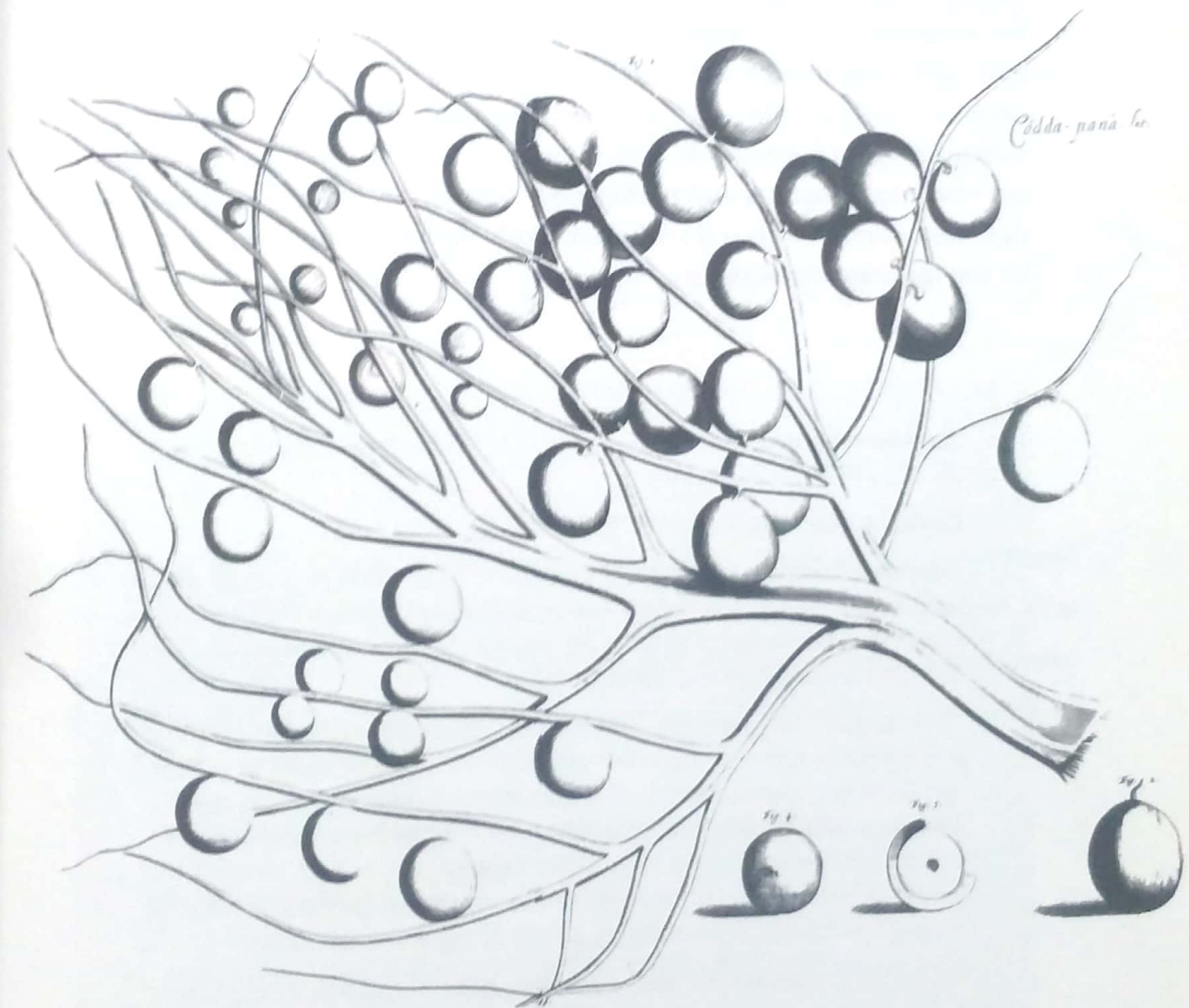


Fig. 12

the whole space of its life, it dies and from such fallen fruit a new tree sprouts out.

(Its Uses)

Moreover (for the rest) this tree has hardly any use in Medicine; nevertheless however the juice pressed out from fruit-bearing shoots is conducive in

inducing vomiting in persons rendered delirious and giddy by snake-bit. If the still tender sheath of this is cut, a liquid trickles down, which (when) condensed into a harder substance by sun's rays and given to a pregnant woman, kills the foetus and forcefully expels it. Moreover the leaves are used for the roofs of buildings; and indeed the Malabaris use them for (parchment) paper, so much so that their books are made not from papers, that is, from the inner bark of trees adhering to the very wood, but from the leaves of this tree, (are) quite durable and if well preserved, almost perennial (permanent); on which with an iron stick they imprint their letters, whence the upper cuticle being cut figures of the letters remain. From the fruits however globules are made for bracelets and necklace for housewives (*domicellis*), these being light and painted with red colour are easily mistaken for genuine red corals by the ignorant (unskilled).

Corypha umbraculifera L., Sp. Pl. 1187. 1753; Moore & Dransfield, Taxon 28: 60. 1979 [ARECACEAE].

Codda-pana Rheede, Hort. Malab. 3: 1-6, t. 1-12. 1682.

The name Kuda pana (Malayalam script on t. 1), or Coda pana is still used; kuda means umbrella and pana is a general term for palms, i.e., umbrella palm. Rheede's usage of pana on his plates is correct, not "panna" as in his text, panna being a general term for ferns.

In Malayalam language, the palm leaf used for writing is called Taaliyola; ola is the general term for palm leaf and taal(i) is a (single) sheet of a book; patram means page. Several such sheets of palm leaves are stitched together loosely, passing a string through a hole on the extreme left hand side of the sheets. On the upper and lower sides of such a bundle of sheets a thin veneer of wood each (of the same size as the sheets) may also be stitched, making the "book" [palm leaf manuscript] strong and quite durable.

This palm is sometimes called the talipot palm. According to the Oxford English Dictionary (OED), the word Talipot is derived from Sanskrit Talapathra. However, Talipot is Tali Pana itself {Pana from which tali (or taali ola)- writing sheets- are made}. The species is common in northern Malabar but is scattered in southern Malabar.

The localities named in the text, where this plant is mentioned to occur are Mangatti, the present day Alangadu (a region east of Kodungalloor), Tirtsjour which is now Trichur and Katour, now called Kattoor.



Niti-Panna



IS another species of *Codda-Panna*, which is called *Niti-Panna* by the Malabaris, *Niccol* and *Gin-Colla* by the Sinhalese, *Olas d'agoa* by the Portuguese; you may call it almost *aquatic palm*. Because it grows in water and abundantly in the rivers of Teckencour in Malabar.

Root blackish, round, fibrous, bitter, strong smelling.

Leaves, quite similar to the leaves of palms.

The image (illustration) of this tree is not found among others.

Nypa fruticans Wurm., Verh. Batav. Genootsch. Kunsten 1: 349. 1779. [ARECACEAE].

Niti-panna Rheede, Hort. Malab. 3: 7. 1682.

The name Niti panna [no illustration, no Malayalam script] is not found to be used by anyone in the region now.

The identification of this plant is not easy, as the description given is very brief; and no illustration is available. No plant of this name has been recorded in Malabar recently. However, it is identified here as *Nypa fruticans* (despite its supposed absence in Malabar today), because of the following:

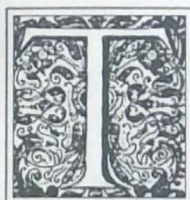
This plant is treated by Rheede along with Codda panna and is mentioned by him as another species of the former. Leaves quite similar to the leaves of palms. Therefore it is a true pana (palm). Niti (or Neeti) in Malayalam means (steeped) in water, such as Neet-eli for water rat, Neet-adaca for Adaca (*Areca* nut) steeped in water, Neeti-toddavadi for the aquatic *Neptunia prostrata*, etc. Therefore, this is basically an aquatic pana. In the description given in the text also it is mentioned that the plant grows in water, abundantly in the rivers of Teckencour. The Portuguese name given is *Olas d'agoa*, meaning Olas of water (palm). Ola is the generic name for the palm leaves used for thatching houses by the natives. The *Nypa* leaves are used for thatching even today, by the natives of Sri Lanka and of the Sunderbans of Bengal, where *Nypa* grows in abundance. Rheede gives the Sinhalese name as *Gin Colla*. The Sinhalese still call *Nypa* as *Gin Pol*.

Earlier, Niti panna was identified as *Blechnum orientale*, a fern. While *Nypa fruticans* is not located in Malabar recently, *B. orientale* occurs here. However, *B. orientale* is usually seen at higher elevations and not near the river banks in the coastal regions. Fern leaves have absolutely no comparison to *Olas* and are never used, and can not be used, for thatching houses. It is likely that *Nypa fruticans* disappeared from Malabar since Rheede's time, due to various reasons (details discussed elsewhere).

The locality Teckencour mentioned by Rheede is known by the same name (Thekkenkoor) today also. This is a region south of Kottayam.

Toda - Panna

FIG. 13, 14, 15, 16, 17, 18, 19, 20, 21.



TODDA-PANNA or *Mouta-panna* for Malabaris, *Andexa Motha-panna* for Brahmins, *Soteetsou*, for Japanese, *Armatoria das Igrezias* or *Palma Igresia* for the Portuguese, grows into a tree of the just (right) size, about 40 feet tall, with thick stem like *Tenga-panna*, which is on all sides surrounded by circular, prominent (bulging out) rings and is covered with a thick, ash-grey, scaly bark, inside purple, the wood is white, soft, the matrix of which is yellowish.

But when this tree first breaks forth from the earth, does not have any foundation of the stem in the open, but a cone covered with foliaceous covering, Tab.1. Fig.3, which when opens itself on all sides, and new shoots of leaves proceed (come out) from it in three successive orders (lines) (in the lower 16, in the middle 9, in the upper 8), gradually those foliaceous covering are lifted up, that the apex of the cone which was almost flat in the beginning, slowly becomes more acute and finally acquires a round tip, until those covering leaves are forced to give transit to the foliaceous shoots Tab.1. Fig.2 which, the more they grow older the more they unfold, and push to the sides those coverings of the leaves, and then the foliaceous shoots requiring more

space bend back (droop) and bend towards the sides, until at last they surround the very periphery of the stem, then their first coverings becoming weak and decaying, which later fall down and leaving their marks, surround it with circular and pronounced rings. After that a new cone, quite similar to the former one arises among the very foliages (leaves) of the tree, from which



Fig. 13

come out again new branches of winged leaves; which production of leaves is so often renewed till the tree is fit to bear fruits, in which time the cone increases to the size of a human head and opening itself on all sides shows many curved branch-lets provided with fruits Tab.4, 6, 7 and from its cavity there emerges a new leaf bearing cone Tab.5. Fig.1. 2., which when grows

again, is opened and sends out new branches of leaves in all directions, behold a fructifying cone is present inside; which changes of the leaf-bearing and fruit-bearing cones are so often till the tree lives. It also happens sometimes that from one trunk four or five crowns (apices) are born Tab.8. Fig.2. namely, when the stem having attained the height of about 20 feet, the fruit-bearing

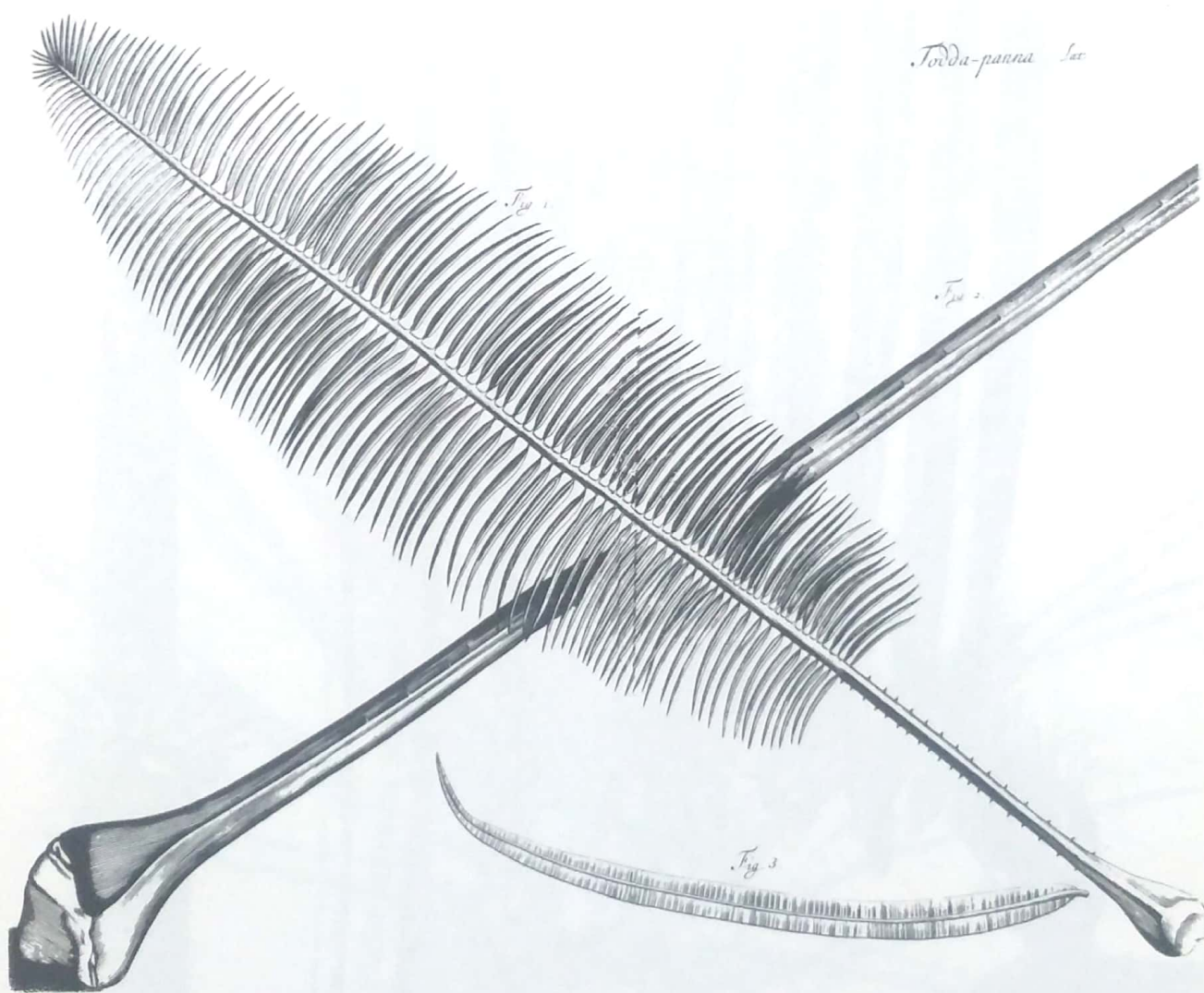


Fig. 14

cone encloses not only one but many new cones, from which as many crowns (apices) of the tree arise; but this is rarely observed and mostly simple apex is present for each tree, as is seen in Tab.8. Fig.1. but however, in order to understand duly the various parts of this tree and their many changes it is necessary to go through the attached Tables, where

Tab.1. Fig.1. the tree, as it begins to establish its trunk out side the soil, for as often as the branches of the leaves fall down with the decaying foliaceous covering of the cone (which happens once a year or one and half year) so often the stem is surrounded by circular and pronounced ring, and it increases

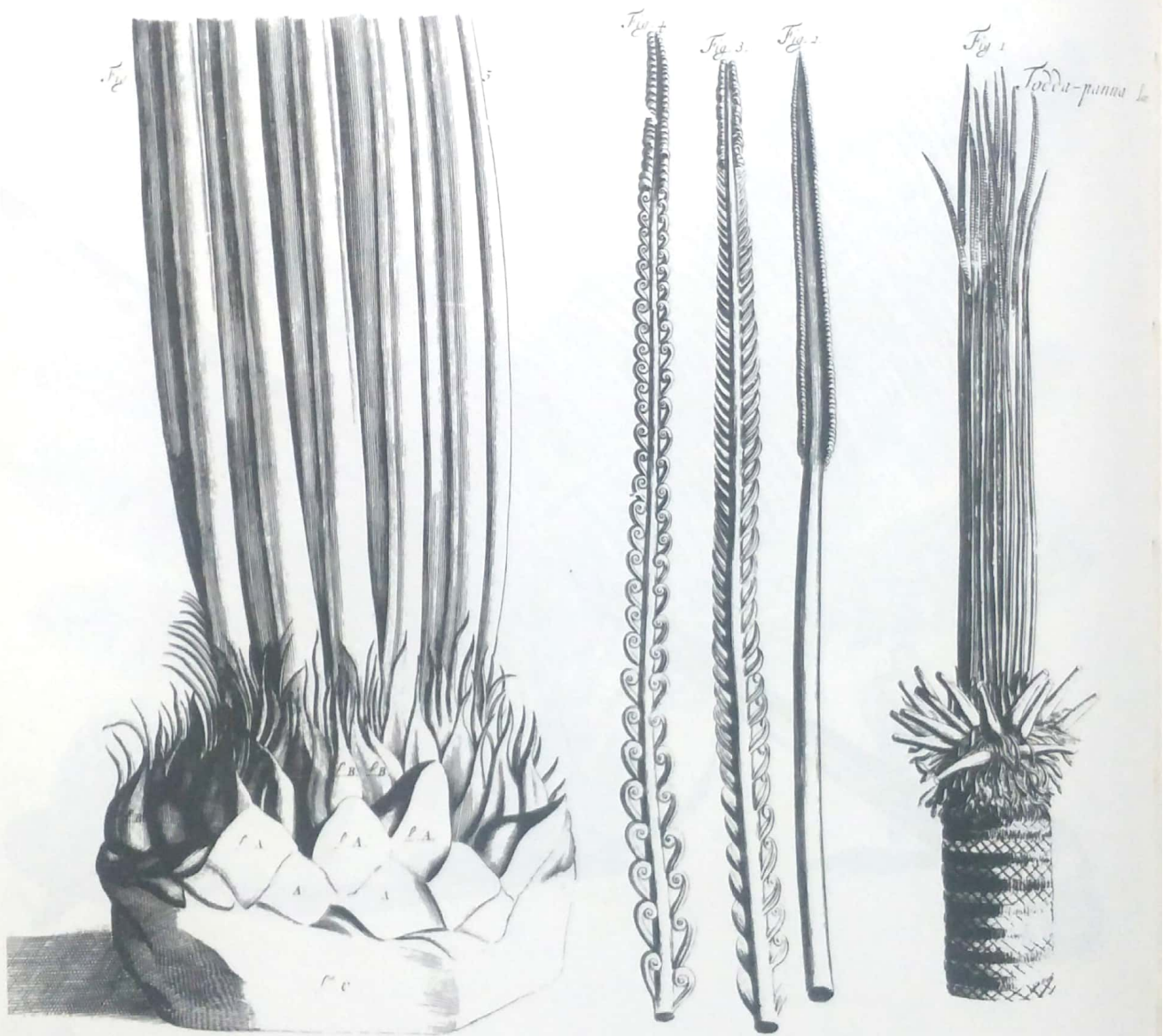


Fig. 15

(grows). Fig.3 the same cone, which Fig.1. letter a remaining in the middle of winged leaves, sends out branches in all directions, consists of many oblong-round, thick, leathery leaves covered with a thick down; that down being

rubbed away, dark green, Fig.2. new shoots of leaves, as they come out first from the open cone, are seen (shown).

Tab.2. Fig.1. A real figure of the foliaceous branch, eight feet in length not rarely exceeding. Fig.2. stem of a foliaceous branch of saturated green colour,

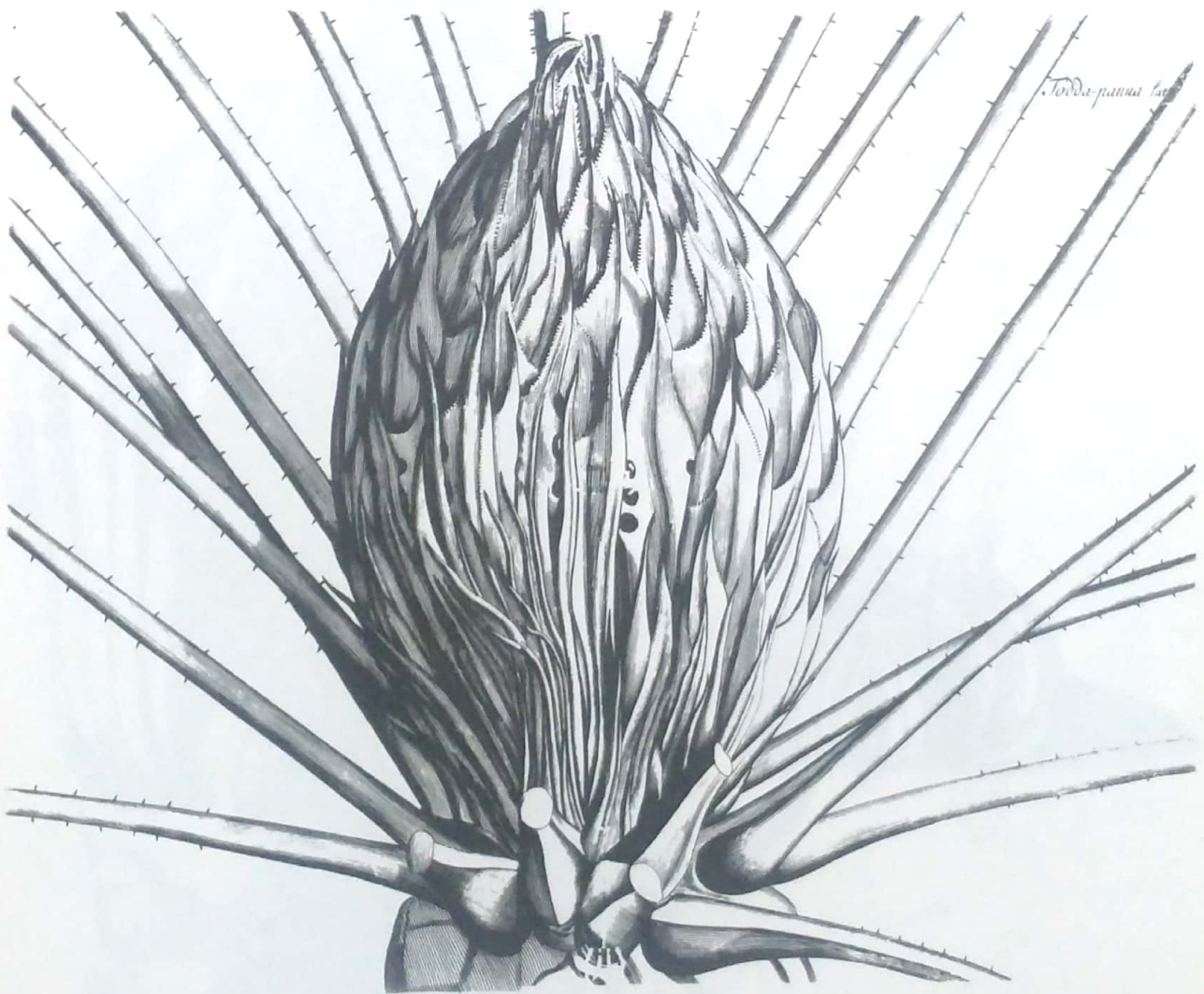


Fig. 16

and in the upper fringe, armed with very small spines in the natural size. Fig.3. a single, leaf turning black-green shining on the upper side, on the lower never, are sketched with lively image.

Tab.3. Fig.1. It is shown how new branches of winged leaves arise from the apex of the tree, the foliaceous coverings of the cone having opened on all side. Fig.2. 3. 4. The same new shoots of leaves are present, clothed with light red and thick down, however that downy coating when rubbed off with hand (are) dark green, the lateral and tender leaves of which, up to now

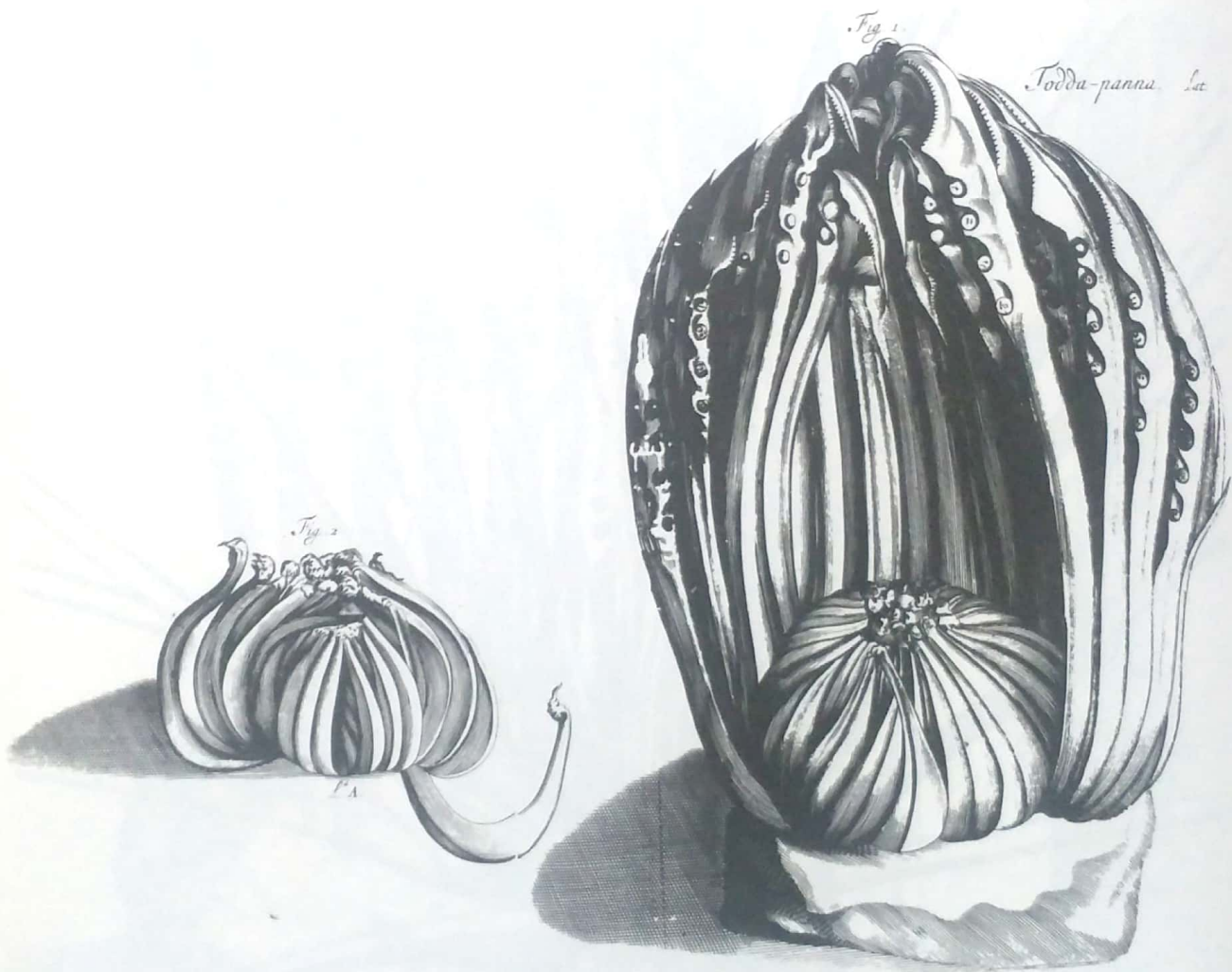


Fig. 17

united together, remain curved in and thick. Fig. 5, the things that are shown in Fig.1. are more exactly sketched, namely how shoots of the leaves come out from the tip of the tree, letter C, the foliaceous covering of the cone, letter B. B. B. having opened on all sides.

Tab.4. The fruit-bearing cone, to which numerous fruits are attached, is represented in its natural size, where its parts are bolted with individual united both.



Toddia-panna Lar

Fig. 18

Tab.5. Fig.1. The internal shape of the same fruit-bearing cone is shown, by which, moreover the more meagre cone is understood to be formed of foliaceous coverings (conceptacles of new branch-lets) as is shown specially in Fig.2.

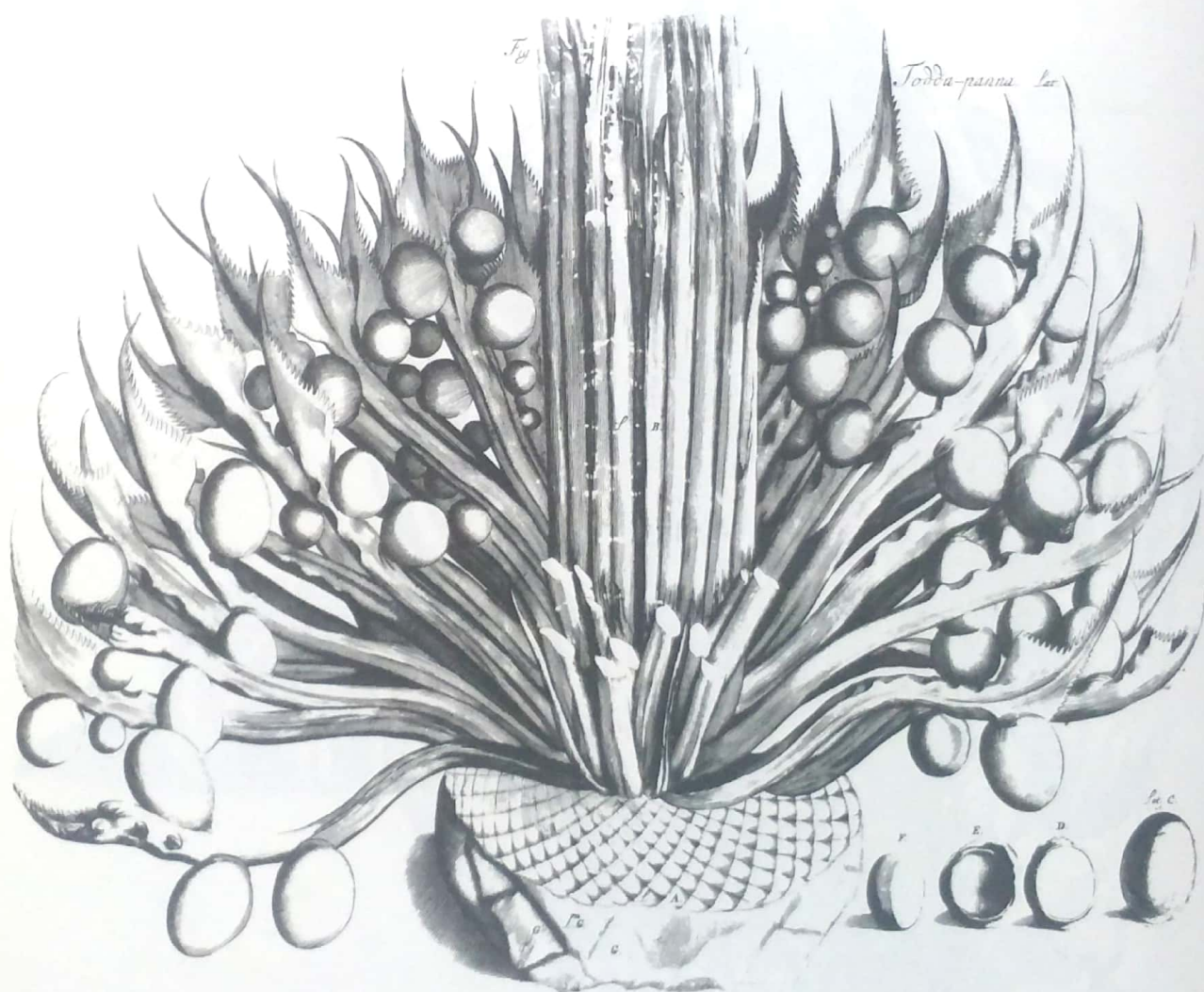


Fig. 19

Tab.6. Greater growth of the above mentioned cone takes place, when tongue shaped involucre, real loculi of the fruits, are more extended.

Tab.7. Fig.1. The same mature fruits with its expanded ligaments and new shoots of leaves letter B, so also the remains of cut off foliaceous covering letter.A. are contained. Fruit with its rind (wall) lett.C, the wall itself lett.D



Fig. 20

and E, the transversely dissected kernel let.F are represented. And these fruits are oblong-round, not dissimilar to larger prunes, which a glabrous, green, and shining rind covers, (which) is light yellow and turning red, of pleasing and sweet taste, adjacent to which the red and woody rind contains the white kernel, not dissimilar to chestnut in taste.

Tab.8. The whole tree is given, which Fig.1. is seen with a simple apex, fig.2. is seen provided with apices. Fig.3. 4. 5. 6 the many sided changes of this tree in producing leaves and fruits can be observed.

