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tters for Publication, as well as specimens of plants for naming, should be addressed to the EDITORS, 5, Tavistock Street. Covent Garden, London. Communications should be WRITTEN ON ONE SIDE ONLY OF THE PAPER, sent as early in the week as possible, and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.

rgent Communications.—If sent by telegraph these should be addressed "Gard. Chron.," Rand; or by telephone, to Gerrard, 1543.

# AN EIGHTEENTH CENTURY AMERICAN SEED LIST.

THERE is abundant evidence of the interchange of plants and seeds during the eighteenth century between England and er colonies in North America. While the plonists would like to have about them flowers, uits, and vegetables with which they were miliar at home, they were equally anxious at North American plants should be sent ome to add variety and interest to our ordens and woodlands. What was hardy in ie climate of North America would probably rive in England under milder though quite ifferent conditions. It is certain that great uantities of plants were exported from America England,\* and probably every homewardound ship in the early days carried consignnents of this kind; but, owing primarily to nproper packing and to the length of time iken for the voyage, it is reasonably certain hat the mortality among each consignment as considerable. Seeds offered a much easier nd more simple method, and it was doubtless ealised in those early days that the one ssential point was to keep them dry and air-

I have lately obtained the MS. List of vhat must have been one of the largest ingle consignments during the 18th century of seeds to England from across the Atlantic, or it gives 116 different sorts of seeds of hrubs, trees and herbaceous plants. Unfortunately the List is not dated, and the paper on which it is written has no vatermark or date. But its approximate late may be arrived at in other ways. The List is described as "The Contents of a Box marked L. V. T. [i.e., Lord Viscount Townshend] on board the ship Albany, Captain Richards, and in the care of Major Gorham [Goreham], who promised to see the Box delivered to the Right Honble. Lord Visct. Townshend." On the blank fourth page is written in another hand, "Copy of a List of Seeds sent to Lord Townshend, a copy of this List sent to Mr. Jones at Rainham." The date of the List may be safely placed at shortly before the outbreak of the Revolution in North America. Viscount Townshend, to whom the box of seeds was sent, was the fourth Viscount, who was advanced to the dignity of Marquess in October, 1787, and so the List must be earlier than this. The Major Goreham,

who undertook to see the box of seeds delivered to Viscount Townshend, is undoubtedly identical with Lt.-Col. Joseph Goreham, who figures in the Army List of 1782 as Lieutenant-Governor of Placentia, Newfoundland (he died at Calais in July 1790).

The ship mentioned, the Albany, may have been the sloop of that name, from which its Commander, Lieut. W. Brograve, R.N., wrote February 12, 1761-2, to General Townshend asking him to use his influence so that he may sail in the Albany or a larger ship in the expedition for the capture of Havana (Townshend MSS, Hist. MSS. Commission, p. 397.)

The period 1776 to 1782 may be elimin-

The period 1776 to 1782 may be eliminated from consideration as, owing to the war between England and her Colonies, there were other things to think of than the exportation of seeds and plants. The List has remained until recently among the Irish papers of Lord Townshend, who was Lord-Lieutenant of Ireland from October, 1767, until November, 1772. He was at the siege of Quebec, which town surrendered to him as Commander-in-Chief after the death of Wolfe in 1759. He always kept up his interest in Canada, and it may also be noted that he had plantations in Florida, by the St. John's River.

The Mr. Jones mentioned on the endorsement was probably Townshend's estate agent. In the Townshend manuscripts volume issued by the Historical Manuscripts Commission, 11th Report, 1887, there is printed a letter from John Jones, dated from Fakenham (about three miles from Fakenham (about three miles from Rainham Hall), December 12, 1759, and addressed to General Townshend, congratulating him on his arrival, and adding his tribute of thanks for his services to his country. The letter is couched in terms of respectful friendship, such as might have come from a man who, though an employee, was on friendly terms with the General. The gardens at Rainham have not played any prominent part in the history of horti-culture in this country, nor is the first Marquess Townshend famous as a patron of gardening--a former Viscount, as we know from Alexander Pope, was famous for his Turnips, which he is said to have introduced as a field crop at Rainham from Hanover. But, as with all other country gentlemen of his time, agriculture was a part of his education

and gardening was comprised in it.

