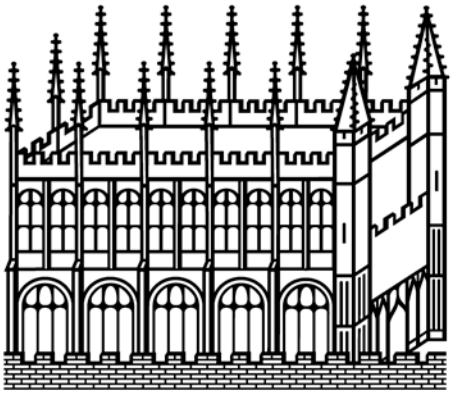
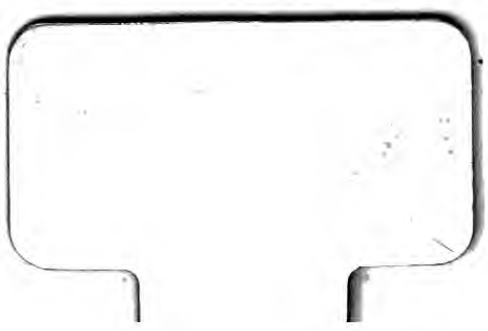


22



KEW GARDENS;

OR,

A POPULAR GUIDE

TO THE

ROYAL BOTANIC GARDENS OF KEW;

BY

SIR W. J. HOOKER,

K.H. D.C.L. F.R.A. & L.S.

&c. &c.

Director.

" Soft roll your incense, *Herbs* and *Fruits* and *Flowers*,
In mingled clouds, to Him, whose sun exalts,
Whose breath perfumes you, and whose pencil paints."

TENTH EDITION.

LONDON:
LONGMAN, BROWN, GREEN, AND LONGMANS.
1851.

Price Sixpence.

THE

SCIENTIFIC AND LITERARY TREASURY:

A NEW AND POPULAR

ENCYCLOPÆDIA OF THE BELLES-LETTRES;

Condensed in Form, familiar in Style, and copious in Information; embracing an extensive range of subjects in LITERATURE, SCIENCE, and ART. *New Edition.* In One Volume, fcap. 8vo, with engraved Frontispiece and Title, price 10*s.* cloth; or bound in embossed roan, with gilt edges, 12*s.*

*** Every page surrounded with Marginal Notes, containing concise Facts in Science, or appropriate Observations.

CRITICAL NOTICES.

"A rich and extraordinary assemblage of science and literature, arranged in the portable form of a single volume cyclopædia, remarkable at once for its concise style, and for its facility of reference."—*St. James's Chronicle.*

"The construction is excellent; the references ready; and the intelligence and judgment of the whole evident, not only in the abundance, but in the adequate extent allotted to every article and explanation."—*Literary Gazette.*

"In our days, when knowledge addresses itself to the people, such a work will be found valuable in the library of the man of business, who cannot spare time to become a 'walking encyclopædia,' but who is unwilling to be excluded from the intellectual enjoyments which have been opened to those around him."—*Athenæum.*

THE

TREASURY OF KNOWLEDGE

AND LIBRARY OF REFERENCE:

IN TWO PARTS.

A New Edition. In One Volume, fcp. 8vo, with two engraved Frontispieces and Titles.

Price 10*s. cloth, or* 12*s. bound in roan, with gilt edges.*

CONTENTS.

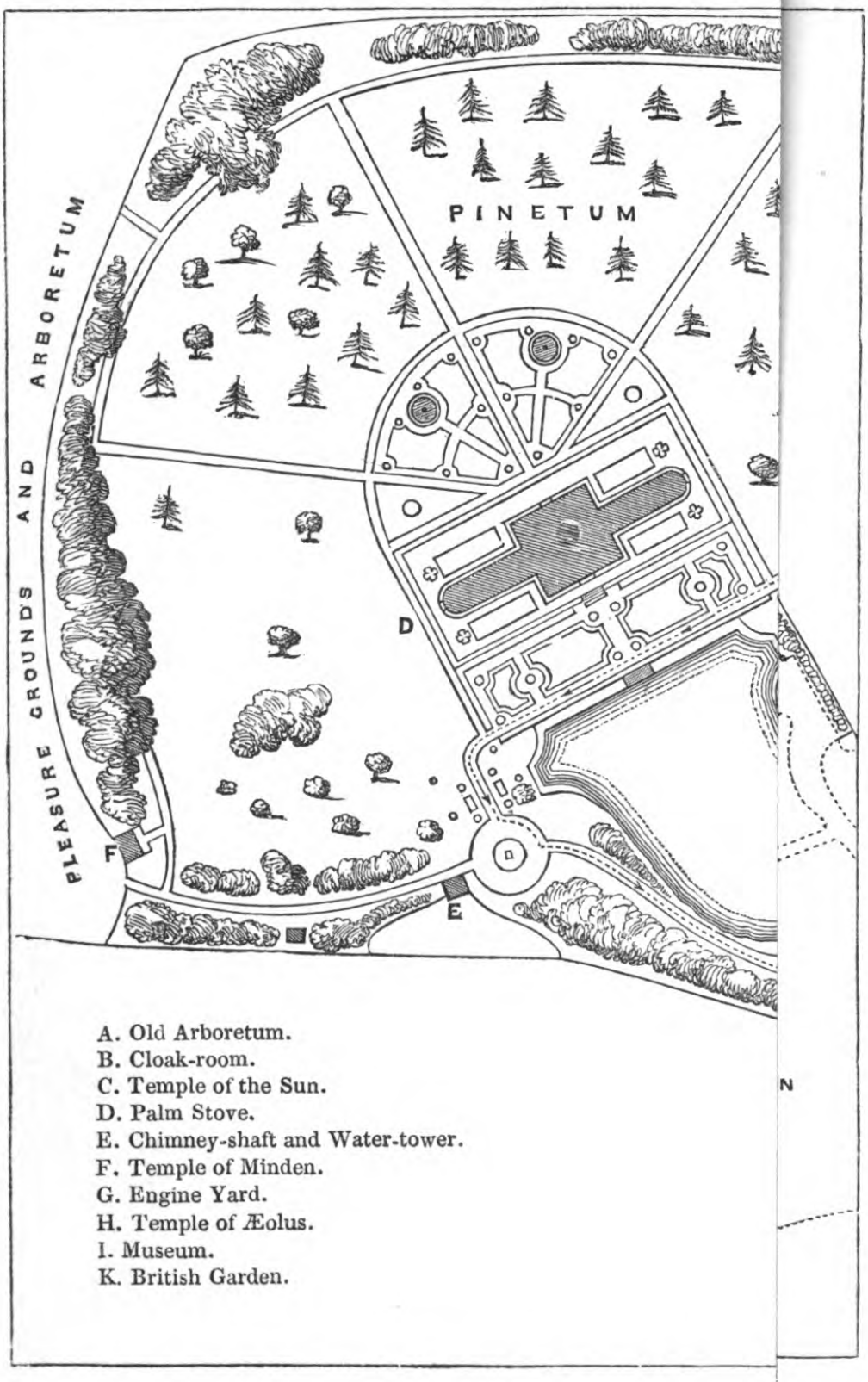
PART I.

A compendious ENGLISH GRAMMAR: with Exercises on Syntax and Style.
ENGLISH VERBAL DISTINCTIONS: with occasional Illustrations, and Exercises on Syntax and Style.
PROVERBS, TERMS, and PHRASES, in the LATIN, SPANISH, FRENCH, and ITALIAN LANGUAGES, translated: with Exercises on English Syntax and Style.
A NEW and ENLARGED DICTIONARY of the ENGLISH LANGUAGE, with Morals and Maxims, alphabetically arranged, surrounding every page.
Concise and plain Directions for the Pronunciation of words.

PART II.

A NEW and UNIVERSAL GAZETTEER, derived from the latest and best authorities; greatly enlarged and corrected to the present time: with Proverbs of all Nations between the marginal rules.
Population and other Statistical Tables.
A List of the Cities, Boroughs, and Market-towns in the United Kingdom; the Number of Members returned to Parliament; the Days on which the Markets are held; the Distances from London, &c.
Regulations of the General Post-office.
A List of Foreign Animal, Vegetable and Mineral Productions; with the Names of the Countries producing them.
A compendious CLASSICAL DICTIONARY; containing an Explanation of Ancient Proper Names; with Latin Maxims translated.
Scripture Proper Names, accented for Pronunciation: with Latin Maxims, translated.
Christian Names of Men and Women: with Latin Maxims, translated.
A List of Abbreviations, with their explanations.
CHRONOLOGY and HISTORY: with Latin Maxims, selected from the ancient Authors, translated.
A compendious LAW DICTIONARY: with the fundamental Maxims of British Law, in Latin, translated.
An Abstract of the principal Tax Acts: with Latin Law Maxims, translated.
Interest and other Tables.
Forms of Epistolary Address.
Tables of Precedency.
A Synoptical View of the PEERAGE of the UNITED KINGDOM; with the whole of the Mottoes translated.
Tables of Number, Money, Weights, and Measures.


BODLEIANA · BIBLIOTHECA



A. Old Arboretum.
B. Cloak-room.
C. Temple of the Sun.
D. Palm Stove.
E. Chimney-shaft and Water-tower.
F. Temple of Minden.
G. Engine Yard.
H. Temple of Æolus.
I. Museum.
K. British Garden.

PLAN OF

KEW GARDENS;

OR

A POPULAR GUIDE

TO THE

ROYAL BOTANIC GARDENS OF KEW;

BY

SIR W. J. HOOKER,

K.H. D.C.L. F.R.A. & L.S.

&c. &c.

Director.

" Soft roll your incense, *Herbs* and *Fruits* and *Flowers*,
In mingled clouds, to Him, whose sun exalts,
Whose breath perfumes you, and whose pencil paints."

TENTH EDITION.

LONDON:
LONGMAN, BROWN, GREEN, AND LONGMANS,
1851.

CONTENTS.

LONDON:
SPOTTISWOODES and SHAW,
New-street-Square.

PREFACE.

A GUIDE, which should indicate to strangers the more remarkable features in the Royal Botanic Gardens of Kew, and point out some of the many interesting plants cultivated there, has long been a desideratum. Of late, this want has been peculiarly felt, because of the great extent of ground, the number of plant-houses, and the amazing increase of the collection. The very fact, however, of the continued additions to the plants, combined with their rapid growth under good cultivation, renders any approach to a *perfect* Guide or Handbook a very difficult, if not an impossible, task; for, though it is true that only a reference to the more remarkable objects can be desired, yet the frequent arrival of novelties must, of necessity, cause such a book to become, in a measure, imperfect soon after its publication. This circumstance, along with the constantly increasing bulk, entails the incessant removal of plants from one house to another; thus the individuals that are recorded as occupying one particular greenhouse or stove may require shifting the very next day. It is eminently needful to warn our readers of this circumstance, because they will thus comprehend how it happens that a plant stated to exist in Plant-house No. 1., for instance, may not at the time of their visit be found there. To a certain extent, and owing to the causes just mentioned, individual specimens cannot be stationary for a great space of time; still we endeavour to retain them in the places indicated as long as possible; and, if a large plant of peculiar interest be necessarily removed, we shall, as often as we can, replace it with a smaller individual of the same kind. When this is impracticable, and any particular plant is not seen where the Guide-Book states it to be, the *Index* will probably refer to the page where it is noticed.

The annexed Plan of the Gardens and Plant-houses will, it is expected, prove useful; and a stranger to the ground and the collection may do well to follow the route indicated by *dotted lines*, as the most convenient for giving a tolerably complete survey of the whole. It is particularly requested that visitors will enter the Plant-houses by the doors indicated for the purpose; if they do otherwise, and come in by opposite ones indiscriminately, they must meet and pass each other, which the narrowness of the walks renders difficult.

The beauty of these grounds and of the plants which they contain, combined with the liberal admission granted by Government, attracts, as may be supposed, great crowds of visitors; and a few

needful regulations, over and above those expressly posted in the grounds, may be here appropriately given.

1. Smoking, or eating and drinking, or the carrying of provisions of any kind into the Gardens, is strictly forbidden.

2. No packages or parcels can be admitted within the gates. Ladies who may feel incommoded by their cloaks, umbrellas, small reticules, &c., can deposit them in the cloak-room, near the head of the first walk, while they make the tour of the Gardens.

3. No person attired otherwise than respectably can be admitted; nor children too young to take care of themselves, unless a parent or suitable guardian be with them: the police have strict orders to remove such, as also persons guilty of any kind of impropriety.

4. It is by no means forbidden to walk upon the lawns; still it is requested that preference be given to the gravel-paths, and especially that the lawn-edges parallel to the walks be not made a kind of footway, for nothing renders them more unsightly. It might scarcely be thought needful to say, that leaping over the beds, and running, particularly on the mounds and slopes, are prohibited; yet the latter has been practised, and so heedlessly, that very serious injuries have resulted from falls, and grievously scarred faces have been the memento of such folly. The Gardens are intended for agreeable recreation and instruction, not for idle sports.

5. It is requested that visitors will abstain from touching the plants and flowers: a contrary practice can only lead to the suspicion, perhaps unfounded, that their object is to abstract a flower or a cutting, which, when detected, must be followed by disgraceful expulsion.

More might be said on this subject; but the Director, while bearing willing testimony to the excellent conduct of the many thousands who frequent the Gardens, prefers to rely on the good sense and honourable feelings of the visitors, and the value they must attach to the privileges here afforded, rather than multiply restrictions which may not be absolutely required.

In this small volume little is said respecting the Museum: this collection of *interesting* and *economic* vegetable substances is rapidly, and we may say daily, increasing, so that a separate notice of them will soon be imperatively necessary. In a short time the Museum will constitute a highly important feature in the Gardens. Among the persons who come to survey it, as well as the living plants, there will always be travellers or merchants who hold intercourse with various parts of the globe, and who would gladly contribute to this great national collection. Brief instructions, printed expressly for distribution, may be had of the Director, or of the Curator (Mr. John Smith). The *Annual Reports*, indeed, printed by the House of Commons, and the pages and plates of the "*Botanical Magazine, or Plants of Kew*," together with the "*Journal of Botany and Kew Garden*

Miscellany," do record the names of various donors to the establishment. Large though our stores assuredly are, there yet remains much to be obtained from almost every distant part of the world. Till recently, no European garden could boast, as ours now does, of the famous *Doum Palm* of Egypt, one of the most remarkable of the palm tribe; nor of the *Teak* or *Oak*, as it is indifferently called, *of Africa*, which affords the most valuable of all timber for ship-building, and which has been recently reared from seeds sent us by Mr. Oldfield from Tropical Western Africa; nor of a germinating plant of the famous *Double Coco-Nut* (*Lodoicea Sechellarum*); nor does any yet possess the plant that yields the well-known *Rice Paper*, so called, of the Chinese. The same may be said of the *Camphor-Tree of Sumatra*, and a hundred other rarities. Well-ripened seeds of such will be always acceptable, and might be collected by travellers with little difficulty.

We may here mention, that, in despatching packages and parcels, the quickest mode of transit is always the best. When sent by the Queen's ships or the Royal Mail, or the Peninsular and Oriental Company's steamers, the address should be: —

" To the SECRETARY of the ADMIRALTY,
" LONDON.
" For Sir Wm. J. Hooker,
" Royal Gardens, Kew."

If by merchant or other vessels, the direction is simply,

" To Sir WM. J. HOOKER,
" Royal Gardens, Kew,
" LONDON."

The *Botanic Gardens* are open every day (Sundays excepted) from one to six o'clock: a bell is rung to announce the latter hour, and no person can be admitted at other hours except on business.

N.B. The *Royal Pleasure-Grounds* or *Arboretum*, sometimes by strangers confounded with the Botanic Gardens, constitute a separate though adjoining portion of ornamental ground, accessible from Midsummer-day to Michaelmas*, every Thursday and Sunday, by three gates, — two in the road leading from Kew to Richmond, called the *Lion* or *Pagoda Gate* and the *Unicorn Gate*, and one by the river-side, nearly opposite Brentford Ferry, called the *Brentford Gate*.

W. J. HOOKER,
DIRECTOR.

Royal Gardens, Kew,
Aug. 1. 1851.

* During the summer of 1851 the Royal Pleasure-Grounds are open daily from 1 to 6.

" So sits, enthroned in vegetable pride,
Imperial Kew, by Thames's glittering side:
Obedient sails from realms unfurrow'd bring
For her the unnamed progeny of Spring.

" Delighted Thames through tropic umbrage glides,
And flowers antarctic bending o'er his tides,
Drinks the new tints, the sweets unknown inhales,
And calls the sons of science to his vales.
In one bright point admiring Nature eyes
The fruits and foliage of discordant skies,
Twines the gay flow'ret with the fragrant bough,
And binds the wreath round George's regal brow.