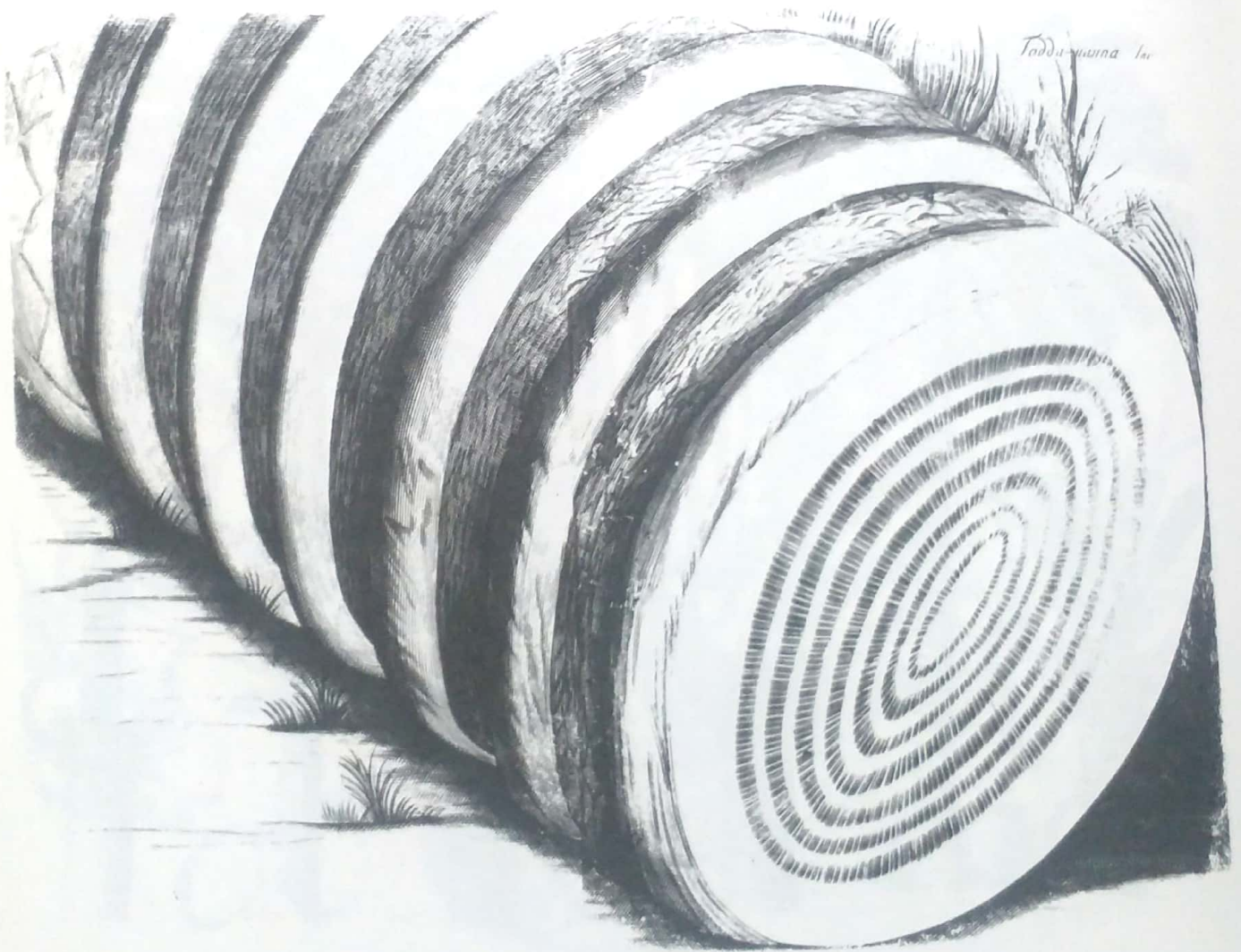


Fig. 21

Tab.9. A piece of the mature stem with its circular swollen markings of foliaceous covering and fruit-bearing branches, is placed before the eyes in a lively (life-like) figure.

This stem however one and a half feet in thickness, not rarely exceeding thirty feet in height, sometimes splits itself into three four or five apices, (as said above and Tab.8, and depicted in fig.2.) Otherwise standing erect with a simple apex. (Tab.8.fig.1.) Each of those apices, in the space of almost one foot surround the rest of the trunk with circular, protruding rings, which two or three digits broad are mutually distant from bottom to the top by distinct intervals of three or four digits. When this stem is transversely cut at these, produces transparent drops, which thicken into shining crystal by sun's rays.

This tree grows in mountainous and rocky places and in sandy soil in Tirtsjour and Couronuada Provinces of Malabar, also in Roukiou and Lequas islands of Japan: now it is seen in the pleasure garden house at *Honselaardigk*, of His Highness King of Auria not far from Haga, brought these from west India. In any time of the year it indifferently endures its changes and produces leaf bearing and fruit bearing cones, and it bears fruits from about the fifth or sixth year of its sowing to the hundredth year or above.

Moreover so much is the fertility of this tree that a cut branch of the same put into the soil even less deeply germinates (grows) into a new tree; rather it is said to be discovered by experiment that a thrown out (rejected) piece of the trunk sends out roots and is reborn again into a tree; and what is still more astonishing is that if a dried tree is preserved away from the earth (soil) for either one year or for many years, and later entrusted to the soil, it becomes green again, for the truth of which the Japanese vouch, who because of its astonishing sympathy for iron call this tree *Sotectsou* that is, becoming green from iron, this indeed when plucked out from the soil with its roots and dried in a sunny place, relives, when dry sand mixed with 'scoriis' of iron is spread underneath. Also it is like a wonder, if what they say is true that branches severed from the trunk are again fixed to it by means of iron nails, are restored to the old greenness. Moreover when this tree is weak, and sends almost dead branches, they thrust iron nails into the trunk and then they seem to be restored to greenness (brought back to greenness).

(Its Uses)

Malabar is however eat these fruits with "Thomas' sugar", otherwise it leaves the belly compressed. The juice pressed out from tender leaves (and causes) checks pains of intestines, relieves the burning of stomach and heals bloody vomiting (vomiting blood) The fruit-bearing cone crushed and adapted to

the form of pulp and applied to the loins, removes nephritic pain and mitigates involuntary flow (emission) of semen in Gonorrhoea. And however a medicine is prepared from very tender fruits boiled in water, which by arousing vomiting purges the stomach. The gum of the tree itself taken, resists any poison, and mixed with fowl dung and applied outside wonderfully cures sting of vipers. The Japanese make flour from the trunk of the tree and from the flour they make bread, called *sagai* by them. Then those Malabaris, who profess to be converted by St. Thomas, and therefore are commonly called *Thomista*, decorate their temples on feast days with leaves of this sort of branches, because they do not wither easily and because of this reason this tree is called by the Portuguese *palma d'igresia* or *armatoria das igrejas*.

Cycas circinalis L., Sp. Pl. 1188. 1753 [CYCADACEAE].

Todda-panna Rheede, Hort. Malab. 3: 9-14, t. 13-21. 1682.

The name Todda pana (not panna = fern) is seldom used, todda means thigh and pana means palm. Malayalam script on t. 13 is "Rimbanam" which is obviously a mistake. The reference may be to the flour from the trunk of the tree, which is used in making a sort of bread by the natives also, as by the Japanese. This inner part of the stem is called Toda-kkambu (toda meaning thigh and kambu meaning inner core or marrow). Todda pana may mean a Pana with a fleshy [edible] core. The species is now commonly called *Eenthu* the etymology of which name is not clear. It is common in uplands of Malabar.

The locality where the plant is mentioned to occur is Tirtsjour, the place now known as Trichur.



Katou-indel

FIG. 22, 23, 34, 25.



HIS tree is called *Katou-indel* by Malabaris, *Kasouri* by Brahmins, *Tamara do Mato* by the Portuguese, *wilde Dadelboom* by the Belgians: Is of medium size, about fourteen feet tall, without any bark, but only covered with a rind, very closely (tightly) united to very hard, white wood.

Foliaceous branches come out from the stem in decussate order, the new ones arising only from the tip, the older ones, which are the lower ones, meanwhile falling down: these branches however are green, glabrous, and shining, inside flat, outside convex and indeed beset with oblong and rigid spines below.

Root whitish, fibrous, of woody smell, of greasy taste.

The leaves adhere to branch-lets by means of short petioles on opposite side, are numerous, oblong round, acuminate, dense, glabrous shining with common green-ness, closed towards the interior at the base and also marked in length by very fine nerve-lets.

Flowers, as also seen in *Tenga*, are first hidden in rigid, green and leathery cases, from which they later open (emerge), small, very many adhering to one pedicel, consisting of three round and green-white leaflets and provided with three white downy stamens; no smell, taste sour.

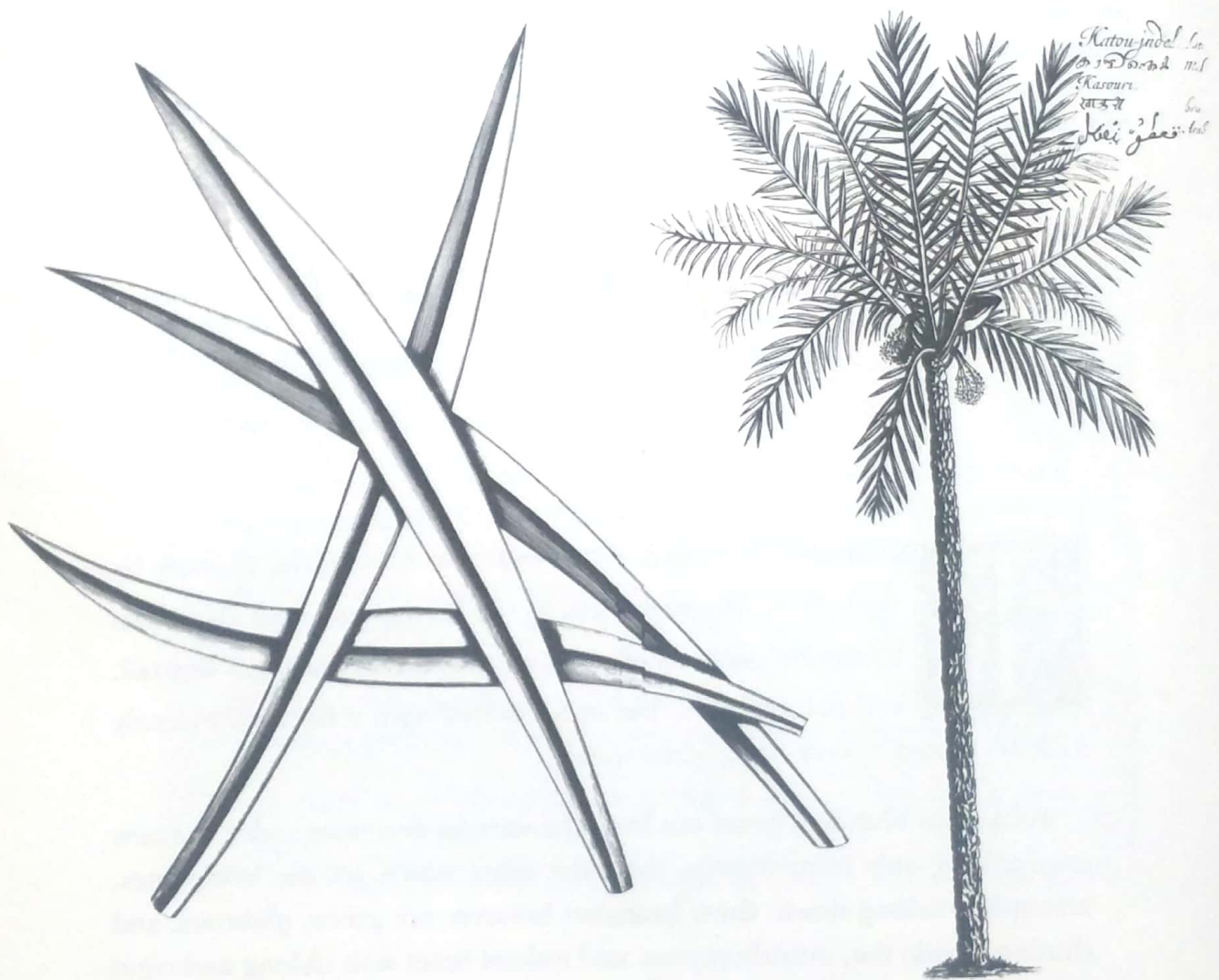


Fig. 22

Fruits are oblong-round, very small, like wild small prunes, provided with a hard and woody point at the tip, at the base however clasped by a green calyx cut into three flaps, first green then red, olden ones really dark red, blackish and shining, with the fruit easily covered with a slender rind, filled with white, sweet floury flesh, inside which is contained an oblong stone, red,

grooved in length with a deep furrow, containing white and bitter kernel. These fruits indeed arise on green, glabrous, and shining branches, two cubits long, two digits broad, flat rigid and woody and not covered (clothed) with bark, the tender ones of which when cut, a transparent sour liquid flows out.



Fig. 23

This tree grows in mountainous and rocky places and in sandy soil everywhere in Malabar, chiefly around Warapouli and Travancore: flowers and bears fruits at any time of the year, and is not rarely fruitful (fertile) till the sixtieth year.

(Its Uses)

Fruits indeed of this tree, are eaten with betel leaf and live lime, by the poor just like the fruits of *Fausel* or *Areecka*, and also are greedily sought after by elephants because of "palmito" that is the very sweet marrow enclosed in the

Katou-jndel. la

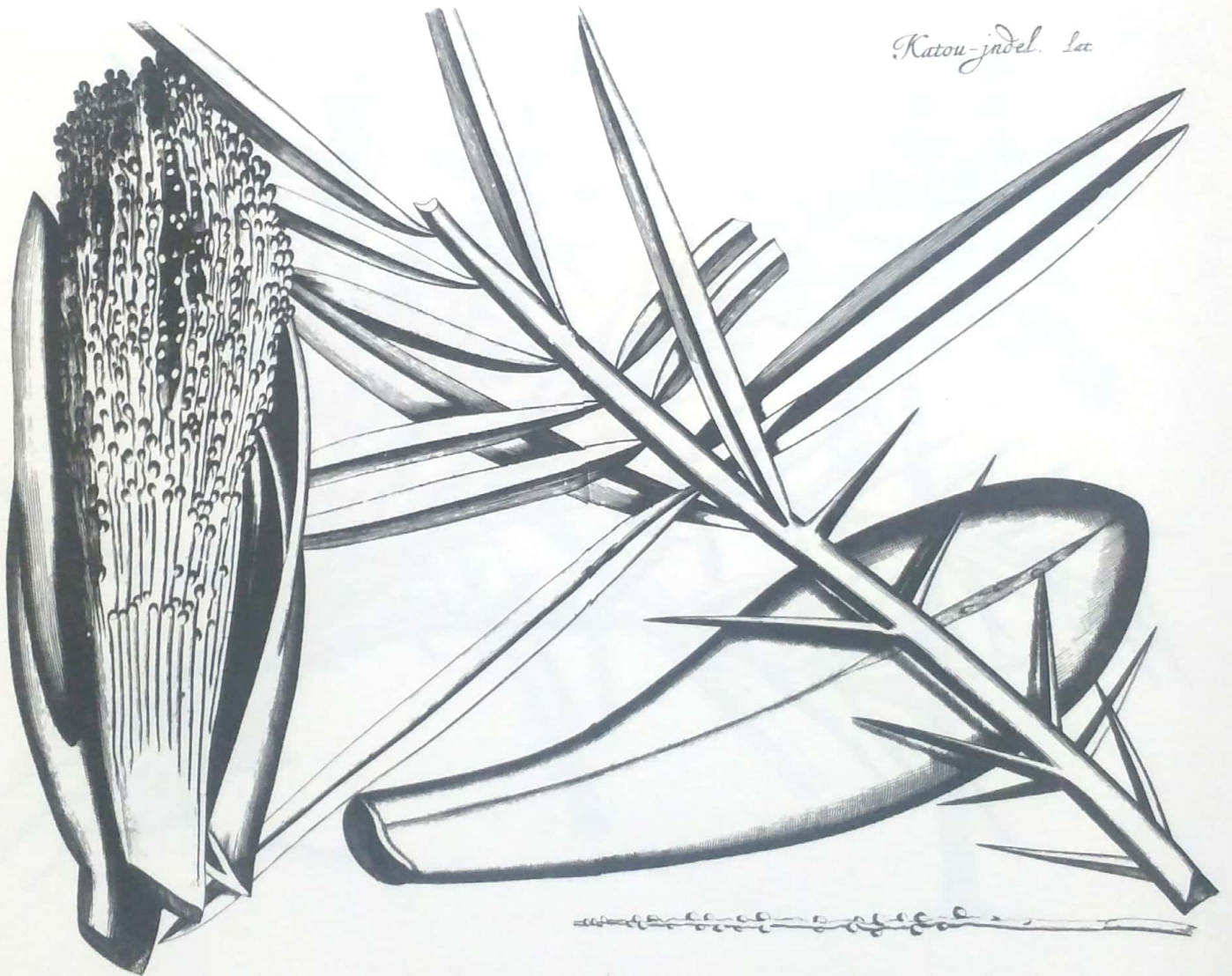
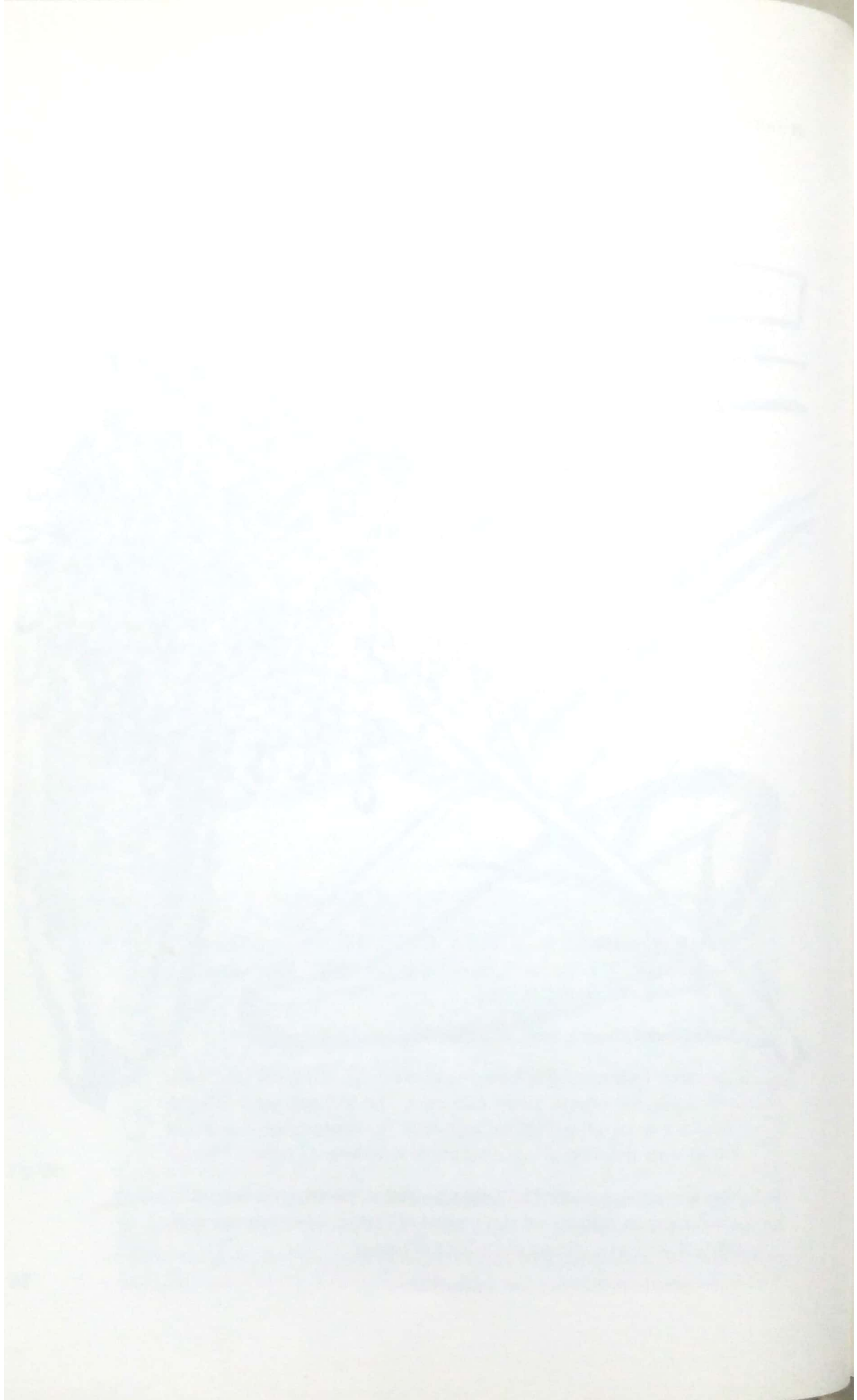


Fig. 24

branch-lets to which the fruits adhere. Otherwise the leaves, fruits and other part of the tree are very contracting and stop powerfully any kind of running (motion). Moreover the natives make (weave together) from the leaves felts or caps.



—♦—

Tsjaka - maram

or

Jaca, Perhaps Jacca

FIG. 26, 27, 28.



TSJAKA-MARAM and *Pilau* to Malabaris, *Ponossou* for Brahmins, *Jaqueira* for Portuguese, *Soortsacken* for Belgians, is a tall tree with the stem from white to yellow coloured, thick, very hard, endowed with many and dark-green, jointed branches, which (are) covered with a thick, ash-grey, red and inside saffron bark, when are cut drips a milky juice.

Similarly the root thick, covered with a thick, aqueous, red bark, inside indeed covered with a golden yellow bark towards the marrow, and indeed widely spread with its fibres in the soil; bitter taste, no smell.

The leaves oblong-round, thick, glabrous, adhere to branch-lets by means of short and round petioles, and exceed a span in length, on the upper side shine with black-green colour, on the lower with light green colour; mid rib thick and protruding high on the lower side, from which rough, transverse slightly uneven nervelets run out towards the upper part, which are curved into themselves mutually in an arched manner, and when crushed pour out a milky, insipid and odourless juice.

Fruits, called *Jaca*, adhere to thicker branches and indeed to the very stem and not seldom with the basal stem, to which they adhere, buried in the soil, they do not however adhere to branch-lets and young shoots (they do not arise on small branches and tender shoots) but on thicker ones, almost

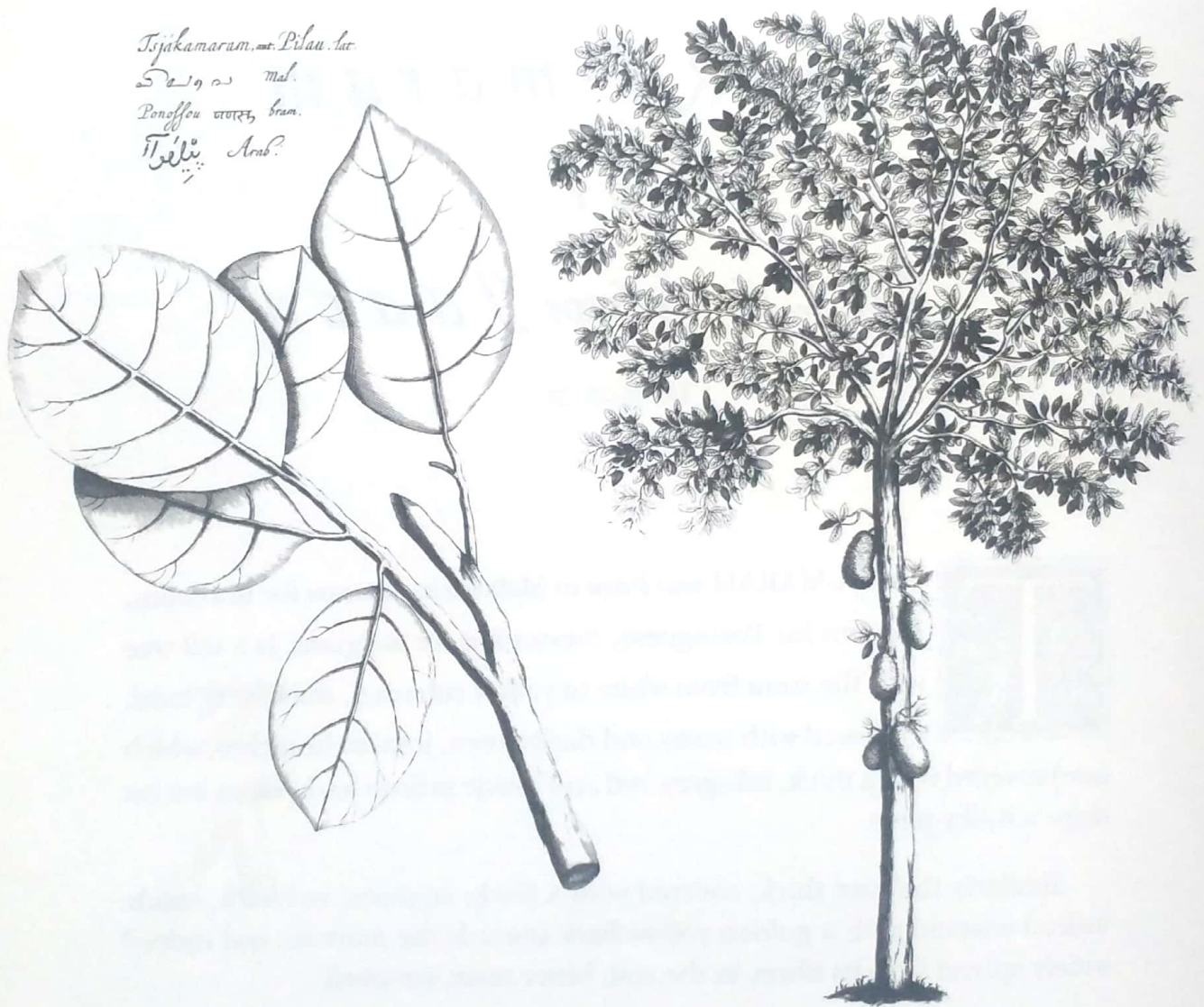


Fig. 26

equaling the length of one cubit and with nodes. The fruits themselves are oblong-round, or rather big cones, exceeding one span in width, two spans in length, not rarely 25 pounds in weight: for, the bark is green and made rough with bubbles by thick pointed scales like adamantine buds, and inside white and milky.

Moreover inside these large fruits, are enclosed innumerable smaller fruits within the common rind (wall), and these are oblong, filled with thick yellow flesh of sweet and very delectable smell and taste; each of which contains one chest nut which placed inside the flesh just as a sac, and are



Fig. 27

covered with a white, slender skin or an inner tunic. These however nuts oblong and enclosed in little sacs, cover with a thin, cartilaginous white and transparent rind, to which another red one is subjoined, surrounding the dense, white and milky kernel, of the same taste as our chest nut. Further in the middle of this huge cone is present a pillar-like, thick, white and milky

style, to which are inserted as if to a common base, smaller fruits placed around adhering to the rind itself diametrically by one and the other end (extremity) among which are observed numerous leathery, white light yellow bandages (ligaments) which are attached (fixed) to the middle column and

Tijakamaram, = Pilau.
 മല, = mal.
Peneffon പനേഴ്സ് *gram*
Thely Arab.

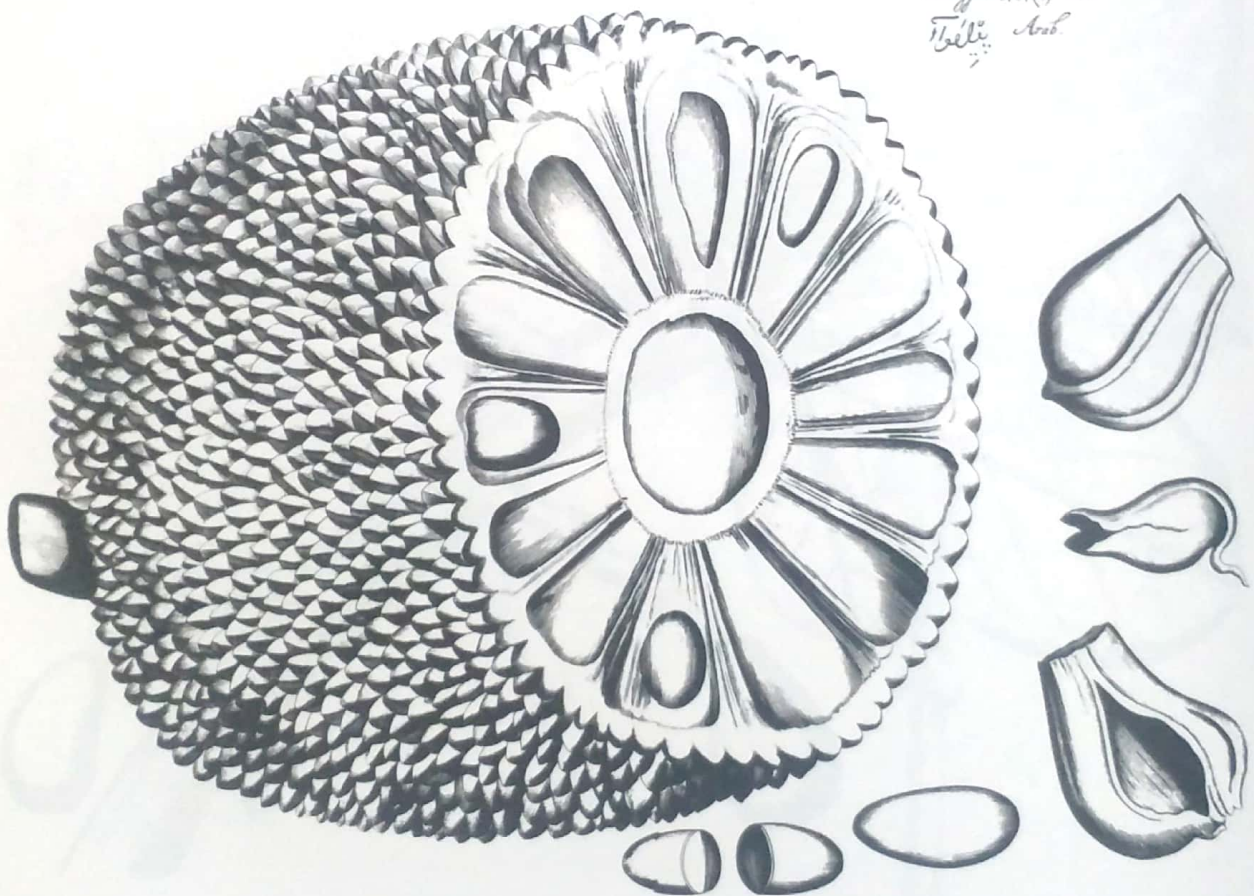


Fig. 28

to the wall, from which (the whole fruit being cut) so also from the column and the (fruit) wall, a sticky, milky juice, like turpentine exudes, with which birds are caught.

This tree grows everywhere in Malabar, and all over India: every year it produces mature fruits namely in the month of December, and is fertile (fruit bearing) from about the sixth year of planting up to the 70th and above; it is propagated however in this way: the whole fruit is committed to the soil (buried) and all the shoots, which each smaller fruit included (enclosed) in this bigger cone, bring forth, are collected in baskets by the natives, so that they may grow into one stem. This peculiarity is here observed: the trees which grow in rocky soil are more thick and less tall, and those (which grow in sandy soil) are more tall, but less thick; and when the root of the tree sets itself on water (touches water) produces no fruits.

Moreover more than thirty species of this tree are enumerated, separated by reason of fruits, all of which finally are reduced to two genera; of which the fruits of one (genus) which are swollen (turgid) with succulent flesh and is very delightful and honey taste, are called *varaka*, and (the fruits of the other) which are filled with more soft, flabby and less tasty flesh, are called *Tsjaka-papa*.

(Its Uses)

Further, these mature fruits stripped of their rind are eaten as a delicacy, and eaten in plenty are digested with difficulty. Tender fruits are sought out by the natives for edibles *Caril* (curry) or are pickled in brine into *Atsjar*, or also are cooked cut into pieces or fried in the oil of palm (coconut oil) the roasted nuts are of sweet taste and they are used in the dessert for the delicacies of the second table: truly eaten avidly (greedily) affect throat and chest with burning and then with hoarseness: the natives use these also in *caril* (curry) and they make flour from these dried in the sun and from it they make cakes called *Apas*. And indeed the rind which closely surrounds the nut gives them the substitute for *Areca* or *Kaunga* in eating Betel (is used instead of). Further from the ashes of tender fruits a '*lixivium*' is prepared, with which the washer women wash the linen. The wood of the tree is used for artisan's work.

Moreover a decoction is prepared from the roots which stops diarrhoea. Plasma is prepared from the powder of the leaves mixed with the dung of ox which applied warm to the cheeks heals cynical spasm. The milky juice of the fruit crushed with the powder of aromatic weed and smeared in the eyes is conducive to night blindness. The wood crushed with vinegar is useful for

the relaxation of uvula and for the inflammation of throat and tonsils. The root crushed with the pulp of the fruit and adopted to the form of plaster adding *sugar*, and placed over the painful place helps in malignant and worm-ridden herpes by killing the worms.

Artocarpus heterophyllus Lam., Encycl. 3: 210. 1789; Corner in Dassan., Rev. Handb. Fl. Ceylon 3: 217. 1981; Manilal & Sivar., Fl. Calicut 278. 1982; Manilal, Fl. Silent Valley 258. 1988; Sasidh. & Sivar., Fl. Thrissur 426. 1996; Sivar. & Philip, Fl. Nilambur 659. 1997 [MORACEAE].

Tsjaka-maram Rheede, Hort. Malab. 3: 17-20, t. 26-28. 1682.

The name Pilavu which appears in Malayalam script on t. 26, is still used. Chakkamaram is not used; chakka is the name for aggregate fruits and maram merely means tree; Chakkamaram means the tree that produces chakka. The tree itself is actually called Pilavu. Today, two kinds (varieties) of Pilavu (now shortened to Plavu) are recognized- Koozha and Varikka. The former is smaller and has a soft aril, the name *Tsjaka-papa* is not used now if or this variety; the latter is larger and has a firm aril that is sweet as honey. In Malabar, the species occurs both in the wild (giant trees in deep forests with small fruits) and in cultivation. It is interesting to note that the seeds of Varikka variety may give rise to Koozha tree and *vice versa*, which can be distinguished only when they produce fruits and are tasted [eaten].



A t a m a r a m

FIG. 29.



TAMARAM, because of the similarity which its fruit has with *Jaka*, it is called *Manil-jaka*; Brahmins *Atoa*, *Manil-panosou* and *Jona jaka*; Portuguese *Atas* and *Atocira*.

The tree is of medium size, rising up to the height of about twenty feet, is covered with a 'pithy' bark, inside red. Wood white, very hard, the matrix of which is more green, odourless, slightly bitter and slightly sour in taste, spreads few branch-lets the bark of which and so also of the branch-lets and of the twigs is green, speckled with ashen spots.

The yellowish root is covered with red bark, is strong smelling, but of greasy taste, and split into very many fibres, which however do not spread wide in the soil;

The leaves oblong-round and glabrous, are not dissimilar to the leaves of *Malake-ts jambou* described in the first part, not however matching (corresponding) to itself from the region; green and shining on the upper part, light green however on the lower part, greasy when rubbed in hand, odourless: a conspicuous nerve runs from the pedicel to the apex of the leaf,

from which arise many nerves intricately folded, which at last end reunited in the tip.

Each flower adheres to its pedicel, provided with smaller leaves which later fall away; are formed of three thick, three cornered (triangular) leathery leaves, inside white, outside light green indeed, emitting smell equaling burnt leather, if burnt.