It is clear from this List that Viscount Townshend was interested in trees and shrubs. The List itself is somewhat vague; nearly all the names are common ones, and those that are botanical are not always correctly spelt. The first four of the List are Pines —the White Pine or "Lord Weymouth's Fir"; Pinus Strobus, which had long been acclimatised in this country; the Threeacclimatised in this country; the Three-leaved or Swamps Pine, the Two-leaved or Pitch Pine Espinus," and the Two and Three-leaved Pine. There are several varieties of Spruces, Maples (including the "Snow White") and Beeches (among them "Fagus chinquatin"). Viburnum is another genus well represented. as is also the Redberry or Cranberry (all doubtless species of Vaccinium). The Winter Berry (Prinos) and the Sumach are present each in two varieties. There are 14 varieties or species of the Oak and seven of Hickory (Carya) and its allied genus Juglans. It is noteworthy that, from the common names in the List, many of the trees and shrubs were natives of swampy places, and this leads to the suggestion that some of them may have been intended for similar localities in Ireland. Now and then there is a botanical name which helps one to identify the particular plant without much difficulty, e.g., No. 48 in the List is Spires opulifolia (now Neillia) opulifolia) which was introduced into English gardens from North America so far back as 1690. The Andromeda and the Kalmia, both largely North American genera, are well represented, and among their allies is Clethra alnifolia which is No. 86 on the List. Some of the entries are indefinite,

such for instance as Toxicodendrum, which cannot mean T. capensis as that is a South African plant, introduced in 1783. "Staphalea" is probably Staphylea trifolia, long before introduced into Europe. To the student of the history of plants introduced into English gardens, there are other interesting little problems and points suggested by this List, and all such contemporary documents have their value in that history. W. Roberts.

# PRINCIPLES OF NOMENCLATURE.\*

The average botanist is apt to confuse a nomenclaturist with a name-monger and to think of him as an individual with a depraved taste for coining new names for old plants. Nothing could be further from the truth. One of the chief objects of those systematists who devote time to nomenclature is the avoidance of unnecessary name-changes.

One may sometimes hear a systematic botanist—usually one of very limited experience—say, "Oh! I've no time to waste on nomenclature." What this really means is that he is content to waste the time of his fellow-workers by employing names which may be wholly superfluous, ambiguous, or even erroneous, rather than give himself the trouble of ascertaining the correct ones.

In order to make satisfactory progress, the systematist has to build largely on the work of his predecessors; every little point cannot be worked out afresh. But previous records cannot be utilised unless we know precisely what group is indicated by a given name. Hence the essential point in nomenclature is certainly in the application of names. We must not only know what group is meant; we must also know its exact limits. All other considerations are secondary.

Certainty in the application of names depends on the acceptance of two axioms:
(1) Each group, circumscribed in a given manner, can bear only one valid name (or combination of names). (2) Each name (or combination of names) can be validly applied to only one group of a given rank.

### (1) ONE GROUP, ONE VALID NAME.

Unfortunately, many groups have been given two or more different names. In the Phanerogams, the 10,000 genera have about 20,000 names between them. How are we to decide which names to adopt? In the past this was largely a matter of individual preference. If a botanist did not like a name, or thought it was unsuitable, he immediately changed it. Names given by eminent botanists were accepted in preference to earlier ones given by less-known authors. This want of method in the selection of names inevitably led to differences in nomenclature, and was found to be so inconvenient, that it was gradually decided to accept the principle of priority of publication. Each group should bear its first properly published name. If we accept the principle of priority, it is obviously necessary to have a starting-point. It is impracticable to go back to the ancient Greeks and Romans for the names of plants. If we did, we should have to call the Garden Marigold Caltha instead of Calendula, and the Shepherd's Purse Thlaspi instead of Capsella. At the International Botanical Congress held at Viennna in 1905, the first edition of Linnaeus's Species Plantarum (1753) was taken as the starting-point for Phanerogams and certain Cryptogams. This was the first work in which binary nomenclature for species was consistently adopted.