" Sometimes, retiring from the public weal,
One tranquil hour the Royal Partners steal,
Through glades exotic pass, with step sublime,
Or mark the growth of Britain's happier clime."

KEW GARDENS.

BRIEF HISTORIC NOTICE.

It is generally known that considerable changes in the Royal Botanic Grounds of Kew were contemplated about the year 1840, when, from being a private garden belonging to the Royal Family, and maintained by funds from the Board of Green Cloth, it was liberally relinquished by her present Majesty, Queen Victoria, and placed under the control of the Commissioners of Her Majesty's Woods and Forests, with the view of rendering it available for the general good. The public, having since been freely admitted to the Gardens under a few needful regulations, must have observed the many alterations and improvements effected under the sanction of the above-mentioned Commission, and cannot fail to be desirous of some particulars respecting them. It is with a view to satisfy such laudable curiosity, and to increase the interest with which the Gardens are visited, that this Guide is now compiled.

We shall not here enter into the full and early history of the Royal Gardens of Kew: a few statements are, however, necessary, and we have selected them from the best authorities.

About the middle of the seventeenth century, the spot that now forms the Royal Gardens of Kew, together with a residence called *Kew House*, belonged to R. Bennett, Esq., whose daughter and heiress married Lord Capel. Kew House and Grounds then passed into the hands of Mr. Molyneux, who was secretary to King George II. (when Prince of Wales), and who married Lady Elizabeth Capel. He was well known as a man of literature and an astronomer. With an instrument of Mr. Molyneux's own construction, and in those very grounds, Dr. Bradley made the valuable discoveries relating to the fixed stars, to commemorate which an inscription was placed by the late King William IV. on the pedestal of a sun-dial, which stands on the identical spot which had been occupied by Dr. Bradley's telescope, upon the lawn, opposite to the present palace.

The Prince of Wales, who was son to George II., and father to George III., admiring the situation of *Kew House*, took a long lease of it from the Capel family about the year 1730, and began to form the pleasure-grounds, containing about 170 acres. They were completed by his widow, Augusta, Princess Dowager of Wales, who delighted in superintending the improvements, then conducted

upon a most extensive scale. At this time Sir W. Chambers was employed in decorating the Gardens at Kew with temples, &c., an account of which he published in a large folio work with many plates, (dedicated to the Princess Dowager of Wales,) under the title of "Plans, Elevations, Sections, and Perspective Views of the Gardens and Buildings at Kew, in Surrey, the Seat of H. R. H. the Princess Dowager of Wales."

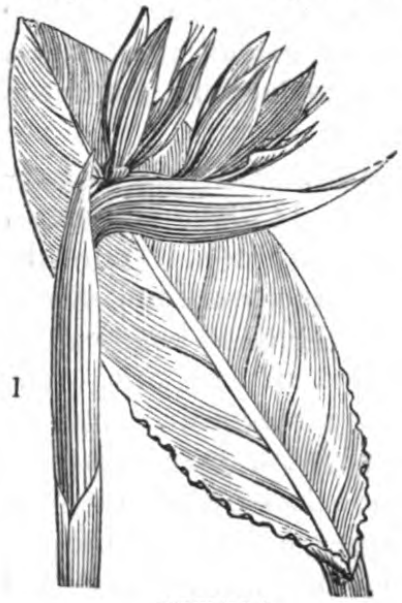
The Exotic Department of this Garden was commenced by the same Princess, and much favoured by the Earl of Bute, about the middle of the eighteenth century. Many of the finest foreign trees were contributed by Archibald Duke of Argyle (styled by Horace Walpole the Tree-monger), who sent them from his once richly stored garden at Whitton, near Hounslow.

We find that in the year 1759, Mr. W. Aiton, a pupil of the celebrated Philip Miller, of the Chelsea Physic-Garden, was placed in charge of the Botanical Gardens at Kew,—a gentleman no less distinguished by his private virtues than his knowledge of plants, and great skill in cultivating them. His professional abilities quickly procured him the notice of the late Sir Joseph Banks, and a friendship commenced which subsisted between them for life.

About the year 1789 His Majesty George III. purchased Kew House, which was soon afterwards pulled down, and its furniture removed to an older mansion, since known by the name of *Kew Palace,* and once the property of Sir Hugh Portman, who is mentioned as "the rich gentleman who was knighted by Queen Elizabeth at Kew." This small but picturesque red brick dwelling, which appears to be of the date of King James, or Charles I., was purchased in 1781 for Queen Charlotte (who died there); and it was long the favourite suburban residence of the Royal Family. Her Majesty evinced much interest in the increase of the collection of plants; and justly does the late Sir James E. Smith, President of the Linnæan Society, bear testimony to the Queen's love of botany, when he says "that the genus *Strelitzia** (fig. 1.) (so called by Mr. Aiton) stands on the sure basis of botanical knowledge and zeal, few persons having cherished the study of nature more ardently, or cultivated it so deeply, as Her Majesty." Under such auspices, and aided by the enlightened patronage of Sir Joseph Banks, it was only to be ex-

* The name was given by Sir Joseph Banks and Mr. Aiton, in compliment to the consort of George III. as princess of the house of Mecklenburg Strelitz. It is a plant worthy to bear so distinguished an appellation; and noble specimens of it may usually be seen in flower in one or other of the stoves during the winter months, especially that species on which the genus was founded, *Strelitzia Regina*, figured at tab. 119. of the *Botanical Magazine*, and which has been justly described as among the most brilliantly coloured flowers in nature. The *Strelitzia augusta* (*Bot. Mag.* tab. 4167—8.) is a far more stately plant of the genus, with larger, but very differently coloured, petals. By the marriage of Her Royal Highness the Princess Augusta of Cambridge with the Hereditary Grand Duke of Mecklenburg Strelitz, this auspicious name is yet preserved in the Royal Family; and the amiable Princess who now bears it has evinced (we have ample opportunities of knowing) a no less lively interest in the improvements carrying on at Kew than did her Royal ancestor in those to which we are alluding.

pected that the Gardens of Kew should become celebrated all over the world. So early as 1760, the great or old Stove (No. 8. of the Plan) was built by Sir William Chambers. It must have been a remarkable structure for that time, being 114 feet long: the centre is 60 feet long, 20 feet wide, and 20 feet high, exclusive of the tan-pit; while the two ends formed dry stoves, each 20 feet long, 18 feet wide, and of the same height as the middle part.



STRELITZIA.

In 1761 the noble Orangery (No. 2. of the Plan) was erected also by Sir William Chambers. It measures 145 feet in length, its width is 30 feet, and its height 25 feet. In the same year was added the very elegant Temple of the Sun, as it is called, of the Corinthian order (C. of the Plan); and some young trees were planted near, which are now grown to be among the most beautiful in the Gardens, particularly an *Oriental Plane* and a *Turkey Oak*. Such had been the increase of plants, that, in the year 1788, a greenhouse was built for Cape plants (No. 7. of the Plan), 110 feet long; and another for the vegetable productions of New Holland, nearly the same size (No. 10. of the Plan), was added in 1792. (This latter has been much enlarged and improved under the name of the "Australian House.")

A catalogue of the plants in the Exotic Garden of Kew was published by Dr. Hill in 1768, and a second edition the following year.

A far more elaborate and important work appeared in 3 vols. 8vo, accompanied by some admirable plates, the *Hortus Kewensis* of William Aiton, in 1789, giving an account of the several foreign plants which had been introduced into the English gardens at different times, amounting to 5,600 in number; and so much was it esteemed that the whole impression was sold off within two years. Mr. Aiton did not long survive this publication, for he died in 1793, in the sixty-third year of his age, and lies buried in the churchyard at Kew, near the graves of his distinguished friends, Zoffany, Meyer, and Gainsborough. He was succeeded by his son, W. Townsend Aiton, Esq., who was no less esteemed by King George III. than his father had been, and who, besides conducting the botanical department, and taking charge of the extensive pleasure-grounds, was also employed in the improvement of the other Royal gardens, in all which he displayed great skill and judgment, and an intimate acquaintance with his profession.

The voyage of Captain Cook and Sir Joseph Banks round the

world; those of Captain Flinders and Mr. Robert Brown (*Botanicorum Princeps*), and of Mr. Allan Cunningham, to Australia; the expeditions of Bowie and Masson respectively to Brazil and the Cape of Good Hope—all these enriched the Gardens of Kew with the vegetable productions of the southern hemisphere, to an extent unparalleled before or since: besides which, other collectors were employed abroad during a long period of years in various countries; and the produce of their researches was deposited at Kew. On various occasions, especially during the life of King George III., other houses, stoves and pits were erected, as occasion required; but it must be confessed that, on the demise of that revered monarch and of Sir Joseph Banks, whom His Majesty so much delighted to honour, and who died shortly after the King, the establishment languished and suffered from want of Royal and scientific encouragement. During the reigns of George IV. and William IV., with the exception of a few plants being transmitted by occasionally employed collectors, and one hothouse being erected by the last-mentioned sovereign (and it is but right to add that this conservatory is eminently handsome and ornamental), the Botanic Gardens retrograded rather than flourished; and matters must have been much worse, but for the truly parental affection cherished towards it by Mr. Aiton, and the able exertions of his foreman (now the curator), Mr. John Smith. Throughout the country an opinion existed, which soon began to be loudly expressed, that either the Gardens should be entirely abolished or placed upon a very different footing, and rendered available, as a great popular yet scientific establishment, for the advantage of the public.

Government was, happily, ready to respond to this latter feeling; and in 1838, the Lords of Her Majesty's Treasury appointed a committee to inquire into the management, condition, &c. of the Royal Botanic Gardens. The result was, that in May, 1840, a return was made to the House of Commons, in the shape of a report by Dr. Lindley, who, at the desire of the committee, had surveyed the Gardens, in conjunction with two well-known practical gardeners.

Strangers, or persons not well acquainted with the vicinity of Kew, often entertain very incorrect notions of this establishment; nor can such be wondered at, seeing for how long a time it was the private garden of the Royal Family, and taking also into account its extensive and highly varied nature. It may be interesting, especially as exhibiting most forcibly the change that has since taken place, to describe in few words the extent and condition of the grounds at the time of this investigation, namely, in 1840. They then consisted of—

1. *The Grounds immediately about the existing Palace of Kew*, which were of small circuit, lying near the river, and consisting mainly of those of the great edifice or Palace, begun by Mr. Wyatt

in the reign of His Majesty King George III., and soon afterwards pulled down, and the grounds of the present Palace. The boundary is the river on the north side, the Pleasure-Grounds on the south and west, and the Botanic Garden on the east.

2. *The Botanic Garden proper* which contained at the time in question 11 acres, or thereabouts, of very irregular outline; bounded on the north partly by the gardens of the residences, mainly Crown property, which stand on the south side of Kew Green, in part by the Green itself, from which it was separated by a handsome railing, and in part by the gardens of His Majesty the King of Hanover; westward, by the grounds of the Palace above-mentioned; eastward, by what were then the Royal Kitchen and Forcing-Gardens (now a part of the Botanic Garden); and south by the Pleasure-Ground.

3. *The Royal Kitchen and Forcing-Gardens,* situated between the Botanic Garden and the Richmond road, comprising about fourteen acres. (This portion has been, as just observed, added to the Botanic Garden.)

4. *The Pleasure-Ground* or *Arboretum,* comprising 200 acres of wood, shrubbery and lawn, lying to the south of the Botanic Garden, and bounded by the Richmond road and the river. For some years this extensive and beautiful area has been thrown open twice a week during the summer (see p. 5.): the public are admitted at three diferent entrances, and it is very much frequented.

5. South of this, and stretching between the Richmond road and the Thames, almost into the lower part of Richmond, lies *Richmond Old Park,* or the *Old Royal Deer-Park,* as it is sometimes called; a noble extent of pasture, comprising about 400 acres, interspersed with many fine trees, and distinguished by the Observatory erected by George III., now liberally granted to the use of the British Association, and where that scientific body is carrying on an interesting series of experiments on terrestrial magnetism.

The report of Dr. Lindley, mentioned above, has reference only to the second of these divisions, namely, the *Royal Botanic Gardens,* which are stated to "include many fine exotic trees and shrubs, a small collection of herbaceous plants, and numerous specimens of grasses." Ten different stoves and greenhouses then existed; most of which have been either condemned and pulled down as unworthy of the Gardens, or so greatly altered as to be no longer recognizable under Dr. Lindley's description. He stated them, and correctly, to be "crowded together without plan or arrangement, all heated by separate fires, producing a quantity of soot and liable to many inconveniences." They, however, even then, "contained a great variety of rare and valuable tropical plants in good preservation." The Orangery, situated in the Pleasure-Grounds, and the Conservatory, or

"architectural greenhouse" already mentioned, and erected by King William IV., are not included in the ten stoves and houses which Dr. Lindley condemns.

It resulted from this investigation, that the whole of the Gardens, Pleasure-Grounds and Park was transferred to the department of the Commissioners of Her Majesty's Woods and Forests. Mr. Aiton, on the eve of the fiftieth anniversary of his holding office, retired from the charge of the Botanic Gardens; and the present Director received instructions from the Board to enter upon his important duties in the spring of the year 1841, and to prepare, as speedily as possible, a Report of those alterations which were deemed essential for rendering the Gardens useful to the public at home and to our colonies abroad. Many useful suggestions on these heads were offered by Dr. Lindley in the before-mentioned document, especially the following: — "A national garden ought to be the centre, round which all minor establishments of the same nature should be arranged: they should be all under the control of the chief of that garden, acting in concert with him, and through him with one another, reporting constantly their proceedings, explaining their wants, receiving their supplies, and aiding the mother-country in every thing that is useful in the vegetable kingdom. Medicine, commerce, agriculture, horticulture, and many valuable branches of manufacture, would derive much benefit from the adoption of such a system. From a garden of this kind, government would be able to obtain authentic and official information on points connected with the founding of new colonies: it would afford the plants there required, without its being necessary, as now, to apply to the officers of private establishments for advice and assistance."

Other alterations of a highly important character could not fail in suggesting themselves to the Director, on his becoming intimately acquainted with the minutiæ of the establishment, many of which it were tedious to narrate in this place.

One of the first was to open the Botanic Gardens for the admittance of the public on every week-day, from the hours of one to six o'clock. Not only the Grounds but the Plant-houses are open to visitors; the number of whom, it is needless to say, is very considerable*; yet, what is peculiarly gratifying, and contrary to the antici-

* It may not be uninteresting to our readers to state the gradual increase of visitors, since the Botanic Gardens were thus daily thrown open to the public. In

1841	the amount of visitors was				-	9,174
1842	-	-	-	-	-	11,400
1843	-	-	-	-	-	13,492
1844	-	-	-	-	-	15,114
1845	-	-	-	-	-	28,139
1846	-	-	-	-	-	46,573
1847	-	-	-	-	-	64,282
1848	-	-	-	-	-	91,708
1849	-	-	-	-	-	137,865
1850	-	-	-	-	-	179,627

pation of many persons, this privilege has been rarely abused. In the few cases of an opposite line of conduct, the consequent detection (which must be expected where trustworthy men are necessarily dispersed through the Gardens at their various occupations) has proved its own punishment.

Next to the facility and consequent pleasure and instruction to the public, the enlargement of the ground was an important object. The limit of the Garden was not, indeed, exactly defined where it met the precincts of the residence of His Majesty the King of Hanover; but permission was soon obtained to include within the Botanic Garden all the ground immediately about the Conservatory and Orangery, which greatly enhanced the beauty of the view, and added between 3 and 4 acres. This augmentation to the limits, however, was, from its small extent, rather to be considered ornamental than useful. Application was made by the Chief Commissioner of Woods and Forests to the Queen, for a grant of land from the contiguous Pleasure-Ground, which might afford the means of forming a *Pinetum* (or a collection of plants of the Pine tribe) suited to such an establishment, and also of erecting a Palm-Stove, or tropical house, equally worthy of the place and the nation. Her Majesty was graciously pleased to assent to this request; and a portion of the Pleasure-Ground, comprising about 47 acres and including a piece of water, was surveyed, and permitted to be enclosed within a light wire fence, which still gives to view the rest of the Pleasure-Ground, and adds to the beauty of the Botanic Gardens, which, thus augmented, contained 60 acres.

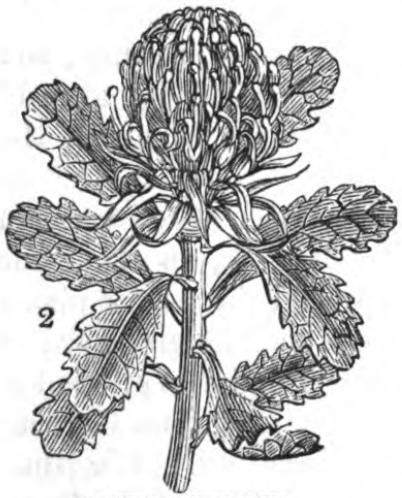
Again, in the winter of 1846-7, orders were received for abolishing the Royal Kitchen and Forcing Gardens of Kew, as such, and incorporating them with the Botanic Grounds, which has already been done, thus adding 15 more acres to the scientific portion of the grounds (75 acres in all).