Fig. 29

Moreover from the stamen of the flower emerges the fruit, or rather the cone, which when mature has the size of an ordinary lemon, outside green and grooved, inside in fact white and also filled with succulent marrow of pleasing taste and sweet smell.

In these however fruits are placed hard, oblong-round, glabrous, shining and also flat seeds, enclosed in bags; and they are seen artificially covered with succulent and white pulp of the fruit. And indeed the mature fruits themselves are plucked which ripen spontaneously by themselves like 'mespilorum', and eaten.

This tree is seen nowhere except when planted in gardens by means of seedling or seeds. It likes a hot and humid place, and also ploughed with horse-dung and it enjoys warm sun's rays. And although India gives these fruits abundantly everywhere, but however the Malabar province is not the father land of this tree; but was brought to India from the Islands of Philippines and Manilhas, first by the Chinese and the Arabs and then by the Portuguese.

Further, after the first two or three years this tree is at last fruit bearing, and that twice a year; namely flowers and bears fruit in April and May, then in the months of August and September: for the flowers which come out in the month of April, bring forth mature fruits somewhere in August. And although there are almost continuous showers from April to October, nevertheless however August is mostly free from them, wherefore it is numbered by Indians among the summer months, and for the same reason it is called *Veranico* by the Portuguese. The flowers which arise in the month of September, display perfect cones in February. Moreover this tree survives for a long time, not rarely bears fruits up to the fiftieth year and above, a somewhat convenient (suitable) cultivation is employed.

(Its Uses)

The leaves of this tree minutely crushed and adapted into the form of plasma with the addition of salt, and placed over malignant tumor, powerfully (easily) matures them. Immature fruits boiled in common water with a little of *Ginger* heals giddiness, and sufficiently made mild and eaten as delicacies refresh greatly; renders the stomach lax if the water is drunk abundantly.

Annona squamosa L., Sp. Pl. 537. 1753; Manilal & Sivar., Fl. Calicut 27. 1982; Sasidh. & Sivar., Fl. Thrissur 34. 1996; Sivar. & Philip, Fl. Nilambur 45. 1997 [ANNONACEAE].

Atamaram Rheede, Hort. Malab. 3: 21-22, t. 29. 1682.

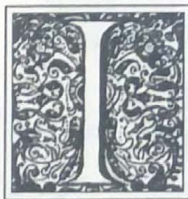
The name Aathamaram (Malayalam script on t. 29) is still used and its fruit is called Aathachakka; Aatha has no other sense, maram means tree and chakka means aggregate fruit. In the market, the fruit is called Seethachakka, Seetha meaning furrow. (Seetha is also the name of the consort of Lord Rama). The species is cultivated, mostly in drier areas.

Anona-maram

or

Anon Oviedi

FIG. 30, 31



IS another species of *Atamaram*, which is called *Parangi-jaka* by the Malabaris, *Tsjina-panosou*, by the Brahmins, *Anona* by the Portuguese. And it is not dissimilar to the preceding one nor does it yield (less) in height.

The leaves however are more narrow and more acuminate, and (are) supplied with many nerves and also shining with stronger greenness.

The flowers do not differ from the first.

The fruits in fact, although not composed of compact head of woody scales, but is every where covered with a glabrous, hyacinthine, slender and shining rind, nor does it yield in size (nor is less in size); as regards other things however agree with them completely.

This tree also arises no where except when planted in gardens as seedlings or seeds, nor does the Province of Malabar constitute its native soil, but was brought to it previously from distant regions, wherefore, not wrongly it is called by Malabaris *Parangi-jaca*, that is, foreign jaca.

(Its Uses)

Has the same powers as the first.

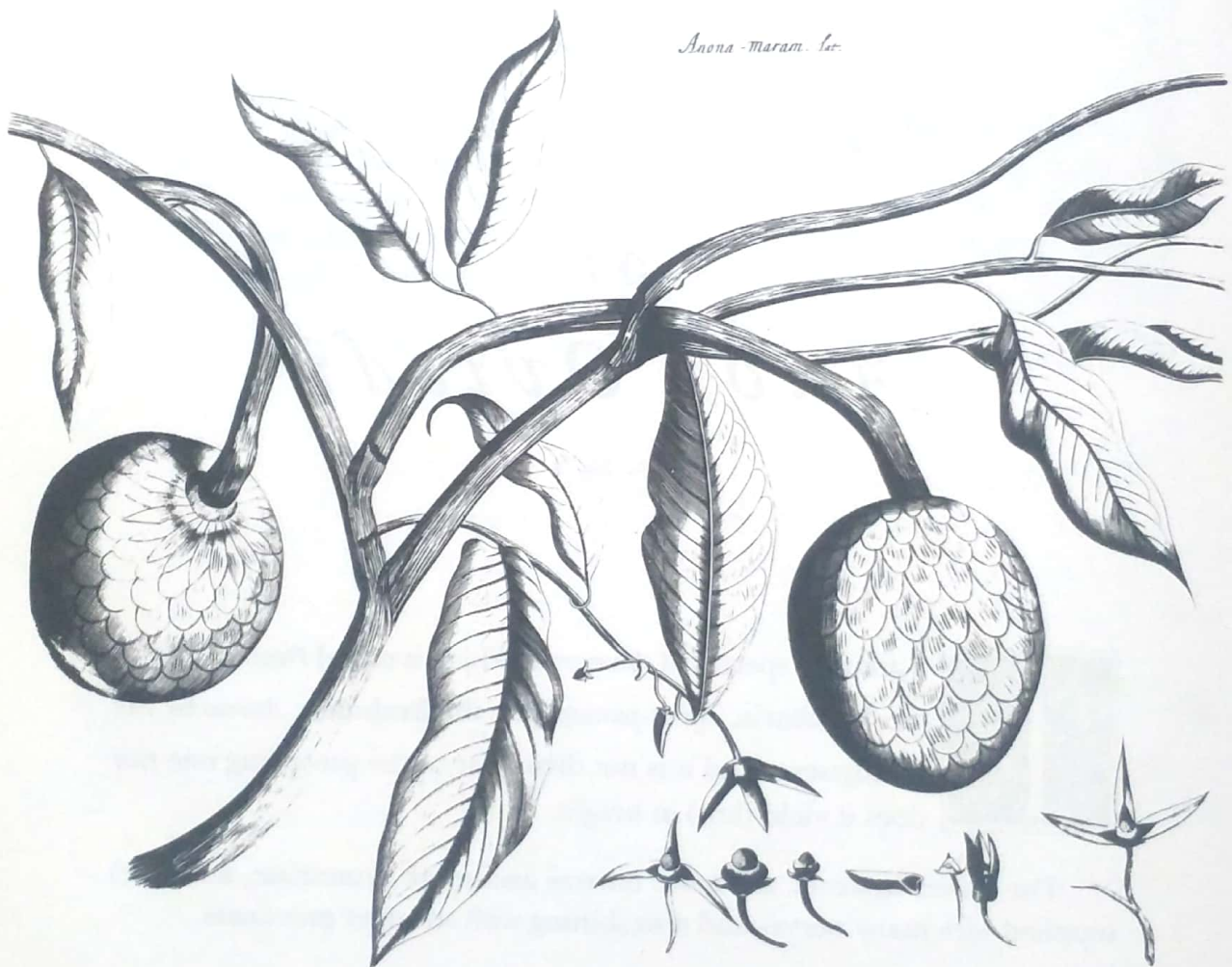
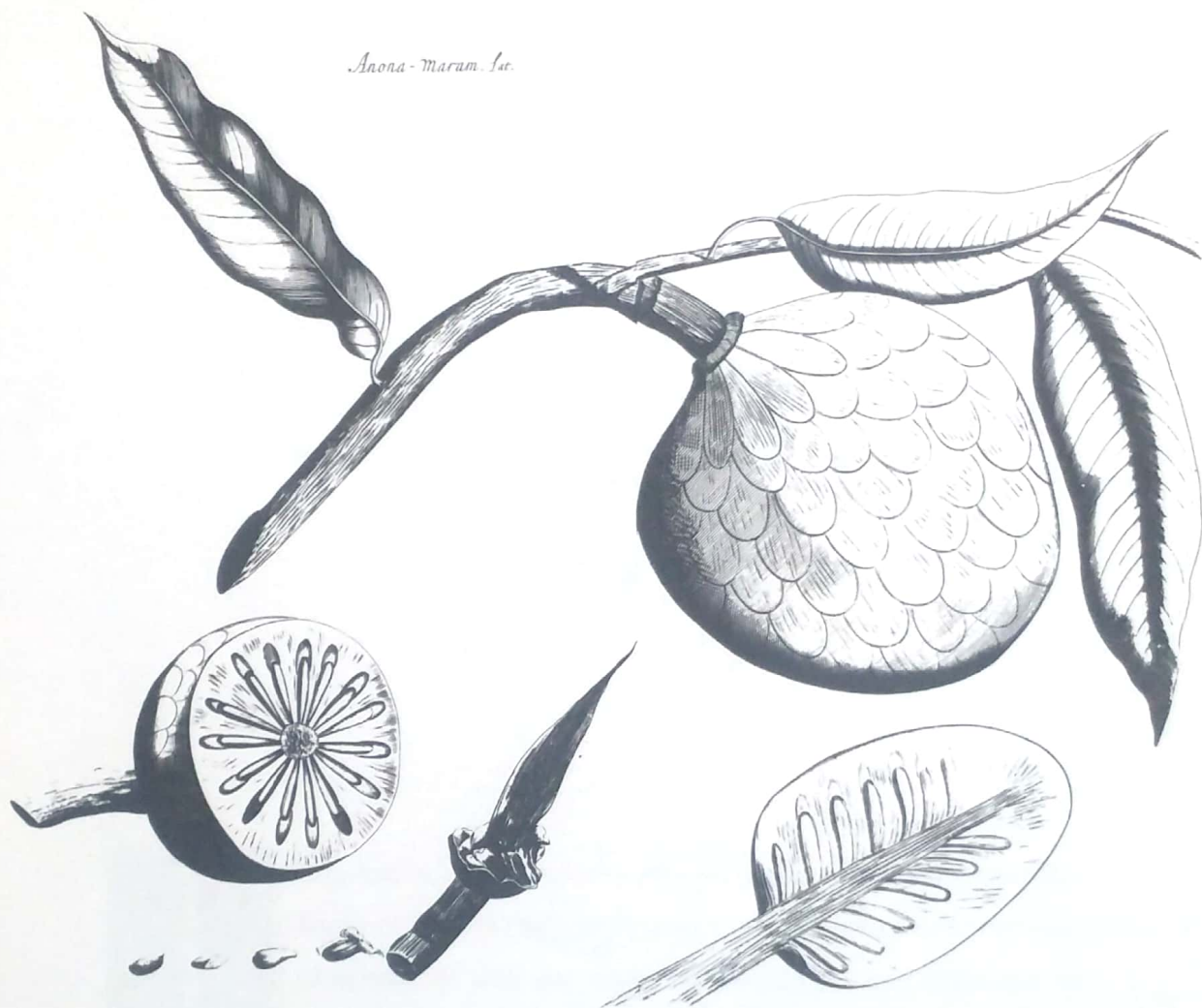


Fig. 30

Annona reticulata L., Sp. Pl. 537.1753; Manilal & Sivar., Fl. Calicut 27. 1982; Sasidh. & Sivar., Fl. Thrissur 34. 1996 [ANNONACEAE].

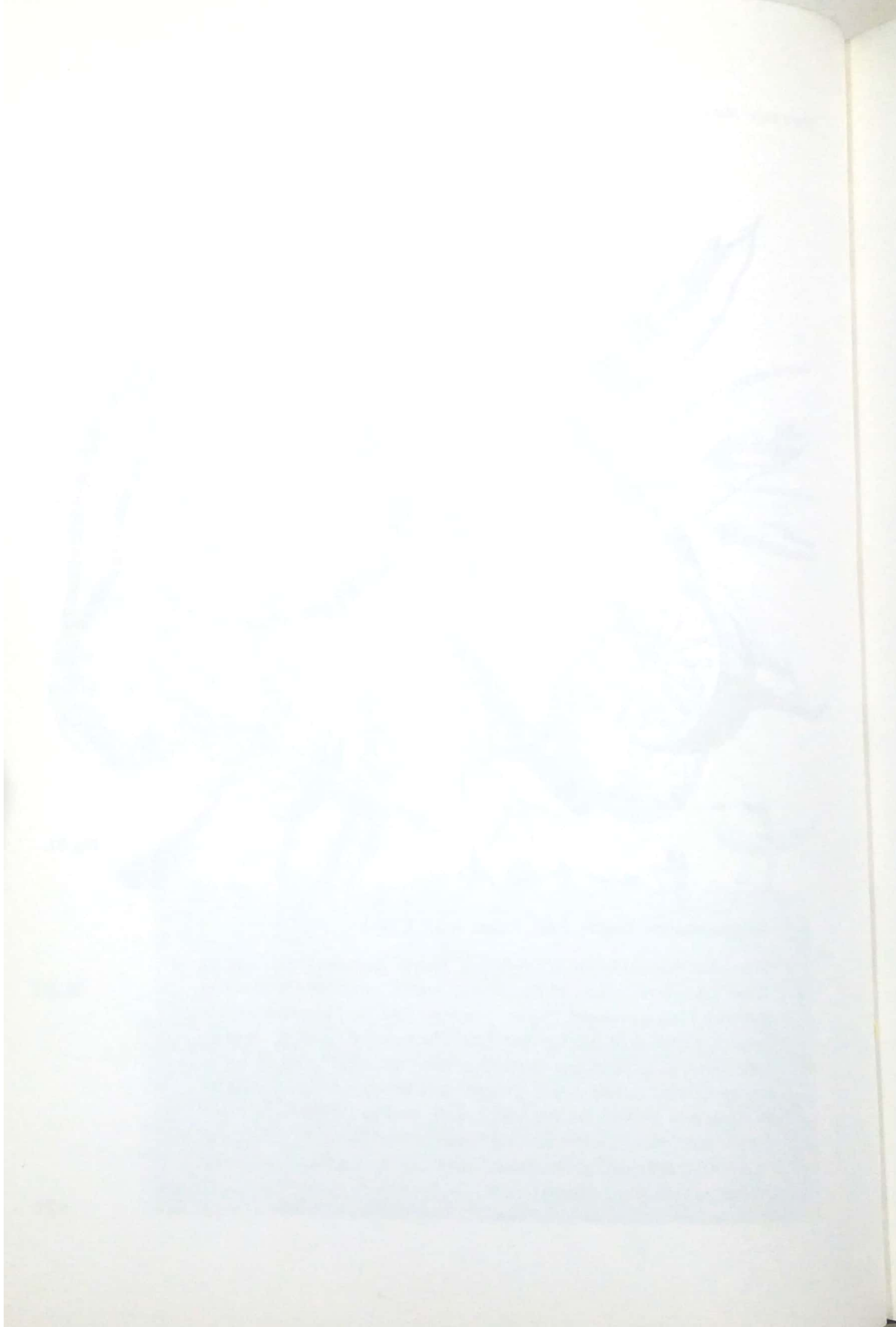


Anona-maram. L.

Fig. 31

Anona-maram Rheede, Hort. Malab. 3: 23, t. 30-31. 1682.

The name "Anona-maram" is a hybrid of "Anona" [botanised from Spanish *Anon* from Taino Indians of the Greater Antilles' word for the sour-sop fruit], plus Malayalam word "Maram", meaning tree. No Malayalam script is given on either plate but the text cites "Parangi-jaca" (Parangi meaning Portuguese, allusion foreign chakka), a name not used today. In some languages (Arabic) farangi means foreigner, an arabisation of Franks, used by the crusaders from what became France. Today the tree is called Ramachakka maram, tree (maram) with the fruit (chakka) of Lord Rama, to denote the closeness [similarity] with Seethachakka (Atamaram, *A. squamosa*). The species is cultivated throughout Malabar.





Ansjeli

FIG. 32.



HIS tree is called *Ansjeli* by Malabaris, *Pata-ponossou* Brahmins, *Angeli* by the Portuguese, *Anjeli* by the Belgians. Is of great size (magnitude) and not rarely exceeding sixteen measures in thickness, endowed (provided) with many round, jointed, hairy, slightly rough and date-colored branches; the solid, very hard, white, inside light red, wood is covered with thick, green and inside white bark, which moreover is covered with ash-grey, scaly crust of sour taste.

Root thick, white, fibrous, covered with a thick, white bark, enveloped with a red, scaly cuticle, of displeasing and woody taste and smell.

The leaves adhere to the node of branches, in a decussate order by means of short, round and hairy peduncles, (are) oblong-round, thick glabrous, equaling one span in length and palm in width, on the upper side shining with a colour from black green, on the lower side with light green colour and also beset with short and downy hairs and therefore rough and adhering to chiefly with some hairy and rough nerves running from the midrib to the sides. And indeed tender leaves come out from the tip of the branches,

enclosed in a date-coloured green hairy involucre as is seen in *Tiliis* in fact when the tree is very young, the leaves are mostly incised (cut) into three flaps.

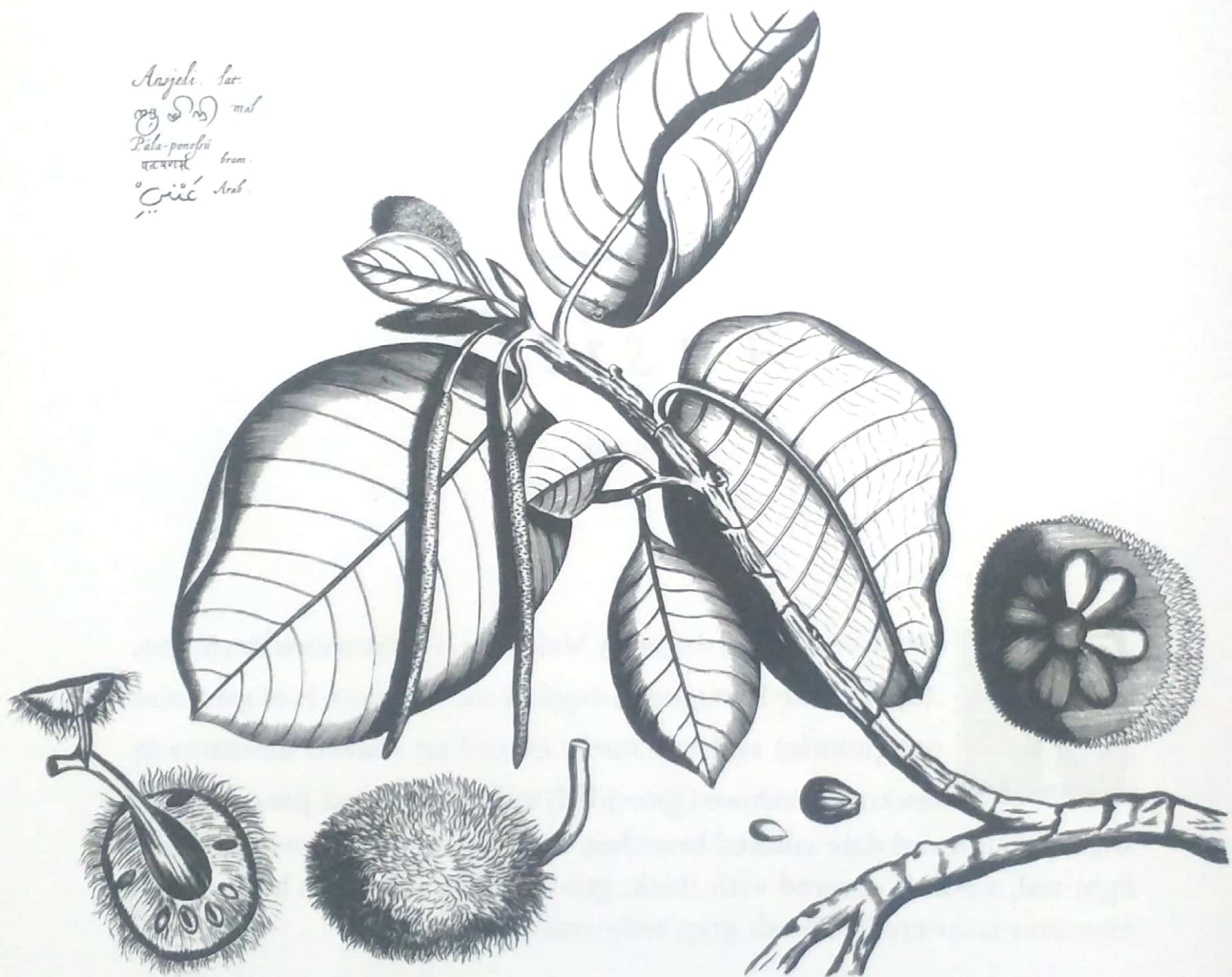


Fig. 32

In the place of flowers in tree produces on the upper branches *julos* (which) are green, white inside, round, and downy, equaling one span in length and a digit in thickness; and these (are) dried and lighted by boys like candles in games.

The fruits called *Angelica*, hang from round, thick, date-red and downy petioles, (are) oblong-round, covered with a thick, pointed or rather prickly

rind, not dissimilar to the fruits of *Datura*, and exceeding the size of a fist: inside in fact, as is seen in *jaca*, other smaller oblong-round and grooved fruits are hidden between the medulla (marrow) and the fruit wall, in the manner of beans or nuts, of acid-sweet and wine taste and of fragrant smell: and also the whole fruit when cut, milky juice drips.

This tree grows in rocky and sandy places everywhere in Malabar, chiefly in the forests of Kalicolan; every year, namely in the month of December it produces mature fruits, and remains fruit-bearing for a whole century.

(Its Uses)

Moreover dried up and warmed leaves of this tree (when) placed over joints, soften their pain and rigidity: the same shatter (drives away) the swelling of testicle originating from contusion or by any external power, and reduced to powder and applied outwardly with white camphorated ointment, cure venereal Bubones, or crushed with the root of *Curcuma* (turmeric) and continuously applied to the affected part, by its tightening power, completely stops chronic haemorrhage by consolidating the mouth of the vessels. The mature fruits indeed, when greedily eaten easily induces diarrhoea, which the roots and bark of the tree easily cures. And the oil pressed out from the cooked fruits either taken inside or applied outside excites appetite, and helps the fermentation of food stuffs in the stomach: the same which roasted and with crushed onion, and also fried in coagulated milk, and applied to the anus, powerfully relieves pains of haemorrhage.

Moreover the wood of the tree (is) fit for carpentry and huge cisterns and boats are built from it: and also from this sort of trees hollowed out Indians make small boats, which are called *Mansjous*, some of which exceed eighty measures in length and nine measures in width, and indeed, the boats made from the wood of this tree, though hard, are easily liable to rotting by worms especially in very little salty (brackish) river water.

Artocarpus hirsutus Lam., Encycl. 3: 210. 1789 ("*hirsuta*"); Jarrett, J. Arnold Arb. 40: 358. 1959; Manilal & Sivar., Fl. Calicut 278. 1982; Sasidh. & Sivar., Fl. Thrissur 426. 1996; Sivar. & Philip, Fl. Nilambur 660. 1997. -*Artocarpus pubescens* Willd., Sp. Pl. 4: 189. 1805, nom. illeg. (incl. type of *A. hirsutus* Lam. 1789) [MORACEAE].

Ansjeli Rheede, Hort. Malab. 3: 25-27, t. 32. 1682.

The name Ayini (Malayalam script on t. 32) is still used, as also is Anjeli, for this species. The fruit is called Anjelichakka or Ayinichakka. The wood is in great demand for making very large canoes, called manji or vanji ("mansjous" in Rheede). The species is very common around Cochin of Malabar.

Rheede states that boats made from the wood of this tree though hard, are easily liable to rotting by worms, especially in salty water. In this connection it should be noted that large sea-going boats and ships were being constructed by using this wood, from time immemorial in Malabar, which were famous in Arab countries, Egypt and Mediterranean ports. The local ship builders have always been particularly insistent to use this species of wood for the main body of the vessel, the reason for which is not known nor recorded in any historical document. However, it has been insisted that the vessel should be coated (painted) on the outside, with fish oil every two or three years, to add strength and durability to it. The reason for preferring the wood of this species over other timbers for ship building, is not known or found to be explained but, even today only this is used by the few traditional ship builders of Malabar left today.

The name of the place where the plant grows is mentioned as Kalicolan, which is now known as Kayamkulam.



Katou Tsjaca

FIG. 33



O the Malabaris *Katou Tsjaca*, for the Brahmins *Davo Ponossou* to the Portuguese *Jaqua falsa*, for the Belgians *Morgensterren*, is a tall tree, with a thick very hard stem and provided with many branches: which covered with a glabrous, ash grey bark (which is) green inside (and is of) woody smell and is filled inside with red and soft marrow (matrix?)

Root fibrous, white and covered with a dark bark, and of unpleasant smell.

The leaves adhere in pairs in a decussate order to jointed shoots by means of short, thick and round petioles, are oblong round, glabrous, thick, on the upper side shining with a colour from black to green, on the lower side with dilute green colour, with a few nerves running from the mid-rib to the sides, woody smell, taste a little acidic.

Globose heads arise on the upper most branches, to which are attached on all sides yellow, odourless florets in dense heaps, which come out from a white calyx divided into five flaps and are formed of five oblong, leaflets,

twisted towards the outside, provided with as many red stamens in the middle, among which arise oblong, erect, white style. The florets however having fallen away the globose fruits are green, which later turn into red and finally

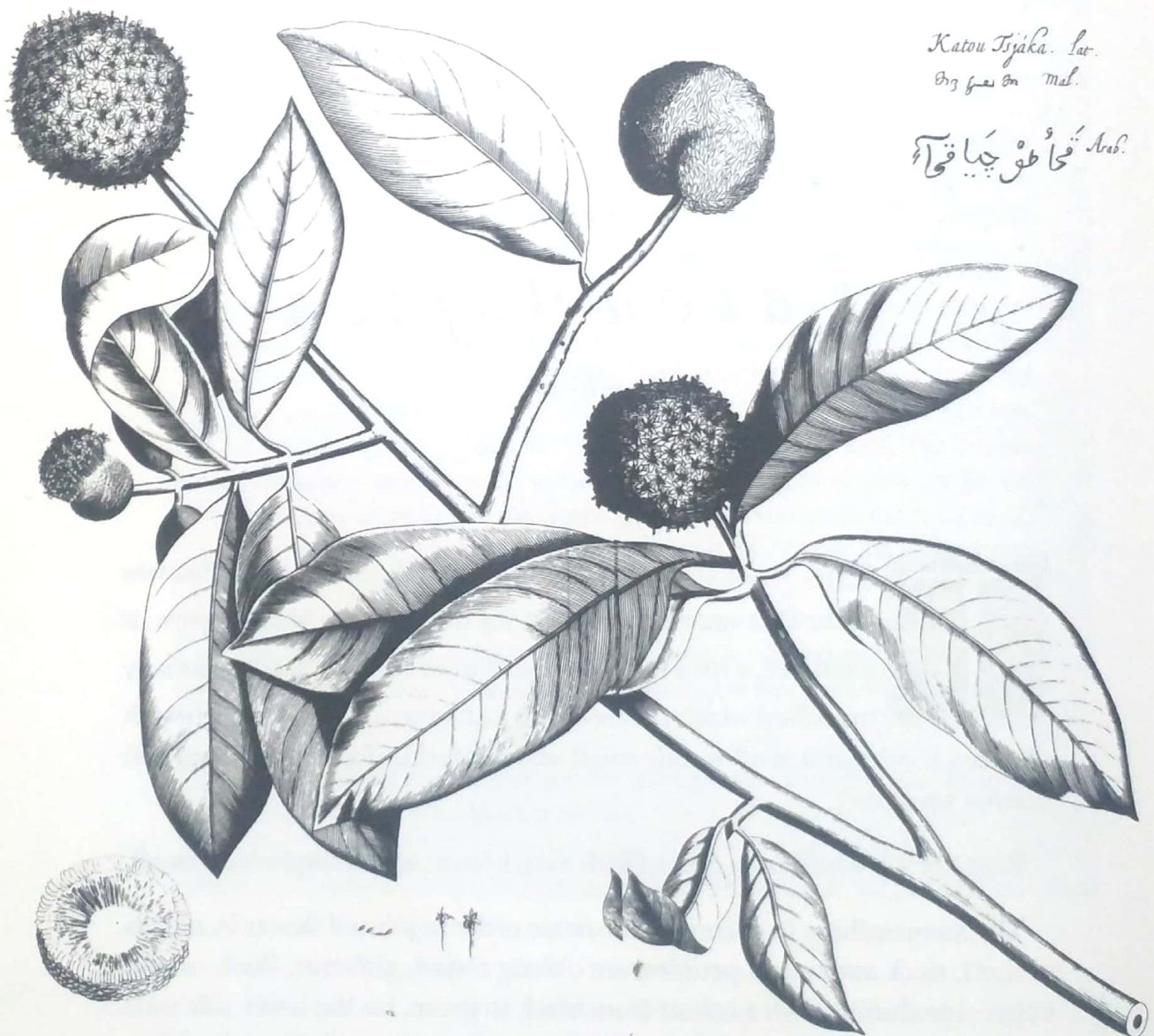


Fig. 33

black and fragile and if roughly handled, are easily broke up and split up into many, oblong, green, shining follicles, in which are contained numerous white, small, oblong, seeds; taste inside aqueous, but in the rind acidic.

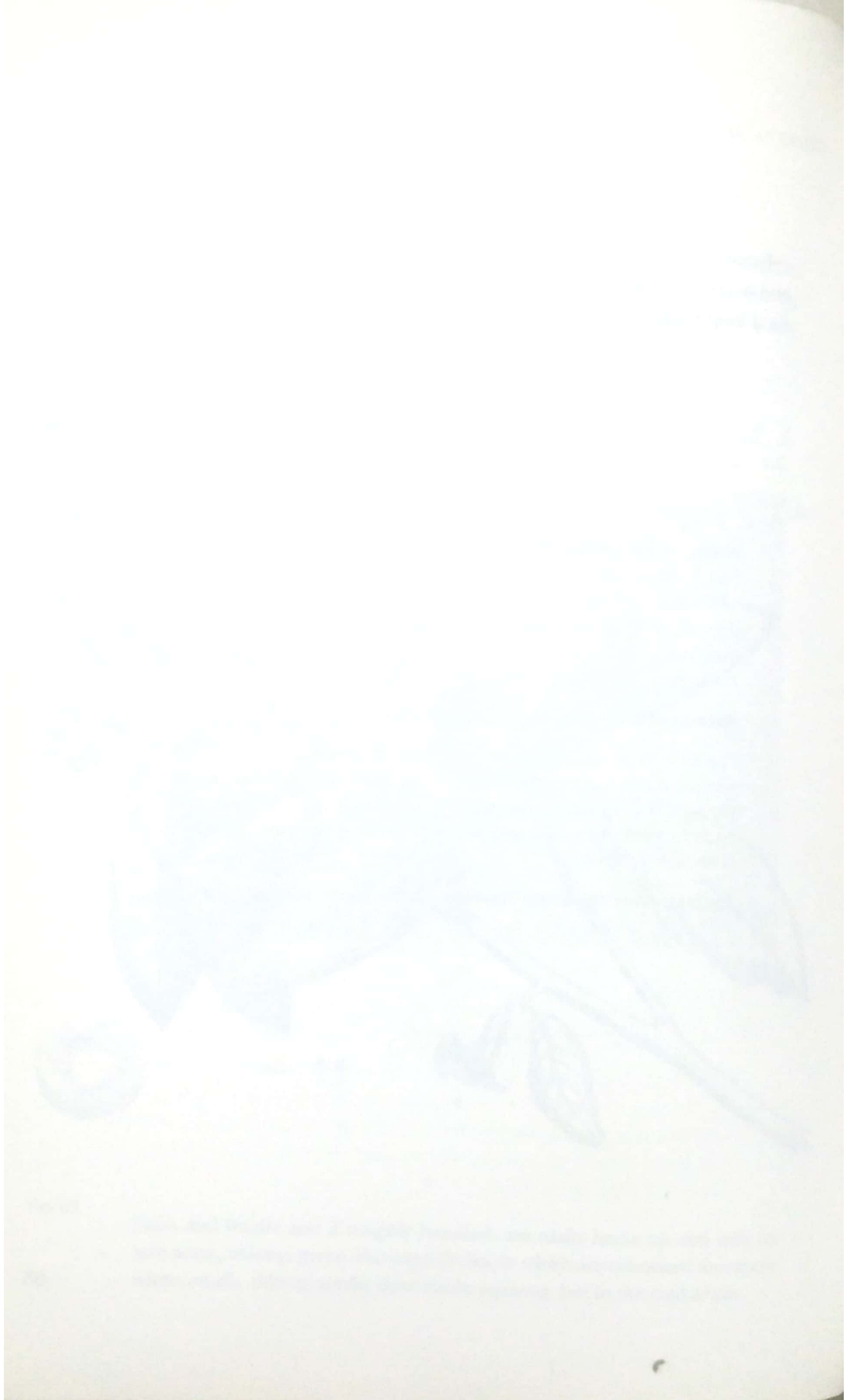
Grows in the forest areas of Malabar, especially around Cranganoor; flowers and bears fruits in any time of the year; and remains fertile (fruit-bearing) for a long time.

Neolamarckia cadamba (Roxb.) Bosser, Bull. Mus. Natl. Hist. Nat. (Paris), Sect. B, Adansonia 6: 247. 1985 ("1984"); Sasidh. & Sivar., Fl. Thrissur 232. 1996; Sivar. & Philip, Fl. Nilambur 340. 1997. -*Nauclea cadamba* Roxb. [Hort. Beng. 17. 1814], Fl. Ind. 2: 121. 1824. *Anthocephalus cadamba* (Roxb.) Miq., Fl. Ind. Bat. 2: 135. 1856. *Sarcocephalus cadamba* (Roxb.) Kurz, For. Fl. Burma 2: 63. 1877 [RUBIACEAE].

Katou-tsjaka Rheede, Hort. Malab. 3: 29-30, t. 33. 1682.

The name Kattuchakka (Malayalam script on t. 33) is not used. Kattu means wild, and chakka is aggregate fruit. Today Kadamba is the name used to denote this plant. This alternate name was in existence in ancient times also, as is evident from old literature. This large tree occurs along river banks in midlands of northern Malabar.