#### (2) ONE NAME, ONE GROUP.

The botanists of the eighteenth century and many in the nineteenth century considered that if a group was reduced, its name could be used over again for another group of the same category. This view

<sup>\*</sup> This was by no means confined to the Mother country and there were other dangers than bad packing. In Quaritch's current Catalogue of Autographs there is a letter in Latin from Linnaeus to A. Haller at Gottingen, dated from Upsala, September 24, 1748, in which Linnaeus mentions the return of Dr. Mitchell from Virginia, where he had been collecting plants for six years; unfortunately Spanish pirates had taken them all, "an irreparable loss to Botany."

<sup>\*</sup> An address given before the Mycological Society by Mr. T. A. Sprague, The Herbarium, Kew.

introduced purely subjective considerations into nomenclature, and led to the same name being employed simultaneously for different groups. Its adoption was due to a misapprehension of the respective spheres of taxonomy and nomenclature. It is the task of the taxonomist to delimit natural groups in accordance with his views as to their inter-relationships. As soon as a given group is circumscribed, it is the task of the nomenclaturist to determine its correct name in accordance with rules of nomenclature. Taxonomy is largely a matter of opinion. Nomenclature is concerned solely with facts. An example may serve to make this clear. In 1827 Dumortier gave the name Kickxia to a genus' of Scrophulariaceae including Linaria Elatine and L. spuria, which differ from the other species of Linaria in the mode of dehiscence of the capsule. Dumortier soon reduced Kickxia to Linaria, and the name Kickxia was adopted for a genus of Apocynaceae described by Blume in 1828. But some botanists now consider the first Kickxia a good genus, and retain that name for it. Other authorities consider that the first Kickxia is a synonym of Linaria, and use the name Kickxia for the Apocynaceous genus. The name of the second genus has thus been made to depend, not on questions of fact, but on the taxonomic validity of the first genus, which is a matter of opinion. If we accept the rule that a name may not be used twice for groups of the same category no uncertainty can arise; only the first genus can bear the name Kickxia. The International Rules require alteration in this respect.

(To be concluded).

### TREES AND SHRUBS.

BERRIED BARBERRIES.

ALL Barberries bear berries, but until recent explorers in China sent us seeds of the species so common in the upland scrub of the Tibetan border, few cultivated species owed their place in our gardens to this berry producing character. Berberis vulgaris and some of its allies were well known, so was B. Aquifolium, and both are beautiful in berry. B. concinna from the Himalaya did not prove a really good doer in many places, but Wilson, Purdom, Farrer, Forrest, and Ward have all sent us brilliant berried species of various habit, and most of them are worth a place, especially as, in many cases, their leaves become brilliantly coloured in autumn, and the berries, being sour, are not quickly stripped from the bushes by the birds.

from the bushes by the birds.

The limits of the species are not easily defined, but the seed collected in China usually comes true. So soon, however, as the plants produce seed in England, variations occur (we refer now to the bright red berried deciduous species) and the limits which might be set to species, so far as the different groups of seedlings from wild sources go, are overset. This probably arises from the plants being, as a rule, self sterile or nearly so, and from our practice of planting few shrubs of one species close together. Isolated shrubs rarely berry freely, and insects carry pollen from one species to another when they are in proximity. Consequently hybrids are frequent and some are more striking than the original species. Many hundreds of hybrid seedlings have been raised and distributed from Wisley during the past five or six years. The first raised came from seed of a plant obtained from Messrs. J. Veitch and Sons, Coombe Wood Nursery, as B. Wilsonae. It had the habit of that plant but differed in having brighter coral the seedlings varied enormously and probably owed, their variety to several different crossings from neighborings.

inflorescence Others were more in habit and berry like B. Wilsonae. Seedlings have been raised from these and they differ enormously among themselves, in habit, autumn tints, and especially in size, tint, and arrangement of berries, but most are worth a place. Sparkler, Firefly, and a few others have received Awards of Merit, so has B × ferox, remarkable as its name

acquiring stock is to be commended to who have a little space to devote to the beautiful but very prickly plants. F. J. (