But changes now come to be noticed that have been effected within the above-mentioned *Botanic Garden* grounds; for, in the same ratio that hardy plants required more space, so did the tender plants need increased accommodation; and plans were accordingly given in for those improvements, by which such a transformation is effected in the aspect of the place, that persons who have not visited Kew Gardens for a few years can scarcely recognise the localities. We shall describe, with all possible brevity, the present condition of the Royal Botanic Gardens, and at the same time indicate the objects most worth the attention of a stranger, both in the open ground and in the several plant-houses.

GUIDE TO THE BOTANIC GARDENS.

On approaching the Botanic Gardens by the new entrance at the head of Kew Green, the visitor cannot fail to be struck with the beauty of the richly ornamented gateway, erected in 1845–6, from a design of Decimus Burton, Esq. Passing through it, the main walk takes a westerly course, and, besides catching a distant view of Kew Palace, attention will be attracted on the left by the fine trees of the old Arboretum, a collection of hardy exotic trees and shrubs circumscribed by a walk. On the lawn on the right hand side of this walk, among other recently planted and recently introduced trees, are the *Californian Yew* (*Taxodium sempervirens*), which in its native country attains a height of 300 feet, and the much more graceful *Cryptomeria Japonica*, a plant of the Pine-kind, native of Northern China and Japan, both of which have stood three winters unharmed. The Plant-house, which here comes directly in view, is

No. 1., a handsome stone building, of classical design, commonly called the CONSERVATORY, or sometimes the ARCHITECTURAL GREENHOUSE. This fine structure was removed hither, by order of *His* Majesty King William IV., from Buckingham Palace in 1836. It is one* of the three Conservatories that had been erected in the gardens there, and is heated by innumerable coils of small pipes, fixed by Mr. Perkins. It is now filled with an extremely rich collection of Australian, with a few Cape, plants, chiefly *Proteaceæ*, a family of plants, so named in consequence of the very varied character of the stems, leaves, and inflorescence, yet agreeing in the essential character of the flowers and fruit. They are handsome evergreen shrubs, or small trees, many of them constituting the so-called "*Scrub*" of New Holland. Among the numerous kinds of this extensive group the *Banksias* and *Dryandras* are the most remarkable: their foliage, though harsh and rigid, has much of the Fern character, and the flowers, especially in the *Banksias*, are arranged in bunches or tufts resembling a bottle-brush. It is in the winter season chiefly that they are in flower, and then the brilliant *Waratah* (*Telopea speciosissima*) (fig. 2.), &c., may be seen bearing its curious blossoms.



TELOPEA SPECIOSISSIMA.

* The second is still a Conservatory at Buckingham Palace, while the third has been converted into a Royal Chapel.

The smaller and younger plants in this house are raised chiefly from Swan River seeds, sent by Mr. Drummond, and are of great rarity and value.

Formerly the Collection was almost equally rich in South African plants, especially the *Proteaceæ* of the Cape colony, but they gradually died out; and, strange to say, although the botany of South Africa has been of late years investigated beyond that of every other part of the world, seeds and living plants have been almost wholly neglected; so that in the plants of no country are these and other European gardens more deficient than in those of South Africa. An idea may be formed from the subjoined woodcut (fig. 3.) of the beauty of some that have formerly flourished in this Garden, and of which we should be thankful again to receive seeds.

CAPE PROTEACEÆ.

The most beautiful of the Cape *Proteaceæ*, namely, *Leucadendron argenteum*, is the common firewood of the colony. *Protea mellifera* and others yield a honey which is boiled down and used in coughs. Scarcely a species of this extensive family is found in the northern hemisphere, and in the southern they are almost limited to Australia and South Africa. In Chili, one species, *Quadria heterophylla*, yields an esculent kind of nut, sold in the markets under the name of *Avellano*.

We are supposed to have entered this conservatory by the eastern door: on quitting it at the west end, the path leads towards the Palace, with a vista in front; of which the view extends past the front of the Palace and across the river to the grounds of Syon House, the mansion of His Grace the Duke of Northumberland. The main walk soon takes a southerly direction a little before coming to the cloaking-room, where ladies will always find a place of rest or shelter in wet weather, and where their umbrellas or cloaks can be deposited by those who contemplate a long walk, under the care of an obliging female attendant. Here, on turning to the left, the visitor enters upon the grand and favourite promenade of the Garden. Proceeding, the attention is drawn by a large edifice on the left facing the south, which we still call by its original name,

No. 2., the Orangery, which is used to shelter, in the winter, numerous large and half-hardy trees and shrubs, especially tender *Pines*, many of which are of great rarity and value. The house was

erected by Sir William Chambers in 1761 *, and it bears on the front, in two shields, the initials of Augusta, Princess Dowager of Wales, who, as already mentioned, took a great interest in the Gardens of Kew, and to whom Sir William Chambers dedicated, in 1763, his "Designs of Her Royal Highness's magnificent Villa at Kew." The two ends of this edifice were altered and furnished with large windows in 1842, and they bear the royal arms and that date accordingly. The building is 142 feet long, 30 feet wide and 25 feet high. In the back-shed are two furnaces for heating flues laid under the pavement. It was originally destined for, and filled with, orange trees, till 1841, when they were removed to Kensington Palace (with the exception of a few), and their places supplied by a very miscellaneous collection of trees and shrubs, which had become too large for the other greenhouses. The tenderer *Pines* (*Coniferæ*) constitute, perhaps, the most prominent feature in this house, when it has received its inmates for the autumn and winter. Here, at the latter seasons, may be seen the noblest specimens in Europe of the *Norfolk-Island Pine* (*Araucaria excelsa*), remarkable for their beautifully drooping and graceful branches, which almost vie with ostrich plumes; the *Moreton-Bay Pine* (*A. Cunninghami*); — also a third and perfectly distinct species of *Araucaria*, likewise from Moreton Bay, N. E. Australia, resembling, in its foliage, the Chili Pine (*A. imbricata*), and long the only specimen of the tree in Europe. It was discovered in the high lands, near Moreton Bay, by J. G. Bidwill, Esq., and having been by him presented to the Gardens, it justly bears his name (*A. Bidwilli*): its full-grown cones are as large as a child's head; and, as the seeds of the Chili Pine are eaten in South America, so are these eagerly sought for, as an article of food, by the aborigines of Australia, who at the proper season migrate to the pine-woods for the sole purpose of collecting them. The *Brazilian Pine* (*A. Braziliana*), the *China broad-leaved Pine* (*Cunninghamia lanceolata*), (fig. 4.) the graceful *long-leaved Pine* (*Pinus longifolia*) from the Himalaya Mountains, and several others, equally rare, from Mexico and elsewhere are here; all needing protection during the winter.

CUNNINGHAMIA LANCEOLATA.

In this house we see finely grown *Camellias:* the *Gum-Trees* of Australia (*Eucalyptus*), are easily recognizable, — one of them, in particular, is distinguished by a summit reaching to the ceiling, and therefore unfortunately, but necessarily, despoiled of its

* Not 1751, as incorrectly inscribed on the shields in the façade.

crown. This species is probably the rapidly growing *Gum-Tree* described by Mr. Backhouse, when he says: "It is the most gigantic tree of Van Diemen's Land, and there called *Stringy Bark*. Some of the specimens exceed 200 feet, rising almost to the height of the Monument in London before branching: their trunks also will bear comparison with that stately column both for circumference and straightness. One of them was found to measure $55\frac{1}{2}$ feet round its trunk at 5 feet from the ground; its height was computed at 250 feet, and its circumference was 70 feet at the base! My companions spoke to one another and called to me when on the opposite side of the tree, and their voices sounded so distant that I concluded they had inadvertently quitted me in search of some other object: I accordingly called to them, and they in answer remarked the distant sound of my voice, and inquired if I possibly were behind the tree. At the time when the road was forming through the forest, a man, who had only about 200 yards to go from one company of people to another, lost his way: he shouted and was repeatedly answered; but getting farther astray among the prodigious trunks, his voice became inaudible and he perished.... A prostrate tree of this kind was measured, 213 feet long: we ascended the trunk on an inclined plane formed by one of its huge limbs, and walked, four of us abreast, with ease upon the trunk. In its fall it had hurled down another, 168 feet long, which had brought up with its roots a wall of earth 20 feet across."

CAMPHOR TREE.

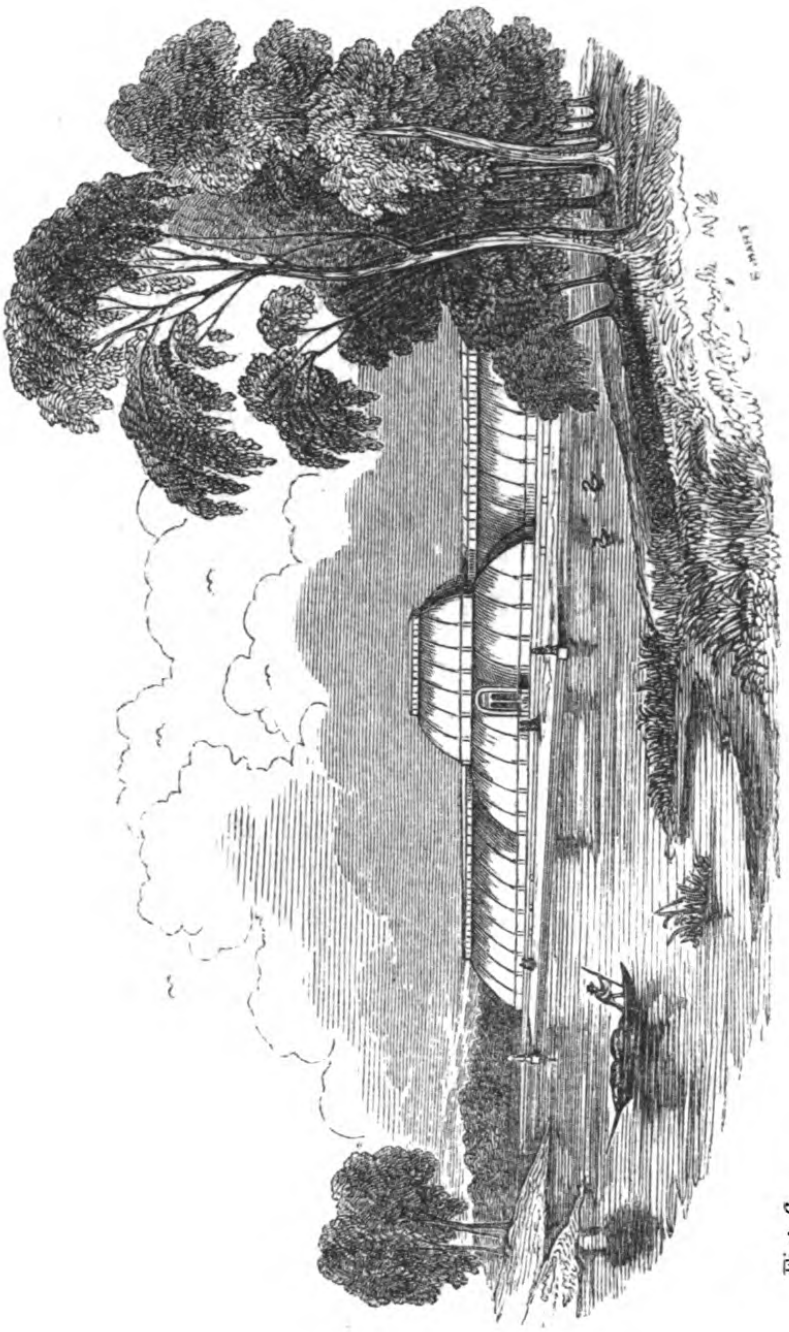
In this house may be seen the *Camphor-Tree* (fig. 5.) of Japan (*Laurus Camphora*); but so miscellaneous is the collection here, and so variable, in consequence of the plants and shrubs being moved in summer to different parts of the lawns and walks, that it is unnecessary to enumerate any more of the species. The largest, and the rarest, and the best, especially the Norfolk-Island Pines, will generally be found at that season placed near the Orangery.

The visitor, on quitting this building, will probably be disposed to return to the main path leading to the new Palm-house; and he can hardly fail to be struck with the beauty of this noble walk, and with the judgment shown by Mr. Nesfield in the disposition and shape of the beds of shrubs and flowers. Alternating with the large beds, are planted two lines of *Deodars*, designed eventually to form an avenue of this stately and graceful tree. Secondary lines are composed of

Junipers, Cypresses, and other allied plants. The Deodar line is in one place interrupted by a beautiful *Turkey Oak*, too fine a specimen to be sacrificed, even for the sake of completing the avenue: the blank on the other (west) side of the walk will probably be occupied by a stone-edged tank; the whole vista terminating on the south by the very handsome tower, which, while it performs the duty of a chimney shaft for the Palm-house, includes a great water-tank applicable to various purposes. Westward on the lawn may be seen a fine group of *Elms*, known by the name of "the Seven Sisters" (so called in allusion to the daughters of His Majesty George III.), and two noble *Limes;* and in this direction a charming walk has been recently made (see the Plan) to branch off and conduct through the newly planted *Pinetum* (collection of *Coniferæ* or *Pines*); and the visitor may, in that way, approach the western entrance of the Palm-House by the Syon vista, or extend his walk, following the course of the boundary of the pleasure ground, to the tower and ornamental water.

Returning however to the grand promenade and continuing south, we find a handsome piece of water enlivened by swans, the gift of Mrs. Marryat, of Wimbledon House, and other aquatic birds, the gift of the Zoological Society of London. The *Canadian Canoe,* moored in the ornamental water, is made of the bark of the *Paper Birch* (*Betula papyrifera*), presented by John Halket, Esq., of Richmond Hill. Here a branch-walk to the right brings us to

The Palm-House or Palm-Stove (fig. 6.), completed, in 1848, may be said to be the glory of the Gardens. It is built from the design of Decimus Burton, Esq.; and the iron-work is executed by Mr. Turner, of the Hammersmith Works, Dublin; the brick and stone work by Messrs. Grissell and Peto; and the boilers by Messrs. Burbridge and Healy: all working in concert with the Director and Curator of the establishment, who are responsible for the successful cultivation of the plants. As the public have now the opportunity of inspecting this noble stove in a finished state, we shall content ourselves with remarking, that the shell or external frame consists of a centre and two wings, occupying an open area 362 feet in length; the centre is 100 feet wide and 66 feet in height to the summit of the lanthorn; the wings 50 feet wide and 30 feet high. The whole is of iron, stone, brick, and sheet-glass, the latter slightly tinged with green at the suggestion of R. Hunt, Esq., of the Geological Survey, in order to temper the too powerful rays of light, which is thus successfully accomplished. The extent of glass for covering this vast building is about 45,000 square feet. The ribs are inserted in enormous blocks of Cornish granite,



PALM STOVE.

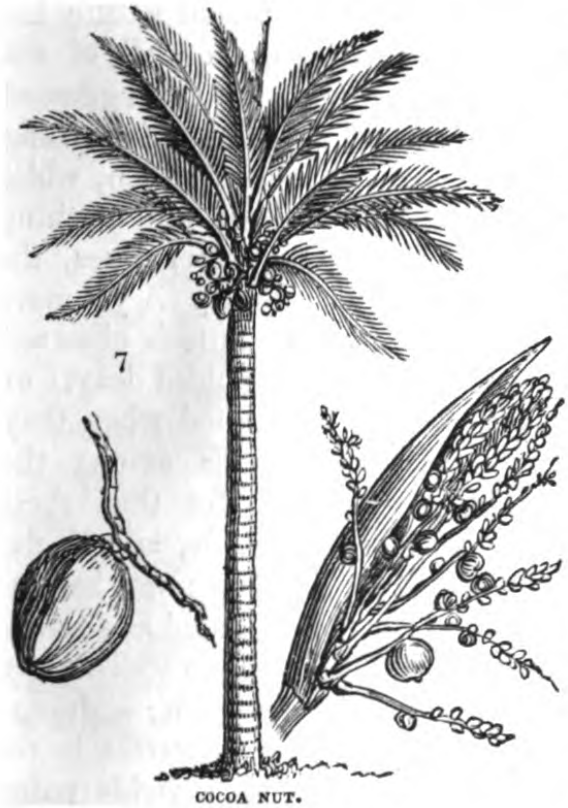
Fig. 6.

placed on the most solid concrete. The central portion of the building (138 feet long and 100 feet wide) has a substantial gallery all round at the height of 30 feet from the floor, ascended by a light spiral staircase, so as to give the opportunity of viewing the plants from above as well as below by bringing the spectator on a level with the summits of many of the loftiest, and also affords the means of watering the plants from above. The whole interior is heated by hot-water pipes and tanks (the hot-water pipes, $4\frac{1}{2}$ inches in diameter, are estimated to extend 24,000 feet in length, and the hot-water tanks 1000 feet), also constructed by Mr. Turner, judiciously distributed under the tables and beneath the level of the floor. To avoid the unsightliness of a chimney attached to, or even placed near, so noble a structure, the smoke is conveyed by an underground flue, within a brick tunnel 7 feet high (from the underground furnaces, twelve in number), to a distance of 479 feet from the house; where a shaft or ornamental tower is erected, 96 feet in height, so situated and of such a form as to be an architectural object when seen from the main walk. This tower encloses a cylindrical shaft which conveys the smoke to the external air, through eight vertical openings beneath the roof; while below them, and around the chimney shaft, is a large reservoir of water for the supply of the whole of the gardens, and hothouses, and greenhouses. It has been the work of the spring of last year (1850) to fix a steam-engine at the base of the tower, and underground pipes in all directions, by means of which water is raised from the river and forced into the tank or reservoir above alluded to, and is thence driven by its own gravity to any part of the ground, and made accessible by means of plugs and hose. From the gallery in the Palm-house all the plants are watered over their heads with the greatest facility. Near the base of the tower, between it and the Richmond road, is the coal-yard, concealed by shrubs; and here too, within the underground tunnel above alluded to, is a railroad, for the purpose of conveying coals to the furnaces, and for bringing away the ashes.