The place name mentioned Cranganoor is now known as Kodungalloor.





Pela or Guajabor *Pomifera Indica Bpin*

FIG. 34.



HIS tree is called *Pela* and *Pelouka* by the Malabaris, *Pera* by the Brahmins *Guajavas* or *Peera* by the Portuguese, in the very same place *Goejaves* by our people. And is of the right size, about twenty feet tall, with straight and very hard stem, one and a half feet in thickness, provided with many branches, which are covered with glabrous, red-green bark of sour taste. The new branches however being green, quadrangular and winged on all sides.

The root covered with a red bark, spreads widely through the soil by means of its fibres.

The leaves are attached to the branches and shoots in a decussate manner by means of short, thick pedicels, thick, oblong, acuminate and somewhat wavy, with a few nerves running from the mid-rib to the sides, on the lower side scurfy or rough, on the upper side never (rough), colour from black to green, smell pleasing, the taste however sour.

The flowers, white and odourless, consist of four or five slender, oblong-round leaflets, provided in the middle with many white stamens, which however are elegantly adorned with yellow apices or nodules.

Fruits, not dissimilar to our pear, at the top provided with a hollow tip (centre) and covered (surrounded) with a thin rind (turning) from green to white, while mature emit a delectable smell, the sign of maturity, filled inside with white succulent flesh of sweet and delectable taste, which however in



Fig. 34

the immature ones is very hard and binding, inside which are observed numerous sub-round and very hard grains.

This tree never grows by itself in Malabar, but is easily grown in gardens. Planted by means of seeds, bears fruits in the third year, which it exhibits mature mostly in the months of January and February, and remains fertile beyond thirty years!

(Its Uses)

From the leaves of this tree boiled in water a bath is prepared which heads fever by exciting sweat by its warmth. And also a decoction is prepared from the bark and the root, which taken from there loosens the obstructions of bowels, draws out the water of those suffering from dropsy and removes jaundice. Fruits cooked in vinegar or wine stops diarrhoea and dysentery and the same when mature are eaten avidly and is used as a dessert and loosen the belly.

Psidium guajava L., Sp. Pl. 470. 1753; Ashton in Dassan., Rev. Handb. Fl. Ceylon 2: 406. 1981; Manilal & Sivar., Fl. Calicut 108. 1982; Manilal, Fl. Silent Valley 103. 1988; Sivar. & Philip, Fl. Nilambur 260. 1997. -*Psidium cujavus* L. in Stickman, Herb. Amb. 7. 1754; L., Syst. Nat. ed. 10.2: 1055. Mai 1759; L., Amoen. Acad. 4: 119. Nov. 1759. *Psidium pyriferum* L., Sp. Pl. ed. 2.672. 1762, nom. illeg. (incl. type of *P. guajava* L. 1753). *Psidium pomiferum* L., Syst. Nat. ed. 10, 2: 1055. 1759, nom. illeg. (incl. type of *P. cujavus* L. 1754) [MYRTACEAE].

Pela, Malacka-pela Rheede, Hort. Malab. 3: 31-32, t 34. 1682.

The name Pera (Malayalam script on t 34), is still used for the tree, Perakka for the fruit. The species is widely cultivated throughout Malabar.

Malakka pera means pera of (introduced from) Malacca.



Malacka-pela

FIG. 35.



HIS tree is another species of *Pela*, and is called *Malacka-Pela* and *Tsjina-peloucka* by Malabaris, *Pera* by Brahmins, *Pera de Malacka* by the Portuguese, *Goejaves appel* by our people, in the same place. Does not differ from the first except in the size of the leaves and flowers.

The fruits are however more round, and are rather similar to apples endowed inside with a little acidic and 'punic' (pomegranate red) flesh. And just like the first, this also never arises spontaneously in Malabar, but was brought from outside regions, as the name *Malacka* is the natural place of this tree; and first began to be transported from the Moluccas Island or China perhaps from the New Spain.

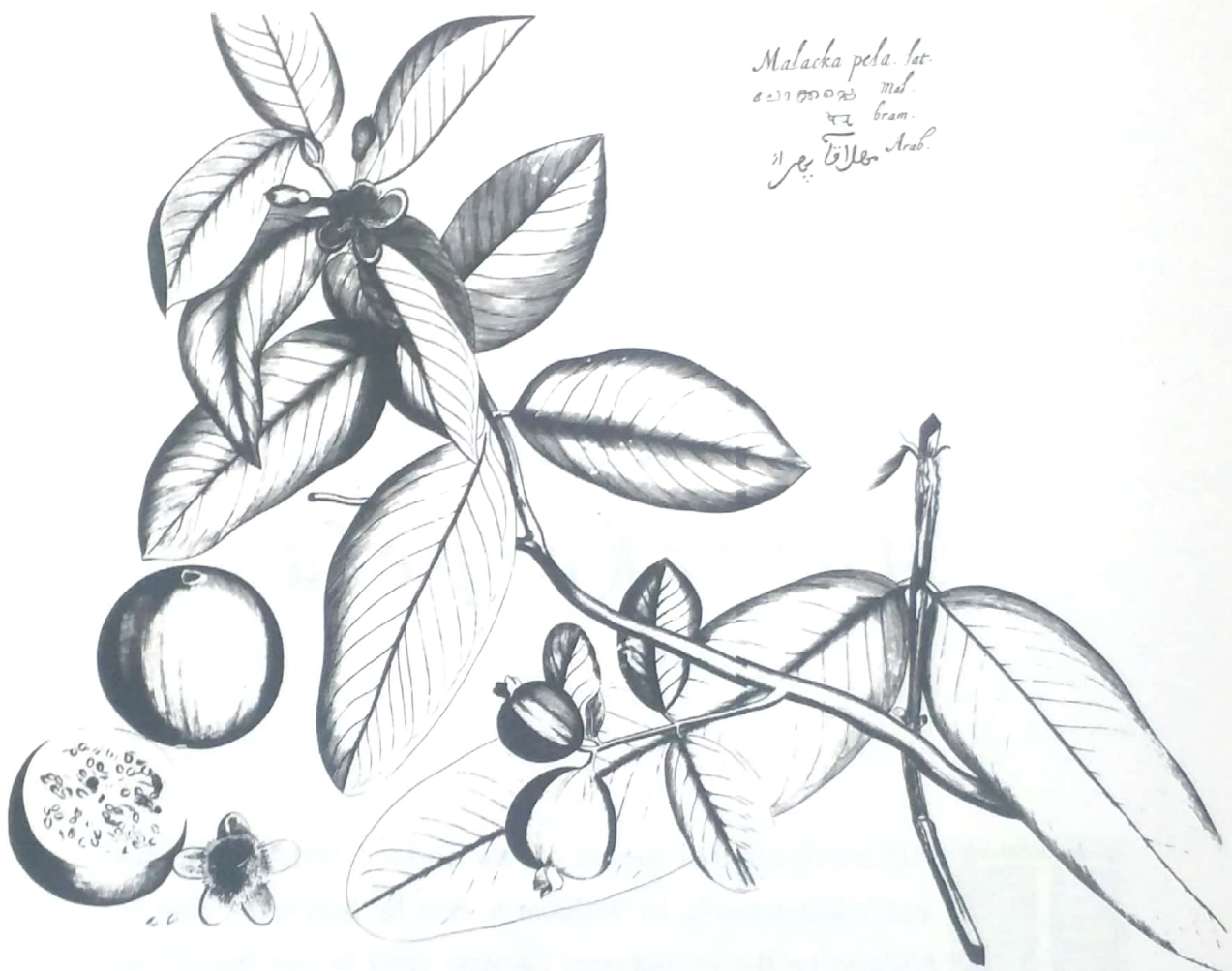


Fig. 35

Psidium guajava L., Sp. Pl. 470. 1753; Ashton in Dassan., Rev. Handb. Fl. Ceylon 2: 406. 1981; Manilal & Sivar., Fl. Calicut 108. 1982; Manilal, Fl. Silent Valley 103. 1988; Sivar. & Philip, Fl. Nilambur 260. 1997. - *Psidium cujavus* L. in Stickman, Herb. Amb. 7. 1754; L., Syst. Nat. ed. 10.2: 1055. Mai 1759; L., Amoen. Acad. 4: 119. Nov. 1759. *Psidium pyriferum* L., Sp. Pl. ed. 2.672. 1762, nom. illeg. (incl. type of *P. guajava* L. 1753). *Psidium pomiferum* L., Syst. Nat. ed. 10, 2: 1055. 1759, nom. illeg. (incl. type of *P. cujavus* L. 1754) [MYRTACEAE].

Malacka-pela Rheede, Hort. Malab. 3: 33, t 34, 35. 1682.

The name Malacka Pera (Malayalam script on t 35), is not used for the tree now. "Malacka pela" is pela brought (introduced) from Malacca. The other name "Tsjina Peloucka" means Perakka (fruit) brought from China. The fruit shape is different in the two.

The species is widely cultivated throughout Malabar.



—
Pelou
or
Guayabo Sylvestre

FIG. 36



ELOU and *Katou Pela* for the Malabaris, *Pelouarta* for Brahmins *Pera Brava* for the Portuguese, *wilde Goeyaves* for the Belgians, is a tree of medium size, ten or twelve feet tall, with the stem moderately thick, provided with many branches spread in all directions, covered with a thick, woody, rough, dark and inside red bark, the wood white, thick, heavy, insipid, of woody smell.

The root, in like manner, white covered with a dark bark inside red.

The leaves which are oblong-round, thick, soft, downy and crenate at the edges, arise reddish at the tips of branches on thick, short and white petioles, which however later become black-green on the upper side, light green on the lower, easily exceeding three palms in length and two palms in width, insipid, odourless; a prominent white rib runs from the pedicel to the apex of the leaf, which sends out many small nerves everywhere.

Flowers, many joined together adhere to the tips of shoots by means of a short pedicel and arise from a green calyx divided into four parts, formed of four thick, oblong-round, weak green, grooved leaves, with numerous white

stamens provided with yellow apices, occupying the middle cavity and centre of the flower, among which the white, oblong style arises: the smell is unpleasant and fetid, taste bitter.



Fig. 36

The fruits not dissimilar to the pears, and surrounded by a green, glabrous, shining and hard rind, filled inside with thick and white flesh, within which are placed oblong round, glabrous, red thick, seeds emulating chestnut in taste: the unripe fruits however are very hard, stinking and of displeasing taste; and although the more mature ones become of light sweet taste, however are not eaten because of the poisonous quality with which they are endowed.

The tree grows every where in Malabar, chiefly around Cochin, and Porka; flowers in the months of May and June and the old leaves having fallen down, puts forth new ones, bears fruits in the following months of October and November and remains fertile for long.

(Its Uses)

Moreover, because of its poisonous quality, this tree has no use in medicine; wild boar however like the rind, for which reason they are in use to the hunters.

Careya arborea Roxb., Pl. Corom. 3: 14, t. 218. 1811; Macnae & Fosb. in Dassan., Rev. Handb. Fl. Ceylon 3: 200. 1981; Manilal & Sivar., Fl. Calicut 108. 1982; Manilal, Fl. Silent Valley 108. 1988; Sasidh. & Sivar., Fl. Thrissur 186. 1996; Sivar. & Philip, Fl. Nilambur 267. 1997 [LECYTHIDACEAE].

Pelou Rheede, Hort. Malab. 3: 35-36, t. 36. 1682.

The name Pezhu (Malayalam script on t. 36) is still used. The etymology of the word is not clear. It is common in northern Malabar.

The localities mentioned are Porka, which is the present day Purakkad, and Cochin, of the same name today also.



—♦—

Covalam

or

Cydonia Exotica

CASP. BAUH in PIN

FIG. 37.



OVALAM to the Malabaris, *Belou* to the Brahmins, *Marmeleira* to the Portuguese, *Slym-appels* for the Belgians, is a tall tree with a stem from white to yellow coloured, thick, very hard, and provided with many branches; which are covered with a thick, woody bark, and armed with oblong, pointed spines. The older branches date-red, the tender ones however on one side green, on the other side by which they are exposed to sun's rays, reddish, so also their spines.

Root fibrous, white and covered with a red bark, of unpleasant smell, of sweet taste, later a bit bitter.

The leaves, arising three together from the same pedicel, oblong-round crenate at the edge, shining with common greenness, sweet smelling, sour, sticky when rubbed in hand; a prominent rib runs from the pedicel to the apex of the leaf, which sends out many small nerves everywhere.

Six or seven sweet-smelling flowers adhere to one pedicel, and arise from a green calyx divided into flaps (lobes) and are formed of five, oblong-round,

thick, curved, green on the outside, white-green on the inside, provided with many light green stamens in the middle (which are) endowed with green apices, among which arise an oblong, thick, erect style which is the rudiment of the fruit itself.

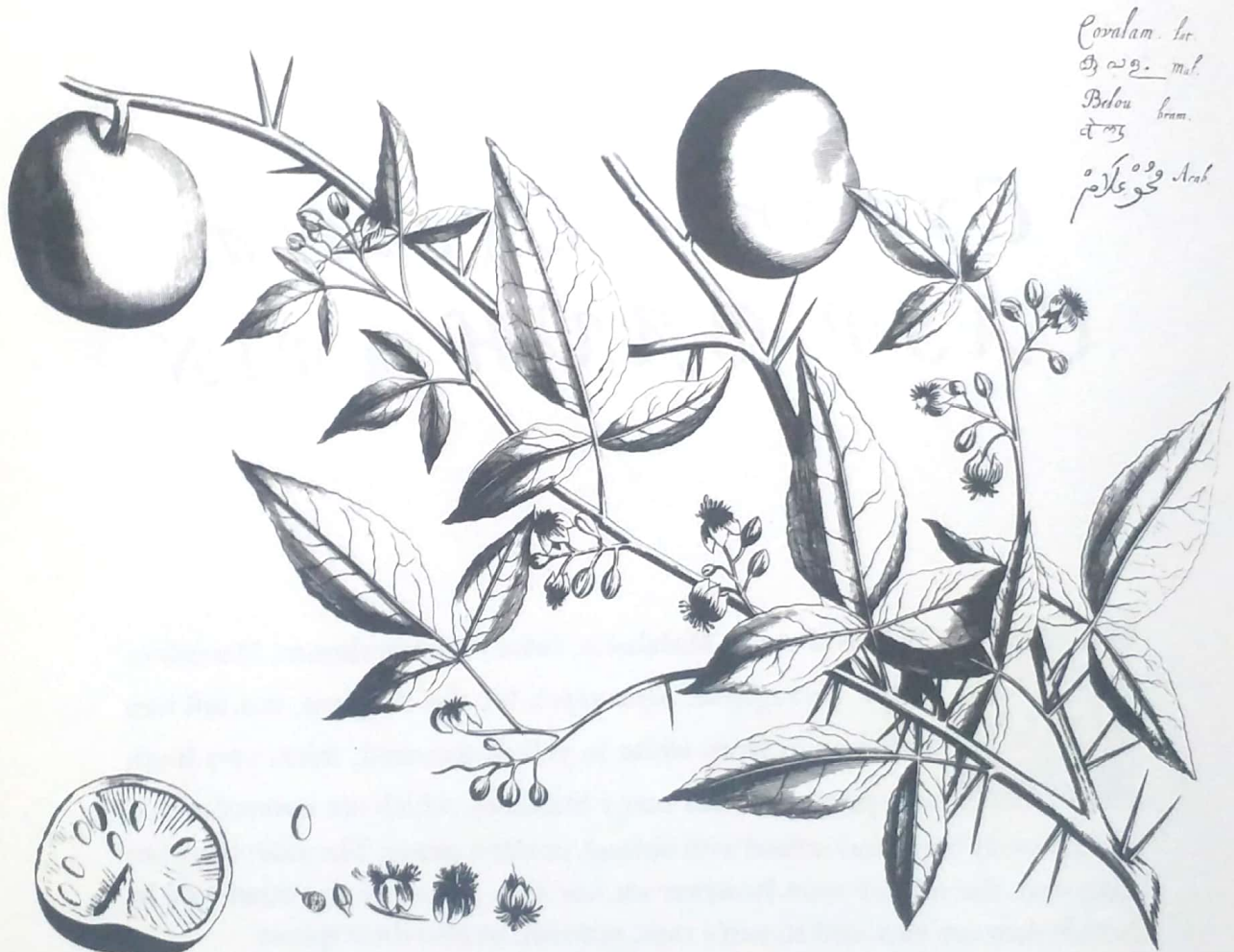


Fig. 37

The fruits look like round apples in their external, from which a light green, slender cover, lying under which is another, very hard, woody and almost stony rind containing viscous, light yellow, humid flesh, of acidic-sweet taste, within which are hidden flat-oblong, white seeds, turgid inside with a sticky, transparent juice.

Grows often in Teckenkour, Kalicolan, and other provinces of Malabar and also in the Island Zeilan. Planted by seeds, bears fruit finally in the sixth or seventh year, which mature every year in the months of December and January and remains fertile the whole century.

(Its Uses)

These tender fruits, however are pickled in *Sugar* or vinegar, more mature ones are eaten as a delicacy. A decoction is prepared from the bark and small roots of the tree with common water, which cures hypochondria, melancholy, palpitation of the heart and 'lypothymy'. From the same bark reduced to fine powder is prepared Electuarius (a medicine mixed with honey or the like), which taken in the morning helps the fermentation in the belly and removes head-ache and giddiness. Decoction of leaves cures asthma. From the flowers is distilled a water good for the indigestion and acts against poison. Finally, just mature (ripe) fruits stops diarrhoea and dysentery.

Aegle marmelos (L.) Correa, Trans. Linn. Soc. London 5: 223. 1800; Manilal & Sivar., Fl. Calicut 58. 1982. - *Crateva marmelos* L., Sp. Pl. 444. 1753 [RUTACEAE].

Covalam Rheede, Hort. Malab. 3: 37-38, t. 37. 1682.

The name Koovalam (Malayalam script on t. 37) is still used. It is associated with Lord Shiva and is often planted near temples dedicated to Lord Shiva, where its leaves are used in temple rituals. It is now rare in Malabar.

The localities mentioned are Teckencour, i.e., Thekkumkoor, a region south of Kottayam; Kalikolan, currently called Kayamkulam. Zeilan is Ceylon, now called Sri Lanka





Syalita



HIS tree is called *Syalita*, that is *Synceritas* by the Malabaris, *Karinbala-pala* by the Brahmins, *Fruita Estrelada* by the Portuguese, *Roos-appel* by the Belgians. Is however tall, forty or fifty feet high, with the stem quite thick, protected with a bark likewise thick, which (is) covered with an ash-grey, scaly cuticle, inside white, aqueous, and when cut, giving out profuse 'adstringens' water.

Similarly the root is thick and covered with a slender, red-black scaly bark, inside indeed red towards the white medulla (marrow) and also widely spreading in the soil by means of its fibres, taste sharp, no smell.

The oblong-round leaves are attached each one to its own thick, hairy, or downy petioles (which are) inside hollow, (which) exceed one span in length and one palm in width, they shine on the upper side, on the lower never, colour from black to green, the mid rib thick and on the lower side standing out high, from which many nerves go out in order almost two by two in a parallel fashion to the prominent and dentate edges, the smell and so also the taste of the old ones woody, that of the new ones, acid.

In between the very leaves, there comes out from a stout, thick, quadrangular stalk, the calyx which grown to the size of an apple or orange, opens itself, consisting of five spoon shaped, green, thick, strong, shining leaves, or rather hollow involucre containing a most beautiful and admirable



Fig. 38

flower, in like manner formed of five, white glabrous hollow, round, leathery leaves, provided in the middle with very many white hairy structures endowed with golden apices, which moreover are equipped above with a white star-

like centre, formed elegantly of twenty angles (corners). After the flower has thus opened and shown its elegance to the world for seven or eight days by the most sweet and lily like smell, its five white leaves, so also white hairy structures, tightly bind together the star shaped green, shining leaves of the calyx, close and embrace (include) all those parts of the flower, which united

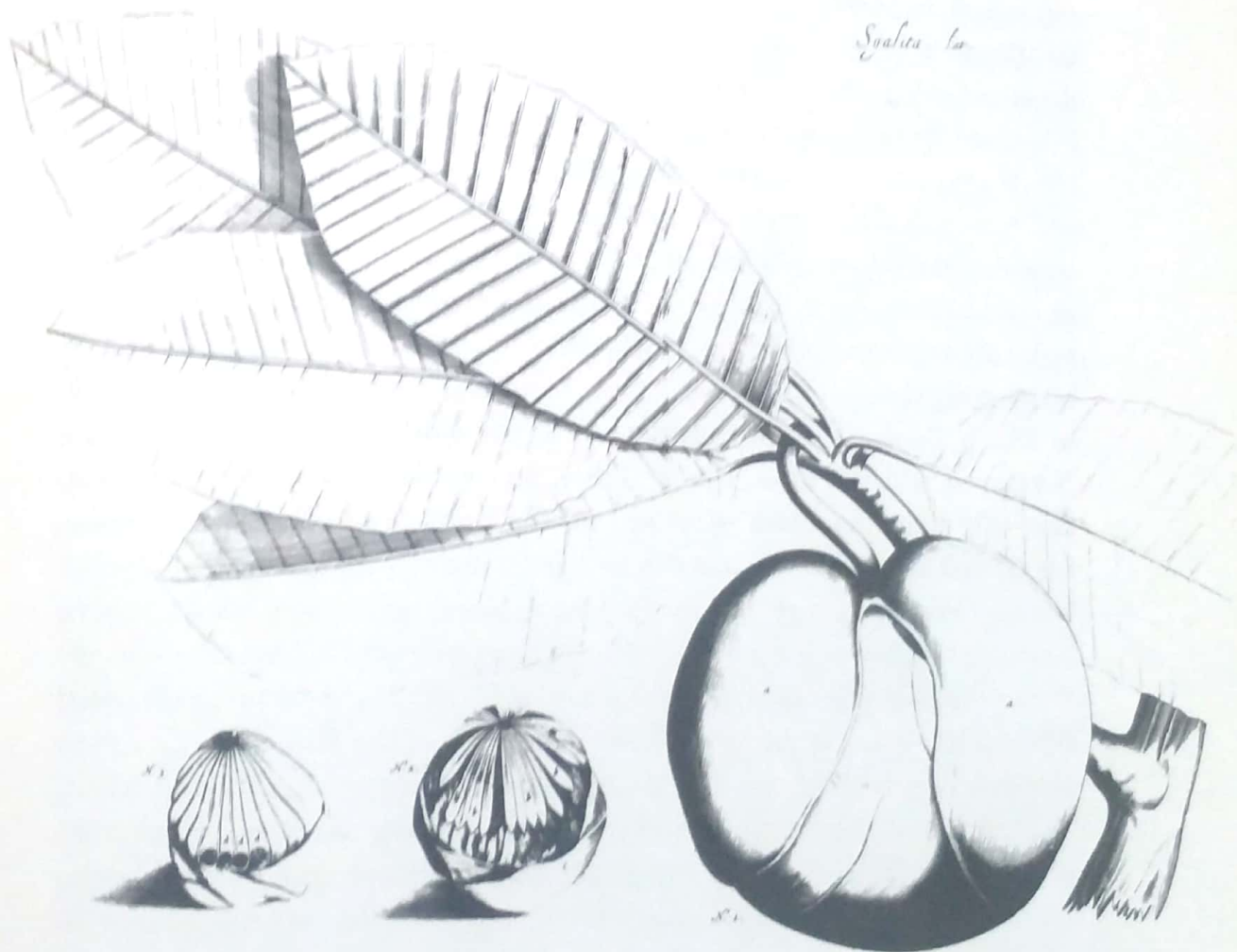


Fig. 39

folding up each part that is in the flower, forms a fruit similar to a large apple; and indeed if any one wished (desires) to see more accurately the various parts of this flower as well as this fruit, and their multiform figures may go through these two tables: where (Tab.1) No 1. the lower part of the leaf 2 petioles, to which the leaves adhere, 3 the mid rib of the leaf prominently standing out, 4 upper part of the leaf. a. a. a. thick, spoon shaped green,

shining leaves of the calyx. f. e. e. e. e. white, hollow, round, leathery leaves of the flower itself, endowed with wine like and acidic taste, which when the leaves of the calyx a. a. a. a. closed and, enclose the flower, are quite mucous. g. g. collection of the hairy structures in the middle of the flower. f. f. White star like centre, with which the flower or the fruit is equipped in the middle, are shown. No.6 the same flower, after the thick leaves of the calyx have been separated, its base appears (is seen); and d. d. d. how the hairy structures of the flower g. g. g. adhere to the base m. k. l. some hairy structures of the flower separated No.7. the flower base m. is seen, so also its star like centre. f. f. formed from many white follicles of seeds, united among themselves, of which one l. l. is separated sketched just as p. small white, round, seeds, which they (follicles) contain, are sketched, and No.8. h. h. in which manner capsules of seeds are jointed, in order to constitute the base of the flower and its star shaped centre. And all these multiform parts in an open flower drawn apart are separated with light work, which however in a closed flower cannot be so easily shown. (Tab.2) No.1. a. a., a perfect apple shaped fruit is shown, in which thick spoon shaped leaves of the calyx which drawn apart are portrayed with an open flower Tab.1, so exactly are connected (jointed) mutually that they close (shut up) all the parts of the flower and enclose them, that their trace (mark) can be hardly distinguished; the fruit however having become mature and these things having been removed, the shining leaves of the flower itself are seen quite mucous: these further removed, the flowery (florid) aster gleams out No.2. b. b. b. rivaling (emulating) the viscid flesh in the fruit, as the white hairy structures of the flower c. c. c. can be compared with slimy, mucilaginous threads. This star shaped apex having been removed, the lower appendices are pointed out (seen) the real capsules of seeds No.3. d. d. d. in which are concealed numerous seeds clinging (adhering) with a tenacious glue, like the eggs of a fish, not bigger than the seeds of tobacco: so that the flower and the fruit from the beginning to the end are different in form and indeed in position, but not indeed in essence or in number.

Moreover these fruits are almost similar to our wine apples in smell, taste and pulp; however '*meditullium*' is adapted to this, a bit in another way: also the pulp in these fruits made more mature, becomes very soft.

This tree grows in many places in Malabar, especially around Cochin and the Province of Moutan; bears fruits once a year, namely in the months of

December and January, and remains fertile from the fourth year of planting to the fifteenth and beyond.

(Its Uses)

These fruits are rarely eaten as a delicacy because of too much acidity; but are edible, especially are used in the food 'juscilis' of the natives. A laxative is made from the leaves of the tree, fit for the ointment for hairs (shampoo?), removing dirt of the head and also for melting and even purifying silver: The juice pressed out from roots, applied with linen (cloth) opens swellings caused by phlegm and oedema. The juice pressed out from tender fruit is mixed with *Sugar* and thence a syrup is made, which cuts open and expells phlegm, mitigates cough and also removes inflammation of the throat and Aphthas (small whitish ulcers on the surface of a mucous membrane). More ripe fruits render the belly loose, (loosen the bowels) and not rarely excites diarrhoea. Finally, the bark of the tree crushed with infusion of the rice (which the natives call *Ambatacansja*) and smeared on the affected parts, heals arthritis.

Dillenia indica L., Sp. Pl. 535. 1753; Hoogland, Blumea 7: 108. 1952; Manilal, Fl. Silent Valley 2. 1988; Sasidh. & Sivar., Fl. Thrissur 25. 1996; Sivar. & Philip, Fl. Nilambur 34. 1997. - *Dillenia speciosa* Thunb., Trans. Linn. Soc. London 1: 200. 1791 [DILLENIACEAE].

Syalita Rheede, Hort. Malab. 3: 39-42, t. 38-39. 1682.

The name *Syalitha* (no Malayalam script) is still used, though rarely. The tree is only cultivated as an ornamental in Malabar and also very rarely found as escapes.

The localities mentioned are Cochin, of the same name now also, and Moutan, now called Muttam, the region south of Cochin, beyond Aroor to Cherthala.



—•—

Blatti

or

Jambos Sylvestris

FIG. 40



HIS tree is called *Blatti* or *Katou Tsjambou*, as if wild *Jambou*, by the Malabaris, *Ambetti* by the Brahmins, *Jambou de Mato* by the Portuguese, *Sterre-bollen* by the Belgains: Is of medium size, about fourteen feet tall, covered with a thick ash-grey, bark, like *Tenga*, white and very hard wood. Branches and shoots jointed (noddled) and the indeed tender ones quadrangular and winged, first red, then date-red, other ones without wings and more round.

Root covered with blackish bark, of woody smell and taste.

The leaves adhere to branches mostly on opposite sides by means of short, flat, purple and winged petioles, (are) oblong-round, glabrous thick, shining with common greenness, with some nerves running out to the sides from the mid-rib, exceeding six digits in length and almost four digits in width, no smell, taste sour.

The flowers, odourless and acid, not dissimilar to the flowers of *Nati-tsjambou* (described) in Figure 18, Part 1, consist of six oblong-round, acuminate, slender, purple leaves and each one arises on a short and

quadrangular pedicle, at the tips of branches, and also they adhere to a broad, deep, thick, green calyx, split up into six lobes, which (calyx) moreover sends out very many, strong, protruding, oblong, purple, stamens elegantly provided with sickle shaped apices.



Fig. 40

The fruits are flat-round and broad, deep green and shining apples, provided with a light green, oblong-style at the top; at the base indeed clasped by a plain, large, thick and green calyx, which stretching out its oblong lobes and twisting them towards the outside, exactly imitate (represents) a star. Moreover, these fruits, although ripe are hard, filled inside with white and succulent

flesh, of very bitter taste, within which are observed very many white angular seeds. Besides, when these fruits are transversely cut, the follicles of seeds offer themselves (are seen), white elegantly arranged in the flesh in the form of a beautiful tree, which however soon turn completely red on contact with air, as if they were steeped in a solution (liquid) of ink.

This tree grows chiefly on the banks of rivers and other watery places around Palourti and Tirpoutare provinces of Malabar, produces mature fruits once a year, namely in the month of August, and remains fertile from the third or fourth year of planting up to about twentieth year.

(Its Uses)

The fruits of this tree are cooked by natives and are eaten along with other food: the juice, however, pressed out from the fruits and mixed with honey heals asthma, and also powerfully checks the temperature in those suffering from fever. From crushed leaves a plasma is made, which placed on shaven head breaks up (frees) delirium by bringing about sleep.

Sonneratia caseolaris (L.) Engl. in Engl. & Prantl, Naturl. Pflanzenfam. Nachtrag 261. 1897; Macnae & Fosb. in Dassan., Rev. Handb. Fl. Ceylon 3: 452. 1981. - *Rhizophora caseolaris* L. in Stickman, Herb. Amboin. 13. 1754. *Sonneratia acida* L.f., Suppl. Pl. 252. 1782. *Blatti acida* (L.f.) Lam., Encycl. 1: 429. 1789 [SONNERATIACEAE].

Blatti Rheede, Hort. Malab. 3: 43-44, t. 40. 1682.

The name Plathi (Malayalam script on t. 40) is still used. It was one of the commonest species of the tidal estuaries, but has now been mostly eradicated.

The main localities mentioned are Palourti, currently called Palluruthy; and Tirpoutare, which is now known as Tripoonithura, a town east of Cochin.



Panitsjika-maram

FIG. 41.



ANITSJIKĀ for Malabaris, *Tembiri* for Brahmins, *Fruita da grude* for the Portuguese, *Lym-appel* for the Belgians, is a tall tree, exceeding not rarely eighty feet in height and fifteen feet in thickness and provided with many branches; wood very hard, white and covered with a black bark of sour taste.

The root likewise white, covered with a blackish bark and widely spread through the soil by its fibres.

The oblong-round, glabrous, dense, shining leaves arise on thick, short green-yellow petioles, which (leaves) however then become black-green on the upper side, light green on the lower, of woody and displeasing taste and smell: a conspicuous, round, green-white, nerve, protruding on the lower side, runs from the pedicel to the tip of the leaf, from which many small twisted nerve-lets arise.

Flowers either white or white-yellowish, adhere many together united, to the tips of shoots by means of a short pedicel and come out from a green-yellow calyx: these are formed of one single leaf, but split into four or five

deep lobes, so that appear to be many, with numerous, pale, erect fibres occupying the middle cavity and the centre of the flower; smell very sweet and aromatic, and also attracting (striking) the nostrils from a long distance.

Panitzypika Marani. lac.
 ٢٣ ٢٤ mal
 Temburi. bram.
 ٢٣ ٢٤ Arab.



Fig. 41

Fruits, which also many together succeed (follow) the flowers and are clasped by a rather large, green calyx, are exactly round and have the size of balls, provided with a funicle at the top, and surrounded by a rind first green, then red, hairy or downy, at least however glabrous and ash grey, filled inside with white, light green and aqueous or rather glutinous flesh and of very acid taste at first, then acid-sweet inside which are placed in a circle eight or ten,

red, plain (flat), oblong round seeds, similar to the fruits of cocoa, and enclosed in bags; and they appear (seem) to be artificially covered with the glutinous (sticky) pulp of the fruit. And indeed when these fruits are immature they are so rich in (abound) a glutinous, gummy and aqueous-transparent liquid that the bark having been perforated with many small holes, it exudes drop by drop, which, hardening into a thicker substance by sun rays, smears the fruit itself like gum, the fruits however when they mature with time, this viscosity so also the liquid itself is diminished, until at last they become fit to eat, being filled with a little, pleasing juice. This tree grows everywhere in Malabar; bears fruits in any time of the year, although flowers the most in the months of April and October; and remains fertile from about the seventh year of planting to the hundredth and above.