ARAUCARIA CUNNINGHAMII.
The tree of Araucaria Cunninghami illustrat
in Fig. 39 is growing in the the Adelaide Botar
Garden, and its very large size may be se
from comparison with the other trees growi
in company with it. This species is said to



FIG. 39.—ARAUCARIA CUNNINGHAMII IN THE ADELAIDE BOTANIC GARDEN, SOUTH AUSTRALIA.

implies, for the enormous number of its rather small fruits. Comet, the subject of the supplement to the Gardeners' Chronicle of February 2, bears as many and larger, more densely packed and rather paler scarlet berries.

The only way of increasing these forms is by layers or cuttings, and layers, though slow, are best. Fortunately the bushes transplant easily, grow in any well drained soil, and are best in the full sun. A stony bank, so long as it is not too dry, will suit

one of the largest of the Australian Pines an sometimes attains a height of two hundre feet. It is known as the Hoop Pine because the hooped appearance presented by the hor zontal bands on the bark. A form of the tre which is found on the rocky portions and island of northern Queensland, has been given the varietal name glauca.

The timber of this fine Conifer is whitish easily worked, and largely used for makin furniture; it is not very durable in the oper. The species is not hardy generally in Great Conice with the control of the control o

Ild be placed singly in 31-inch pots, and them later into 5-inch pots, using for final potting receptacles eight inches in neter.

p to the final potting a little stronger should be used at each potting, and for final potting the following mixture is able: three-parts good loam, to half-aeach of leaf-mould and horse manure, ing sand or lime rubble, and a 5-inch full of bone flour and soot to each Il barrow load of soil.

ld plants should be shaken out and atted in 5-inch pots about the middle of e: they will be ready for their final potting the same time as the young stock. be ready for their final potting about the ldle of July. During the rest of the imer they should be grown in a cold uc, care being necessary in airing the ne, and shading the plants from bright At a later stage air should be admitted to keep the plants sturdy in wth.

'oinsettias should be introduced to the glass ises after the middle of September, and roots should be stimulated with liquid ring the three or four weeks when the cts are developing a temperature of 60° uld be maintained in the house, and the ts fed weekly with a soluble factilities. ts fed weekly with a soluble fertiliser.

After the bracts have fully developed a lower perature should be maintained. orescences are needed for cutting, the stems ould be cut the required length, and dipped boiling water, or the cut surface seared on a t piece of iron to prevent bleeding, for if s is not done the heads will droop very ickly. To obtain good bracts the plants ould only be grown for two years, allowing o inflorescences to remain on the secondar plants; good bracts may sometimes be tained from three-year old plants if required make up the number. W. T. M.

## PRINCIPLES OF NOMENCLATURE.\*

(Concluded from p. 93).

(3) APPLICATION OF NAMES.

In the early days of Taxonomy a name was applied to a concept rather than to an entity. Everything that agreed with a generic diagnosis went into the genus, and the generic name was based on all the entity. known species. Consequently when a genus was divided into two or more genera, there was often a difference of opinion as to which of these should bear the generic name. The only certain method af applying names is by means of types. Under the type-method, when an author publishes a new genus he mentions a type-species, to which the generic name is permanently attached, either as an name is permanently attached, either as an accepted name or as a synonym. If the genus is divided into two or more genera, the one which includes the type-species retains the original generic name. The type-species is selected by the author as a standard. All species that are congeneric with it go into the genus. All others are excluded. In the same way, each species has a type-specimen to which the specific

name is permanently attached.

Many botanists, however, adhere to the so-called "method of residue," which is really not a method at all, but a policy of duits. drift. They apply a generic name to whatever is left of the original genus after removal of all

the species that have been placed in other genera.