If before entering we make the tour of the terrace of the Palm-house, we shall find that the immediate vicinity, at the east and west fronts, is laid out with ornamental parterres for flowers or shrubs. To the westward is a considerable area, or lawn, of some 25 acres, destined to form a *Pinetum*, where are now planted all the *Coniferous plants* which bear the open air; while from the great western entrance of the Palm-house three vistas radiate at equal distances, commanding views through the Pleasure-Grounds. One, inclining to the south, in the direction of the Pagoda (best seen, perhaps, from the gallery of this Palm-house), is bounded on each side, for a length of 2800 feet, by a line of scarlet Thorns, alternating with spiry Evergreens, as *Cypresses*, *Thujas*, and *Junipers*,

constituting an avenue. An outer avenue of *Deodars* is also planted, which will eventually form the permanent one. The second, or western vista, now in progress (July 1851), looks towards the river and woods of Syon; and the third towards a fine Cedar in the direction of Brentford (the two latter vistas are not yet completed).

We must now direct attention to some of the numerous objects in the *Palm-house*, a structure especially intended for the cultivation of the "*Princes*" of the vegetable kingdom, but by no means wholly confined to them. The Palms constitute, however, a splendid and striking feature of its vast area, and are seen to most advantage from the gallery above. The two *loftiest* Palms in the House are kinds of Cocoa-nut, of which one (*Cocos plumosa*) is an old inhabitant of these Gardens, and the other (*Cocos coronata*) was recently presented by Sir George Staunton, Bart., M.P., having been transported, though of so vast size, by railway, from that gentleman's beautiful seat, Leigh Park, Hants, in a case 42 feet in length. These, as does the *common Cocoa-nut* (fig. 7.), afford good examples of one numerous group of Palms which have *pinnated* leaves, or divided like the plume of a feather. The two *stoutest* Palms in the collection, easily recognized by the thickness of their trunks and the great size of the tubs in which they are placed (each single plant, with its earth and tub, being calculated to weigh 17 tons), are the *West Indian* or *Jamaica Fan-Palms* (*Sabal umbraculifera*), a good example of a second extensive group, having *palmate* or *fan-shaped* leaves. The *Caryota urens* may be mentioned as deviating considerably in its foliage from other Palms: each leaf is very much divided, and the ultimate divisions or leaflets resemble in shape the fin of a fish.


7

COCOA NUT.

We may further mention in this collection the *Date-Palm* (*Phœnix dactylifera*), producing the dates of commerce and of Scripture, and which, together with the *Dwarf Palm* (*Chamærops humilis*), is the most northern of all Palms (the majority being tropical), extending even into the South of Europe; the *Palmyra Palm* (*Borassus flabel-*

liformis), the most difficult of Palms to rear; the *Guinea Oil-Palm* (*Elæis Guineensis*), which produces the African palm-oil; the well-known *Cocoa-Nut* (*Cocos nucifera*) (fig. 7.), of which the various uses, of fruit, milk, oil, wine or toddy, wood, fibre, &c., are said to be as numerous as the days in the year; the *Cabbage-Palm* (*Oreodoxa oleracea*), which yields the esculent substance, so called, from the crown of its stem; *Seaforthia elegans* and *Corypha australis* from New Holland, and *Livistonia Borbonica, Plectocomia elongata* from Dr. Wallich, formerly called *Zalacca Assamica,* which, with its singularly spiny stem (the spines being digitate, united together like the fingers of the hand, or still more resembling the foot of a Mole, admirably formed for strength) and luxuriant foliage, can hardly fail to attract the attention of the passer-by. Its leaves, when full grown, are of vast length, and pinnated like the shaft of a feather, so long, indeed, that they seem, as does the stem, to need support; and nature has provided them with the means, for the rachis, or main stalk of the leaf, at the end, extends into a lengthened slender tail, armed all along with strong deflexed hooks, by means of which, while running up among the stems, and catching hold of the branches of other trees, the foliage and stem are propped. A yet more wonderful provision of nature is observed in the young and yet unfolded leaves of this plant, during the period when they insert themselves upwards among the branches of the forests, for then these spines are directed upwards, and lie flat against the stalk of the leaf; not becoming reflexed till they are needed as a means of support. Of Arecas are the well-known *Areca Catechu* and *Areca sapida;*—*Arenga saccharifera;*—*Phœnix sylvestris* is the *Wild Date* of India, which yields palm, wine, and sugar;—the *Ivory-Palm* or *Vegetable Ivory* is the *Phytelephas macrocarpa,* an inhabitant of the Magdalena, New Grenada, of which the seeds constitute a substance so exactly like ivory, that they have become a considerable article of commerce, and are used for turning into a vast variety of trinkets and other articles resembling ivory; and the *Wax Palm* (*Ceroxylon andicola*) (fig. 8.), of the Andes of New Grenada, discovered by Humboldt, of which the full-grown stem is covered with a waxy substance having the same properties as bees' wax;—and lastly, we may observe that many kinds will be seen to have a coarse fibre separating from the base of the

8

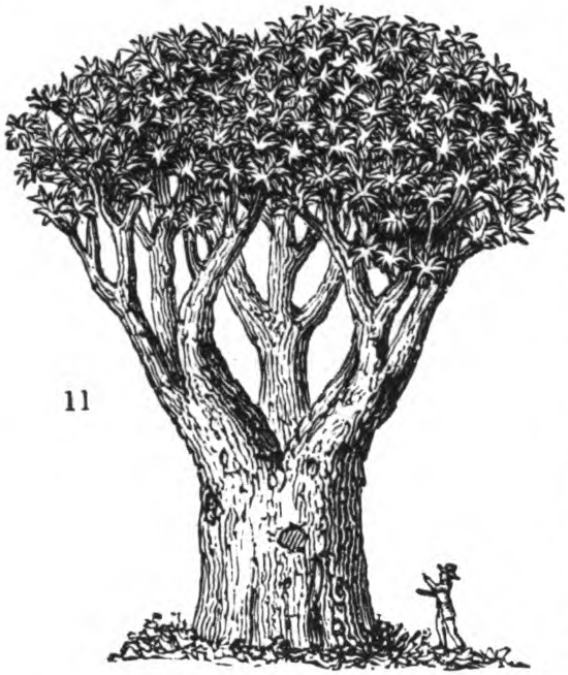
CEROXYLON ANDICOLA.

leaves, so strong indeed, that in the *Attalea funifera*, it forms an extensive article of commerce from Pará, Brazil, for the purpose of making brooms and brushes for the machines, as well as others used by hand, employed in sweeping the streets of London and other cities!

Some or other of the *Bananas* or *Plantains* may always be seen in this house, in a more or less advanced state of flower or fruit, through the whole year, their ample and delicately green foliage overtopping many of the other plants. The clusters of blossoms form a long pendent spike, and the flowers are of two kinds; those which are situated at the base of the spike being destined to become the cucumber-like fruit, while the others form a slender tail at the extremity, and are covered with concave purple scales, which gradually drop off, and permit the escape of the pollen, or fertilizing dust, which, being conveyed by the wind or by insects to the other blossoms, renders them perfect. The *Banana* (fig. 9.) only differs from the *Plantain* (fig. 10.) in the form of the fruit: they are, indeed, considered by Humboldt as mere varieties. Both are of inestimable value to the inhabitants of tropical countries in the Old

BANANA. PLANTAIN.

and New Worlds. A single cluster of fruit often weighs 70 or 80 pounds, even when produced in the stoves of this country. Besides being eaten fresh in their native land, bananas are dried as figs, or reduced to a kind of flour or meal by rasping. One kind, the *Plantain*, is called *Musa paradisiaca;* the *Banana* is *Musa sapientum.* A third and dwarf kind is the Chinese sort, *Musa Chinensis*, often called *M. Cavendishii.* The tender and succulent stems are eaten by various domestic animals: the fibre makes excellent cordage and clothing; and the leaves serve for covering houses.



11

DRAGON'S BLOOD TREE.

The tall naked-stemmed plants in this House, with a crown of aloe-like leaves, are the *Gum-Dragon Tree* (*Dracæna Draco*), which yields an astringent resin (called dragon's blood), formerly used in medicine, and now chiefly employed by painters as a red varnish. Lofty as these specimens are, they are pygmies compared with the stature the tree attains in its native island, Teneriffe. "The gigantic tree of Orotava," (fig. 11.) says the enlightened traveller, Humboldt, "measures 45 feet in circumference, a little above the ground." Tradition relates that this particular *Dracæna* was venerated by the Guanchos (the aborigines of Teneriffe), as was the *Elm of Ephesus* by the Greeks, and that in A. D. 1400 it was as large and hollow as it is now! Its growth being extremely slow, we may be sure the *Orotava Tree* is of incalculable age: doubtless it and the *Baobab* are the oldest vegetable inhabitants of our planet.

The *Papyrus of the Ancients* (fig. 12.) is easily recognizable here by its tall reed-like triangular stem, arising from the water of a tub. It is crowned with the copious clustered flower-stalks. The stoutest individuals were selected by the ancients, and from the white pith which fills the interior their paper was prepared. On this it is said that most of the old manuscripts are inscribed, especially those which have been brought to light by the excavations at Herculaneum and Pompeii.

The *Sugar-Cane* (fig. 13.), which happily can be no longer denounced, with regard to this country, as

> "The cane whose luscious juice supplies
> Europe's *blood-purchased* luxuries,"

distinguishes itself by its very large yet grassy character, long and pale green foliage, and closely jointed stout stem: this latter, contrary to the character of most grasses, is solid (not hollow), and contains the saccharine juice, which is extracted by pressure between heavy rolling cylinders. The waste stems, thus squeezed dry, are generally used for fuel to boil the juice, and are found to be so impregnated with a siliceous or flinty substance, that masses of glassy slag are, in the course of a short time, deposited in the furnaces and require to be removed.

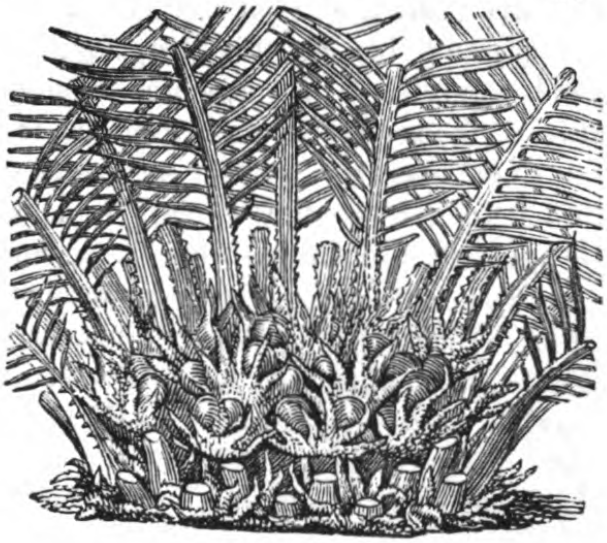
THE PAPYRUS.

THE SUGAR CANE.

The *Bamboo* (fig. 14.), when fully grown, is infinitely more gigantic than its ally the Sugar-Cane, attaining during one season, *in its native wilds*, a height exceeding 100 feet: its immense hollow stalks are applied to an infinity of domestic and useful purposes.

THE BAMBOO.

15



CYCAS REVOLUTA.

The *Zamias*, *Cycases*, and *Encephalartus*, at the south end of this House, are worthy of attention. Four of the finest have recently been presented by Mr. Anderne and Mr. Moxon from the interior of S. Africa. They are inhabitants of hot countries, chiefly in the southern hemisphere; and assuredly, within our days at least, nothing like them has ever been seen growing in temperate climates; but similar plants are found fossilized in the oolite formation of England, as at Portland Island, proving that in former ages these strange forms were denizens of this country! Their pinnated leaves are peculiarly harsh and rigid. The *Cycases* (fig. 15.) yield a kind of

sago in the East Indies. Here are also noble specimens of the curious *Elephant's Foot* (*Testudinaria Elephantipes*).

PAPAW.

The *Calathea* (formerly called *Maranta*) *zebrina*, or *Zebra-Plant*, is easily known by its large beautifully striped copious foliage: each leaf is banded with shades of velvety green of different hues, and lined, as it were, beneath with purple. It is only by putting some of the leaves a little on one side that the clusters of purple flowers can be perceived. Here are seen two kinds of Strelitzia, one is *Strelitzia Regina* (see p. 9.) 4-5 feet high, showing its truly royal blossoms in winter and early spring, the other is the stately *S. augusta*, with the most ample leaf-blade of any plant in the House.

Good plants of the *Papaw* (fig. 16.) and others of the *Chocolate Tree* are placed in this Tropical House. The juice of the former is employed in the East and West Indies for rendering tough meat tender; and, having this property, it is, of course, much prized by good housewives in climates where it is necessary to cook all animal food on the day when it is killed. From the seeds of the *Chocolate* Tree, as may be inferred from its name, is produced that "drink of the Gods," and also *Cocoa* (a very different thing from the Cocoa-Nut Palm, and a corruption of the Indian name *Cacao*, whence the botanical name, *Theobroma Cacao*) (fig. 17.)

CHOCOLATE TREE.

Of *Euphorbias* and *Cactuses* only those few are placed here which are too large to be accommodated in the stoves more peculiarly devoted to succulent plants. *Euphorbia splendens* and *E. Bojeri* are conspicuous for their scarlet flowers and thorny stems; *E. grandidens* for its lofty stout trunk, twelve or fourteen feet high, and sending out spreading whorled branches like a candelabrum. The slightest incision in the bark causes a great quantity of milky juice to flow, which, being of a highly acrid and venomous nature, is employed by the native Africans for poisoning their arrows and assagays. The juice of other allied species is used in various countries for intoxicating fish: a destructive mode of procuring the finny tribe practised in Ireland by poachers in the

Shannon. The efficacy of *E. helioscopia* (*Wartwort*) in removing warts is well known in England.

Among other valuable trees in this house may be noticed the *Bread-Fruit* of the Pacific Isles (fig. 18.) (*Artocarpus incisa*),—

> " That tree which in unfailing stores
> The staff of life spontaneous pours,
> And to those southern islands yields
> The produce of our labour'd fields ;"—

the *Mango Tree* (fig. 19.) (*Mangifera Indica*) now annually yield-

BREAD FRUIT TREE.

MANGO TREE.

ing its rare and delicious fruit; the *Silk-Cotton Tree* (*Bombax pentandra*); the *Longan* (*Nephelium Longan*); the rapid-growing and thorny-stemmed *Ceiba* (*Bombax Ceiba*). Here are the *Coffee-Tree* (*Coffea Arabica*) (fig. 20.), seen in one place growing from

COFFEE TREE.

PEPPER PLANT.

the crevices of the bare tufa rock of Bermuda, as obligingly sent by His Excellency Governor Reid; the *Pepper-Plant* of our tables (*Piper nigrum*) (fig. 21.); and many other species of that genus; the *Tanghin* (fig. 22.), or *Poison-Tree* of Madagascar (*Tanghinia veneniflua**), rendered infinitely more fatal than the Upas by the execrable laws of the Malagassy kingdom; the *Manihot* (*Jatropha Manihot*) (fig. 23.), a most virulent poison, but whose roots (their deadly juices being removed by pressure or

TANGHINIA VENENIFLUA.