(Its Uses)

The tender leaves of this tree crushed with water (which form of medicine many Asians have as a usage) and given as a drink, or also the juice pressed out from tender fruits is an excellent remedy for aphthas (small whitish ulcers on the surface of a mucous membrane) and blisters of tongue, if retained, (kept) in the mouth. The same juice dropped (poured by drops) in the eyes is good in ophthalmia (inflammation of the eye, especially conjunctiva). The bark of the tree reduced to powder and infused with rice (poured over rice) and mixed with milky juice pressed out from a mature Indian nut (coconut) and offered to those suffering from fever, powerfully extinguishes temperature: moreover a decoction is prepared from this bark to which honey is mixed, and this taken in mitigates colic of the belly; an oil is pressed out from the seeds which taken with *Ginger* and *cumin*, helps those suffering from dropsy (a morbid accumulation of watery fluid in any part of the body); moreover it relieves stomach-ache, and empties (evacuates) it. The more mature (ripe) fruits, with the induced seeds or kernels are eaten by the natives. Finally, the glutinous, gummy, transparent juice which is pressed out from immature fruits, hardening in the sun and turning red or becoming black from red, and becoming glassy, becomes the best glue which the natives use for joining anything very tightly, wherefore the Jews and the Portuguese use only this gum in book binding and which because of this are never liable to wood-worm, and also the fishermen dye their net (steep) with this same glutinous juice so that they may become more durable.

Diospyros malabarica (Desr.) Kostel., Allg. Med.-Pharm. Fl. 3: 1099. 1834; Bakh., Bull. Jard. Bot. Buitenzorg ser. 3, 15: 325. 1937; Kosterm. in Dassan., Rev. Handb. Fl. Ceylon 3: 27. 1981. - *Garcinia malabarica* Desr. in Lam., Encycl. 3: 701. 1789. *Diospyros glutinosa* Koenig ex Roxb., Fl. Ind. 2: 533. 1832, nom. illeg. (incl. type of *Garcinia malabarica* Desr. 1789) [EBENACEAE].

Panitsjika-maram Rheede, Hort. Malab. 3: 45-47, t. 41. 1682.

The name Panichi (Malayalam script on t. 41) is still used, in the modified form of Pananchi. Pananchikka maram is still used; maram meaning tree. Pananchikka is the name of the fruit. Pani here means a *drop*, Kaa is fruit, indicating the (unripe) fruit, yielding the glutinous, gummy liquid as drops. The plant occurs in the lowlands in Malabar and is abundant in the Cochin area.



Nirvāla

FIG. 42.



HIS tree is called *Nirvāla* by the Malabaris, *Ranabelou* and *Pretonou* by the Brahmins, *Pee do Morto* by the Portuguese, *Bombeenen* by the Belgians and is of great size, 30 or 40 feet tall, with a few branches spread in all directions, covered with a glabrous, ash-grey bark, speckled with white spots; very hard and yellow wood.

The root white, covered with ash-grey bark, is strong smelling and almost insipid.

The leaves arise three together on round petioles, equaling a span in length, are oblong-round and ending in a sharp point, (are) glabrous, shining with common greenness, light acidic, when washed in hand sweet smelling; from the mid-rib many prominent nerves go out in an orderly and parallel tract, which run into one another in an arched manner near the edges.

The flowers come out at the tips of branches on round, oblong, glabrous, green petioles and they consist of four oblong-round, acuminate, white and

grooved leaves which are united inside with as many small, acuminate, light green leaflets, with numerous green and red stamens, provided with purple, oblong apices, occupying the middle cavity and the centre of the flower, amidst which come out a green, oblong thick, erect style, elegantly furnished with a deep green, round apex, from which later the fruit emerges: the smell most sweet and wine like.



Fig. 42

The fruits indeed hang from green, oblong, thick, round, woody petioles which are jointed to the pedicels of flowers joint by joint, as these (in their turn) adhere to the branches at their nodes and are oblong-round, green, covered with a grey, slender rind, filled inside with humid, white, quadri-

partitioned flesh, of wine like taste and smell; within which are contained yellow, very hard, angular and flat seeds.

The tree grows in rocky and sandy soils in Malabar, chiefly around the provinces of Mangatti, and Poiga, in the banks of rivers: leaves fall down in the month of April, indeed in following June-July, while it flowers, puts forth new leaves again and in the months of November and December bears mature fruits, and scarcely remains fruitful (fertile) for forty years.

(Its Uses)

The juice however of the leaves received in linen and applied to the groin, moves urine, similarly the fruits crushed and adapted in the form of plasma with salt, camphor, and dung of cat, and applied to the above said place, produce the same effect. The bark teased (macerated) in water and boiled long up to the removal of humidity with *Ginger* and *Pepper* in cow's milk and sesame (gingelly) oil, gives an excellent ointment for drying cold liquids (?). The seeds cooked with the 'infusion' of rice and then crushed with new butter, and applied to affected parts in the form of a plasma, powerfully softens and matures them.

Crataeva magna (Lour.) DC., Prodr. 1: 243. 1824; Sivar. & Philip, Fl. Nilambur 54. 1997; Sasidh. & Sivar., Fl. Thrissur 42. 1996. — *Crataeva magna* Lour., Fl. Cochinch. 1: 330. 1790. *Crataeva nurvala* Ham., Trans. Linn. Soc. London 15: 121. 1827 ("nūrvala"); Jacobs, Blumea 12: 194. 1964; Manilal & Sivar., Fl. Calicut 32. 1982. *Crataeva religiosa* var. *nurvala* (Ham.) J. Hook. & Thorns. in J. Hook., Fl. Brit. India 1: 172. 1872 [CAPPARACEAE].

Niirvala Rheede, Hort. Malab. 3: 49-50, t. 42. 1682.

The name Neervala (Malayalam script on t. 42) is still used; Neer meaning water. It is also called Neermadalam (Madalam is Pomegranate) today. The species is commonly found near the banks of streams, hence the name. Main localities mentioned are Mangatti, now known as Alangadu, a region east of Kodungalloor; and Poiga (place name not traced).

Tamara-tonga,
or
Carambolas

FIG. 43, 44.



HERE are two species of the tree called *Tamara-Tonga* by the Malabariss, *Carambola* by the Brahmins and the Portuguese, *Vyf hocken* by the Belgians, which (species) are scarcely distinguished among themselves, except that the other (species) is of very sweet taste. They do not grow high, namely up to about the height of twelve to fourteen feet: The stem hardly exceeds the measure of a foot in girth, and is provided with many branches spread in all directions, covered with rough and dark bark; wood white filled inside with white and soft marrow.

Similarly the root (is) white, covered with a black bark.

The leaves adhere to branch-lets in a parallel order, (are) oblong-round, acuminate, thick, soft, glabrous, green, shining on the upper side, never (shining) on the lower side, with certain nerves standing out on the lower side, running out from the mid-rib to the sides; woody smell, taste bitter and binding.

Flowers adhere to the branch-lets in a racemose manner, and arise from a reddish calyx, split into five lobes, consisting of five, oblong-round, purple leaflets, provided in the middle with five white stamens, equipped (furnished) with yellowish apices; taste slightly acidic, no smell.

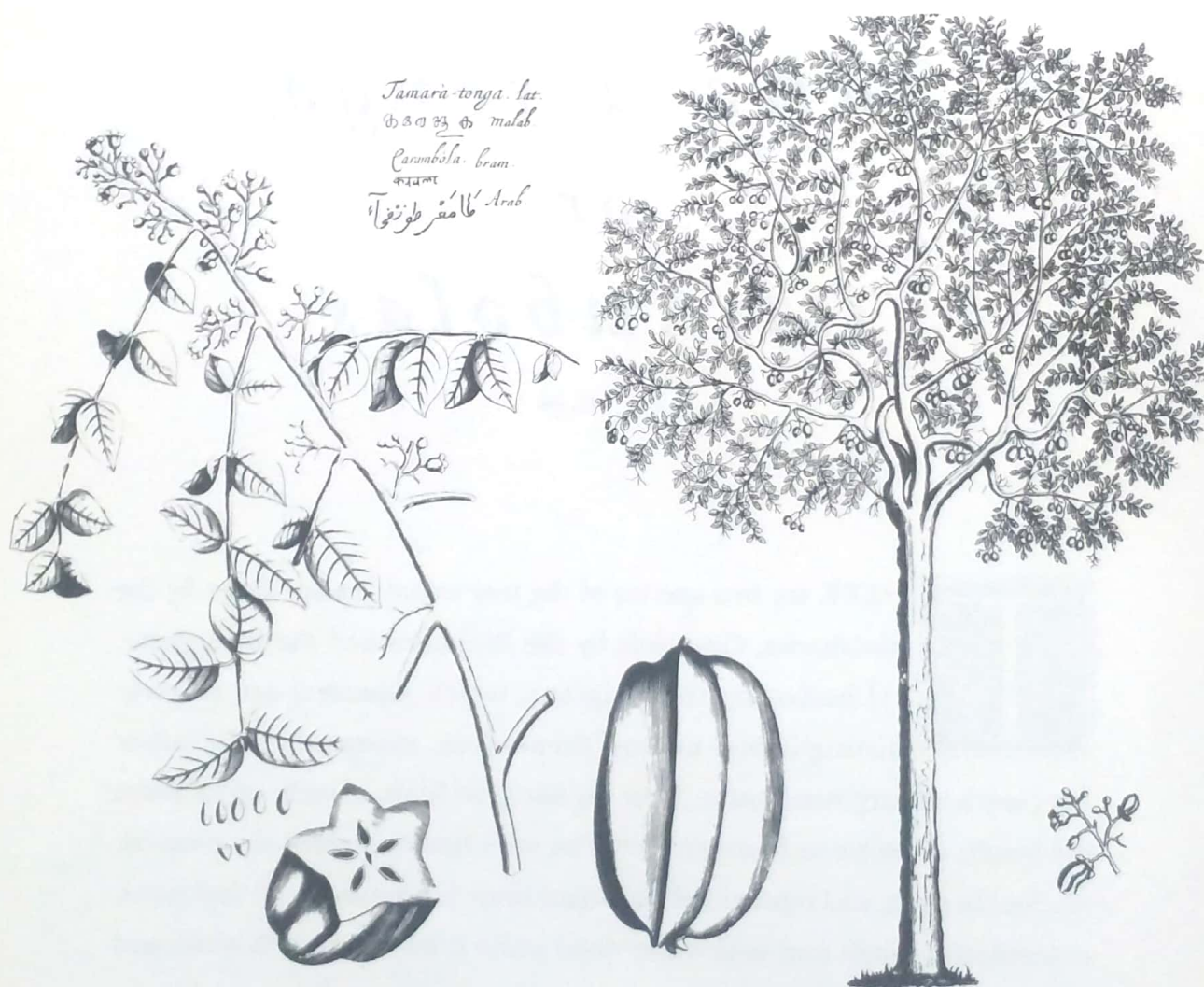


Fig. 43

Fruits oblong, provided with a small and protruding navel at the tip, grooved (marked) into five thick angles (corners) which however are more bulging in the middle, not so evident (visible) near both the heads (ends) surrounded by a slender, glabrous, shining, rind, first green and then turning yellow, very closely adhering to the flesh on all sides, filled inside with first white,

then the same turning yellow, tender, succulent, flesh, of first bitter taste, then of acid sweet and delectable taste. In its pentagonal medulla or womb called *Scribonio* in Greek, and hidden ten oblong seeds, on one side obtuse and the other pointed, red and glabrous, separated by certain membranous and hard skins or by most integer walls as in the apples, so that two seeds are hidden in each cell.



Fig. 44

This tree grows everywhere in Malabar, planted in gardens and orchards; bears flowers and produces ripe fruits thrice a year. Planted as a seedling or from seeds, remains fruit-bearing from the third year to the fiftieth year.

(Its Uses)

The juice however, pressed out from the roots of this tree and taken in, checks feverish heat. From the leaves crushed with the infusion of rice, a plasma is made, which powerfully softens and opens any boil (tumor), and indeed from these leaves boiled or macerated in the infusion of rice, an excellent decoction is made. The juice pressed out from the fruits heals itches, intolerable psora and similar skin affections, if applied with linen to the affected parts from time to time; and the same juice, if given to drink with burnt wine of Indian nut (which is popularly known as *Araque*) alleviates stomach-ache and stops diarrhoea. Moreover from these leaves crushed a plasma is prepared with the juice pressed out from the flowers of the palm, which heals any kind of inflammation. From dried fruits crushed with leaves of Betel, a powder is made, which given to drink with the burnt wine of Indian nut, promotes the labour pain of the pregnant, and also expels dead foetus.

Still ripe fruits are eaten as a delicacy, unripe ones are pickled with *Sugar*, brine or vinegar. Beside from the unripe fruits a juice is pressed out, which falling on clothings eats up (removes) the colour by its sourness and therefore they are often employed for removing any kind of stains from linen; also colours for dyeing linen are prepared from it; and also goldsmiths use unripe fruits to boil down and purify silverware.

Averrhoa carambola L. Sp. Pl. 428. 1753; Backer & Bakh., Fl. Java 1: 247. 1963; Veldkamp in Fl. Males. 1,7: 175. 1971; Manilal & Sivar., Fl. Calicut 56. 1982 [OXALIDACEAE].

Tamara-tonga, Carambola(s) Rheede. Hort. Malab. 3: 51-53. t. 43-44. 1682.

The name Tamarathunga (Malayalam script on t. 43) is no longer used; tamara means lotus and thunga means hanging, indicating a similarity to the fruits of lotus but pendent. Today, the name is Varippanpuli; Varippu means ridge (varippan means that which has ridges) and puli is the general term for fruits with an acidic taste, or the acidic taste itself; thus an acidic and ridged fruit. The tree is mentioned by Rheede as growing everywhere in Malabar but now it is seen in Malabar under cultivation only. *Carambola* is the Konkani (Brahmanic) name of the plant.



Bilimbi

FIG. 45, 46.



ILIMBI for the Malabaris, *Malaki-Karamboli* for Brahmins, *Bilimbinos* for the Portuguese, *Blimbynen* for the Belgians, is a small low tree, about eight or ten feet high, with a slender stem, elegantly furnished with black-green bark, first hirsute and slightly rough with very fine spines, then glabrous, and are inside filled with soft white marrow; the wood however very hard, white, insipid, odourless.

Root similarly white, covered with red bark.

Leaves adhere to branch-lets in a parallel order (are) oblong-round, thick, soft, green, shining on the upper side, never shining on the lower side, with a few nerves, standing out on the lower side, running out from the mid-rib to the sides, smell sweet, taste slightly acidic.

Flowers numerous adhere not to foliaceous shoots but to the branches themselves and also to the whole stem, and as if collected in fascicles one span long, and come out from a red calyx, incised into five acuminate lobes, consisting of five slender, oblong-round curled leaves, shining with purple

colour on the upper side, (and) pale on the lower side, with ten ruddy stamens in the middle, equipped with white apices, occupying the middle cavity and the white centre of the flower, of which the five elevated ones jut out of the flower, five (others) are shorter: smell of violets, taste slightly acidic and pleasing.



Fig. 45

The fruits which also many together follow the flowers, are quite similar to the fruits of *Tamara-tonga*, are oblong-round, in size coming up to a hens egg, furrowed with five thick corners covered with slender rind, closely adhering to the flesh, green, glabrous and shining, filled inside with flesh first green, then yellowish, tender, succulent, of first bitter taste then slightly

acidic and sweet, which is not dissimilar to the flesh of grapes. In its pentagonal "middle prison" (cell) lie hidden oblong seeds, one side obtuse, the other side acute, red, glabrous separated by certain membranous sacs or very intact



g. 46

walls, so that each one lies hidden in its own cell, at times also in pairs. This tree, planted in the gardens by seedlings or by seeds, grows every where in Malabar, flowers and bears fruits through the whole year and is fruit-bearing from the first year of planting to the fiftieth and beyond.

(Its Uses)

Each part of this tree has the same powers and the same use in medicine as *Tamara-tonga*. Ripe fruits are also eaten as delicacy, unripe fruits are pickled with *Sugar* or vinegar and brine: and although ripe, are of slightly acidic and pleasing taste, immature ones however bitter, so much so that the insensibility of teeth contracted by the eating of acidic things, are blackened by eating these fruit.

Averrhoa bilimbi L., Sp. Pl. 428. 1753; Veldkamp, Fl. Males. 1.7: 177. 1971; Manilal & Sivar., Fl. Calicut 56. 1982 [OXALIDACEAE].

Bilimbi Rheede, Hort. Malab. 3: 55-56, t. 45-46. 1682.

The name Bilimbi (from Malay Bilimbing) is still used. There are two other names used, Irimpanpuli and Chemmeenpuli. Irimpan (from Irimbu) means iron and puli is acid, denoting the rich iron content in the fruit. Chemmeen means shrimp (or prawn) and the fruit is used in a special kind of shrimp curry. The species is only cultivated in Malabar.

—◆—

Neli-pouli
or
Bilimbi The Smaller

FIG. 47, 48.



HERE are two species, quite similar to each other, of the small tree which is called *Neli-pouli* by the Malabaris, *Amvallis* by the Brahmins, *Cheramela* by the Portuguese, *Suercnoop* by the Belgians, of which, the other although flowers, however does bear no fruit and is called by a special name *ala-pouli*. They grow not tall namely to the height of eight or ten feet. The stem white, hardly exceeds the measure of one foot in girth, furnished with many foliaceous, glabrous, green shoots, spread in all directions, covered with a thick, dark and inside purple bark.

The purple bark is covered with an ash-grey bark, and drips milky juice; cutting (sharp) taste, no smell.

Leaves, quite similar to the leaves of *Bilimbi*, adhere to branch-lets in a parallel fashion, with which later, when the tree puts forth new leaves, fall down from the bigger branches. Similarly the flowers are seen not on foliaceous shoots, not on the stem itself as in *Bilimbi*, but adhere to woody

branches in a racemose fashion, (are) small, not dissimilar to florets of grape vine, consisting of four or six, slender, acuminate, purple leaflets, spread out in the form of a star, provided with eight or ten white fibres in the middle, smell sweet, taste slightly acidic.



Fig. 47

The fruits, which follow the flowers, also adhere to woody stems in a racemose manner, plain-round, resembling big black cherry in size, grooved with six or eight angles (corners), glabrous, light green, shining and transparent, furnished with a very small and concave navel at the apex, and also filled inside with succulent flesh (not dissimilar to flesh of prunes, is)



Fig. 48

slightly acidic, and of pleasing taste, and surrounded by a slender skin, adhering to the flesh on all sides, within the flesh is contained a nut (?)

Thrives all over Malabar and Canana. Produces flowers and fruits, as *Bilimbi*, throughout the whole year, (continuing) up to fifty years.

(Its Uses)

The bark of root and stem, with mustard and cumin stops vomiting and flow (loose motion) of stomach. However, with the fruits of *Tamara-tinga*, (is) very much useful in checking the flow from the belly. A decoction of the leaves with cumin promotes sweating. Besides, with the Malabar crocus (*Manya Coua*), is an efficacious remedy for the pains of members (limbs)

The other species of this tree, commonly called by the name *Ala-pouli*, has no use in medicine

Phyllanthus acidus (L.) Skeels, U.S.D.A. Bur. Fl. Ind. Bull. 148: 17. 1909; Webster, J. Arnold Arb. 38: 66. 1957; Manilal & Sivar., Fl. Calicut 263. 1982. -*Averrhoa acida* L., Sp. Pl. 428. 1753. *Cicca disticha* L., Mant. 124. 1767. *Cicca nodiflora* Lam., Encycl. 2: 1. 1786. *Phyllanthus longiflorus* Jacq., Hort. Schoenbr. 2: 36, t. 194. 1797. *Cicca acida* (L.) Merr., Interpr. Rumph. Herb. Amboin. 314. 1917 [EUPHORBIACEAE].

Neli-pouli Rheedee, Hort. Malab. 3: 57.58, t. 47-48. 1682.

The name Nellipuli (Malayalam script on t. 47) is still used; Nelli refers to Goose berry [*Phyllanthus emblica*] and puli refers to the acidity of the fruit. The species is only cultivated in Malabar.

—♦—

Panja, Panjala
or
Arbor Lanigera Bonti

FIG. 49, 50, 51.



ANJA for Malabaris, *Sangori* for Brahmins, *Algodano* for Portuguese, *Kapock* for Malaccans *Donsboom* for Belgians, is a tall tree, forty or fifty feet tall, with the branches divided into other smaller ones in a decussate manner spread in all directions; so that they seem like expanded wings and (as is observed in fir and pine) the branches become more and more slender towards the sky (top). Wood white, covered with a soft, glabrous, black-green coloured, odourless and insipid bark.

Root whitish, covered with an ash-grey glabrous bark, does not spread wide in the soil by its fibres, but adhere to it deeply; taste viscid and sticky, no smell.

The leaves adhere to round, glabrous, and also red petioles, many joined together and spread out, (are) oblong round, glabrous, thick, equaling (measuring) one span in length, about two digits in width, shining with common greenness, with some nerves standing out on the lower side, running out to the sides from the mid-rib in an orderly and parallel tract.

Flowers odourless and insipid, many joined together, adhere to red, round and hirsute petioles on woody branches, and come out from a thick, green calyx, divided into five lobes, formed of (consisting of) five, sub-round thick,

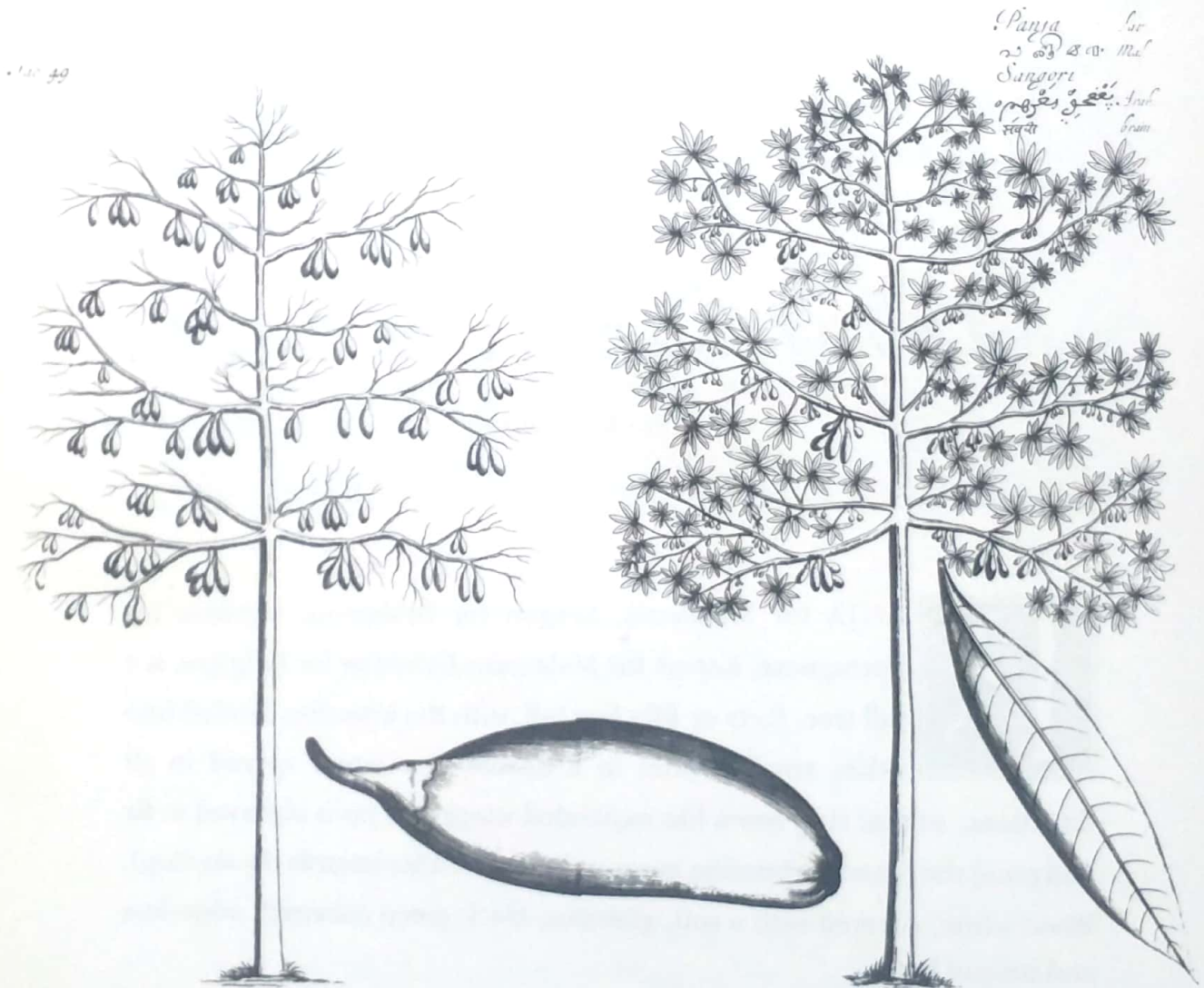


Fig. 49

inside downy outside glabrous shining and white leaves, with five, round, thick stamens in the middle, furnished elegantly with yellow, sickle-shaped and split apices, occupying the middle cavity and centre of the flower; in between which the style comes out, provided with a yellowish globule.

Fruits are oblong-round, furrowed (marked) by five corners (angles) covered first with green glabrous and shining, then red, rough and hard rind divided inside into five white and shining locules filled with down cotton, as is seen described for *Erucu* in part 2, Fig.31, inside (within) which down, when the fruit finally dehisces, are observed round, glabrous, blackish seeds. When



Fig. 50

however the fruits of this tree are mature, most of its foliage fall down, by which time the tree is with only fruits.

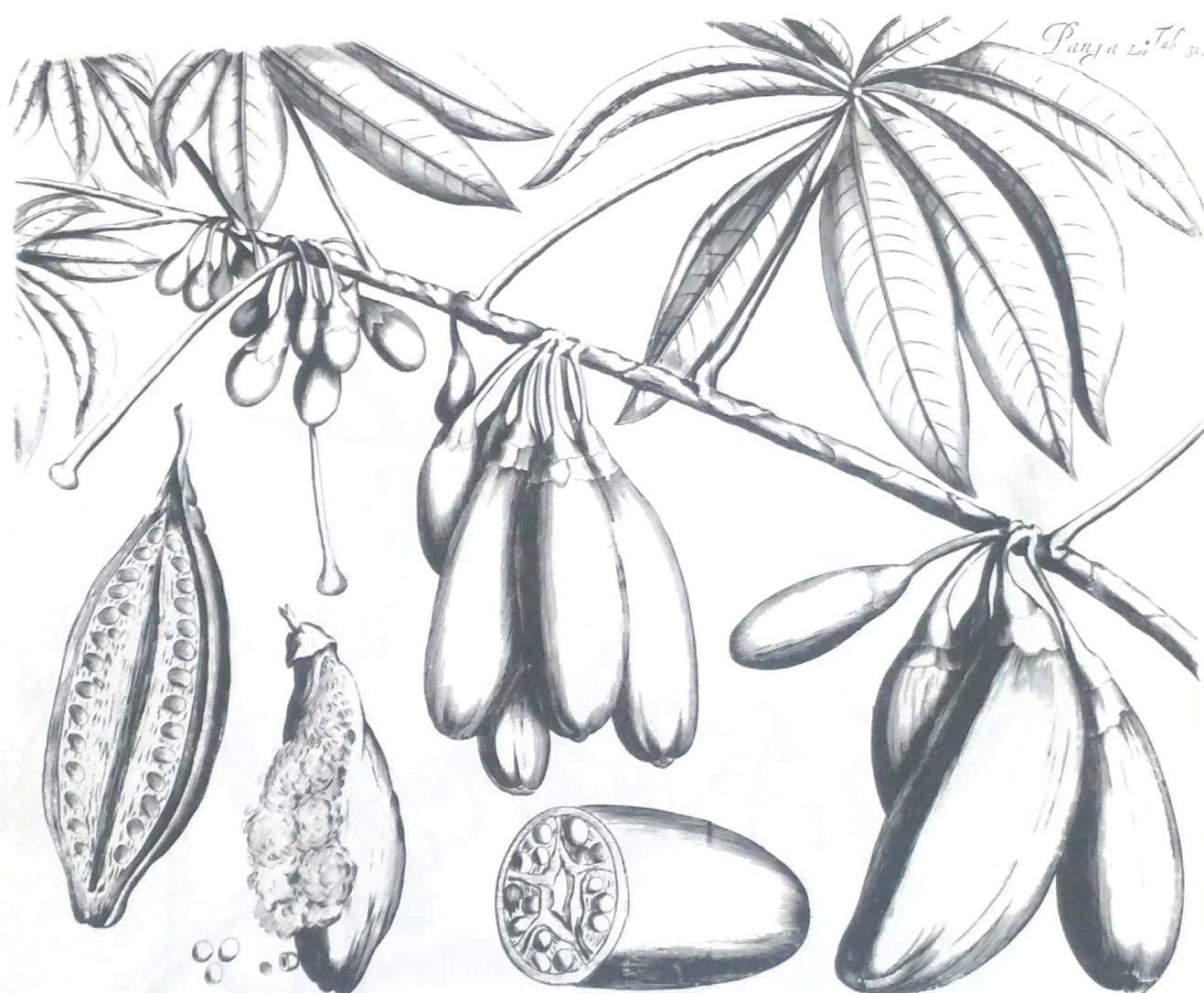


Fig. 51

Grows everywhere in Malabar, bears fruits once a year, namely in the months of January and February, and however again in March and April they put forth leaves and flowers and planted by seeds it remains fruit-bearing not rarely for forty years.

(Its Uses)

And indeed, the down or cotton of these fruits is collected and from it beds and pillows are made, which, because of the great softness is worth much. The dried fruit of the tree is carried as a precaution, against spasm. Tender flowers and fruits crushed into the form of a plasma and placed on the head removes giddiness and gout in the head (head ache).

Ceiba pentandra (L.) Gaertn., Fruct. 2: 244, t. 133. 1791; Bakh., Bull. Jard. Bot. Buitenzorg ser. 3, 6: 194. 1924; Robyns in Dassan., Rev. Handb. Fl. Ceylon 1: 70. 1980; Manilal & Sivar., Fl. Calicut 50. 1982; Sasidh. & Sivar., Fl. Thrissur 65. 1996; Sivar. & Philip, Fl. Nilambur 97. 1997. - *Bombax pentandrum* L., Sp. Pl. 511. 1753. *Eriodendron anfractuosum* DC., Prodr. 1: 479. 1824. *Eriodendron anfractuosum* var. *indicum* DC., Prodr. 1: 479. 1824. *Bombax orientate* Spreng., Syst. Veg. 3: 124. 1826. *Gossampinus alba* Ham., Trans. Linn. Soc. London 15: 126. 1827. *Eriodendron orientate* (Spreng.) Kostel., Allg. Med.-Pharm. Fl. 5: 1875. 1836. *Ceiba pentandra* var. *indica* (DC.) Bakh., Bull. Jard. Bot. Buitenzorg ser. 3, 6: 196. 1924 [BOMBACACEAE].

Panja, Panjala Rheede, Hort. Malab. 3: 59-60, t. 49-51. 1682.

The name Panjimaram (Malayalam script on t. 49) is still used; Panji (the nj pronounced as nasalized y) refers to cotton and maram means tree. Panjikka refers to the fruit, from kaaya, fruit. The tree is only known in cultivation in Malabar. The cotton is used in pillows and mattresses. In north Malabar the tree (and also the cotton) is known as *Ounnam*.

—♦—

Moul-elavou
or
Arbor Lanigera Spinosa

FIG. 52.



THE tree which is called *Moul-Elavou* by the Malabaris, *Valli-Sanvari* by the Brahmins, *Algodano do Mato* by the Portuguese, *Wol-doorn* by the Belgians, is a tall tree, admirable, not rarely exceeding the measure of fifty feet in height and eighteen feet in thickness, before it spreads any branches. Wood soft, fragile, light red, surrounded by a thick, soft, ash-grey bark, inside ruddy and rough; which is every where furnished with numerous rigid, black, shining scales provided chiefly with spines; these sharp spines however firstly fall down from around the base of the stem, however remain the upper branches, which they cover from all sides; and this is the reason why monkeys never climb these trees.

The root thick, fibrous, white, covered with a light red, yellowish and noddled bark; taste bitter, no smell.

The leaves insipid, odourless, sticky when crushed in hand, not dissimilar to the leaves of *Panja*, similarly adhere to long, round, smooth and green-

grooved petioles with nodes at the base, many joined together and spread horizontally (in a whorl).



Fig. 52

Flowers sweet smelling and equaling a palm in size, adhere many joined together to the tips of branch-lets and come cut from a thick, dense, calyx, light green inside and yellowish outside, consisting of five oblong, thick, dense leaves, shining everywhere with purple colour, outside downy and curved, with thick, mucronate, dense, long and ruddy stamens in the middle,

provided with black, sickle-shaped apices, occupying the middle cavity and centre of the flower in a double order among which the split style comes out, which is the rudiment of the fruit itself. Moreover in the base of the flower is observed a light blue and transparent liquid which is of most sweet and delectable taste.

Fruits oblong-round, quite similar to the fruits of *Panja*, inside in like manner divided into five locules, stuffed with white and shining down or cotton, within which cotton, when the fruit finally dehisces, are observed similar numerous, round, smooth, shining seeds; however placed not in a triple as in *Panja*, but in a double order (line).

This tree grows everywhere in Malabar, planted by seeds, bears fruit about the sixteenth year, which thus they produce once every year in the months namely of February and March, and remains fruit bearing up to the two hundredth year and beyond.

(Its Uses)

Moreover this tree, since it conceals this down in the fruit, is to be referred to the genus of those which give cotton: and from this down, as hinted about the fruits of *Panja*, beds and pillows are made. From the wood of the tree small boats are constructed.

The bark of the tree powdered and with the juice of lemon reduced to the form of an ointment checks inflammation and consolidates fracture of bones; however mixed with the burnt wine from the Indian nut, is employed for ointment for herpes (skin disease of various kinds, with spreading clusters of vesicles). That sweet liquid, which is collected in the base of the flower, offered with the leaves of *Balampuli* or Tamarind, sends out powerfully aqueous liquids through the belly and the bladder.

Bombax ceiba L., Sp. Pl. 511. 1753; Robyns, Bull. Jard. Bot. Bruxelles 33: 88. 1963; Robyns in Dassan., Rev. Handb. Fl. Ceylon 1: 64. 1980; Manilal & Sivar., Fl. Calicut 50. 1982; Manilal, Fl. Silent Valley 30. 1988; Sasidh. & Sivar., Fl. Thrissur 64. 1996; Sivar. & Philip, Fl. Nilambur 96. 1997. -*Bombax heptaphyllum* L., Syst. Nat. ed. 12, 457. 1767, non L., Sp. Pl. ed. 2, 960. 1763. *Bombax malabaricum* DC., Prodr. 479. 1824. *Gossampinus rubra* Ham., Trans. Linn. Soc. London 15: 128. 1827, nom. illeg. (incl. type of *B. ceiba* L. 1753). *Salmaalina malabarica* (DC.) Schott & Endl., Melet. Bot. 35. 1832 [BOMBACACEAE].