The operation of the two methods may be studied in the genus Banisteria L. (Sp. Pl. 427). This originally included seven species belonging to four different genera, now known respectively as Heteropteris (2 species), Stigmaphyllon (3), Hiptage (1), and Gouania (1). The Gouania was removed from Banisteria in 1763, the Hiptage in 1791, Heteropteris in 1822, and Stigmaphyllon in 1832, leaving nothing at all of the original Banisteria. But in the meantime a number of species

belonging to a fifth genus had been placed in Banisteria, because they agreed with the generic diagnosis, and the name Banisteria was kept for this alien element, after all the original elements of Banisteria had been removed. Under the type-method Banisteria is retained for the genus commonly known as Heteropteris. Linnaeus adopted Banisteria from Houstoun, and Houstoun's plant was Heteropteris brachiata. In other cases the method of residue results in all the characteristic elements being removed from the genus, which finally consists of a collection of imperfectly known species.

The type species of a genus must be one of the species included in it at the time of publication of the genus. If there was only one species originally, then that is the type. If there were more than one, the type is fixed according to the following consider. is fixed according to the following consider-ations:—If, in the original place of publication ations:—If, in the original place of publication of a genus, the author stated that a certain species was the type, it is accepted as such, regardless of other considerations. If no type was specified, it should be selected from those species which agree best with the generic diagnosis. The generic name itself may indicate the type-species. Thus Xylophragma, was based on two species. Xx Xylophragma was based on two species, X. pratense and X. myrianthum, no type being mentioned. As the generic name, however, was derived from the nature of the fruit, which is known only in X. pratense, that species is obviously the type. Similarly the specific name may indicate the type: Chelone Pentstemon, L. is the type of the genus Pentstemon. The type-species should, wherever possible, be so selected as to preserve the generic name in its generally accounted asserted. accepted usage.

(4) Conserved Names and Substitute-types. In certain cases the strict application of the International Rules—or, indeed, of any set of rules-would lead to highly undesirable changes in nomenclature. This was recognised by the International Botanical Congresses at Vienna (1905) and Brussels (1910), and over 450 well-known generic names of Phanerogams, which would otherwise have had to be abandoned, were specially con-served. An alphabetical list of these is given in Kew Bulletin, 1921, No. 9, pp. 321-326. Numerous Cryptogamic generic names were also conserved. Additions to the list of conserved names may be made by future International Congresses. Everyone will agree that such a name as Combretum, which has been used continuously since 1758 for a genus now containing several hundred species, should be retained, in spite of the fact (made known in 1923) that the earliest name for the genus is Grislea L. (1753). On the other hand, it seems hardly worth while to suspend the operation of the Rules in order to retain the generic name Brya, which comprises only three species. Each case should be judged on its own merits, and no name should be added to the list without edecuted discussion. without adequate discussion.

Acceptance of the type-method will necessitate the recognition of substitute type-species for certain genera. It is generally admitted that Calluna vulgaris is the type species of Erica, L., but in order to avoid changing the names of over five-hundred species of Erica, E. Tetralix, L. may be accepted as a substitute type.

(5). LOYAL OBSERVANCE OF THE RULES. It is of the greatest importance that botanists who recognise the International Rules should adhere loyally to them in all cases. If a particular rule seems to have undesirable consequences, the case for its repeal should be stated clearly and forcibly, and the matter should be left for decision to the next International Congress. The more eminent systematic botanists scrupulously observe the Rules. It is only a few among the minor systematists who deliberately break individual rules which they do not like, and thus retard the progress of the arrives with the arrives the progress of the science which they profess

# NEW HYBRID ORCHIDS.

(Continued from January 26, p. 47.)