JATROPHA MANIHOT.

dissipated by heat) are made into the well-known *Cassava Bread* of the West Indies, and into as great a variety of wholesome food as can be obtained from wheat; the *Patchouli* or *Pucha-pat* of India (*Pogostemon Patchouli*), the most esteemed perfume of the present day; the *Cinnamon* (*Laurus Cinnamomum*) (fig. 24.), whose bark constitutes the valuable spice so named; and the *Bastard Cinnamon* (*Laurus Cassia*), of which the bark is said to be often substituted for that of true Cinnamon. Among the numerous kinds of *Figs* there will be found here, at the north entrance, young plants of the *Banyan*

CINNAMON.

* For a coloured representation of this tree, and many particulars of its use in the native ordeal, as communicated by the intelligent Missionaries, see "Botanical Magazine," tab. 2968., and "Botanical Miscellany," vol. iii. p. 275. tab. 110.

(*Ficus Indica*), one of the most celebrated trees in tropical India, for the immense stretch of its limbs (fig. 25.) and the singular mode provided by nature for their support: —

> " Spreading so broad and long, that in the ground
> The bended twigs take root, and daughters grow
> About their mother-tree, a pillar'd shade
> High overarch'd, and echoing walks between."—

These roots or props occupy such a space of ground, that one, growing

BANYAN TREE. 25

on the banks of the Nerbuddah, covers an almost incredible area, of which the circumference now remaining (for much has been swept away by the floods of that river) is nearly 2000 feet. The overhanging branches, which have not yet thrown down their props or supports, stretch over a much larger space: 320 main trunks may be counted, while the smaller ones exceed 3000, and each of them is continually sending forth branches and pendent roots to form other trunks, and become the parents of future progeny. The whole (according to Forbes's "Oriental Memoirs," from which I quote) has been known to shelter 7000 men beneath its wide-spread shade. Our young plant of course can give no idea of this singular mode of growth; indeed it is evident that a well-grown tree of this would alone fill the entire Palm-Stove of the Garden. — The *Pepul Tree* (*Ficus religiosa*), from the same country, is remarkable for the tail-like points to the extremities of the leaves; and these leaves abound so much in closely reticulated tenacious fibre, that the Chinese, by macerating them and removing the pulpy or parenchymatous substance, produce a kind of paper, which, when varnished, is capable of receiving the most beautiful drawings of birds, beasts, insects, flowers, &c. Such leaves, with the drawings, are commonly brought to this country from China, and are easily known to belong to this tree by their heart-shaped outline and the long tail-like point. Another kind of *Fig* in this collection

must be here alluded to, for it illustrates a plant of Scripture, the *Sycamine-Tree*, or *Sycomore of Palestine* (fig. 26.), the tree into which Zaccheus climbed (*Ficus Sycomorus*): this is the true and original *Sycomore*, its name being derived from σῦκον, a *fig*, and μόρον, a *mulberry*; meaning a fig, whose leaves resemble those of the mulberry. "I was no prophet, neither a prophet's son, but," says Amos, "I was an herdsman and a gatherer of *Sycomore fruit*;" from which, and from other passages in Scripture, it may be inferred that this tree was of very great importance among the Jews, although its fruit is extremely inferior to that of the true Fig (*Ficus Carica*), which two are the only eatable ones of 200 known species. The wood is said to be indestructible, and is therefore used for Egyptian mummy-cases. A fourth species of Fig-tree, the *Ficus elastica*, of which our plant is lofty, with large dark green glossy foliage, affords in its milky juice the *Caoutchouc* of the *East Indies*. A fine specimen of a Mexican Plant inhabits also this House, with leaves resembling those of a Plane-tree,

SYCOMORE.

viz. the *Hand-Plant* of the Aborigines (*Cheirostemon platanoides*) (fig. 27.), of which the stamens, resembling the fingers of the human hand, probably recommended this curious plant as an object of worship. At the period of Humboldt's visit, the only tree then known in Mexico was held sacred.

THE HAND-PLANT.

But we must proceed; and as space will not permit the mention of a tithe of the interesting plants in this stove, we content ourselves with saying that here may be examined, flowering at some period or other of the year, a great variety of tropical shrubs and trees; and here the feathery foliage of the *Tamarind-Tree* (*Tamarindus officinalis*), whose preserved fruit is an extensive article of commerce; the *Cotton* (*Gossypium herbaceum*) (fig. 28.), the seeds of which are surrounded by that beautiful filamentous substance, and whose flowers resemble those of an *Hibiscus*; *Indigo* (*Indigofera Indica*) (fig. 29.), the leaves yield the rich dye so called; the great flowers of the *Aristolochia Gigas*, so large indeed, that the children in South America, according to Humboldt, wear them as hats, and their shape is that of a helmet; the latter, with many other climbing plants, entwines the pillars that support the roof on the staircase leading to the gallery. The well-known *Humble-Plant*

is in this and other houses, *Mimosa pudica* (often, though incorrectly, called the *Sensitive* plant, which is *Mimosa sensitiva*) :

> " Weak with nice sense the chaste *Mimosa* stands,
> From each rude touch withdraws her timid hands :
> Oft as light clouds o'erpass the summer glade,
> Alarm'd, she trembles at the moving shade,
> And feels, alive through all her tender form,
> The whisper'd murmurs of the gathering storm,
> Shuts her sweet eyelids to approaching night,
> And hails with freshen'd charms the rising light."

COTTON TREE.

INDIGO.

The best way to exhibit the sensitive properties, so called, of the leaves, is to cut off suddenly and cautiously the tip of one of the terminal leaflets, when all the other leaflets on that stalk will close, *a pair at a time*, from above downwards ; thence the impulse is continued to the adjoining stalks and to the leaflets from below upwards ; and then the whole leaf will fall. In a rather shady spot near this stair-case, seen to great advantage from the stair-case, are now placed the largest of our *Tree-ferns*. Their size and beauty cannot fail to attract attention, for they are, perhaps without exception, the most graceful of vegetable forms, and the finest of their kind in Europe. Lastly, we shall only mention in this stove the numerous climbers planted in the ground at the base of the pillars and of the stair-case, such as *Convolvuluses*, *Passion-flowers*, *Aristolochias*, *Bauhinias*, *Telfairia*, *Poivrea*, &c., all remarkable for the beauty of their foliage or flowers, and sometimes of both.

Impossible as it would be to record, in this brief Guide-book, the numerous donors of rare exotics to this Establishment, it is only our duty to state that, of the kinds from the East Indies, in the Palm as well as in other tropical Houses, by far the greater number were sent from the Honourable the E. I. Company's Botanic Garden at Calcutta, by the late distinguished superintendent, our valued friend Dr. Wallich. The Books of that garden, as proved by a Report now

before us, printed at Calcutta in 1840, show that, in the five previous years alone, 9 Cases, with 229 plants* of the rarest and most valuable description, were transmitted here; and between 1840 and 1845, the period of that gentleman's retirement from his arduous duties, our own Books testify to the arrival of 13 Cases containing 275 plants!

Quitting the *Palm-house*, we find that, from the south-east angle, the walk extends round the water; and from the opposite side the best view of the structure may be obtained, and in calm weather its reflection in the lake. Continuing past the Temple (of Æolus) hill, the visitor is recommended to direct his steps north, and he will soon catch sight of a portion of ground, lately the Kitchen-Garden, but now forming a part of the Botanic Ground recently laid out for the *hardy herbaceous collection*, and containing a small building fitted up as a temporary *Museum*, and several stoves and greenhouses, hereafter to be briefly noticed. This ground can be visited in this direction and the *Museum* inspected, and the principal cluster of Plant-houses (Nos. 10. 11, &c.) approached; or, if the visitor prefers another route, he may leave the herbaceous ground on the right, passing a *Paulownia imperialis* presented by H. R. H. Prince Albert, and a stately *Tulip-Tree*, and, taking the next turn to the right, he will come to a plot of ground, very interesting to the lover of native plants, constituting the *British Garden*, wholly occupied by indigenous species, named and arranged according to the natural orders. Just beyond is a group of four low Plant-houses; the first is

No. 3., a *small Greenhouse*, at this time occupied with a considerable collection of African succulent plants, particularly of the *Crassula* tribe, and *Mesembryanthemums*. Many of the latter are remarkable for the resemblance in their foliage to the jaws of animals, whence some are appropriately named *felinum, tigrinum, caninum, vulpinum*, &c. The capsules of others have the same hygrometric property as the entire plant of the famous *Rose of Jericho*, or the hygrometric *Club-moss* (of all of which examples may be seen in the Museum), for, contrary to the nature of capsules or dry seed-vessels in general, these open in wet weather, into segments, resembling the petals of a flower, and close in dry, — a beautiful provision of nature, by which the seeds sow themselves at the only season suited, in those hot sandy deserts, to their germination; — and after being gathered, they long retain this property,

* The same Report further states, that during the same period there were 2107 applicants for plants to the Calcutta Garden, from different parts of the world, who were supplied to the enormous extent of 189,932 individual plants. It is to be regretted that this document, printed at Calcutta, has not been more generally circulated, for it affords valuable information, relative to the introduction as well as distribution of a great number of rare and useful plants, during a small portion only of that gentleman's able directorship.

and may be made to open or shut according as they are placed in a wet or dry atmosphere.

No. 4. is a *low Double Stove* recently converted into an *Orchideous House:* it will be found, therefore, to contain several plants noticed at p. 41, as in the No. 11. House, to which we refer our readers for many of the contents.

No. 5., a small and recently erected *low Stove,* exhibiting, along with many young Palms, a very miscellaneous but choice selection of tropical plants from various parts of the globe. We can only specify a few; again informing our readers that those we do mention may also exist in other houses, or may, even very soon after the name is penned on this page, be necessarily removed elsewhere. At the time we write may be found there some rare Malayan Pitcher-plants (though not so fine as those in stove No. 11.—p. 44.), the beautiful and still rarer *Australian Pitcher-Plant* (fig. 30.) (*Cephalotus follicularis* of Brown), brought home from King George's Sound, and presented to the Royal Gardens, with many other rarities, by Captain Sir Everard Home, Bart.: the still more singular *Dionæa muscipula* (or *American Fly-trap*) (fig. 31.), which has, as its name implies, a veritable living trap at the end of the leaves, consisting of two broad fleshy lobes,

AUSTRALIAN PITCHER PLANT.

AMERICAN FLY-TRAP.

jointed in the middle, fringed with long spines, and with two or three hairs on the disk of the lobes. The moment an insect (or any extraneous body) touches the hairs on the disk, the two lobes close firmly, and press the luckless intruder to death: the struggles of the victim, indeed, only occasioning the lobes to shut more firmly, by which its destruction is hastened. As soon as the insect ceases to struggle and dies, the trap opens, ready to continue the work of destruction; but there is no reason whatever to

suppose that the dead insects in any way nourish the plant. Here may be frequently seen the curious *Sarracenias* (fig. 32.), or *Side-saddle flowers*, so called from the form of the stigma: they have tubular leaves containing a fluid, and inverted hairs at the mouth of the tube. Insects, in their native country especially, and not a few with us, are attracted by the fluid: the inverted hairs hasten the descent of the intruder, which falls into the fluid without chance of escape, and perishes. The great *Stag's-Horn Fern* (*Platycerium grande*), sent from Australia by Mr. Bidwill, cannot fail to attract attention, curious as it is in form, and growing from the side of a piece of board, its native locality being the trunks of trees. Here are the fragrant *Lemon-grass* (*Andropogon Schœnanthus*) admirably described in Dr. Wallich's superb "Plantæ Asiaticæ Rariores," where the author observes, "This is a favourite herb with the Asiatics both for medicinal and culinary purposes, and is found to afford a drink generally very grateful to the palate in sickness. Dr. Maton, Physician Extraordinary to the late Queen (Charlotte), tells me that he has been repeatedly treated with a dish of Lemon-grass tea by her Majesty, who used to be very fond of it and was supplied with the plant from the Royal Gardens at Kew:" its fragrance is exactly that of Lemon or *Verbena triphylla;*—the *Caricature Plant* (whose leaves are marked with spots, many of which bear a very accurate resemblance to the human face, more or less divine, it is the *Graptophyllum hortense*); several beautiful stripe-leaved *Tillandsias;* numerous young Palms, &c. Fronting No. 5. is

32

SARRACENIA.

No. 6., a *low Stove*, formerly the Orchideous House, now the *Tropical Aquarium* or *Victoria House*. Since our fortunate introduction of the magnificent *Victoria Water-Lily* (*Victoria regia*), through the kindness of Dr. Rodie of Demerara, this house has been converted into a *Tropical Aquarium;* that is, the area is occupied by a large *tank*, suited to the cultivation of this most splendid denizen of the quiet still waters or Igaripés of tropical eastern America, especially of Guiana, and of the Amazon or its tributaries. "It was on the 1st of January, 1837," writes Sir Robt. H. Schomburgk, the eminent traveller and recent discoverer of this extraordinary vegetable production, "while ascending the river Berbice, that some object attracted my attention which I could not comprehend; but animating my crew to increase the rate of paddling, we soon came opposite a truly vegetable wonder. All calamities were forgotten. I was a botanist and felt myself rewarded. Here were gigantic orbicular leaves, floating on the water, five and six feet in diameter, with a broad rim, light-green above and purple-crimson below; while, in

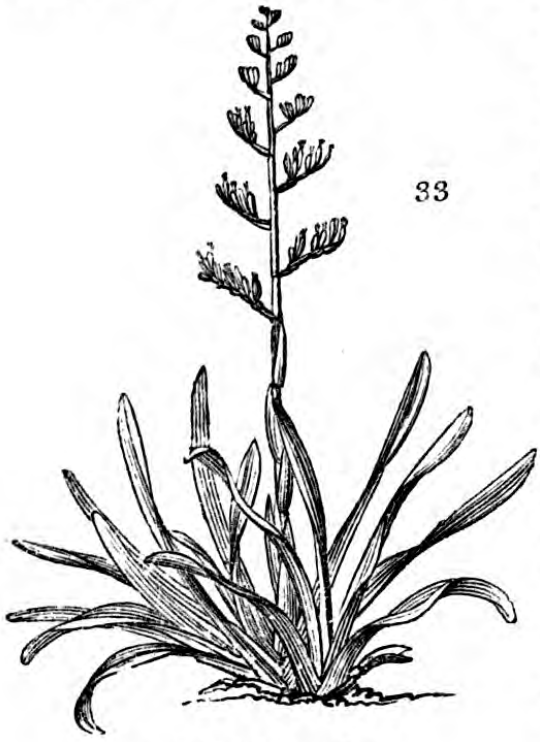
character with this wonderful foliage, I saw flowers a foot and a quarter (15 inches) across, fragrant, white, with a pink, at length deep rose coloured centre."* It was not till 1849, though many attempts had been made previously, that we succeeded in rearing plants from the seeds, which we gladly distributed among our most distinguished horticultural friends. In 1850 our plants came to perfection, and have ripened seed abundantly, so that we shall never be without flowering specimens in the summer. In the winter the plant lies nearly dormant.

If we leave this house by the west end, a gravel-path soon conducts us into a cross-walk, and we can turn to the right, which leads us to the main cluster of Plant-houses; or it may be found more convenient to bear to the left, as it were towards the new Palm-House indicated in the plan, and thus very soon entering another cross-walk, hold on to the right, till, rounding a hill or mound covered with trees and shrubs (an ice-house), we direct our faces northward, having *Lawn* on each side. Here, on our left, is a noble specimen of a Japanese tree, as large as an ordinary oak, late in summer loaded with white clusters of papilionaceous flowers, the *Sophora Japonica*. On the right is a number of concentrically arranged borders with brick edgings, containing a considerable collection of *Exotic Grasses*. On the north side of this is a very large *Hop Hornbeam* (*Ostrya vulgaris*) grafted on the *common Hornbeam* (*Carpinus Betulus*); and, aged though this tree is, the place where the graft was effected is distinctly visible on the trunk. North of the Grass-Collection is a harsh rigid-looking *Pine*, which cannot fail to attract the attention of the visitor: it is the famous *Chili Pine* (*Araucaria imbricata*), brought to England in the year 1792, by Mr. Menzies, the surgeon in Captain Vancouver's voyage: this year, 1851, as in three previous years, the tree is forming its curious cones. It is, perhaps, not generally known, that the seeds are eaten for dessert in Chili, as are those of the Stone Pine (*Pinus Pinea*) in Italy, and almonds with us. Westward of the *Araucaria*, upon the same piece of lawn, and forming a striking contrast by its gracefulness, stands a splendid tree of the *Weeping Birch* of Scotland. From this spot we shall find it convenient to enter the Plant-house

No 7., a *large Greenhouse*, containing a miscellaneous collection, indeed, of plants of temperate climates, but especially of trees and shrubs of N. Zealand, and therefore called the NEW ZEALAND HOUSE. Here are unquestionably the finest specimens in Europe of the famous *New Zealand* or *Cowdie* (sometimes called *Cowrie*, or *Kauri*) *Pine* (*Dammara australis*), the gift (with many other rarities) of

* See, for a history of this remarkable aquatic, Botanical Magazine for 1847, Tab. 4275—4278; and for a more full account, see "Figures and Description of the Victoria Water-Lily," published by Messrs. Reeve and Benham, in imperial folio.