Moul-elavou Rheede, Hort. Malab. 3: 61-62, t. 52. 1682.

The name Mulelavu (Malayalam script on t. 52) is still used; mul (from mullu) means spines or thorns and elavu means silk cotton tree, *i.e.* spiny elavu. The species is known in the wild in Malabar. It is now popularly cultivated for the wood used for making safety matches and wood pulp.

Rheede mentions that from its wood small boats are constructed. This however, is not found to be in practice now.

—◆—

Belutta Tsjampakam

or

Castanea Rosea Indica

FIG. 53.



HIS tree is called *Belutta Tsjampakam* by the Malabaris, *Nagatampo* by the Brahmins, *Moroius Rosado* by the Portugese, *Castanie Roosen* by the Belgians; and is of great size with a dark coloured, thick, very hard, smooth stem and provided with many branches like *Tiliarum* spread horizontally which are covered with a thick smooth yellowish brown bark of aromatic smell and, are of bitter and sour taste.

Root fibrous red, covered with smooth and yellowish bark, taste bitter, smell aromatic.

The leaves adhere to branchlets by means of petioles in a parallel fashion, are oblong round, glabrous round thick, green on the upper side, on the lower covered with light blue powder (as is seen in grapes), shining with some nerves very subtle and almost escaping sight running to the sides from the mid rib; smell similarly aromatic, taste bitter and sour.

The flowers very similar to wild rose or Eglentin (honey-suckle) size adhere to a quadripartite small thick green calyx consisting of four white round and

tender leaves, with a cluster of slender and white filaments furnished with yellow apices occupying the middle cavity and the centre of the flower, the smell sweet rosaceous and of violets, taste bitter.

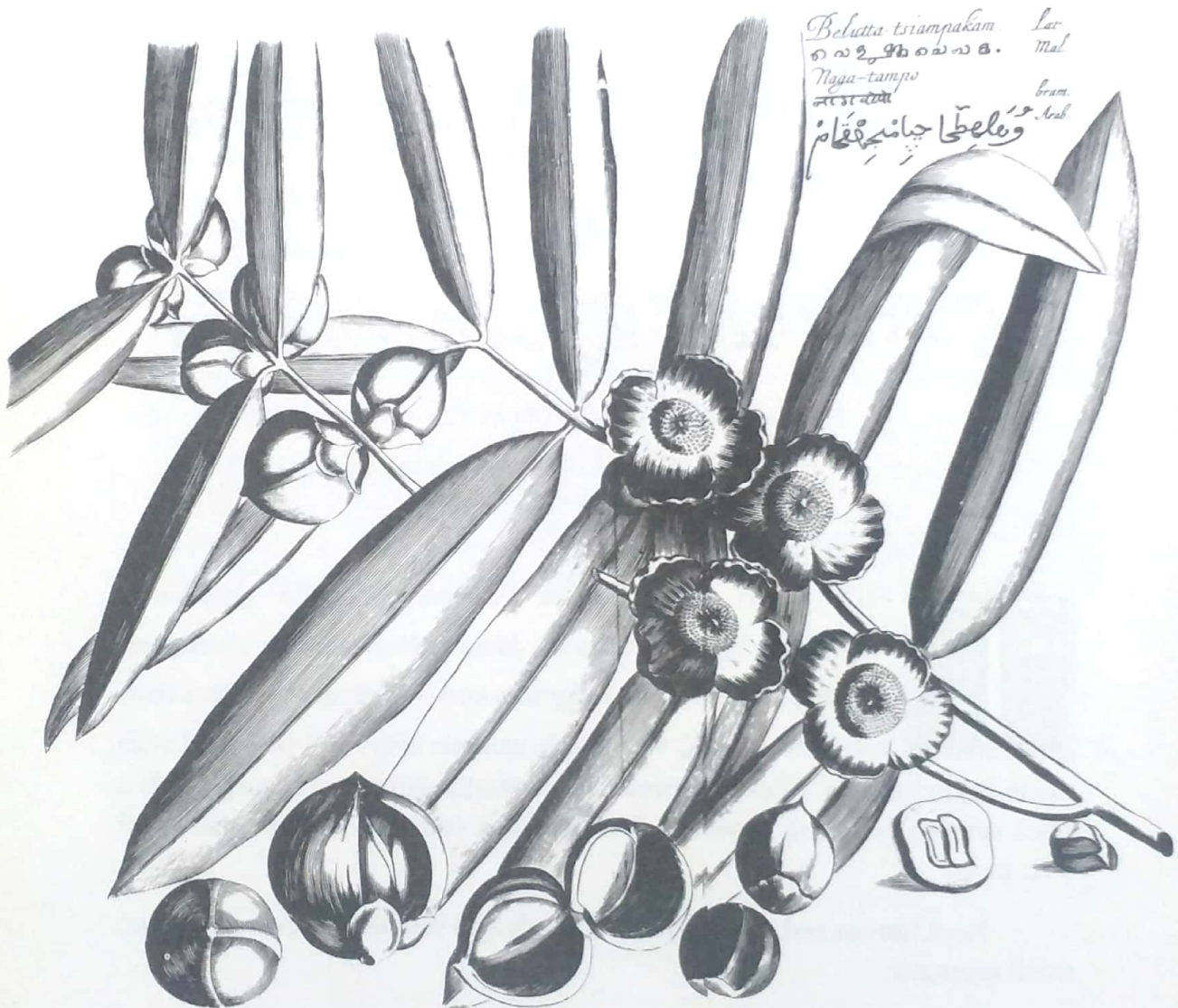


Fig. 53

The fruits globose, furrowed (start) with four protruding corners (angles) acuminate at the tip smooth and light green in the beginning when they begin to mature red and wrinkled covered with a rind first thick and soft then red and hard, very similar to the rind of chestnut: inside however are

contained three or four kernels emulating both in shape and size and in substance and taste of chestnut. The tender fruits however exude around the base a tenacious and glutanious gum, the smell of which is sharp and aromatic.

This tree is cultivated everywhere in Malabar especially in the provinces of Mangatti because of the sweetness of the flower which they bear in the months of July and August; produces mature fruits every year from the sixth year of planting and remains fruit-bearing or fruitful not rarely for three centuries.

(Its Uses)

Moreover the root of this tree crushed with fresh *Ginger* if taken, powerfully expels sweat, similarly the bark of the tree when taken applied to wound in the form of powder heals the sting of snakes. From the leaves cooked in sweet milk and crushed with the addition of oil of palm, a plasma is made, which placed on the head, reduces viscid and phlegmatic liquids collected in the head, brain, thins them (makes them thin) and purges through the nose or nostrils and so heals cold and catarrh. The decoction itself of the leaves drunk, cut short phlegm, thinning and expelling it heals cough. Fresh fruits boiled with honey softens and loosens the belly, dried ones however bind together, from these oil is pressed out which smeared on the joints pleasantly removes any kind of their pains.

Mesua ferrea L., Sp. Pl. 515. 1753; Stevens, Taxon 35: 353. 1986; Sasidh. & Sivar., Fl. Thrissur 53. 1996; Sivar. & Philip, Fl. Nilambur 70. 1997. - *Calophyllum nagassarium* N. Burm., Fl. Ind. 121. 1768. *Mesua speciosa* Choisy in DC., Prodr. 1: 562. 1824. *Mesua nagassarium* (N. Burm.) Kosterm., Ceylon J. Sci., Biol. Sci. 12: 71. 1976; Kosterm. in Dassan., Rev. Handb. Fl. Ceylon 1: 106. 1980; Sald. & Eswar Rao in Sald., Fl. Karnataka 1: 210. 1984; Manilal, Fl. Silent Valley 21. 1988 [CLUSIACEAE].

Bellutta-tsjampakam Rheede, Hort. Malab. 3: 63-64, t. 53. 1682.

The name Velutha Champakam (Malayalam script on t. 53) is still used; velutha (from vella) means that which is white and champakam refers to *Michelia champaca*, i.e., Velutha Champakam means the white *Michelia*, referring to the whitish glaucescence (gleaming bluish green or grey) of the undersides of the leaves. Another name Nagapoomaram is also used, meaning snake-(nagam) flower -(poo), tree (maram), indicating that it is revered. It occurs in the lowlands of Malabar in sacred (protected) groves and is often planted.

The main locality where the plant is mentioned to be growing are Mangatti, now called Alangadu, a region east of Kodungalloor.



Kapa-mava

or

Acajous actually another species of
Anacardi B. Pin.

FIG. 54.



APA-MAVA or *Kasjavo-maram* for Malabariss, and *Kasjo* for Brahmins, *Cajou* for the Portugese and Belgains, is a tree of medium size with a thick white stem covered with ash grey inside purple bark of light acid smell and binding taste, provided with black green branches elegantly spread over.

Root white, covered with dark bark clothed with slender filaments.

Leaves adhere to the branches without any order, are oblong round glabrous shining with common greenness with some nerves standing out on the lower sides running into the sides from the thick midrib. The tender leaves of this, however when rubbed in the hands are gummy and emits a fragrant smell, the older ones however become quite red before they fold down. Florets sweet smelling and emitting the smell of honey, adhere to the tops of branch-lets in a racemose order and come out of a small green calyx divided into five acuminate lobes consisting of five round curved leaflets first green yellowish, then red and finally purple, provided with same slender stamens equipped with yellowish apices occupying the middle cavity of the

flower amidst which the style comes out which emerges from the rudiment of the fruit itself.

The fruits not dissimilar to our pears both in shape and in size, smooth shining first red then green and finally yellowish filled inside with green



Fig. 54

yellow soft and aqueous flesh and surrounded by a thin skin, smell sweet, taste that of wine; if not yet well ripe bitter however, and sour.

At the other end of this fruit, a certain nut, resembling the kidney and hard in shape and size, is formed (born) namely on the other hunched side,

having on the opposite side an imprinted hole, which is covered with an ashen rind; and besides this rind another one surrounds the pale kernel.

This tree grows everywhere in Malabar, every year it bears mature fruits namely in the months of August and September, remains fruit-bearing for about thirty years.

(Its Uses)

Moreover from these fruits, drink is pressed out, which fermented in the right manner, becomes like wine and inebriating. The fruits are used in delicacies and are eaten like almond; nobody may open the unripe ones safely by mouth, because they scrape off the skin with great pain, of those who, being ignorant (inexperienced) cut them rashly therefore they are opened with a knife, or like chestnuts, are baked under ashes, so that they can be eaten. When they are swallowed they however injure the throat by their peculiar nature, with bitter and sour taste; therefore they are torn apart, having added water or wine and after throwing in salt, by which methods the sharpness is mitigated thus very pleasing to palate (taste). The natives feed upon these kernels slightly roasted in order to stimulate charm (aphrodisiac?). From the nectary (juicy area) which the twin cortices contain within, the natives produce a lot of oil, which is in use for painters for dyeing any kind of linen with indelible black colour, if wood is smeared with the same oil it is preserved against rotting and so is rendered more durable. Moreover it is said that there is nothing more excellent than that sharp oil for removing lichens (ring-worm) and impetigines (a skin disease characterised by thickly set cluster or pustules), the natives use the same oil against scabies and for killing worms, it being smeared outside. Finally, these kernels if eaten, strengthen the stomach, help the fermentation of food, and also removes vomiting and nausea. The juice however, pressed out from these fruits stops diarrhoea and heals diabetes.

Anacardium occidentale L., Sp. Pl. 383. 1753; Manilal & Sivar., Fl. Calicut 73. 1982; Meijer in Dassan., Rev. Handb. Fl. Ceylon 4: 8. 1983; Sasidh. & Sivar., Fl. Thrissur 125. 1996; Sivar. & Philip, Fl. Nilambur 167. 1997 [ANACARDIACEAE].

Kapa-mava Rheede, Hort. Malab. 3: 65-67, t. 54. 1682.

The name Kappamavu (Malayalam script on t. 54) is no longer used now; kappa (shortened from kappel) means ship, indicating its introduction from overseas (by the Portuguese) and mavu is the name of mango tree. Today, two names are used, Kasumavu and Parangimavu; kasu is of the same origin as cashew and Parangi refers to (European) foreigners, especially Portuguese. The nut is called Kasuandi (cashew seed) and the fruit is called Kasumanga (cashew "mango"). The tree is cultivated and naturalized in Malabar.

Itti-Arealou

FIG. 55.



TTI-AREALOU for the Malabaris, *Douadeke-goli* for Brahmans, *Arbore da Raijs menor* for the Portuguese, *Cleyn Wortelvyge* for the Belgians, grow into a tall tree, the fibrous, white root of which, covered with a black bark, which when cut drips a milky juice.

The stem, not otherwise than described in *Itti-alu*, part I. Tab.26 and *Peeralu* Tab.28, is observed, spreads many branches everywhere, which (after the tree has lived for forty or fifty years) send downwards certain slender and for that matter singular fibres or filaments of red and waxy colour, by which, then they reach the soil, they are fixed, and produces as if a new offspring, and even pass into a new stem of trees, which again spreading new branches towards the sides from its apex, again sending downward new fibres, propagate themselves. Thus other branches one after another infinitely, so that occasionally one single tree may occupy one Italian mile in circumference by its offspring, and it is difficult to decide which is the primary tree or the parent of all these offsprings except from the thickness of the trunk, which sometimes is so much that it can hardly be sized (held) by the arms of three men. Moreover not only the lower branches spread similar fibres, but also

the top ones in the tree and therefore a single tree forms a very thick forest and not rarely survives for many centuries. Underneath these however branches, the natives prepare access to themselves and are used to cut open the fibres already become trunks, namely the weaker ones, and in that way they make as if rooms and shades, for the sake of keeping heat at a distance:

Itti-arealou. Lat.

ഇതി അലൗ Ma.

Dou-adeke-gôli.

ദൗ അദെകേ ഗോലി Gram.

بجین علیغ Arab.

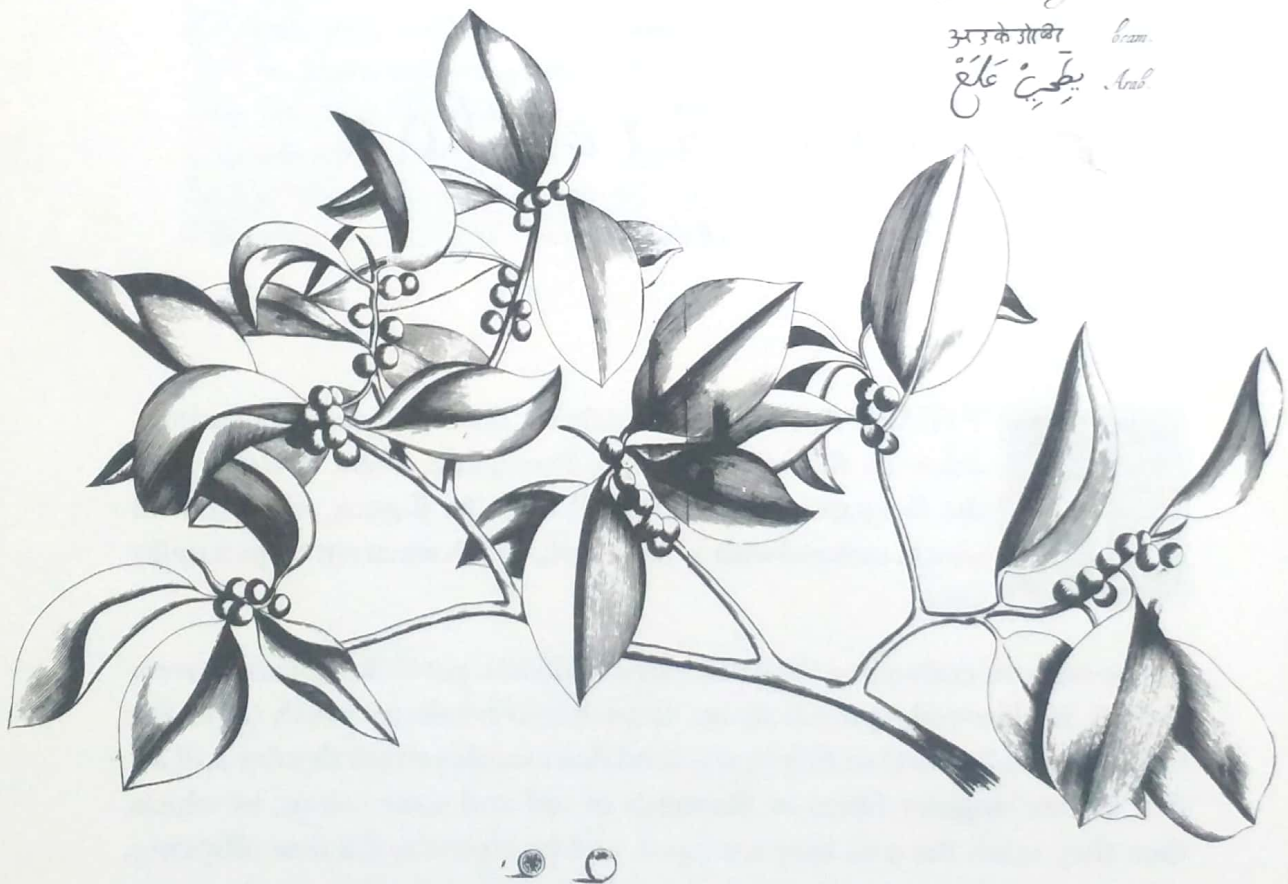


Fig. 55

for the remaining bigger branches grow so luxuriantly in their smaller branches so that sun's rays cannot penetrate by no means; may be a few thousands of men can hide under such a tree.

The fruits small, plain-round, first with green colour, then inside and outside blood red, and full of grains, like the ordinary fig, indeed, but of less pleasing taste than the other, wherefore they are food to birds rather than men, they arise in between the leaves just as the ordinary fig, that is, on the new branches, on which part leaves adhere to them.

It grows everywhere in Malabar, especially around Werapouli, is ever green (is green the whole year) and bears fruit.

(Its Uses)

Moreover from the bark, root and leaves of this tree cooked in oil, a balsam is prepared for wounds. From the bark cooked in buttermilk a mouth wash is made, which wipes out aphthas (small whitish ulcers on the surface of a mucous membrane), heals flabby and eroded gums and also strengthens (makes firm) shaking (loose) teeth.

Ficus microcarpa L.f., Suppl. Pl. 442. 1782; Corner, Bull. Gard. Singapore 17: 397. 1960; Corner, l.c. 21: 22. 1965; Corner in Dassan., Rev. Handb. Fl. Ceyl. 3: 258. 1981; Manilal & Sivar., Fl. Calicut 276. 1982; Sasidh. & Sivar., Fl. Thrissur 429. 1996. - *Ficus retusa* sensu auct.; *F. nitida* sensu auct.; *F. retusa* var. *nitida* sensu auct. (non vera): common misidentifications reported by Corner (1960, 1981) such as by King (Ann. R. Bot. Gard. Calcutta 1: 50. 1887) and Barrett (Bull. Torrey Bot. Club 76: 53-64. 1949) [MORACEAE].

Itti-arealou Rheede, Hort. Malab. 3: 69- 70, t. 55. 1682.

The name written alongside the illustration is *Itty alou* and not *Itty arealou*. The name *lthyalu* (Malayalam script on t. 55) is still used. *Itty alou* and *Arealou* are two different species of *alou* (Ficuses). There is no *Alou* called *Itti arealou*. *Arealu* is the name of *Ficus religiosa* and has nothing to do with this species, except both have sessile figs. Barrett (Bull. Torrey Bot. Club 76: 57. 1949) translated "itti-are-alou" as "Little Root- Tree", which is incorrect. This could be another example [variety] of *Ficus microcarpa* described in Vol. 1, Fig. 26.

The place Warapouli, where the plant is mentioned to be found, is now known as Varapuzaha.





Tsjerou-meer-alou

FIG. 56



THE tree, which is called *Tsjerou-meer-alou* by the Malabaris, *Paray* by the Brahmins, *Arvore da Raijs* by the Portuguese, *Wortelboom* by the Belgians is smaller and humbler species of the preceding one, grows in the same, manner, and is propagated like *Itti-arealou*.

The leaves are similar to the leaves of *Atti-meer-alou*; but smaller, and more numerous.

Similarly the fruits very similar to the fruits of *Itti-arealou*, but smaller, and adhere, to new branches by means of short petioles among the leaves.

Moreover, like *Itti-arealou*, this species also grows everywhere in Malabar, especially in the province of Werapoly, is green for the whole year and bears fruit.

(Its Uses)

The powers of this tree are the same as of the preceding, except that from the root cooked with lime and *Curcuma* (Turmeric) in water, a bath is prepared for healing epilepsy and leprosy.



Tjirou-marallou Lat.
 ചെറുതൊട്ടി Mal.
Parai
 പാറു Gram.
 بجره عرب.

Fig. 56

Ficus tinctoria G. Forster, Fl. Ins. Austr. 76. 1786.

Ficus tinctoria subsp. *parasitica* (Wind.) Corner, Gard. Bull. Singapore 17: 476. 1960; Corner in Dassan., Rev. Handb. Fl. Ceylon 3: 276. 1981; Manilal & Sivar., Fl. Calicut 276. 1982; Sasidh. & Sivar., Fl. Thrissur 430. 1996; Sivar. & Philip, Fl. Nilambur 669. 1997. - *Ficus parasitica* Willd., Mem. Acad. Roy. Sci. Hist. (Berlin) 2: 102. 1798. *Ficus excelsa* Vahl, Enum. 2: 195. 1805. *Ficus gibbosa* var. *parasitica* (Wind.) King, Ann. R. Bot. Gard. Calcutta 1: 6. 1887 [MORACEAE].

Tsjerou-meer-alou Rheede, Hort. Malab.3: 71, t. 56.1682.

The name Cheru meeralou (Malayalam script on t. 56) is not used now. Cheru means small. Mee in Malayalam is prefixed to indicate high/above/top. Alou is the general term for *Ficus*. Mee + alou becomes meeralou in Malayalam. Thus, meeralou is an alou (*Ficus*) that grows perched on top of other [trees], as an epiphyte. The name Cheru meeralou means a small *Ficus* growing as an epiphyte on top [of other trees].

The scientific name given is *F. tinctoria subsp. parasitica*. However this is not a parasite in the strict sense but is only an epiphyte. They produce many roots which quickly grow down and get attached to the ground. Afterwards, this *Ficus* grows vigorously and ultimately strangles its host tree which dies. Such "Strangler Ficuses" are common in the thick tropical forests of Malabar.

The place name mentioned is Warapouli, which is now known as Varapuzha. Neither thick forests nor Strangler Ficuses are now found there now. Varapuzha has been the seat of the Archbishops of St. Thomas Christians, even centuries before the times of Rheede. [See also the discussion below "Atti meeralou", t. 58].





Katou - Alou

FIG. 57.



ATOOU-ALOU to the Malabarais, *Doulo-vadhou* for the Brahmins, *Rayseira Vidriado* for the Portuguese, *Glas-vijge boom* for the Belgians, grow into a tall tree, may be more tall then *Itti-alou*, *Peeralou*, *Tsjerou meer-alou* or *Ittiare-alou*, and is propagated in the same way as *Itti-arealou* by means of fibres sent downwards from the branches. For the rest, as regards the wood, bark and root, this species quite agrees with the preceding ones.

Leaves oblong-round, and mucronate, thick, fragile, smooth black, green, shining on the upper surface, white and downy on the lower, insipid, odourless; from the mid-rib many prominent nerves go out in an orderly and parallel fashion, which towards the edges run into themselves in an arched manner.

Fruits arise without petioles in the new branches, in which part leaves adhere to them, (are) round, very similar to the fruits of *Itti-arealou*, but more big, with first green colour, then yellowish, and finally ruddy, and filled with grains like the ordinary fig, sweet indeed, but of less pleasing taste than those.

This species of *alou* grows in many places in Malabar, especially in the Province of Parakaroo; is green for the whole year and bears fruits and survives for a few centuries.

Cātu-ālu. Sar.
കുറ്റിച്ചു Mal.
فحاط علو Arab.

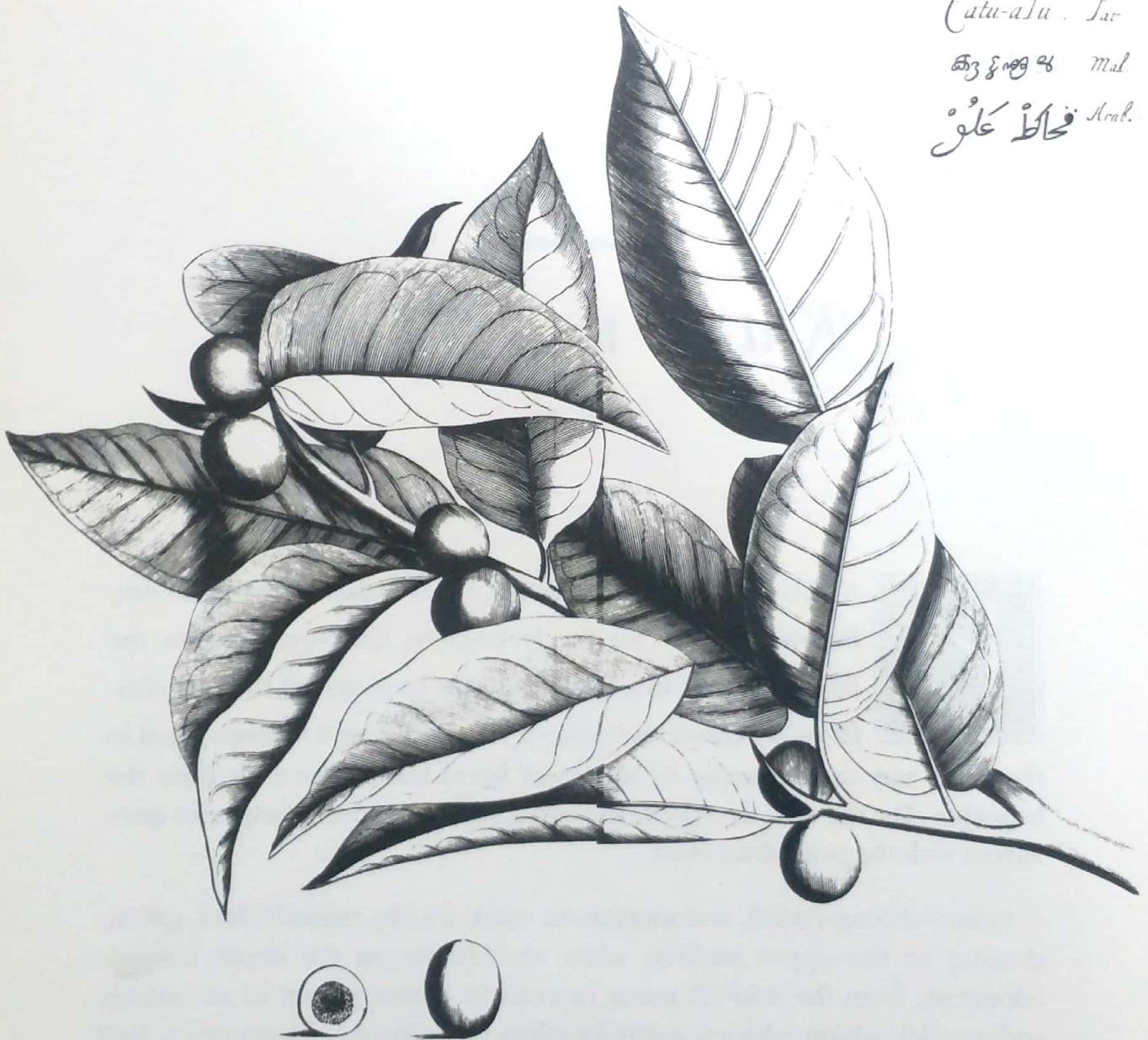


Fig. 57

(Its Uses)

Further, from the bark of the tree cooked in water is made a mouth wash, which ripens aphthas (small, whitish ulcers on the surface of a mucous membrane) and wipes them out, and also makes shaking teeth firm: the

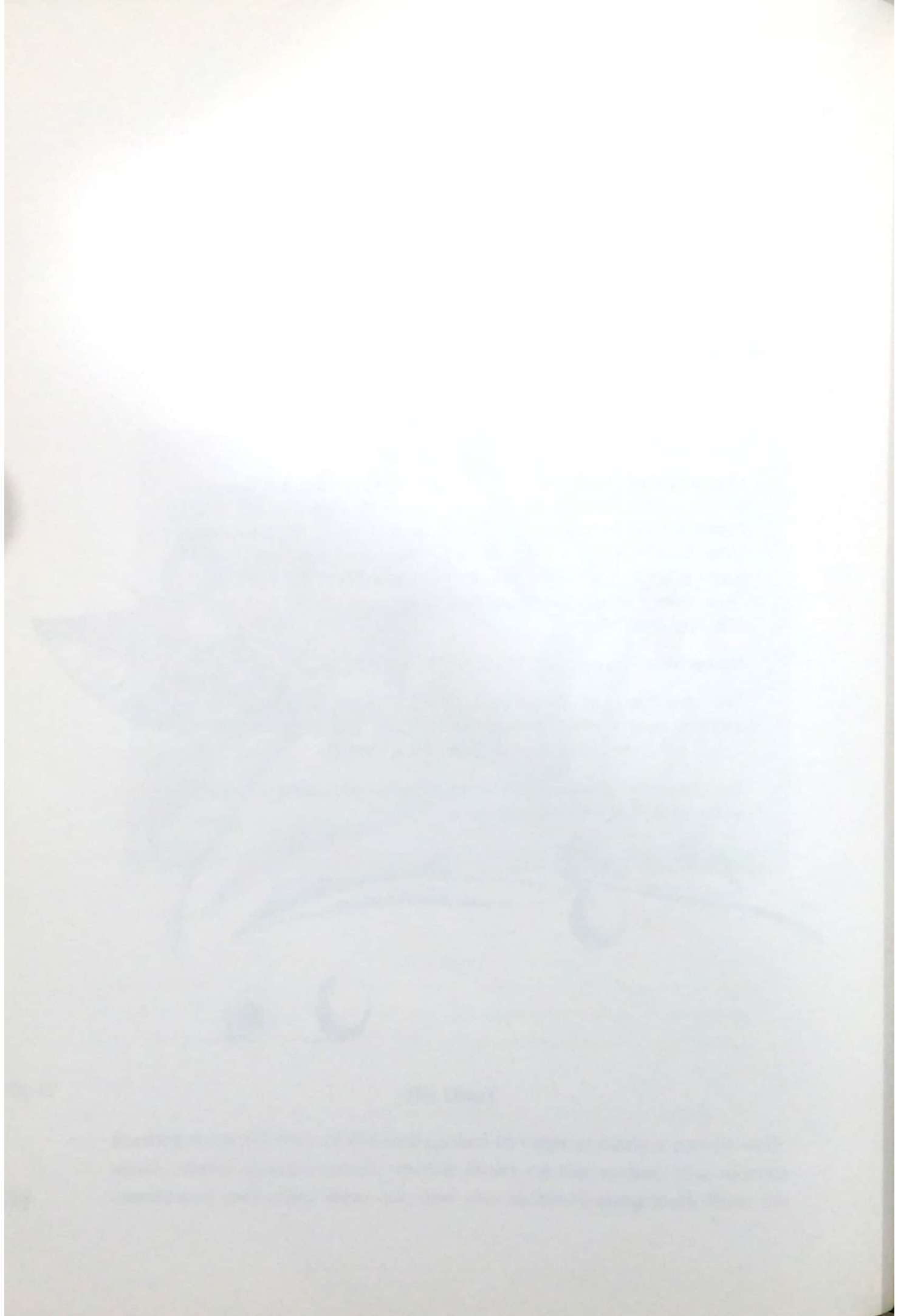
same decoction drunk purges the kidneys and influences (draws out) urine. Moreover from the same bark cooked with the feet of crab, a balm is prepared, which dropped into the ears, heals their ulcers and also removes ringing (tinkling) and deafness. Finally, from the root and bark of the tree cooked together, a bath is made, which wonderfully helps in curing leprosy and also in reliving any kind of pains of joints.

Ficus drupacea Thunb. var. *pubescens* (Roth) Corner, Gard. Bull. Singapore 17: 381. 1960; Corner in Dassan., Rev. Handb. Fl. Ceylon 3: 247. 1981; Manilal & Sivar., Fl. Calicut 276. 1982; Sasidh. & Sivar., Fl. Thrissur 428. 1996; Sivar. & Philip, Fl. Nilambur 665. 1997. - *Ficus mysorensis* Roth in Roem. & Schult., Syst. Veg. 1: 508. 1817; Heyne ex Roth, Nov. Pl. 390. 1821. *Ficus mysorensis* var. *pubescens* Roth in Roem. & Schult., Syst. Veg. 1: 508. 1817 [MORACEAE].

Katou-alou Rheede, Hort. Malab. 3: 73-74, t. 57. 1682.

The name Kattu-aalu (Malayalam script on t.57) is still used; kattu meaning wild and alu is a general term for (most) *Ficus*. The species occurs near forests and is sometimes planted as an avenue tree.

The place name given, where the tree is mentioned to occur is Parakaroo, which is still known by the same name.





Atti-meer-Alou

FIG. 58.



HIS tree is called *Atti-meer-alou* by the Malabaris, *Rauka-paray* by the Brahmins, *Arvore da raijs ladrao* by the Portuguese, *Wortel-vijgh* by the Belgians. And it is of great size with a thick stem sending down some single fibres, which adhering to the stem itself makes it very thick; this tree is fixed to the soil by these, and with many branches spread in all directions, it is propagated far and wide. Wood white, soft and flexible, covered with a light green-ash-grey bark, which when cut drops a sharp, milky, odourless liquid.

Root whitish, covered with a smooth, black bark, and also spreads wide on the ground by means of its fibres, when wounded it pours out a white and sticky liquid, which later along with the cut bark becomes purple.