(Continued from January 20, p. 41.)		
Name.	Parentage.	Exhibitor.
0.41 72.1.1.1	C. Luddemanniana × BC. Thorntonii	Stuart Low.
asso-Cattleya Dolphin	BC. Digbyano-Mossiae × C. Maggie Raphael	Stuart Low.
asso-Cattleya Perfecta	BC. Digbyano-purpurata × L. Latona	Stuart Low.
asso-Laelia Wengen asso-Laelio-Cattleya Crescent	BC. Digbyano-Schröderae × LC. Ceres	Stuart Low.
anna Tanlia Clattlerna Elaina	BL. Jessopii × C. Dowiana aurea	Stuart Low.
T 11 G 111 33 3	LC. Martinettii × BL. Digbyano-purpurata	Stuart Low.
T - 11 - Cl. 441 35 - 3	BLC. Veitchii × LC. Dominiana	Stuart Low.
ages Taulia Clattleres Minanda	BL. Helen × C. Luddemanniana	Stuart Low.
ttleya Astromary	Astron × Queen Mary	Armstrong & Brown.
ttleya Charlotte Netherway	Bertii × Trianae	F. J. Hanbury, Esq.
ittleya Doreen	General Pau × Maggie Raphael	Stuart Low.
ittleya Fraser	Octave Doin × Carmen	Stuart Low.
ittleya Minaret	Luddemanniana × Fabia	Stuart Low.
ittleya Model	chocoensis × Suzanne Hye de Crom	Sanders.
ittleya Mount Royal	Maggie Raphael × Enid	Stuart Low.
ıttleya Pauline	Lord Rothschild × Dupreana	Stuart Low.
mbidium Ivory Wings	Gottianum × Woodhamsianum	Armstrong & Brown.
pripedium Anne	Olbia × Hera Euryades	F. J. Hanbury, Esq. F. J. Hanbury, Esq.
ypripedium Brunton	Jas. O'Brien × Mrs. Mostyn	Sanders.
ypripedium Frederick William Sander	Carola × Nirvana	J. Crombleholme, Esq.
ypripedium Green Mantle	Aeson giganteum × Beryl ampliatum	F. J. Hanbury, Esq.
ypripedium Hancar	Hanburyanum × Carola	F. J. Hanbury, Esq.
ypripedium Hoodie	J. Howes × Leeanum	F. J. Hanbury, Esq.
ypripedium Irma	Hera × Robsonii	F. J. Hanbury, Esq.
ypripedium Jaffa wpripedium Mary Guthrie Waller	7. 1.1.	F. J. Hanbury, Esq.
	T 7	F. J. Hanbury, Esq.
ypripedium Mentor ypripedium Michael	Blanche Moore × Zeno	F. J. Hanbury, Esq.
The state of the s	Hera × Curtmannii	Stuart Low.
The diament Delines (Long)	Camorin × Alcibiades	S. Gratrix, Esq,
The state of the December of the State of th	Thompsonii × rubescens Ranjitsinhji	F. J. Hanbury, Esq.
	Gladiator × Eurybiades	Mrs. Gratrix.
ypripedium Tripos	Swinburnei × Thompsonii	F. J. Hanbury, Esq.
ypripedium Ursula	Zeno × Miss Andry Locke	F. J. Hanbury, Esq.
aelio-Cattleya Beacon	Luminosa × G. S. Ball	Stuart Low.
aelio-Cattleya Cavalese	C. Fabia × LC. Lustre	Stuart Low.
aelio-Cattleya Delise	Luminosa × Aphrodite	Stuart Low.
aelio-Cattleya Ian	C. Octave Doin × LC. Flammea	Stuart Low.
Laelio-Cattleya Kobe	C. Mendelii × LC. Teucra	Stuart Low.
aelio-Cattleya Pioneer	LC. Schulzeana × C. Trianae	Stuart Low.
aclio-Cattleya Pordoi	C. Fabia × LC. Dr. R. Schiffmann	Stuart Low.
aelio-Cattleya Riva	LC. eximia × C. labiata	Stuart Low.
aelio-Cattleya Russet	Luminosa × Coronis	Stuart Low.
Laelio-Cattleya Scythia	LC. Lucasiana × Mendelli	Stuart Low.
)dontioda Ching	Odm. tigrinum × Oda. Charleworthii	J. J. Bolton, Esq.
Odoutioda Columbia	Oda, Alcantara × Odm. St. James	('harlesworth.
Odontioda Hardyana	Unrecorded	Fred Hardy, Esq.
)dontioda Redbreast		Communication
Odontoglossum Margarita	l eximium × Doreeu	Cowan,

\* An address given before the Mycological Society by