Captain Sir William Symonds, R. N., late Surveyor-General of the Navy; than whom no person is more competent to estimate its value for spars for the British navy. Ship-loads are annually imported to supply the Royal Dockyards. It affords also copiously a valuable gum-resin. Other beautiful trees of that singular country are seen here: the *Dacrydium cupressinum*, whose feathery boughs perhaps exceed in delicacy and grace those of all other forest-trees; the *Celery-leaved Pine* (*Phyllocladus trichomanoides*); the very rare *Thuja Doniana*, Hook., a most elegant new *Arbor vitæ* of N. Zealand; the *Mai* or *Metai* (*Podocarpus spicata*), and the *Miro* or *Mairi* (*P. ferruginea*); together with the singular *Aralia crassifolia*, a kind of ivy, bearing long leaves, of a texture almost resembling whalebone. Here, too, are the *Pepper of New Zealand* (*Piper australe*); the *Myrtus bullata*, with its blistery leaf; the charming *Metrosideros robusta*, which climbs over other trees like ivy, and adorns their otherwise bare trunks with its large glossy foliage and brilliant scarlet flowers; the *New Zealand Beech* (*Fagus fusca*); and lastly, of the plants of this distant group of islands I shall only mention the *New Zealand Flax* (*Phormium tenax*) (fig. 33.). Its leaves are like those of our *Iris*, or flag, and abound in a strong fibre, which recommends it for an immense variety of purposes where hemp or flax would be used in Europe. Here grow the two rare *Beeches* of Tierra del Fuego, the *Deciduous Beech* (*Fagus antarctica*), and the *Evergreen Beech* (*Fagus betuloides*), the latter remarkable for its beauty and small evergreen foliage, scarcely larger than that of the broad-leaved myrtle, and for its being the most southern-growing tree in the world; indeed, but little vegetation of any kind exists beyond it. Its size and form, however, in its native region, depend on the place of growth. In sheltered valleys it attains a considerable size, with a trunk 7 feet in diameter, so that Captain Philip King made large boats from one trunk; while on the exposed heights of Hermite Island the trees are so dwarfish and stunted, and the branches so densely compacted, that the traveller is able literally to walk upon the tops of them! One has been planted in the open lawn, and has



33

NEW ZEALAND FLAX.

stood the winter well; but we fear the summer's drought for them more than the wet or cold of winter. Near them grows another rare *Evergreen Beech,* the *Fagus Cunninghami* of Van Diemen's Land, and the still rarer *Huon Pine* (*Dacrydium Franklinii*) of the same country. In the spring and summer a delicious pine-apple-like fragrance is often perceived by the visitor at the west end of this house: it is diffused by the blossoms of the Chinese *Magnolia fuscata.* Near the west end stands a fine plant of the *Sparmannia Africana,* in spring, covered with bunches of snow-white blossoms.

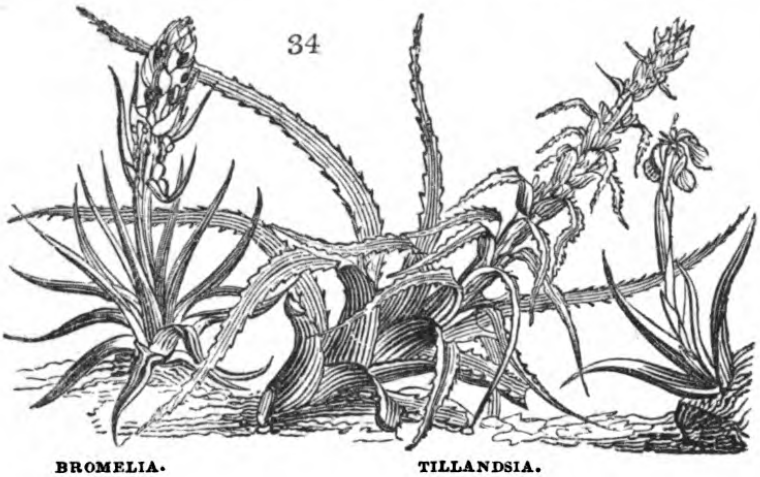
Leaving this house by the western door, and looking north, we see a stone tank of water, containing hardy aquatic plants of England and other cool countries: among the more interesting are a few from the Falkland Islands and Tierra del Fuego, particularly the celebrated *Tussack-Grass* of the Falklands (*Dactylis cæspitosa*), introduced by Sir James Clark Ross and the officers of the Antarctic voyage; it is one of the most valuable agricultural grasses, and, having braved the droughts and cold and heat of England for two entire years, there is no question that it may, with care and patience, be naturalized. It is slow of growth, and slower to form its great tussacks, whence is derived the name. They, together with the mass of foliage, form thickets, where wild cattle and more wild runaway sailors find shelter and protection, and both even *food;* for it is related, by the late governor of those islands, that two runaway sailors for a long time subsisted on the raw young shoots of this grass, which are, moreover, brought to table, boiled like asparagus. The *Tussack-Grass* is now flourishing luxuriantly in the Orkney Islands and Hebrides; vicinity to the sea, an equable climate, and cool atmosphere being essential to it. Close to this tank is an entrance to

No. 8., an *old Stove,* the earliest, indeed, that was erected in the Royal Gardens, as noticed at p. 9., 114 feet long, now divided into two compartments. The first division contains the *Bromeliaceæ,* or *Pine-Apple Tribe* (called *Ananas*), more than one species of which may be observed whose leaves seem pre-eminently adapted to the purpose which the plant serves in Mexico and the warm parts of South America, that of making fences. Each leaf, long and sword-shaped, may be seen to have its edges armed with exceedingly sharp hooked spines; those on the upper half of the leaf curve towards the intruder, as if to forbid approach in that direction; while, if he has unfortunately penetrated some way in spite of these innumerable and formidable opponents, the downward curve (towards the centre of the plant) of the remainder of the spines will prevent his egress, except at the sacrifice of the

skin and flesh by these strong hooks. The kind which yields the well-known esculent fruit is the *Bromelia Ananas*: —

> " Its luscious fruit *Anana* rears,
> Amid a coronet of spears."

Allied to the *Bromelias* are the *Tillandsias* (fig. 34.). We often receive them from tropical countries, and they succeed well with us, attached to truncheons of wood (for they are Epiphytes, like the *Orchideæ*), until the flowering is past, and then they almost invariably wither: we need, therefore, a frequent importation of them. The leaves of many are singularly hollowed at the base, and in the driest weather filled with water, which often proves serviceable to man and animals. The second and much more spacious compartment of this house is occupied by fine specimens of *succulents*, mainly of the *true Aloes* of South Africa (fig. 35.), *American Aloes* (*Agaves*), and a few *Cactuses*, too large for the Cactus-house. Among the latter are two lofty specimens of the *Old Man's Head Cactus* (or *Cereus senilis*), 14 feet high. This species is called *senilis*, from the quantity of long wiry grey hair which crowns the summit (particularly observable in the younger plants in the Cactus-house, No. 19.). Unlike the human kind, the old plants are less conspicuous by their grey hair than the young ones. For the means of procuring them we are indebted to John Taylor, Esq., and the Directors of the Real del Monte Company. *Small* plants of this species we know to be twenty and twenty-five years old: from their slowness of growth, as well as from the reports of the in-



34

BROMELIA. TILLANDSIA.

35 GROUP OF ALOES.

habitants of Mexico, there is reason to believe that these gigantic individuals are some hundreds (probably a thousand) of years old.

The *Agave Americana* is familiar to most frequenters of gardens. It blossoms, not, as the story goes, only once in a hundred years, but, in reality, more frequently than other kinds, and throws up a flower-stem 20 to 24 feet high. The Plant-house we are now surveying contains one very large unknown species of *Agave*, with huge, sword-shaped, thick, and fleshy leaves (marked "*Agave, Mexico*"): each of these leaves averages 12 pounds in weight. Two ancient specimens of another and not smaller sort, but which, we regret to say, can now only be seen in a young state, blossomed here in 1844, and attracted much attention: we mean the *Agave vivipara* of Linnæus (*Fourcroya gigantea* of modern authors, a name given in compliment to the French chemist, *Fourcroy*). The two plants in question had been in the Royal Gardens, first of Hampton Court and then of Kew, probably from the earliest introduction of the species into Europe, upwards of a century ago (in 1731). On one and the same day, in the summer of 1844, each was seen to produce a flowering-stem, which resembled a gigantic head of asparagus, and grew at first at the astonishing rate of two feet in the twenty-four hours. So precisely did the twin plants keep pace with each other, that at the very time it was found necessary to make an aperture in the glass roof of the house for the emission of one panicle of flowers (26 feet from the ground), a similar release was needed by the other. The rate of growth then most sensibly diminished; still, in two months, the flower-stalks had attained a height of 36 feet! The flowers were innumerable on the great panicles: they produced no seed, but were succeeded by thousands of young plants, springing from the topmost branches (whence the Linnæan name of *vivipara*); and these continued growing while attached to the stem for a long while after the death of the parent-plants, both of which perished, apparently from exhaustion. Our collection now, therefore, contains only young individuals of this particular *Agave*.

Quitting the *old Stove* at the eastern door, and passing an oval bed, filled with the exotic-looking yet hardy *Yuccas* (or *Adam's Needles*), the nearest Plant-house is a low building with a span roof, of which the entrance is at the east end,

No. 9. This is rather a *Propagating-house* (with a span roof) than one calculated to gratify the public; and, unless it contains, as at some seasons, any thing of peculiar interest, it is kept private, and is now almost entirely occupied with young Palms (many of the rarest of which have been recently received in most beautiful condition from E. G. Boughton, Esq., of Demerara), and

Ferns, and seedlings of various sorts, and a germinating *Double Coco-Nut* (*Lodoicea Sechellarum*, sent by the present Governor of the Seychelles Islands), and young plants of the *Doum Palm* (*Hyphæne Thebaica*, from Upper Egypt, sent home by Dr. Hooker). Opposite to the door is an entrance to

No. 10., the *Australian House*, a structure of large dimensions and excellent arrangements, in the form of a cross, at all times occupied by plants of great value, and if the visitor happens to come at the latter end of winter, or in early spring, he cannot fail to be struck with the floral beauty and fragrance of the inmates of this building. This and the Greenhouse, No. 13, may be reckoned the most remarkable for floral beauty during spring, summer, and autumn, of any in the gardens. Since the time of His Majesty George III., this Garden has been eminently rich in New Holland plants, and it now stands unrivalled in that department. The present building has been much enlarged and improved, in order to receive as many as possible from that colony under one roof. It has already been filled to overflowing. Originally the house was a simple "lean-to," 60 feet long and 16 feet wide, facing the south; this was doubled, forming a span roof; and then, in the centre, on each side, a wing was thrown out, one running north, the other south, each 60 feet long and 22 feet wide, with a span roof, thus giving an extreme length of 152 feet. The whole interior is neatly fitted up with stone shelving and hot-water pipes; while copious concealed tanks (as in our other new and improved houses) catch and preserve a large body of rain-water; and the roof and sides are glazed with sheet-glass. This extensive but simple structure is filled with a perfectly unique collection of plants of Australia. The *Leguminosæ* are in perfection during the early spring months; then the fragrant *Acacias* (fig. 36.) are eminently worthy of a visit. The *New Holland*

36

NEW HOLLAND ACACIAS.

Acacias, as is well known to naturalists, exhibit a remarkable conformation of foliage. In other countries their leaves are perfect, having the normal character, more or less compound and pinnate with numerous leaflets: but in the innumerable species from Australia (with some exceptions) the seed-leaves only are compound; as they advance in age they cast off the leaflets, and at length the plant produces only *leaf-stalks*, which widen, and have the appearance, and perform the functions, of true leaves. These leaf-stalks (called *phyllodia*) are easily recognized by their position: it is not a *flat* surface, but one of the edges, which is vertical, or directed to the zenith.

One portion of this *Australian House* is occupied by a number of the beautiful genus *Epacris*, which may be called the Heaths of Australia, being nearly allied to them, and perhaps of superior beauty. Mingled with these are a few Cape and other plants, and among them several of the *Gnaphaliums* and *Xeranthemums*, or *Everlasting-Flowers* (fig. 37.), so called from the nature of their blossoms, which neither shrivel, nor, for a long time after being gathered, lose their brilliant colours. Not unfrequently in one part of this house a powerful foxy odour is perceptible. This arises from several kinds of *Diosma* or *Bucku*, a favourite cosmetic of the Hottentots in S. Africa, who mix it with grease, and smear it over their persons to keep away flies.

GNAPHALIUMS AND XERANTHEMUMS.

If we make our exit from this house by one of the east doors, or the north door, we shall at once (by turning to the right in the latter case) perceive a rather large open space of lawn and shrubbery, which is a portion of the ground recently taken in from the Royal Kitchen and Forcing-Ground. The Plant-house nearest, and which may be next visited, is

No. 11., the *Orchideous House**, situated due north of and close to the Australian House. It is hence most conveniently approached from the east. Passing through a small porch, a new span-house is entered, 90 feet long and 28 feet wide, glazed with sheet-glass, having

* The Plant House (No. 4.) will be found now to contain many of the Orchideous plants here described: and this House (No. 11.) is chiefly confined to the larger *Orchidaceæ*, and to other plants requiring a similar atmosphere.

a double slate staging in the middle, facing north and south, with a walk through the centre, and another walk on the outside and around the staging, with stone shelving on the opposite side. This fine area is mainly occupied with *Orchideous Plants*, mixed with an extensive collection of *Ferns*, together with other tropical plants, to which the great heat and moisture of this place are suited. The *Orchideæ* are eminently valuable. In the short space of eight years, there have been added to the original collection the extensive one of the late Duke of Bedford, presented by Her Majesty Queen Victoria, and the still more valuable legacy of the late Rev. John Clowes, M. A., of Broughton Hall, Manchester, in the autumn of 1846; together with many species, procured by purchase, or from our collectors and friends abroad, and other sources. The *Orchideous Plants* (or *Epiphytes*, as they are not unfrequently termed, from the fact of the tropical *Orchideæ* being generally found growing on the trunks and branches of trees) are at this time the greatest favourites among cultivators; and the prices given for many would surprise any person not individually interested in them. When in flower they are certainly among the most beautiful objects of the vegetable creation, and remarkable for their highly varied forms, great delicacy of texture, and often exceedingly brilliant colouring. Happily, too, there is not a month nor a day in the year that some or other is not in blossom; though the first powerful suns of spring induce the flowering in a very marked degree. Many are here seen attached to trunks of wood, or placed in wire baskets with moss and bark, or in the husk of cocoa-nuts, and suspended from the rafters, living, as it were, and flourishing on heat and moisture. It were an endless task to direct attention to any particular kinds; for their beauty depends on the presence or absence of blossoms, which, with several exceptions, are generally short-lived. Still we may observe that the collection contains several *Peristerias, Cattleyas, Dendrobia, Stanhopeas* (exhaling, as do many others, a most powerful fragrance); *Lælia superbiens*, remarkable for the large size of its flowers; *Phalænopsis amabilis*, or *East Indian Butterfly Plant*, with its corollas of the purest white; and *Oncidium Papilio*, or *West Indian Butterfly-Plant*, whose resemblance to an insect is increased by the presence of certain petals which look like long antennæ, and by the flower being borne on a long slender stalk, far away from the

38

VANILLA AROMATICA.

leaves, which seems to carry the fly into the air. The *Vanilla* (*Vanilla aromatica*) (fig. 38.) is one of these tropical *Orchideæ;* its long narrow pods (not unlike those of the Haricot bean, but dark brown in colour and soft and oily to the touch) afford the fragrant *vanilla* of commerce, much used in the preparation of chocolate, and in various other ways as a condiment, being considered to promote digestion. It is a native of the hot parts of South America, and from Vera Cruz alone the pods of this plant are exported to the amount of 40,000 dollars annually. Our species of the East Indian genera *Aërides* and *Saccolabium* are among the most highly prized. At the latter end of winter, the very lovely East Indian kinds of *Cypripedium* are generally in blossom; these, however, with some others, are terrestrial, and planted in pots of soil. Of this kind is the *King-Plant* of the Cingalese (*Anœctochilus setaceus*), as rare as its leaves are beautiful: our specimens are kept under bell-glasses; and the foliage closely resembles brown-green velvet, with the most exquisite net-work of gold. It has been already observed that *Ferns* and some other plants are also placed in this (as well as the adjoining) house, to be removed as the *Orchideæ* increase. The *Ferns*, in particular, constitute a very valuable collection, under the skilful management of the Curator, Mr. J. Smith, with whom they have been always great favourites; and nothing more delicate in form and texture can be conceived than are the leaves, or more properly fronds, of many of these. The *Tree-Ferns** are among the rarest and most valuable. Of all plants they are the most difficult to import alive, except while very young. In *our* country, *Ferns* are of humble stature, their leaves, or fronds, emerging directly from the ground; but in the *tropics*, and even in the more temperate parts of the southern hemisphere, these fronds, 15 to 20 feet long, are elevated on unbranched trunks (resembling Palms), 20 to 40 and 50 feet high.