The leaves, not dissimilar to the leaves of *Atti-alou*, described in Part 1, Tab.25, adhere to new branches by means of short petioles, (are) oblong round, acuminate, thick, shining with common greenness, smooth on the upper surface, rough on the lower, some nerves running to the side from the mid-rib, dividing the leaf into two unequal parts, taste bitter and sour.

(Its Uses)

Moreover, this tree is taken as a species of *Are-alou* by the native people, although it is not sacred to them, as *Are-alou* is to the Sinhalese which they call *Bhoudou-gas* or *Rhoo-gas* from a certain deity *Bhoudou*, sacred to them. In Kendenato Province of Cochin region, near the temple Baykam this kind of tree is found, with a very thick stem, which is fifty geometrical feet in circumference, which the natives affirm that it has lived there two thousand years. Further, a decoction is made from the root of this tree, powerfully opening obstructed liver; if the mouth is washed with the same, it becomes an excellent remedy against any kind of affection of the mouth: the juice of leaves heals burning fevers. The fruit stops any kind of flow (motion) of the bowels.

Ficus tinctoria G. Forster subsp. ***parasitica*** (Willd.) Corner, Gard. Bull. Singapore 17: 476. 1960; Corner in Dassan., Rev. Handb. Fl. Ceylon 3: 276. 1981; Manilal & Sivar., Fl. Calicut 276. 1982; Sasidh. & Sivar., Fl. Thrissur 430. 1996; Sivar. & Philip, Fl. Nilambur 669. 1997. - *Ficus parasitica* Willd., Mem. Acad. Roy. Sci. Hist. (Berlin) 2: 102. 1798. *Ficus excelsa* Vahl, Enum. 2: 195. 1805. *Ficus gibbosa* var. *parasitica* (Wind.) King, Ann. R. Bot. Gard. Calcutta 1: 6. 1887 [MORACEAE].

Atti-meer-alou Rheede, Hort. Malab. 3: 75-76, t. 58. 1682.

The name Mralu (Malayalam script on t. 58) is not used in that form. *Atti-meer-alou* means a Atti alou (*Ficus racemosa*) growing as an epiphyte on other trees, since Atty[alou] is *F. racemosa* and meer-alou means an epiphytic *Ficus*. [see the text for the strangling character of this plant. Also refer Discussion under "Cheru-meeralou", Tab. 56]. After the host tree has been strangled and decayed completely, the strangler *Ficus* can be seen having a lattice-like trunk [with a hollow space inside], which is actually not its stem but the hardened original aerial roots, interconnected and integrated with each other. Such lattice-like trunks [roots] are found in the forests and are valued as decoration pieces.

In the text there is a brief discussion about *Are-alou* also, which should have been more appropriately included under *Are-alou* in Vol. I, t. 27. Perhaps Rheede got the information given here later only.

It is mentioned that *Are-alou* is considered sacred by the Sinhalese, which they call *Bhoudou-gas*, "from a certain deity Bhoudou". This deity is actually Lord Buddha, who attained enlightenment, while sitting meditating under *Are-alou*, due to which reason the Sinhalese [the vast majority of them are Buddhists], as well as all Buddhists the world over, consider this tree as sacred.

This comment by Rheede reveals more than what is intended by him.

Two place names are mentioned; Kendenato which is now Candanaadu, and Baykam, now Vaikom, east of Cochin.



Handir-alou

FIG. 59.



THE tree which is called *Handir-alou* by the Malabaris, *Vodou* by the Brahmins, *Figos de Buzio* by the Portuguese, *Kray-vygh* by the Belgians, is tall, with a thick, white, pithy (*fungoso*) stem, clothed with an ash-grey bark, and provided with many branches spread wide.

Similarly the dark root is spread wide through the soil by means of its fibres; taste sharp, no smell.

The leaves adhere to the new branches without order, (are) oblong-round, thick, smooth, fragile, coming up to a span in length, about four digits in width, dark-green on the upper surface, light green, shining on the lower: with a few nerves pronounced on the lower side, running out into the sides in an orderly and parallel track, from the mid-rib: taste sour, smell woody.

The fruits, similarly full of grains like wild fig, and very similar to *Attialou*, described in Part 1, Tab.25. They are not eaten by men, but are sought after by monkeys and crows, because of which cause, these fruits are called *Figos dos Buzios* that is, fig of the monkeys, by the Portuguese.

Grows everywhere in Malabar, chiefly on the banks of rivers and in the mountainous and rocky places or Mangotti, is green during the whole year, and bears fruits and survives for a few centuries. This is carried by birds: for when they eat the fruits, they deposit with excrements their very small grains (in which consists the power of germinating) from which again trees grow up.

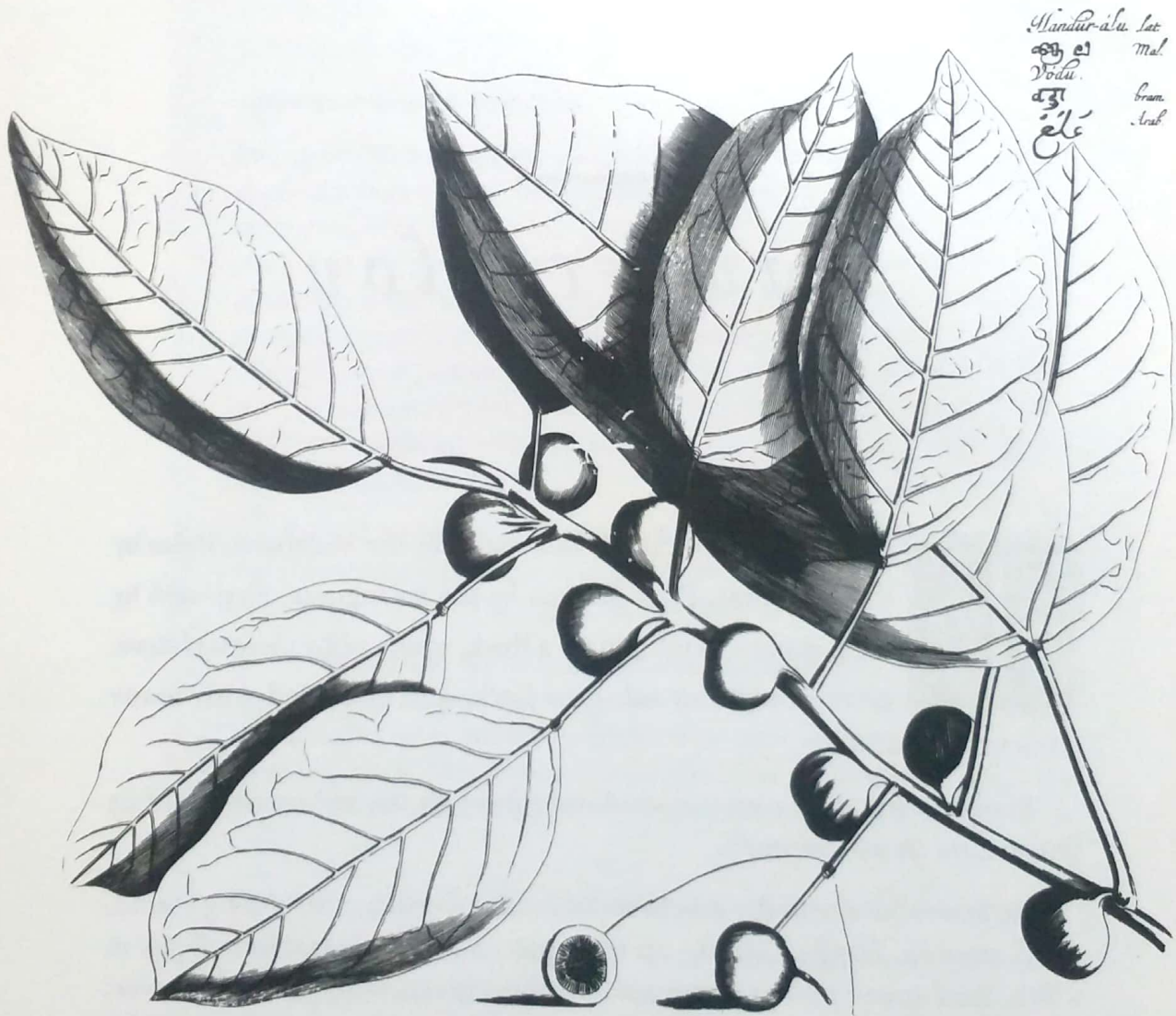


Fig. 59

(Its Uses)

Moreover, the juice of the tender leaves of this tree is an excellent remedy for eroded gums and similar afflictions of the mouth, if the mouth is washed

with it. A digestive is made from the same juice with fresh butter. It is very useful in cleaning and consolidating ulcers. From the roots and leaves boiled together in water a bath is prepared, which is said to be conducive to healing leprosy and epilepsy.

Ficus callosa Willd., Mem. Acad. Roy. Sci. Hist. (Berlin) 2: 102. 1798; King, Ann. R. Bot. Gard. Calcutta 1: 64. 1887; Corner, Gard. Bull. Singapore 21: 29. 1965; Corner in Dassan., Rev. Handb. Fl. Ceylon 3: 262. 1981; Manilal & Sivar., Fl. Calicut 276. 1982; . -*Ficus rheedei* Graham, Cat. Bombay Pl. 192. 1839 ("*rheedii*") [MORACEAE].

Handir-alou Rheede, Hort. Malab. 3: 77-78, t. 59. 1682.

In Malayalam script on t. 59, *Ala* (which means blacksmith's workshop) is written, which is an orthographic error for *alu* (the general term for *Ficuses*). The meaning or etymology of the word Handir is not clear. Today this species is called Kallalu from kallu (stone) + alu (*Ficus*), a reference to its ability to grow on stone walls and buildings. It is abundant in northern Malabar.

The place of occurrence of the plant is mentioned as Mangotti, which is the place now known as Alangadu, a region east of Kodungalloor.





Teregam

FIG. 60.



TEREGAM or *Terega-maram* for the Malabaris, *Caravatti* for Brahmins, *Arvore da Raspa* for the Portuguese, *Rijv-boom* for the Belgians, is a tall tree, about thirty feet tall, with a thick stem, covered with a dark-green, inside white bark, and also elegantly provided with downy and rough branches spread in all directions; the wood from white turning yellow, soft, insipid and odourless.

Root fibrous, white, clothed with a ruddy inside golden yellow bark, odourless, insipid.

The leaves adhere to green and hairy branch-lets without any order, not dissimilar to the leaves of lemon tree, are dark green, thick, clothed on all sides with certain small slender and rigid spines.

The fruits adhere to branches at the origin of branches, very similar to the branches of *Alou*, (are) round, downy with the size of big black cherries, first green, then with yellowish colour, and full of grains, insipid and odourless.

Grows in the wild places of Malabar, especially around Cochin, is green during the whole year, and bears fruits and survives for a long time.



Teregam. Lat.
 തേരേഗ. Mal.
 جلفر فندوق. Arab.

Fig. 60

(Its Uses)

The leaves of this tree are used for rubbing book cases and anything woody, horny, and vessels made of nickel or silver and for smoothening their roughness and making them light, because of which they are called *Teregam* by the Malabaris, *Folhas da Raspa* by the Portuguese and *Rigiv bladeren* by the Belgians. The root crushed with vinegar made from Indian nut and taken in the morning in empty stomach, checks the burning of bowels. The fruits similarly cool off (refresh) considerably.

Ficus exasperata Vahl, Enum. Pl. 197, 402. 1806; Corner, Gard. Bull. Singapore 21: 74. 1965; Corner in Dassan., Rev. Handb. Fl. Ceylon 3: 274. 1981; Manilal & Sivar., Fl. Calicut 275. 1982; Manilal, Fl. Silent Valley 259. 1988; Sasidh. & Sivar., Fl. Thrissur 429. 1996; Sivar. & Philip, Fl. Nilambur 665. 1997. - *Ficus serrata* sensu Forssk., Fl. Aegypt.-Arab. 179. 1775, non L. 1759. *Ficus scabra* Willd., Mem. Acad. Berl. t. 2. 1798, non G. Forster 1786. *Ficus asperrima* Roxb., Fl. Ind. 3: 554. 1832; King, Ann. R. Bot. Gard. Calcutta 1(2): 80. 1888 [MORACEAE].

Teregam Rheede, Hort. Malab. 3: 79, t. 60. 1682.

The name Teragam (Malayalam script on t. 60) is still used for this species. It is also called Paragam, from para meaning stone, both Teregam and Paragam referring to the roughness of the leaves. The species is common in lowlands and uplands of Malabar.

The place of occurrence is mentioned as Cochin, which is the present name also.



Perin Teregam

FIG. 61.



HIS tree which is called *Perin-Teregam* by Malabaris, *Meri Carabattii* by the Brahmins, *Arvore da Raspa major* by the Potuguese, *Groote rijv-boon* by the Belgians is a bigger species of the preceeding one and more tall, with thick, white, soft stem, provided with many jointed branches, which are surrounded by an ash-grey, hairy and slightly rough bark and are inside filled with crimson marrow.

The root white and milky, covered with dark bark, and also spread wide in the soil by means of its fibers, odourless and insipid.

The fruits either solitary or many joined together adhere to the branches, very similar to the fruits of the preceding species inside and outside, but bigger.

The leaves are similar to the leaves of *Teregam*, but more big and more thick.

Grows in the forests of Malabar, especially in Parou, is green and bears fruits during the whole year and remains fruit-bearing for whole century.

(Its Uses)

For the rest, the leaves of this tree serve the same uses as the leaves of *Teregam*: crushed fruits are used for Aphtha (small whitish ulcer on the surface of a mucous membrane), moreover, from the same boiled in goat's milk a drink

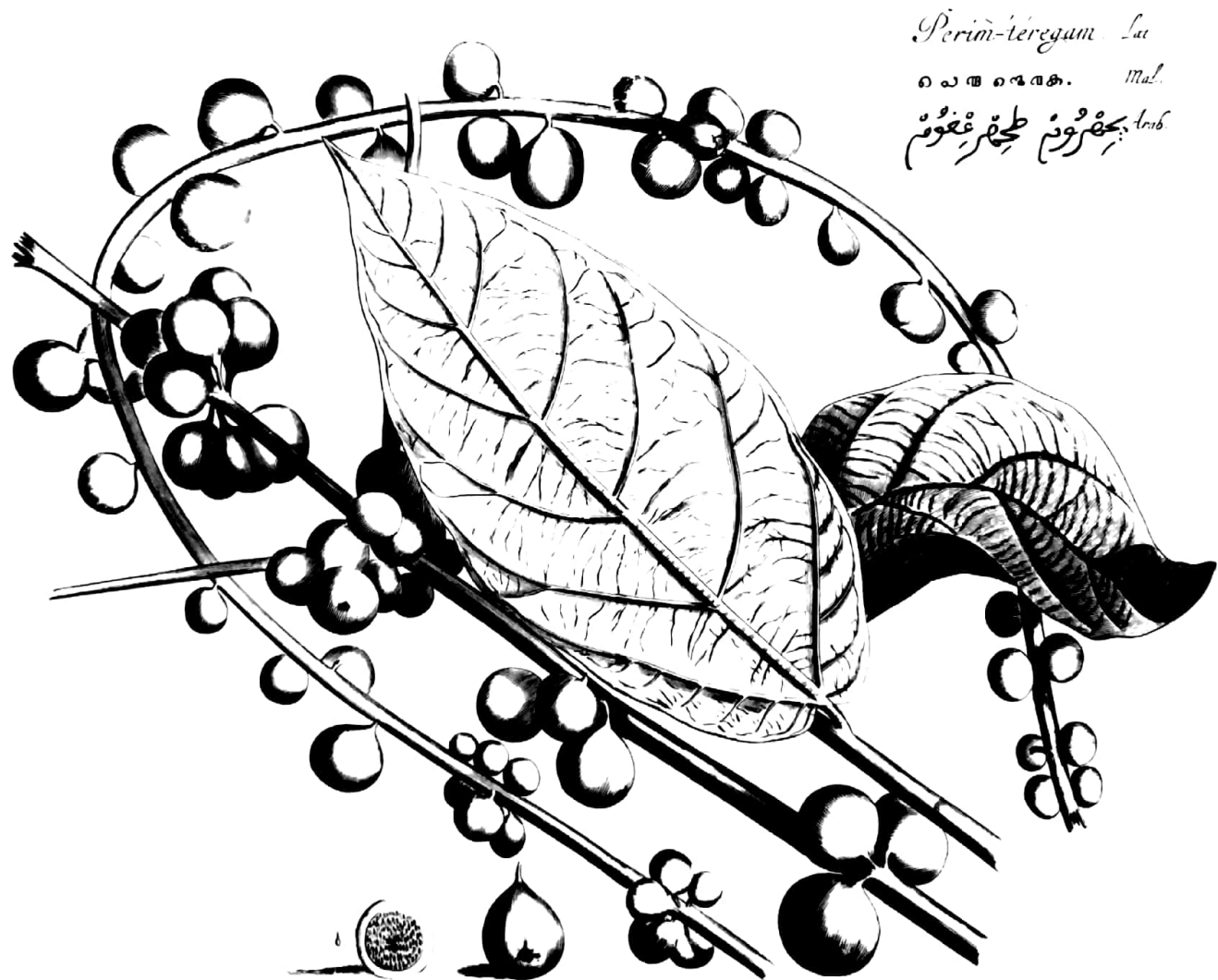


Fig. 61

is made which powerfully heals the obstruction of liver and its cirrhosis (wasting of a proper tissue of the organ, accompanied by abnormal growth of

the connective tissue): also from these fruits boiled in water with the bark of the tree a bath is made, which helps in removing endemic leperous stains of the body.

Ficus hispida L.f., Suppl. Pl. 442. 1782; King, Ann. R. Bot. Gard. Calcutta 1(2): 116. 1888; Corner, Gard. Bull. Singapore 21: 89. 1965; Corner in Dassan., Rev. Handb. Fl. Ceylon 3: 276. 1981; Manilal & Sivar., Fl. Calicut 275. 1982; Manilal, Fl. Silent Valley 259. 1988; Sasidh. & Sivar., Fl. Thrissur 429. 1996; Sivar. & Philip, Fl. Nilambur 667. 1997. - *Ficus oppositifolia* Roxb., Pl. Corom. 2: 14. 1798. *Ficus daemonum* Koenig ex Vahl, Enum. 2: 198. 1806 [MORACEAE].

Perin-teregam Rheede, Hort. Malab. 3: 81, t. 61. 1682.

The name Perimteragam (Malayalam script on t. 61) is still used; perim means large. It is sometimes called Valliteragam, a name better applied not to this plant but to *Ficus heterophylla*. This cauliflorous species is widely distributed in Malabar.

The place name mentioned is Parou, which is now known as North Parur, about 35 km north of Cochin. No trace of forests is seen here now. [There is another Parur, known as South Parur, that is about 375 km south of Cochin, which is a place different from this].



Valli-teregam

FIG. 62.



ALLI-TEREGAM for Malabaris, *Caravatti-valli* for Brahmins, *Arvore de Raispa pregiroso* for the Portuguese, *Climmende Ryjv-boom* for the Belgians, is a tree-like, weak - stemmed plant, low, about six or seven feet tall, with slender, white stem, covered with dark bark, provided however with downy branches wide and everywhere creeping in the manner of other weak - stemmed plants.

The root, similarly fibrous, white and milky covered with ruddy bark, odourless and tasteless.

The leaves adhere to branches in a decussate manner, thick, first deeply incised, then oblong-round, acuminate, covered everywhere with small spines, and similar to the leaves of *Perin-Teregam*, but smaller.

The fruits emulating prunes both in size and in form, not dissimilar to the fruits of *Teregam* and *Perin-Teregam*, inside and outside.

Also grows in the forests of Malabar, is green and bears fruit during the whole year.

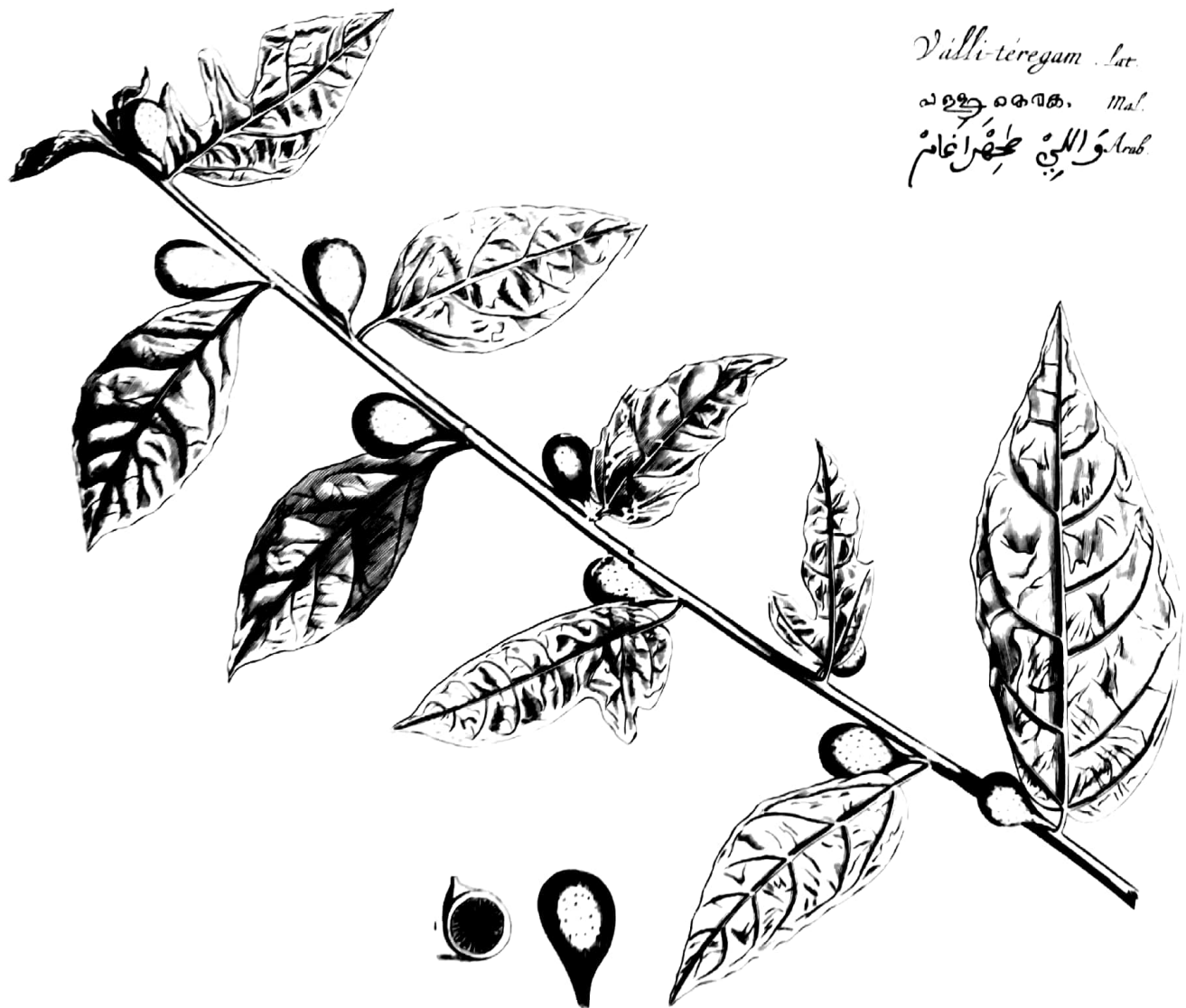


Fig. 62

(Its Uses)

The leaves of this creeper (climber) similarly serve the same uses, as the leaves of *Teregam* and *Perin-Teregam*. The juice pressed out from the root and taken, soothes the torments of bowels; likewise the juice pressed out from leaves crushed with sweet milk cures dysentery. The bark of the leaves reduced to powder with the seeds of *coriander* and given, heals coughing, asthma and other similar thoracic infections.

Ficus heterophylla L.f., Suppl. Pl. 442. 1782; King, Ann. R. Bot. Gard. Calcutta 1(2): 75. 1888; Corner, Gard. Bull. Singapore 21: 73. 1965; Corner in Dassan., Rev. Handb. Fl. Ceylon 3: 272. 1981; Sivar. & Philip, Fl. Nilambur 666. 1997 [MORACEAE].

Valli-teregam Rheede, Hort. Malab. 3: 83, t. 62. 1682.

The name Valli teragam is still used for this plant; valli meaning climbing/scandent stem. The species has a scattered distribution in Malabar.



Tsjela

FIG. 63.



HIS tree is called *Tsjela* by the Malabaris, *Asouatou* by the Brahmins *Morsegeiro* by the Potuguese, *Vledermuys-boom* for the Belgians is of great size, about seventy feet tall, with a thick stem, not rarely exceeding eighteen feet in girth, and provided with many branches spread in all directions. The wood is white, covered with a thick, rough, ash-grey bark, red inside, the marrow of which is very hard, golden yellow.

The root white covered with a yellowish bark, deeply adheres to the soil by means of its thick fibers, the taste milky and slightly salty, smell nil.

The leaves arise in a thick cluster in the new branches on round and light green petioles, (are) oblong-round, acuminate, shining with common greenness on the upper side, on the lower side light green, tasteless and odourless; from the mid - rib many nerves go out in an orderly and parallel fashion, which at the edges run into themselves in an arched manner.

The fruits adhere to the shoots themselves (directly) among the leaves without petioles, not dissimilar to "ribesiis" (black currants) in the size of the format,

and are small figs, full of red grains on the fruits as all *Alou* and *Teregam*, tasteless and odourless.



Fig. 63

Grows in wild, mountainous and rocky places of Malabar, especially in Anbalakatti, and bears fruits during the whole year. Bats frequently build nests in this tree because they delight on the fruits because of which it is called *Morsegeiro* by the Portuguese, *Vledermiys-boom* by our people.

(Its Uses)

For the rest, from the bark of the root of this tree with *long pepper*, a decoction is prepared in common water, which heals chronic cough and other pulmonary infections. The milky juice pressed out from the root and the fruits, is an effective remedy in the defects of eyes.

Ficus amplissima Sm. in Rees, Cycl. 14: no.68. 1810; Corner, Gard. Bull. Singapore 21: 11. 1965; Corner in Dassan., Rev. Handb. Fl. Ceylon 3: 242. 1981; Manilal, Fl. Silent Valley 259. 1988; Sasidh. & Sivar., Fl. Thrissur 427. 1996. - *Ficus tsiela* Roxb., Hort. Beng. 66. 1814; Ham., Trans. Linn. Soc. London 15: 149. 1826, Roxb., Fl. Ind. 3: 549. 1832, King, Ann. R. Bot. Gard. Calcutta 1: 59. 1887; Robinson, Philipp. J. Sci., C. Bot. 7: 414. 1912 [MORACEAE].

Tsjela Rheede, Hort. Malab. 3: 85, t. 63, 1682.

The word Chela (Malayalam script on t. 63) means cloth (especially for women). The bark of this tree serves as a sack cloth. This name is seldom used, the local people simply calling it as a kind of alu (*Ficus*). It is found in uplands of Malabar.

The place name mentioned is Ambalakatti, which is now known as Ambalakkadu [a place near Mala, towards south of Trichur], where there was a Jesuit monastery, which still exists.



Tsjakela

FIG. 64.



TSJAKELA for the Malabaris, *Rana-Vodou* for the Brahmins, *Cordoeira* for Portuguese, *Heup-boom* for Belgians, is a tall tree with a white, very thick stem, provided with many thick branches spread in all directions, covered with a dark bark, purple inside, which when slightly cut a milky, sharp, odourless juice oozes out.

The root fibrous, white covered with a yellowish bark, when cut or wounded gives out a quite similar, milky juice.

The leaves arise on round and green-white petioles in new branches, are oblong - round, acuminate thick, exceeding one span in length, a palm in width, shining with common greenness on the upper side, light green on the lower side, tasteless and odourless, with some nerves white and pronounced running into the sides from the mid - rib.

The fruits are similar to the fruits of the preceding species.

Grows in the mountainous places of Malabar, especially in the forests of Paracaroo, bears fruits once a year namely in the months of December and

January, and planted as a seedling, remains fruitful not rarely till the fiftieth year.



Fig. 64

(Its Uses)

Further, from the bark of the tree cords are wrenched by a peculiar skill, with which bows are stringed. And also a red colour is prepared, with which clothes called *panos de cambaya*, are dyed by them.

For the rest, this tree has the same uses in medicine as *Atti-alou*, described in Part I, Tab. 25.

Ficus tsjahela N. Burm., Fl. Ind. 227. 1768; Merr., Philip. J. Sci. 19: 346. 1921; King, Ann. R. Bot. Calcutta 1: 57. 1887; Corner, Gard. Bull. Singapore 21: 7. 1965; Corner in Dassan., Rev. Handb. Fl. Ceylon 3: 237. 1981; Manilal & Sivar., Fl. Calicut 277. 1982; Manilal, Fl. Silent Valley 260. 1988; Sasidh. & Sivar., Fl. Thrissur 430. 1996; Sivar. & Philip, Fl. Nilambur 671. 1997. - *Ficus infectoria* Roxb., Hort. Beng. 66. 1814, non Willd. 1806 [MORACEAE].

Tsjakela Rheede, Hort. Malab. 3: 87, t. 64. 1682.

The name Chela (or Tsjela), written in Malayalam script on t. 64, is not used. However, it appears that at the time of Rheede it was known as Chakela or Chakila, the derivation of which names is not clear. Today it is known just as a kind of alou (*Ficus*). The species is common on the plains and uplands of Malabar.

The main place of occurrence is mentioned as Parakaroo, which is known by the same name now also.