PITCHER PLANT.

In the Orchideous House, which admirably promotes their health and vigour, are our finest and oldest specimens of *Pitcher-Plants*, the *Nepenthes distillatoria* (fig. 39.), and the infinitely rarer *N. Rafflesiana:* the latter was successfully brought home from Singapore in a Ward's-case by Captain Bethune, R. N., and by him

* The largest of these are now removed to the Palm-house.

presented to the Royal Gardens. Both species are more or less scandent. The leaves are terminated with an appendage exactly resembling a pitcher, of considerable size, having a lid at the top. When young, the lid is firmly closed, yet, even at that period, it contains a considerable quantity of fluid, distilled, as it were, by the plant (whence is derived the name of the species in more general cultivation): after a time the lid opens, and continues firmly attached at the back of the orifice by a hinge, and never again closes. With us in the summer season, and in its native Malayan islands at all seasons, insects visit the pitchers in great numbers to get to the liquor, fall in, and from the difficulty of escape are drowned, sometimes filling the entire cavity. Two aquatic plants, floating in small tubs or pans of water, are worthy of inspection in this house. One resembles bright green lettuces floating on the surface: it is the *Pistia Stratiotes* of the West Indies, the *Duck-weed*, in fact, of tropical countries. The other is distinguished by the leaf-stalks being remarkably inflated, with large air-cells within; these give buoyancy to the plant, which would otherwise sink: it is the *Pontederia crassipes*, and bears a beautiful blue flower. (Finer specimens of these are generally seen in the Victoria House, No. 6.)

It is now time to quit the Orchideous House, where, indeed, in the summer, and especially if the sun shines powerfully, the moist heat will be found scarcely supportable long, and we can enter the somewhat cooler one adjoining to the west end of this, viz.

No. 12., a *Stove*, 50 feet long, with a span-roof of the same width as the Orchideous House, filled, or rather crowded, with a very miscellaneous collection of warm-country plants. This is one of those houses which, from an old-fashioned lean-to, heated by smoke flues, and having a high back wall to the north, has been doubled and converted into an excellent span-house, heated by hot-water pipes and tanks, with slate tables, stone shelves, and slender pillars for climbing plants. The difference in the appearance and health of the plants, since this change, is truly surprizing. Several plants of great rarity and interest are placed here; though the reader must bear in mind that increase of growth and other circumstances compel many to be removed into other houses, as occasion requires. It contains many *Tree* and other *Ferns*, and being cooler than the adjoining Orchideous house, numerous plants are brought here during the flowering period to prolong the flowering. In summer the shelf on the south side is adorned with a rich collection of *Gesnerias, Gloxinias, Achimenes*, &c.; while the centre exhibits the ample foliage of many plants of the *Arum* family, remarkable for their *esculent* properties, combined with a powerful

poison. The tropics abound with them; and even England yields one kind (our *Arum* or *Wake-Robin*), which, both in appearance and qualities, may be considered a type of the rest. It is characteristic of the family that the juices are poisonous, often eminently so; but those juices being removed, by cooking, the foliage and farinaceous tubers become esculent and wholesome: the former is eaten boiled in India under the name of *Indian Kale*, the latter in various warm countries as a substitute for bread; the *Arum Colocasia*, or *Egyptian Arum* (fig. 40.), for example, in Egypt and the East, and the *Arum esculentum* in the West Indies. Our own *Arum maculatum* is commonly collected in the South of England, especially in Portland Island, and the roots made into pastry or used as *Arrow-root*. *Caladium Seguinum* is the *Dumb Cane* of the West Indies; so called because a small quantity of its juice, dropped upon the tongue, causes that organ to swell violently and prevents the power of speech. *Calla Æthiopica*, of this group, is one of our most common and ornamental greenhouse plants, and fills the ditches and watercourses in South Africa. A peculiar aspect is exhibited by all the individuals of the *Aroideæ*, independent of botanical character. Hence the importance of seeing, in a garden, plants grouped according to their *natural affinities*, as illustrative of their properties; and this we have attempted to do in many instances in this vast collection. A portion of the side-shelves in one part of the house is occupied with an extensive collection of the genus *Begonia*, whose highly ornamental foliage preserves amid a hundred modifications its peculiar character of obliquity, whence the plants are not inaptly named *Elephant's Ears*. The species, too, possess a great recommendation in producing their delicate pink, or white, or even crimson blossoms at different seasons; so that one or other kind may be seen in blossom all the year round.

40

EGYPTIAN ARUM.

Due south of the Stove No. 12. we have just been describing, we can, at the northern door, enter a rather small house in the form of a T, in reality a double span-roofed house;

No. 13. (the *northern wing*), and No. 14. (the *transverse portion*). This may in a great measure be considered supplementary to greenhouse No. 10. (the *Australian House*); and with the exception of the northern wing, which is occupied by a rich collection of *Cape Heaths* (fig. 41.), chiefly presented by our liberal friends, Messrs. Rol-

41

CAPE HEATHS.

lisons of Tooting, Messrs. Epps of Maidstone, and Messrs. Jackson of Kingston*,—the rest of this house is mainly devoted to Australian and S. African plants of the most ornamental description, many of them remarkable for the size and beauty of the specimens. Even on the outside of this house are some attractive objects.

On the east and west sides of No. 13. are *Frames* containing a miscellaneous collection, chiefly in pots, especially of Ferns. That on the east side, in summer, exhibits a noble specimen of *Erythrina laurifolia*, with large coral-coloured papilionaceous flowers, one of the most striking of our half-hardy plants. On the outside again, in a narrow bed immediately under the *front* of this house (facing the south), with other tender plants, are the three kinds of *Tea*, much cultivated by the Chinese, the *Black Tea* (*Thea Bohea*), (fig. 42.), the *Green Tea* (*Thea viridis*), and the *Sasanqua Tea* (*Thea*, or *Camellia*, *Sasanqua*) (fig. 43.). The last seems only to be grown in China for the sake of the oil; while from the Green and the Black Tea Shrubs of botanists, it is generally acknowledged that

42

BLACK TEA.

43

SASANQUA TEA.

* Although among contributors to the Garden we can scarcely point to donations such as these in regard to amount of species, yet are we bound to mention the gifts from Messrs. Veitch and Sons, and Messrs. Lucombe, Pince, & Co. (both of Exeter), Messrs. Henderson of Pine-Apple Place and Wellington, and Mr. Lowe of the Clapton Nursery, of numerous plants, of the highest rarity and value, which they have been instrumental in importing.

the Chinese make the green or black tea of commerce indifferently, according to the modes of preparation. In mild winters they may be seen blossoming in the open air so late as Christmas.

Opposite, that is, on the other side of the walk, west of the Heath-house, are two or three interesting hardy trees or shrubs. Sheltered by the old Stove, No. 8., and at its eastern end, stands a fine shrub of the Japanese *Photinia serrulata*, a charming evergreen, seldom bearing flower in this climate. Climbing above it, on the east and north side of the walls of the stove, is a noble plant of the old *Glycine* (now called *Wistaria*) *Sinensis*, whose innumerable clusters of blue flowers (in shape like those of *Laburnum*) are very striking in the early spring, before the leaves are unfolded. Next to that (proceeding north) is a very aged trunk of the singular Japanese "Ginkgo," or *Salisburia adiantifolia* (fig. 44.), whose leaves are shaped like a fan, with a deep notch at the top; and next to that again is the *Terebinth Tree* (*Pistacia Terebinthus*) (fig. 45.), considered by some commentators the *El-Elah* of Scrip-

44

SALISBURIA ADIANTIFOLIA.

45

PISTACIA TEREBINTHUS.

ture (generally translated *Oak*): it yields the Scian turpentine, a rare gum, mostly consumed in the Levant.

It will be desirable to retrace our steps a little if we wish to visit some objects in the portion of ground recently the *Royal Kitchen* and *Forcing Grounds*, and we shall find a walk on the east side of the *Australian House* (No. 10.), which conducts the stranger in an easterly direction through a paddock, in the occupation of His Majesty the King of Hanover, into the great eastern division of the late Royal Kitchen-Garden, now converted into the *Herbaceous Ground*, or general collection of *hardy exotic herbaceous plants*, systematically arranged and intermixed with shrubs and ornamental trees upon the lawn. The same piece of ground contains several Plant-houses, also a building, formerly a fruit-house to the Kitchen-Garden, and now converted into the

MUSEUM.

This Museum is yet in its infancy*, and is destined to receive all kinds of *Fruits* and *Seeds, Gums, Resins, Dye-stuffs, Drugs, Sections of Woods,* and all *curious vegetable products,* especially those that are useful in the *Arts,* in *Medicine,* and in *Domestic Economy;* such interesting vegetable substances, in short, as the living plants cannot exhibit. This collection will, when more complete, require a separate Catalogue. On the present occasion we can only direct attention to some of the more prominent features. Here are seen *Gutta Percha* in various states of preparation; *Caoutchouc; Cocoa-nuts* and their products; *Double Cocoa-Nuts; Ivory Palm* (*Phytelephas macrocarpa*); the *Wax Palm* of Humboldt; the *Wax Palm* of *Brazil* (*Copernicia*); *Oil Palm* (*Elæis*); *Calamus Rotang* (for chair-bottoms, umbrella-ribs, &c.); sections of *Palms* from the Amazon (R. Spruce, Esq.), and a very fine collection of the foliage and inflorescens of *Indian Palms,* presented by the Hon. the Court of Directors of the E. I. Company; Implements for collecting *Toddy Juice* (presented by I. M. Strachan, Esq.); an entire case filled with the raw material and manufactured articles of the flax in Ireland, presented chiefly by the Royal Irish Flax Society; *Manilla Hemp,* and articles manufactured from it; *Jute,* the fibre of *Corchorus capsularis,* a kind of hemp or flax recently introduced from India; *New Zealand Flax,* and articles manufactured from it; *Tapa Cloth,* in great variety, from the Paper Mulberry Tree; *Lace Bark* of Jamaica, do. of *Cuba; Rice Paper; Sacks* from Bombay, made by simply peeling off the bark of a peculiar tree (*Lepurandra saccidora,* Nimmo, an urticaceous plant), turned inside out, leaving a transverse section of the wood to form the bottom (presented by H. B. Frere, Esq., of Roydon Hall, Norfolk); a complete set of *Implements,* with illustrative drawings, used in the preparation of *Opium* at Patna, (Dr. Hooker); *Pottery Tree* of Pará, in Brazil, and earthen vessels made from its bark; a great variety of ingenious *Straw* and *Palm Plaiting* from Orkney, St. Albans, Nice, &c.; *Esparto* baskets; *Maple* and other *Sugars;* Fruit of *Baobab;* do. of *Theobroma* (from which *Chocolate* and *Cocoa* are prepared), and *Mangosteen; Coca leaf,* extensively used in Peru; a great variety of rare *Chinese Teas; Maté Tea,* with cups and tubes for drinking the beverage, &c.; *Kava* bowls, with the Pepper from which the drink is prepared; *Shea Butter* from Africa; *Tonquin Beans; Cow-itch; Brazil-Nuts;* a valuable collection of *Pine Cones;* do. of *Banksia Cones;* various *Gum-Resins* and *Drugs;* "*Vegetable Caterpillars*" from New Zealand and other countries; *Vermicelli* from Sicily; *Native Bread* of Van Diemen's Land; *Birch-bark*

* During the present season (1851) preparations are making for occupying the two wings of this building with Museum objects.

Bread of N. W. America; *Bread-fruit; Jack-fruit; Snake Gourd; Nutmegs* with the *Mace; Cloves; Gamboge-fruit* and *Gum;* stems of *Cereus senilis,* exhibiting a large quantity of *oxalate of lime;* a large collection of sections of *Woods;* a specimen of the *Mustard-Tree* of Scripture, according to Dr. Royle (*Salvadora Indica*); trunks of the *Grass Gum-tree* of Australia and of *Kingia Australis;* Trunks of *Tree-Ferns;* specimens of rare and curious flowers in alcohol or pyroligneous acid; admirable wax models of the splendid *Victoria regia,* and *Rhododendron Dalhousiæ,* &c., executed and presented by Miss Tayspill, of St. John's Wood; other charming wax models of flowers by Mrs. Temple, of 46. Connaught Terrace, Hyde Park, and by Mrs. Chipperfield, of 16. Moreton Terrace, Kentish Town Road; and there are also beautiful skeleton-leaves and fruits, prepared by, and the gift of, Mrs. Robert Maclean Smyth. To no individual is the Museum indebted for more interesting and practically useful objects than to the Rev. Professor Henslow: we have only space to mention the admirably prepared hornet's and wasp's nests (true paper, made by those insects from vegetable fibre); a chemical analysis of the potato, exhibiting its constituent parts; a valuable collection of woods explanatory of the union of two kinds, as in the example of the *Misseltoe* upon the *Hawthorn,* of grafting, of the injury done to timber by bad pruning, by insects, beautiful sections of fruits, &c. &c. The Museum also possesses a large collection of drawings of interesting and useful plants, two of which are permanently placed opposite the door of entrance, viz. that of *Victoria Water-Lily,* already alluded to, which is the most splendid aquatic in the world, having floating orbicular leaves 6 feet across, and flowers rising above the water, which, when fully expanded, are 14 and 16 inches across; and that of *Rafflesia Arnoldii,* the largest flower known, a single blossom measuring $3\frac{1}{2}$ feet in diameter, and weighing 15 lb. Other drawings illustrative of useful or remarkable plants are suspended on the railing of the gallery and upon the wall of the staircase. A passage contains figures of all the new Rhododendrons discovered by Dr. Hooker in Sikkim Himalaya.

The *Plant-houses* in the same ground with the Museum were originally erected for Vines, Pines, &c., and the majority of them, with a little alteration and an improved system, serve admirably for Plant-houses, as may be seen at

No. 15., formerly a Vinery in another part of the ground, recently removed to this site (the back of the Cactus-House), and now occupied as a *Fernery,* and chiefly for such kinds of Ferns as do not require the tropical heat of the Palm-stove, or of the Houses Nos. 11., 12. The north aspect of this House is favourable to the growth of these plants.

No. 16., also a lean-to, at the back, or on south side, of the Museum,

which is now a *Stove-house*, and filled with a choice miscellaneous collection of tropical plants, some good aquatics, and climbing plants trained to the back of the wall. Here are the *Nutmeg* (fig. 46.) (*Myristica officinalis*), which yields both nutmeg and mace, spices, of which the consumption is so great, that, according to Stavorinus, of the former 250,000 lb., and of the latter (mace) 90,000 lb., are sold annually in Europe alone; the *Clove* (fig. 47.) (*Caryophyllus*

NUTMEG.

CLOVE.

aromaticus), which valued spice is the flower-bud, in shape resembling a nail, whence the Spaniards, who discovered the tree, called it Clava, the French Clou, the English Clove; the best *Caoutchouc Tree* (*Siphonia elastica*), from Pará; the *Upas* or *Poison-Tree of Java* (*Antiaris Toxicodendron*), to whose well-authenticated virulence it has been the pleasure of poets and travellers to add many a horrifying imaginary incident*: the famous *Cow Tree*, or Palo de Vaca (*Galactodendron utile* of Humboldt), native of the Caraccas, abounding in a milky juice, which is drawn into gourds by tapping, and given to children as we give them cow's milk: the *Xanthochymus pictorius* of Roxburgh, of which the fruits, which ripen with us, yield, on puncturing, the juice which concretes into one kind of *Gamboge*, the most powerful of drastic medicines, and affording the brightest and best known of yellow colours: the rare *Napoleonea imperialis*, and the very beautiful *Gardenia Stanleyana* from Sierra Leone, of which still finer plants are in the Palm-

* In addition to the injurious property of this plant, it is known to grow in low valleys of the island, rendered unwholesome by an excess of carbonic acid gas, which escapes from crevices in the ground. In this atmosphere man and beast who unwarily enter, and birds that attempt to fly over (for the gas is said to reach a height of 18 feet from the ground), fall down dead, and the bottoms of such situations are often strewed with the carcasses of various animals which have perished thus, and not from the effects of the Upas.

stove; the singular *Lace Bark Tree* (*Lagetta lintearia*) from Jamaica, whose layers of inner bark (there are as many as the portion of the tree yielding it is years old) resemble, without any artificial preparation, an exquisite lace; the *Indian Teak* (*Tectona grandis*), extensively used in ship-building, and the equally useful and much rarer *African Teak*, or *African Oak* (*Oldfieldia Africana*); the most splendid of all flowering trees, *Amherstia nobilis;* the celebrated *Gutta Percha* plant (*Isonandra gutta*), kindly sent by Dr. Oxley, with other rarities, from Singapore; the *Suwarrow-Nut* (*Pekea tuberculosa*); the *Mahogany Tree* (fig. 48.)

48

MAHOGANY TREE.

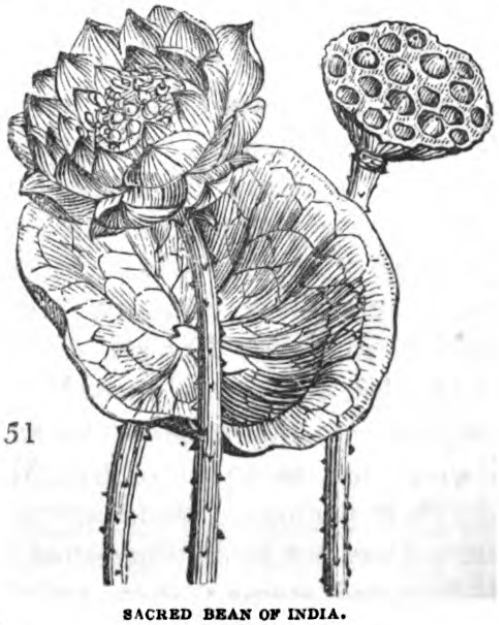
49

MANGOSTAN.

(*Swietenia Mahogoni*), a native of Honduras and Jamaica; the East Indian *Mangosteen* (*Garcinia Mangostana*) (fig. 49.), the rich fruit of which we vainly strive to bring to perfection in our stoves; and the *Assam Tea* (*Thea Assamica* of Dr. Royle), showing by its larger and pointed leaf that it is a distinct species from the Chinese Teas. Here, too, is the famous *Paraguay Tea* (*Ilex Paraguensis*)

50

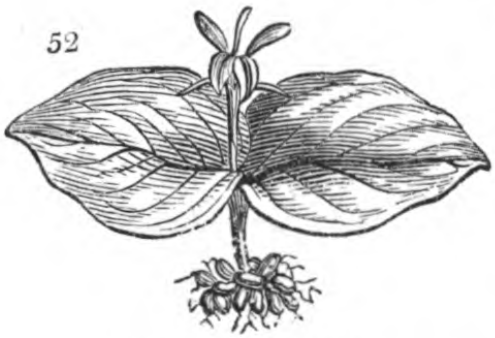
ILEX PARAGUENSIS.



51

SACRED BEAN OF INDIA.

(fig. 50.), no *true Tea*, indeed, but, as its scientific name implies, a kind of *Holly;* yet, under the name of *Maté*, it affords a beverage almost as extensively used in South America as Bohea, Souchong, or Hyson are in Europe. Here may be seen that gorgeous Water-Lily of the East Indies, *Nelumbium speciosum* (*Sacred Bean of India*) (fig. 51.), the κύαμος of the ancients. The *Scitamineæ*, contained in this house, include a good many *Spices* and *Medicinal Plants*. Among them we may specify the well-known *Galangale* (*Kæmpferia Galanga*) (fig. 52.), the *Arrow-root* (*Maranta arundinacea*), the various kinds of *Indian Shot* (*Canna*), *Phrynium*, and *Hedychium*, with their large and fragrant flowers, *Alpinia*, *Ginger* (the tuberous roots of *Zingiber officinale*), *Turmeric* and *Zedoary* (both species of *Curcuma*), *Cardamoms* (*Amomum*), &c.



KÆMPFERIA GALANGA.

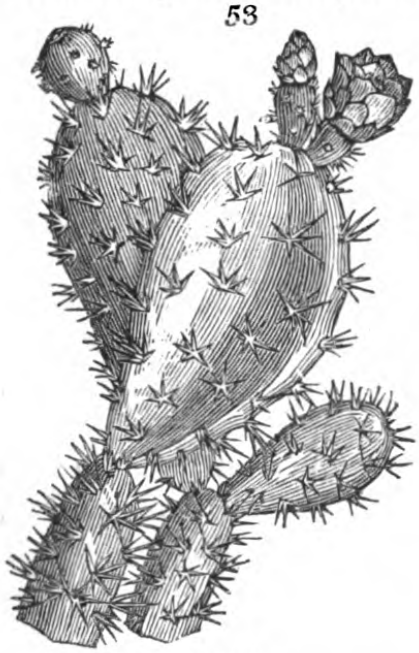
No. 17., likewise a *Double House* (an old Vinery not yet improved), has a good assortment of *Camellias* and *Azaleas*, and in the winter a large quantity of *Petunias*, *Calceolarias*, and various other plants, chiefly raised for ornamental purposes and for filling the open borders during summer.

No. 18. Also an old Vinery, at present used for nursing or rearing plants for other situations.

No. 19. is filled with the plants of the *Cactus tribe* (and a few other succulents to which a similar atmosphere is suitable), it is hence denominated the *Cactus-house*. This again is, perhaps, as a collection of *Cactuses*, perfectly unique of its kind, thanks to various friends in the warmer parts of the New World, of which countries they are exclusively natives. If these plants do not possess much grace and beauty (their flowers, however, are often splendid in the extreme), yet they are very remarkable in the strange forms and structure of their, almost invariably, leafless stems and trunks, their deep longitudinal ribs or furrows and sharp angles, the singular vestiture of hairs or spines (or both combined),— the latter, often in countless myriads, are arranged with the most perfect symmetry in stellated or star-shaped clusters, sometimes not thicker than bristles, and scarcely two lines long, or they are broad and transversely banded like lobsters' horns, at other times long and straight, and so strong as to serve the Mexicans to fasten their "ponchos" about their persons. Some species resemble the convolutions of the brain. One set is distinguished by the tall and curiously jointed and flattened stems; they are the *Opuntias* or *Nopals*, of which

some yield the fruit much eaten in warm countries, under the name of *Indian Fig* or *Prickly Pear* (fig. 53.), and their stems are used for making almost impenetrable fences (these are called *Tunas*), or, as in the *Cactus* (or *Opuntia*) *coccinellifer* (fig. 54.), they are cultivated to an immense extent for the purpose of feeding the *cochineal insect*, a small kind of meal-bug, reared in such quantities, that, from Mexico alone, Humboldt assures us 32,000 arrobas of cochineal are annually exported, equal to 500,000*l.* sterling. The insect has the power of extracting the juices, and converting them, by a chemical process, into the rich scarlet dye called *Cochineal;* but it is not so generally known that the *fruits* of the *Nopals* secrete the same colour, and excellent cochineal has been obtained from the fruit, as well as from the insect, in the East Indies.

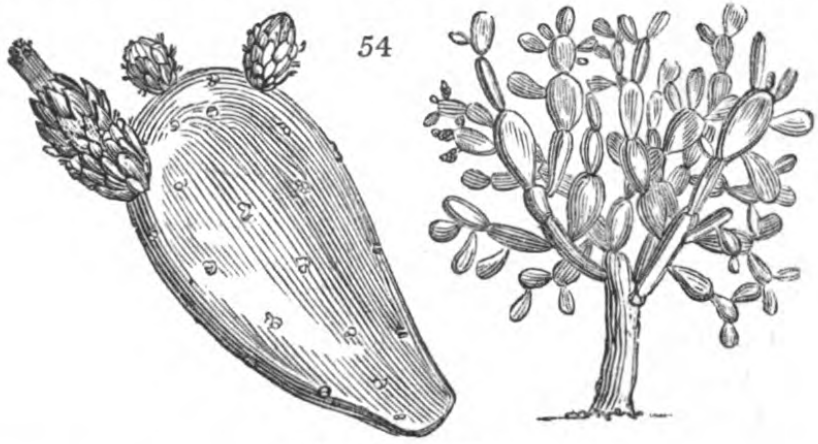
53



CACTUS TUNA.

Another tribe of *Cactuses* resembles in form and spinous character the Sea-Urchins of our shores (*Echinus*), and are appropriately

54



CACTUS COCCINELLIFER.

denominated *Echinocactus*. One may be easily recognized as the "monster" of the collection, the *Echinocactus Visnaga*, so called (*Visnaga* meaning a toothpick in Spanish) from the use made of the spines in Mexico. The weight of this single specimen is 713 pounds, and it is in the most perfect health and vigour. It was drawn by oxen from the interior of Mexico (San Luis Potosi) to the coast for shipment, and arrived in excellent condition, thanks to the kind sender, Frederick Staines, Esq.*

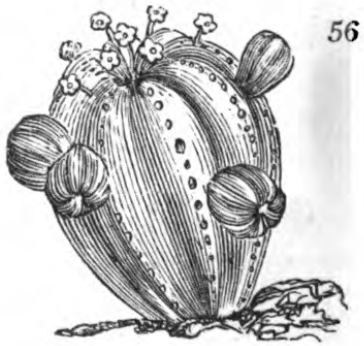
* The same gentleman did us the favour, with infinitely greater labour, to send us a much more magnificent plant of this Cactus in 1846, *thrice* the size of the present one, and weighing one ton. It was planted, and looked sound and perfect, and was, for some months, the wonder of the Garden; and it found a place in the "Illustrated London News" of

Here is also a little collection of what are called *Ichaboe Plants*, presented by Henry Davidson, Esq., of Rosslyn House, Hampstead. They are from the mainland of Africa, close by Ichaboe; for the island, being covered with guano, could yield no plants. More than one of them are remarkable for exuding gum-resin, and that marked *Monsonia Burmanni* (the old *Geranium spinosum* of Linnæus) for becoming when dead a mass of *gum-resin*, of which the quantity is so great in these burning sands, that it has been imported, in the hope of its proving valuable as an article of commerce. This particular plant on its arrival, and for 4 years had been to all appearance perfectly dead, and more than half converted into a gum-resinous substance, exhibiting only a few crooked lifeless looking branches. Suddenly, in the spring of 1850, it has put forth leaves, and is full of life and vigour.

In this house are placed some leafless (and other) *Euphorbias* (figs. 55, 56.), whose forms a good deal resemble certain Cactuses,

55

EUPHORBIA ANTIQUORUM.



56

EUPHORBIA MELOFORMIS.

and whose milky juice is eminently poisonous, and extensively employed in South Africa for rendering mortal the wounds of arrows and assagays; — and *Stapelias*, or *Carrion-Flowers* (fig. 57.) of South Africa, whose quadrangular leafless stems bear indeed some similarity to Cactuses, while their flowers resemble star-fish. Their odour is such that flies, attracted by it, lay eggs upon them in great numbers, taking them for putrid meat: the poor larvæ, when hatched, find the difference, for there is nothing for them to feed upon, and they perish in great numbers; thus it would appear that *Stapelias* are among the many plants destined by the Author of nature to keep insect-life within due bounds.

No. 20. An excellent green-house, removed from another site, and now occupied by many tender *Rhododendrons*, and a very mixed collection of plants of temperate climates.

---

the day, where an excellent representation was given; but it had received injury during its perilous journey or voyage; a bruise appeared; and decay soon extended through the whole of this enormous mass, tainting the air with its fetid smell.

No. 21. A substantial new Propagation House, kept private; now chiefly occupied by numerous young plants reared from Dr. Hooker's seeds of Sikkim Himalayan Rhododendrons.

CARRION FLOWERS.

And now it is time to return the way we came (being the nearest), to the west end of the Stove No. 12, where we enter the *Old Arboretum*, near a handsome architectural building, *The Temple of the Sun*. This is a nearly circular piece of ground (see the Plan), of about 5 acres, crowded with hardy trees, of much interest and value, more than can possibly be here enumerated. Close by the Temple of the Sun are noble specimens of the *Turkey Oak* (*Quercus Cerris*), the *Oriental Plane* (*Platanus orientalis*) (fig. 58.), a good

ORIENTAL PLANE.

CORK TREE.

Cedar of Lebanon (*Cedrus Libani*), a very large *Locust Tree* (*Robinia Pseudacacia*), a *Lotus*, of North America (*Diospyros Virginiana*), a fragrant *Sassafras* (*Laurus Sassafras*), and a healthy though young *Cork Tree* (*Quercus Suber*), 2 very large trees of this were blown down in a gale during George III.'s reign, (fig. 59.); a large *Koelreuteria*, &c. &c. This Arboretum is circumscribed by a walk: by taking that which goes to the left, round the temple, we approach the east end of the Orangery on the way to the principal entrance, among good exotic trees, *American Limes*, *Oaks*, *Hickories*, red and yellow flowered *Horse-chestnuts*, &c. In the other direction, due north from the Stove, No. 12., we pass several interesting trees of another description.

To the right is a fine *Woolly-fruited Maple* of North America (*Acer eriocarpum*): a little further, and near a private walk leading to the residence of His Royal Highness the Duke of Cambridge, and to the Directors' rooms, stands conspicuously a *Weeping Willow* (*Salix Babylonica*), derived from the original tree (now destroyed) at Napoleon's tomb, St. Helena; the *Red Maple* of the United States (*Acer rubrum*); the *Manna Ash* (*Fraxinus Ornus*), from which exudes the *Manna* of the shops; the *Glastonbury Thorn*, a variety of the common Thorn (*Cratægus Oxyacantha*), of which the original was said to be a staff from the Thorn used for crowning our Saviour, which Joseph of Arimathea stuck into the ground at Glastonbury, when it immediately sent forth leaves and flowers! Be that as it may, this tree is remarkable for bearing foliage almost throughout the year, and it flowers, if the season be mild, in winter as well as in spring. There is also a beautiful young tree of the *Deciduous Cypress* of Mexico and the Southern United States (*Taxodium distichum*), which, in its native country, attains an enormous size, 90 feet in the girth of its trunk, and to a great age: the identical tree at Chapultipec, under which Montezuma was accustomed to sit previously to the conquest of Mexico, is yet living and known as the Cypress of Montezuma. Here, on the left, are fine old *Celtises*, and the *Paper Birch* of North America (*Betula papyrifera*). Proceeding towards the entrance gate, we pass the ruin of a stately *Cedar* (fig. 60.), of which the main portion was carried away by a gale in 1841; and many rare *Pines* from different countries, in various stages of growth. Among them the *Deodar* (*Cedrus Deodara*) ranks pre-eminent, a tree rivalling if not excelling in beauty to the *Common Cedar*, and equally hardy, from the mountains of Northern India: this specimen is among the very first reared in Europe, from seeds brought home and presented to the Garden by the Honourable W. Henry Melville. As the gates of Solomon's Temple at Jerusalem, and those of St. Peter's at Rome, are said to have been made of the *Cedar of Lebanon*, so it has been ascertained, and I believe on sure authority, that the gates of the Temple of Somnauth are constructed of the *Indian Cedar* or *Deodar*. *Abies Webbiana, Menziesii, Smithii, Douglasii;* the *Stone Pine*, which is the Pine of Claude Lorraine's Italian landscapes (*Pinus Pinea*); *P. Laricio* of Corsica; and the much rarer species, *P. Coulteri, macrocarpa*, and *Sabiniana* from the Pacific side of North America, also find a place here.

CEDAR.

After the inspection of these, the visitor will find himself returned to the gate on the Green by which he had entered.

INDEX.

THE END.

LONDON: SPOTTISWOODES and SHAW, New-street-Square.

THE

TREASURY OF NATURAL HISTORY;

OR, A POPULAR

DICTIONARY OF ANIMATED NATURE:

In which the Zoological Characteristics that distinguish the different CLASSES, GENERA, and SPECIES are combined with a variety of interesting Information illustrative of the HABITS, INSTINCTS, and GENERAL ECONOMY of the ANIMAL KINGDOM.

To which are added, a Syllabus of Practical Taxidermy, and a Glossarial Appendix.

EMBELLISHED WITH

Nine Hundred accurate Engravings on Wood,

FROM DRAWINGS MADE EXPRESSLY FOR THIS WORK.

A New Edition, corrected.

BY SAMUEL MAUNDER,

AUTHOR OF

"The Treasury of Knowledge," "The Treasury of History," "The Scientific and Literary Treasury," and "The Treasury of Biography."

In One compact Volume, fcp. 8vo, uniform with Mr. MAUNDER'S Four Treasuries of "Knowledge," "Science," "Biography," and "History." Price 10*s.* cloth; and 12*s.* embossed roan, gilt edges.

LONDON:

LONGMAN, BROWN, GREEN, AND LONGMANS.