INDEX -1
VOL. & FIG. NUMBERS WITH MALAYALAM NAME
SCIENTIFIC NAME AND FAMILY NAME

Volume / Fig./ Year	Malayalam Name	Scientific Name Name	Family
3: 1-6, t. 1-12.1682	Codda-pana	<i>Corypha umbraculifera</i> L.	ARECACEAE
3: 7, (no plate) 1682	Niti-panna	<i>Mypa fruticans</i> Wurm.	ARECACEAE
3: 9-14, t. 13-21. 1682	Todda-panna	<i>Cycas circinalis</i> L.	CYCADACEAE
3: 15-16, t. 22-25.1682	Katou-indel	<i>Phoenix sylvestris</i> (L.) Roxb.	ARECACEAE
3: 17-20, t. 26-28. 1682	Tsjaka-maram	<i>Artocarpus heterophyllus</i> Lam.	MORACEAE
3: 21-22, t. 29.1682	Atamaram	<i>Annona squamosa</i> L.	ANNONACEAE
3: 23, t. 30-31. 1682	Anona-maram	<i>Annona reticulata</i> L.	ANNONACEAE
3: 25-27, t. 32. 1682	Ansjeli	<i>Artocarpus hirsutus</i> Lam.	MORACEAE
3: 29-30, t. 33. 1682	Katou-tsjaka	<i>Neolamarckia cadamba</i> (Roxb.) Bosser	RUBIACEAE
3: 31-33, t 34, 35.1682	Malacka-pela	<i>Psidium guajava</i> L.	MYRTACEAE
3: 31-33, t 34, 35.1682	Pela	<i>Psidium guajava</i> L.	MYRTACEAE
3: 35-36, t. 36. 1682	Pelou	<i>Careya arborea</i> Roxb.	LECYTHIDACEAE
3: 37-38, t. 37.1682	Covalam	<i>Aegle marmelos</i> (L.) Correa	RUTACEAE
3: 39-42, t. 38-39. 1682	Syalita	<i>Dillenia indica</i> L.	DILLENIACEAE
3: 43-44, t. 40. 1682	Blatti	<i>Sonneratia caseolaris</i> (L.) Engl.	SONNERATIACEAE
3: 45-47, t. 41.1682	Panitsjika-maram	<i>Diospyros malabarica</i> (Desr.) Kostel.	EBENACEAE
3: 49-50, t. 42. 1682	Niirvala	<i>Crateva magna</i> (Lour.) DC.	CAPPARACEAE
3: 51-53. t. 43-44.1682	Carambola(s)	<i>Averrhoa carambola</i> L.	OXALIDACEAE
3: 51-53. t. 43-44.1682	Tamara-tonga	<i>Averrhoa carambola</i> L.	OXALIDACEAE
3: 55-56, t. 45-46. 1682	Bilimbi	<i>Averrhoa bilimbi</i> L.	OXALIDACEAE
3: 57-58, t. 47-48. 1682	Neli-pouli	<i>Phyllanthus acidus</i> (L.) Skeels	EUPHORBIACEAE
3: 59-60, t. 49-51. 1682	Panja	<i>Ceiba pentandra</i> (L.) Gaertn.	BOMBACACEAE
3: 59-60, t. 49-51. 1682	Panjala	<i>Ceiba pentandra</i> (L.) Gaertn.	BOMBACACEAE
3: 61-62, t. 52.1682	Moul-elavou	<i>Bombax ceiba</i> L.	BOMBACACEAE
3: 63-64, t. 53. 1682	Bellutta-tsjampakam	<i>Mesua ferrea</i> L.	CLUSIACEAE
3: 65-67, t. 54. 1682	Kapa-mava	<i>Anacardium occidentale</i> L.	ANACARDIACEAE

3: 69- 70, t. 55. 1682	Itty-arealou	<i>Ficus microcarpa</i> L.f.	MORACEAE
3: 71, t. 56. 1682	Tsjerou-meer-alou	<i>Ficus tinctoria</i> subsp. <i>parasitica</i> (Willd.) Corner	MORACEAE
3: 73-74, t. 57. 1682	Katou-alou	<i>Ficus drupacea</i> Thunb. var. <i>pubescens</i> (Roth) Corner	MORACEAE
3: 75-76, t. 58. 1682	Atti-meer-alou	<i>Ficus tinctoria</i> subsp. <i>parasitica</i> (Willd.) Corner	MORACEAE
3: 77-78, t. 59. 1682	Handir-alou	<i>Ficus callosa</i> Willd.	MORACEAE
3: 79, t. 60. 1682	Teregam	<i>Ficus exasperata</i> Vahl	MORACEAE
3: 81, t. 61. 1682	Perin-teregam	<i>Ficus hispida</i> L.f.	MORACEAE
3: 83, t. 62. 1682	Valli-teregam	<i>Ficus heterophylla</i> L.f.	MORACEAE
3: 85, t. 63, 1682	Tsjela	<i>Ficus amplissima</i> Sm.	MORACEAE
3: 87, t. 64. 1682	Tsjakela	<i>Ficus tsjahela</i> N. Burm.	MORACEAE

INDEX -2
VOL. & FIG. NUMBERS WITH MALAYALAM NAME
KONKANI, PORTUGUESE AND DUTCH/BELGIAN NAMES

Volume/ Fig./ Year	Malayalam Name	Konkani Name	Portuguese Name	Dutch/Belg. Name
3: 1-6, t. 1-12.1682	Codda-pana	Karetela	Arvore dos Sombreiros	*
3: 7, (no plate) 1682	Niti-panna	*	Olas d'agoa	*
3: 9-14, t. 13-21. 1682	Todda-panna	Andexa Motha-panna	Almatoria das Igrezias	*
3: 15-16, t. 22-25.1682	Katou-indel	Kasouri	Tamara do Mato	Wilde Dadelboom
3: 17-20, t. 26-28.1682	Tsjaka-maram	Ponossou	Jaqueira	Soortsacken
3: 21-22, t. 29.1682	Atamaram	Atoa	Atas	*
3: 23, t. 30-31. 1682	Anona-maram	Tsjina-Panosou	Anona	*
3: 25-27, t. 32. 1682	Ansjeli	Pata-ponossou	Angeli	Angeli
3: 29-30, t. 33. 1682	Katou-tsjaka	Davo-Ponossou	Jaqua falsa	Morgensterren
3: 31-33, t 34, 35.1682	Malacka-pela	Pera	Pera de Malacka	Goejavas appel
3: 31-33, t 34, 35.1682	Pela	Pera	Guajavas	Goejaves
3: 35-36, t. 36. 1682	Pelou	Pelouarta	Pera Brava	Wilde Goeyaves
3: 37-38, t. 37.1682	Covalam	Belou	Marmeleira	Slymappels
3: 39-42, t. 38-39. 1682	Syalita	Karimbala-pala	Fruita Esrtrelada	Roos-appel
3: 43-44, t. 40. 1682	Blatti	Ambetti	Jambou de Mato	Sterre-bollen
3: 45-47, t. 41.1682	Panitsjika-maram	Tembiri	Fruita da grude	Lym-appel
3: 49-50, t. 42. 1682	Niirvala	Ranabelou	Pee do Morto	Bombeenen
3: 51-53. t. 43-44.1682	Carambola(s)	Carambola	Carambola	Vyf hocken
3: 51-53. t. 43-44.1682	Tamara-tonga	Carambola	Carambola	Vyf hocken
3: 55-56, t. 45-46. 1682	Bilimbi	Malaki-Karamboli	Bilimbinos	Blimbynen
3: 57-58, t. 47-48. 1682	Neli-pouli	Amvallis	Cheramela	Suercnoop
3: 59-60, t. 49-51. 1682	Panja	Sangori	Algodano	Donsboom
3: 59-60, t. 49-51. 1682	Panjala	Sangori	Algodano	Donsboom
3: 61-62, t. 52.1682	Moul-elavou	Valli-Sanvari	Algodano do Mato	Wol-doorn
3: 63-64, t. 53. 1682	Bellutta-tsjampakam	Nagatampo	Moroius Rosado	Castanie Roosen
3: 65-67, t. 54. 1682	Kapa-mava	Kasjo	Cajou	Cajou
3: 69- 70, t. 55. 1682	Itty-arealou	Douadeke-goli menor	Arbore de Raija	Cleyn Wortelvyge

3: 71, t. 56.1682	Tsjerou-meer-alou	Paray	Arvore da Raijs	Wortel-boom
3: 73-74, t. 57.1682	Katou-alou	Doulo-vadhou	Rayseira Vidriado	Glas-vijge
3: 75-76, t. 58.1682	Atti-meer-alou	Rauka-paray	Arvore da raija ladrao	Wortel-vijgh
3: 77-78, t. 59.1682	Handir-alou	Vodou	Figos de Buizo	Kray-vygh
3: 79, t. 60. 1682	Teregam	Caravatti	Arvore da Raspa	Rijv-boom
3: 81, t. 61. 1682	Perin-teregam	Meri Carabatti	Arvore da Raspa major	Groote rijv-boon
3: 83, t. 62. 1682	Valli-teregam	Caravatti-valli	Arvore de Raispa pregiroso	Climmende Ryjv- boom
3: 85, t. 63, 1682	Tsjela	Asouatou	Morsegeiro	Vledermuys-boom
3: 87, t. 64.1682	Tsjakela	Rana-Vodou	Cordoeira	Heup-boom

INDEX - 3
SCIENTIFIC NAMES WITH FAMILY NAME
MALAYALAM NAME AND VOL. & FIG. NUMBER

Scientific Name	Family	Malayalam Name	Volume / Fig. / Year
<i>Aegle marmelos</i> (L.) Correa	RUTACEAE	Covalam	3: 37-38, t. 37.1682
<i>Anacardium occidentale</i> L.	ANACARDIACEAE	Kapa-mava	3: 65-67, t. 54. 1682
<i>Annona reticulata</i> L.	ANNONACEAE	Anona-maram	3: 23, t. 30-31. 1682
<i>Annona squamosa</i> L.	ANNONACEAE	Atamaram	3: 21-22, t. 29.1682
<i>Artocarpus heterophyllus</i> Lam.	MORACEAE	Tsjaka-maram	3: 17-20, t. 26-28. 1682
<i>Artocarpus hirsutus</i> Lam.	MORACEAE	Ansjele	3: 25-27, t. 32. 1682
<i>Averrhoa bilimbi</i> L.	OXALIDACEAE	Bilimbi	3: 55-56, t. 45-46. 1682
<i>Averrhoa carambola</i> L.	OXALIDACEAE	Carambola(s)	3: 51-53. t. 43-44.1682
<i>Averrhoa carambola</i> L.	OXALIDACEAE	Tamara-tonga	3: 51-53. t. 43-44.1682
<i>Bombax ceiba</i> L.	BOMBACACEAE	Moul-elavou	3: 61-62, t. 52.1682
<i>Careya arborea</i> Roxb.	LECYTHIDACEAE	Pelou	3: 35-36, t. 36. 1682
<i>Ceiba pentandra</i> (L.) Gaertn.	BOMBACACEAE	Panja	3: 59-60, t. 49-51. 1682
<i>Ceiba pentandra</i> (L.) Gaertn.	BOMBACACEAE	Panjala	3: 59-60, t. 49-51. 1682
<i>Corypha umbraculifera</i> L.	ARECACEAE	Codda-pana	3: 1-6, t. 1-12.1682
<i>Crateva magna</i> (Lour.) DC.	CAPPARACEAE	Niirvala	3: 49-50, t. 42. 1682
<i>Cycas circinalis</i> L.	CYCADACEAE	Todda-panna	3: 9-14, t. 13-21. 1682
<i>Dillenia indica</i> L.	DILLENACEAE	Syalita	3: 39-42, t. 38-39. 1682
<i>Diospyros malabarica</i> (Desr.) Kostel.	EBENACEAE	Panitsjika-maram	3: 45-47, t. 41.1682
<i>Ficus amplissima</i> Sm.	MORACEAE	Tsjela	3: 85, t. 63, 1682
<i>Ficus callosa</i> Willd.	MORACEAE	Handir-alou	3: 77-78, t. 59.1682
<i>Ficus drupacea</i> Thunb. var. <i>pubescens</i> (Roth) Corner	MORACEAE	Katou-alou	3: 73-74, t. 57.1682
<i>Ficus exasperata</i> Vahl	MORACEAE	Teregam	3: 79, t. 60. 1682
<i>Ficus heterophylla</i> L.f.	MORACEAE	Valli-teregam	3: 83, t. 62. 1682
<i>Ficus hispida</i> L.f.	MORACEAE	Perin-teregam	3: 81, t. 61. 1682
<i>Ficus microcarpa</i> L.f.	MORACEAE	Itty-arealou	3: 69- 70, t. 55. 1682
<i>Ficus tinctoria</i> subsp. <i>parasitica</i> (Willd.) Corner	MORACEAE	Atti-meer-alou	3: 75-76, t. 58.1682
<i>Ficus tinctoria</i> subsp. <i>parasitica</i> (Willd.) Corner	MORACEAE	Tsjerou-meer-alou	3: 71, t. 56.1682

<i>Ficus tsjahela</i> N. Burm.	MORACEAE	Tsjakela	3: 87, t. 64.1682
<i>Mesua ferrea</i> L.	CLUSIACEAE	Bellutta-tsjampakam	3: 63-64, t. 53. 1682
<i>Neolamarckia cadamba</i> (Roxb.) Bosser	RUBIACEAE	Katou-tsjaka	3: 29-30, t. 33. 1682
<i>Nypa fruticans</i> Wurmb.	ARECACEAE	Niti-panna	3: 7, (no plate) 1682
<i>Phoenix sylvestris</i> (L.) Roxb.	ARECACEAE	Katou-indel	3: 15-16, t. 22-25.1682
<i>Phyllanthus acidus</i> (L.) Skeels	EUPHORBIACEAE	Neli-pouli	3: 57.58, t. 47-48. 1682
<i>Psidium guajava</i> L.	MYRTACEAE	Malacka-pela	3: 31-33, t 34, 35.1682
<i>Psidium guajava</i> L.	MYRTACEAE	Pela	3: 31-33, t 34, 35.1682
<i>Sonneratia caseolaris</i> (L.) Engl.	SONNERATIACEAE	Blatti	3: 43-44, t. 40. 1682

INDEX - 4
MALAYALAM NAMES WITH SCIENTIFIC NAME,
FAMILY NAME AND VOL. & FIG. NUMBER

Malayalam Name	Scientific Name	Family	Volume / Fig. / Year
Anona-maram	<i>Annona reticulata</i> L.	ANNONACEAE	3: 23, t. 30-31. 1682
Ansjeli	<i>Artocarpus hirsutus</i> Lam.	MORACEAE	3: 25-27, t. 32. 1682
Atamaram	<i>Annona squamosa</i> L.	ANNONACEAE	3: 21-22, t. 29. 1682
Atti-meer-alou	<i>Ficus tinctoria</i> subsp. <i>parasitica</i> (Willd.) Corner	MORACEAE	3: 75-76, t. 58. 1682
Bellutta-tsjumpakam	<i>Mesua ferrea</i> L.	CLUSIACEAE	3: 63-64, t. 53. 1682
Bilimbi	<i>Averrhoa bilimbi</i> L.	OXALIDACEAE	3: 55-56, t. 45-46. 1682
Blatti	<i>Sonneratia caseolaris</i> (L.) Engl.	SONNERATIACEAE	3: 43-44, t. 40. 1682
Carambola(s)	<i>Averrhoa carambola</i> L.	OXALIDACEAE	3: 51-53, t. 43-44. 1682
Codda-pana	<i>Corypha umbraculifera</i> L.	ARECACEAE	3: 1-6, t. 1-12. 1682
Covalam	<i>Aegle marmelos</i> (L.) Correa	RUTACEAE	3: 37-38, t. 37. 1682
Handir-alou	<i>Ficus callosa</i> Willd.	MORACEAE	3: 77-78, t. 59. 1682
Itty-arealou	<i>Ficus microcarpa</i> L.f.	MORACEAE	3: 69-70, t. 55. 1682
Kapa-mava	<i>Anacardium occidentale</i> L.	ANACARDIACEAE	3: 65-67, t. 54. 1682
Katou-alou	<i>Ficus drupacea</i> Thunb. var. <i>pubescens</i> (Roth) Corner	MORACEAE	3: 73-74, t. 57. 1682
Katou-indel	<i>Phoenix sylvestris</i> (L.) Roxb.	ARECACEAE	3: 15-16, t. 22-25. 1682
Katou-tsjava	<i>Neolamarckia cadamba</i> (Roxb.) Bosser	RUBIACEAE	3: 29-30, t. 33. 1682
Malacka-pela	<i>Psidium guajava</i> L.	MYRTACEAE	3: 31-33, t. 34, 35. 1682
Moul-elavou	<i>Bombax ceiba</i> L.	BOMBACACEAE	3: 61-62, t. 52. 1682
Neli-pouli	<i>Phyllanthus acidus</i> (L.) Skeels	EUPHORBIACEAE	3: 57-58, t. 47-48. 1682
Niirvala	<i>Crateva magna</i> (Lour.) DC.	CAPPARACEAE	3: 49-50, t. 42. 1682
Niti-panna	<i>Nypa fruticans</i> Wurmb.	ARECACEAE	3: 7, (no plate) 1682
Panitsjika-maram	<i>Diospyros malabarica</i> (Desr.) Kostel.	EBENACEAE	3: 45-47, t. 41. 1682
Panja	<i>Ceiba pentandra</i> (L.) Gaertn.	BOMBACACEAE	3: 59-60, t. 49-51. 1682
Panjala	<i>Ceiba pentandra</i> (L.) Gaertn.	BOMBACACEAE	3: 59-60, t. 49-51. 1682
Pela	<i>Psidium guajava</i> L.	MYRTACEAE	3: 31-33, t. 34, 35. 1682
Pelou	<i>Careya arborea</i> Roxb.	LECYTHIDACEAE	3: 35-36, t. 36. 1682
Perin-teregam	<i>Ficus hispida</i> L.f.	MORACEAE	3: 81, t. 61. 1682

Syalita	<i>Dillenia indica</i> L.	DILLENACEAE	3: 39-42, t. 38-39. 1682
Tamara-tonga	<i>Averrhoa carambola</i> L.	OXALIDACEAE	3: 51-53. t. 43-44. 1682
Teregam	<i>Ficus exasperata</i> Vahl	MORACEAE	3: 79, t. 60. 1682
Todda-panna	<i>Cycas circinalis</i> L.	CYCADACEAE	3: 9-14, t. 13-21. 1682
Tsjaka-maram	<i>Artocarpus heterophyllus</i> Lam.	MORACEAE	3: 17-20, t. 26-28. 1682
Tsjakela	<i>Ficus tsjahela</i> N. Burm.	MORACEAE	3: 87, t. 64. 1682
Tsjela	<i>Ficus amplissima</i> Sm.	MORACEAE	3: 85, t. 63. 1682
Tsjerou-meer-alou	<i>Ficus tinctoria</i> subsp. <i>parasitica</i> (Willd.) Corner	MORACEAE	3: 71, t. 56. 1682
Valli-teregam	<i>Ficus heterophylla</i> L.f.	MORACEAE	3: 83, t. 62. 1682

INDEX - 5
FAMILY NAMES WITH SCIENTIFIC NAME,
MALAYALAM NAME AND VOL. & FIG. NUMBER

Family	Scientific Name	Malayalam Name	Volume / Fig. / Year
ANACARDIACEAE	<i>Anacardium occidentale</i> L.	Kapa-mava	3: 65-67, t. 54. 1682
ANNONACEAE	<i>Annona reticulata</i> L.	Anona-maram	3: 23, t. 30-31. 1682
ANNONACEAE	<i>Annona squamosa</i> L.	Atamaram	3: 21-22, t. 29. 1682
ARECACEAE	<i>Corypha umbraculifera</i> L.	Codda-pana	3: 1-6, t. 1-12. 1682
ARECACEAE	<i>Nypa fruticans</i> Wurmb.	Niti-panna	3: 7, (no plate) 1682
ARECACEAE	<i>Phoenix sylvestris</i> (L.) Roxb.	Katou-indel	3: 15-16, t. 22-25. 1682
BOMBACACEAE	<i>Bombax ceiba</i> L.	Moul-elavou	3: 61-62, t. 52. 1682
BOMBACACEAE	<i>Ceiba pentandra</i> (L.) Gaertn.	Panja	3: 59-60, t. 49-51. 1682
BOMBACACEAE	<i>Ceiba pentandra</i> (L.) Gaertn.	Panjala	3: 59-60, t. 49-51. 1682
CAPPARACEAE	<i>Crateva magna</i> (Lour.) DC.	Niirvala	3: 49-50, t. 42. 1682
CLUSIACEAE	<i>Mesua ferrea</i> L.	Bellutta-tsjumpakam	3: 63-64, t. 53. 1682
CYCADACEAE	<i>Cycas circinalis</i> L.	Todda-panna	3: 9-14, t. 13-21. 1682
DILLENACEAE	<i>Dillenia indica</i> L.	Syalita	3: 39-42, t. 38-39. 1682
EBENACEAE	<i>Diospyros malabarica</i> (Desr.) Kostel.	Panitsjika-maram	3: 45-47, t. 41. 1682
EUPHORBIACEAE	<i>Phyllanthus acidus</i> (L.) Skeels	Neli-pouli	3: 57-58, t. 47-48. 1682
LECYTHIDACEAE	<i>Careya arborea</i> Roxb.	Pelou	3: 35-36, t. 36. 1682
MORACEAE	<i>Artocarpus heterophyllus</i> Lam.	Tsjaka-maram	3: 17-20, t. 26-28. 1682
MORACEAE	<i>Artocarpus hirsutus</i> Lam.	Ansjeli	3: 25-27, t. 32. 1682
MORACEAE	<i>Ficus amplissima</i> Sm.	Tsjela	3: 85, t. 63. 1682
MORACEAE	<i>Ficus callosa</i> Willd.	Handir-alou	3: 77-78, t. 59. 1682
MORACEAE	<i>Ficus drupacea</i> Thunb. var. <i>pubescens</i> (Roth) Corner	Katou-alou	3: 73-74, t. 57. 1682
MORACEAE	<i>Ficus exasperata</i> Vahl	Teregam	3: 79, t. 60. 1682
MORACEAE	<i>Ficus heterophylla</i> L.f.	Valli-teregam	3: 83, t. 62. 1682
MORACEAE	<i>Ficus hispida</i> L.f.	Perin-teregam	3: 81, t. 61. 1682
MORACEAE	<i>Ficus microcarpa</i> L.f.	Itty-arealou	3: 69-70, t. 55. 1682
MORACEAE	<i>Ficus tinctoria</i> subsp. <i>parasitica</i> (Willd.) Corner	Atti-meer-alou	3: 75-76, t. 58. 1682
MORACEAE	<i>Ficus tinctoria</i> subsp. <i>parasitica</i> (Willd.) Corner	Tsjerou-meer-alou	3: 71, t. 56. 1682

MORACEAE	<i>Ficus tsjahela</i> N. Burm.	Tsjakela	3: 87, t. 64.1682
MYRTACEAE	<i>Psidium guajava</i> L.	Malacka-pela	3: 31-33, t. 34, 35.1682
MYRTACEAE	<i>Psidium guajava</i> L.	Pela	3: 31-33, t. 34, 35.1682
OXALIDACEAE	<i>Averrhoa bilimbi</i> L.	Bilimbi	3: 55-56, t. 45-46. 1682
OXALIDACEAE	<i>Averrhoa carambola</i> L.	Carambola(s)	3: 51-53. t. 43-44.1682
OXALIDACEAE	<i>Averrhoa carambola</i> L.	Tamara-tonga	3: 51-53. t. 43-44.1682
RUBIACEAE	<i>Neolamarckia cadamba</i> (Roxb.) Bosser	Katou-tsjaka	3: 29-30, t. 33. 1682
RUTACEAE	<i>Aegle marmelos</i> (L.) Correa	Covalam	3: 37-38, t. 37.1682
SONNERATIACEAE	<i>Sonneratia caseolaris</i> (L.) Engl.	Blatti	3: 43-44, t. 40. 1682

INDEX - 6
KONKANI NAMES WITH MALAYALAM,
PORTUGUESE, DUTCH/BELGIAN NAMES
AND VOL. & FIG. NUMBER

Konkani Name	Malayalam Name	Portuguese Name	Dutch/Belg. Name	Volume/ Fig./Year
*	Niti-panna	Olas d'agoa	*	3: 7, (no plate) 1682
Ambetti	Blatti	Jambou de Mato	Sterre-bollen	3: 43-44, t. 40. 1682
Amvallis	Neli-pouli	Cheramela	Suercnoop	3: 57-58, t. 47-48. 1682
Andexa panna	Todda-panna	Almatoria das Igrezias	*	3: 9-14, t. 13-21. Motha 1682
Asouatou	Tsjela	Morsegeiro	Vledermuys-boom	3: 85, t. 63, 1682
Atoa	Atamaram	Atas	*	3: 21-22, t. 29. 1682
Belou	Covalam	Marmeleira	Slymappels	3: 37-38, t. 37. 1682
Carambola	Carambola(s)	Carambola	Vyf hocken	3: 51-53. t. 43-44. 1682
Carambola	Tamara-tonga	Carambola	Vyf hocken	3: 51-53. t. 43-44. 1682
Caravatti	Teregam	Arvore da Raspa	Rijv-boom	3: 79, t. 60. 1682
Caravatti-valli	Valli-teregam	Arvore de Raispa pregiroso	Climmende Ryiv-boom	3: 83, t. 62. 1682
Davo-Ponossou	Katou-tsjaka	Jaqua falsa	Morgensterren	3: 29-30, t. 33. 1682
Douadeke-goli	Itty-arealou	Arbore de Raija menor	Cleyn Wortelvyge	3: 69- 70, t. 55. 1682
Doulo-vadhou	Katou-alou	Rayseira Vidriado	Glas-vijge	3: 73-74, t. 57. 1682
Karetela	Codda-pana	Arvore dos Sombreiros	*	3: 1-6, t. 1-12. 1682
Karimbala-pala	Syalita	Fruita Esrtrelada	Roos-appel	3: 39-42, t. 38-39. 1682
Kasjo	Kapa-mava	Cajou	Cajou	3: 65-67, t. 54. 1682
Kasouri	Katou-indel	Tamara do Mato	Wilde Dadelboom	3: 15-16, t. 22-25. 1682
Malaki-Karamboli	Bilimbi	Bilimbinos	Blimbynen	3: 55-56, t. 45-46. 1682
Meri Carabatti	Perin-teregam	Arvore da Raspa major	Groote rijv-boon	3: 81, t. 61. 1682
Nagatampo	Bellutta-tsjampakam	Moroius Rosado	Castanie Roosen	3: 63-64, t. 53. 1682
Paray	Tsjerou-meeralou	Arvore da Raijs	Wortel-boom	3: 71, t. 56. 1682
Pata-ponossou	Ansjeli	Angeli	Angeli	3: 25-27, t. 32. 1682
Pelouarta	Pelou	Pera Brava	Wilde Goeyaves	3: 35-36, t. 36. 1682

Pera	Malacka-pela	Pera de Malacka	Goejaves appel	3: 31-33, t 34, 35.1682
Pera	Pela	Guajavas	Goejaves	3: 31-33, t 34, 35.1682
Ponossou	Tsjaka-maram	Jaqueira	Soortsacken	3: 17-20, t. 26-28. 1682
Ranabelou	Niirvala	Pee do Morto	Bombeenen	3: 49-50, t. 42. 1682
Rana-Vodou	Tsjakela	Cordoeira	Heup-boom	3: 87, t. 64.1682
Rauka-paray	Atti-meer-alou	Arvore da raija ladrao	Wortel-vijgh	3: 75-76, t. 58.1682
Sangori	Panja	Algodano	Donsboom	3: 59-60, t. 49-51. 1682
Sangori	Panjala	Algodano	Donsboom	3: 59-60, t. 49-51. 1682
Tembiri	Panitsjika maram	Fruita da grude	Lym-appel	3: 45-47, t. 41.1682
Tsjina-Panosou	Anona-maram	Anona	*	3: 23, t. 30-31. 1682
Valli-Sanvari	Moul-elavou	Algodano do Mato	Wol-doorn	3: 61-62, t. 52.1682
Vodou	Handir-alou	Figos de Buizo	Kray-vygh	3: 77-78, t. 59.1682

INDEX - 7
PORTUGUESE NAMES WITH DUTCH/BELGIAN,
KONKANI, MALAYALAM NAMES AND VOL. & FIG. NUMBER

Portuguese Name	Dutch/Belgian Name	Konkani Name	Malayalam Name	Volume/ Fig./Year
Algodano	Donsboom	Sangori	Panja	3: 59-60, t. 49-51. 1682
Algodano	Donsboom	Sangori	Panjala	3: 59-60, t. 49-51. 1682
Algodano do Mato	Wol-doorn	Valli-Sanvari	Moul-elavou	3: 61-62, t. 52.1682
Almatoria das Igrezias	*	Andexa Motha-panna	Todda-panna	3: 9-14, t. 13-21. 1682
Angeli	Angeli	Pata-ponossou	Ansjeli	3: 25-27, t. 32. 1682
Anona	*	Tsjina-Panosou	Anona-maram	3: 23, t. 30-31. 1682
Arbore de Raija menor	Cleyn Wortelvyge	Douadeke-goli	Itty-arealou	3: 69- 70, t. 55. 1682
Arvore da raija ladrao	Wortel-vijgh	Rauka-paray	Atti-meer-alou	3: 75-76, t. 58.1682
Arvore da Raijs	Wortel-boom	Paray	Tsjerou-meer-alou	3: 71, t. 56.1682
Arvore da Raspa	Rijv-boom	Caravatti	Teregam	3: 79, t. 60. 1682
Arvore da Raspa major	Groote rijv-boon	Meri Carabatti	Perin-teregam	3: 81, t. 61. 1682
Arvore de Raispa pregiroso	Climmende Ryjv-boom	Caravatti-valli	Valli-teregam	3: 83, t. 62. 1682
Arvore dos Sombreiros	*	Karetela	Codda-pana	3: 1-6, t. 1-12.1682
Atas	*	Atoa	Atamaram	3: 21-22, t. 29.1682
Bilimbinos	Blimbynen	Malaki-Karamboli	Bilimbi	3: 55-56, t. 45-46. 1682
Cajou	Cajou	Kasjo	Kapa-mava	3: 65-67, t. 54. 1682
Carambola	Vyf hocken	Carambola	Carambola(s)	3: 51-53. t. 43-44.1682
Carambola	Vyf hocken	Carambola	Tamara-tonga	3: 51-53. t. 43-44.1682
Cheramela	Suercnoop	Amvallis	Neli-pouli	3: 57.58, t. 47-48. 1682
Cordoeira	Heup-boom	Rana-Vodou	Tsjakela	3: 87, t. 64.1682
Figos de Buizo	Kray-vygh	Vodou	Handir-alou	3: 77-78, t. 59.1682
Fruita da grude	Lym-appel	Tembiri	Panitsjika-maram	3: 45-47, t. 41.1682
Fruita Esrtrelada	Roos-appel	Karimbala-pala	Syalita	3: 39-42, t. 38-39. 1682
Guajavas	Goejaves	Pera	Pela	3: 31-33, t 34, 35.1682

Jambou de Mato	Sterre-bollen	Ambetti	Blatti	3: 43-44, t. 40. 1682
Jaqua falsa	Morgensterren	Davo-Ponossou	Katou-tsjaka	3: 29-30, t. 33. 1682
Jaqueira	Soortsacken	Ponossou	Tsjaka-maram	3: 17-20, t. 26-28. 1682
Marmeleira	Slymappels	Belou	Covalam	3: 37-38, t. 37. 1682
Moroius Rosado	Castanie Roosen	Nagatampo	Bellutta-tsjampakam	3: 63-64, t. 53. 1682
Morsegeiro	Vledermuy s-boom	Asouatou	Tsjela	3: 85, t. 63, 1682
Olas d'agoa	*	*	Niti-panna	3: 7, (no plate) 1682
Pee do Morto	Bombeenen	Ranabelou	Niirvala	3: 49-50, t. 42. 1682
Pera Brava	Wilde Goeyaves	Pelouarta	Pelou	3: 35-36, t. 36. 1682
Pera de Malacka	Goejaves appel	Pera	Malacka-pela	3: 31-33, t 34, 35. 1682
Rayseira Vidriado	Glas-vijge	Doulo-vadhou	Katou-alou	3: 73-74, t. 57. 1682
Tamara do Mato	Wilde Dadelboom	Kasouri	Katou-indel	3: 15-16, t. 22-25. 1682

INDEX - 8
DUTCH/BELGIAN NAMES WITH PORTUGUESE,
KONKANI, MALAYALAM NAMES
AND VOL. & FIG. NUMBER

Dutch/Belg. Name	Portuguese Name	Konkani Name	Malayalam Name	Volume/ Fig/Year
*	Almatoria das Igrezias	Andexa Motha -panna	Todda-panna	3: 9-14, t. 13-21. 1682
*	Anona	Tsjina-Panosou	Anona-maram	3: 23, t. 30-31. 1682
*	Arvore dos Sombreiros	Karetela	Codda-pana	3: 1-6, t. 1-12. 1682
*	Atas	Atoa	Atamaram	3: 21-22, t. 29. 1682
*	Olas d'agoa	*	Niti-panna	3: 7, (no plate) 1682
Angeli	Angeli	Pata-ponossou	Ansjeli	3: 25-27, t. 32. 1682
Blimbynen	Bilimbinos	Malaki-Karamboli	Bilimbi	3: 55-56, t. 45-46. 1682
Bombeen	Pee do Morto	Ranabelou	Niirvala	3: 49-50, t. 42. 1682
Cajou	Cajou	Kasjo	Kapa-mava	3: 65-67, t. 54. 1682
Castanie Roosen	Moroius Rosado	Nagatampo	Bellutta-tsjampakam	3: 63-64, t. 53. 1682
Cleyn Wortelvyge	Arbore de Raija menor	Douadeke-goli	Itty-arealou	3: 69- 70, t. 55. 1682
Climmende Ryjv-boom	Arvore de Raispa	Caravatti-valli	Valli-teregam	3: 83, t. 62. 1682
Donsboom	Algodano pregiroso	Sangori	Panja	3: 59-60, t. 49-51. 1682
Donsboom	Algodano	Sangori	Panjala	3: 59-60, t. 49-51. 1682
Glas-vijge	Rayseira Vidriado	Doulo-vadhou	Katou-alou	3: 73-74, t. 57. 1682
Goejaves appel	Pera de Malacka	Pera	Malacka-pela	3: 31-33, t 34, 35. 1682
Goejaves	Guajaves	Pera	Pela	3: 31-33, t 34, 35. 1682
Groote rijv -boon	Arvore da Raspa major	Meri Carabatti	Perin-teregam	3: 81, t. 61. 1682
Heup-boom	Cordoeira	Rana-Vodou	Tsjakela	3: 87, t. 64. 1682
Kray-vygh	Figos de Buizo	Vodou	Handir-alou	3: 77-78, t. 59. 1682
Lym-appel	Fruita da grude	Tembiri	Panitsjika-maram	3: 45-47, t. 41. 1682
Morgensterren	Jaqua falsa	Davo-Ponossou	Katou-tsjaka	3: 29-30, t. 33. 1682

Rijv-boom	Arvore da Raspa	Caravatti	Teregam	3: 79, t. 60. 1682
Roos-appel	Fruita Esrtrelada	Karimbala-pala	Syalita	3: 39-42, t. 38-39. 1682
Slymappels	Marmeleira	Belou	Covalam	3: 37-38, t. 37.1682
Soortsacken	Jaqueira	Ponossou	Tsjaka-maram	3: 17-20, t. 26-28. 1682
Sterre-bollen	Jambou de Mato	Ambetti	Blatti	3: 43-44, t. 40. 1682
Suercnoop	Cheramela	Amvallis	Neli-pouli	3: 57.58, t. 47-48. 1682
Vledermuys -boom	Morsegeiro	Asouatou	Tsjela	3: 85, t. 63, 1682
Vyf hocken	Carambola	Carambola	Carambola(s)	3: 51-53. t. 43-44.1682
Vyf hocken	Carambola	Carambola	Tamara-tonga	3: 51-53. t. 43-44.1682
Wilde Dadelboom	Tamara do Mato	Kasouri	Katou-indel	3: 15-16, t. 22-25.1682
Wilde Goeyaves	Pera Brava	Pelouarta	Pelou	3: 35-36, t. 36. 1682
Wol-doorn	Algodano do Mato	Valli-Sanvari	Moul-elavou	3: 61-62, t. 52.1682
Wortel-boom	Arvore da Raijs	Paray	Tsjerou-meer-alou	3: 71, t. 56.1682
Wortel-vijgh	Arvore da raija ladrao	Rauka-paray	Atti-meer-alou	3: 75-76, t. 58.1682



K.S. Manilal, Emeritus Professor, Malabar Botanical Garden, Calicut, Kerala prepared the English Edition of *Hortus Malabaricus* with Annotations and Modern Botanical Nomenclature. He has been studying the various aspects of Van Rhee's *Hortus Malabaricus* for the past 35 years. After obtaining Ph.D. degree from the University of Saugar, Prof. Manilal joined the faculty of the University of Kerala in 1964. Later he worked in several Universities and academic institutions such as the University of London, the University of N.Wales (UK), National Museum of Natural History, Washington DC (USA), Royal Botanic Gardens, Kew, Rijksherbarium, Leiden University, the Netherlands. He retired as senior Professor of Botany from the University of Calicut. He has published over 200 research papers and 11 books which include *Botany and History of Hortus Malabaricus* (1980), *An Interpretation of Van Rhee's Hortus Malabaricus* (jointly) (1988).

Price: (For 12 volumes)
Rs. 20,000 (in India)
US \$ 950 (outside India)

VAN RHEEDE'S
HORTUS MALABARICUS
ENGLISH EDITION
VOLUME - 3



Hortus Malabaricus – English Edition (12 volumes) is the translation of the oldest comprehensive printed book on the natural plant wealth of Asia and of the tropics, compiled and published in Latin by Van Rhee de during 1678-1693. It contains descriptions and illustrations of 742 plants. It is a rare record of the medicinal plant wealth and traditional medical practices of ancient India. The medicinal properties of the plants, the respective diseases for which they were used for treatment and the modes of treatment as known to the ancient renowned traditional physicians of Malabar (the present state of Kerala) are described in the book. The book also provides much insight into the cultural, social, political, historical and linguistic conditions prevailing in India as well as Kerala at the time and was instrumental in deciding the political history of India and the Netherlands in the 17th century. This English translation of *Hortus Malabaricus* with annotations and modern botanical nomenclature, throws open a vast treasure house of knowledge to scientists, medical practitioners, researchers and historians for further study and practice, 325 years after its original publication in Latin.

ISBN 81-86397-57-4



UNIVERSITY OF KERALA
THIRUVANANTHAPURAM