No. 55. Personal ideas about the application of the international rules of nomenclature, or, as with the rules themselves, international deliberation?

Some denominations of Conifer-species. [1])

BY

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PREFACE.

The importance of plantnames accepted by all botanists and practical men proceeds at once from the many and serious difficulties which every botanist and practical man has met with, and which partly find their origin in difference of denomination for the same plants (synonyms, homonyms).

After LINNAEUS it has been tried for the first time in 1867 to get unity of denomination; a botanical congress in Paris adopted DECANDOLLE's „Lois de la nomenclature botanique" as a guide.

But it is almost a matter of course that such a first trial cannot be decisive; many questions appeared not to be treated sufficiently in the „Lois"; so DECANDOLLE's „Nouvelles Remarques" of 1883 tried to remedy this evil.

A big omission (as far as one may speak of omission) was, that the accepted laws were not immediately applied to all denominations. No one did it, and everybody applied the laws as much or as little as he pleased. Besides, it must not be forgotten that in 1867 the whole question of priority was new, that it was only then that LINNAEUS' trivial names were promoted to art-names, and that the author's names were added to it by law; so the congress has had the great benefit of obtaining these leading principles.

[1]) The Dutch text is published in „Mededeelingen der Landbouw Hoogeschool" Deel XXX Verh. 2, and is the authentic one. But in the English text improvements are made and no. 23a is added.

In 1891 Dr. OTTO KUNTZE surprised the world with the results of a voyage round the world, in which, besides the descriptions of many new species, he submitted a great number of plant names to a revision. He was the first to apply the laws of DECANDOLLE consistently, his starting point being at first the year 1735, later 1737. Hereby it then appeared what chaos still existed amongst the denominations; and this led after much strife between groups and persons to new botanical congresses; the 3rd congress, that of 1900 in Paris, charged the Swiss Dr. BRIQUET to gain information concerning the questions of denomination from as many botanists as possible, and to elaborate same into a set of propositions within a period of 5 years; a gigantic work, executed magnificently. In 1905 the propositions were treated in Vienna; there were conflicts, sometimes of a serious kind, for instance about the acceptation or not of the so called Kew-rule; but agreement has been obtained, be it at the price of a compromise; and BRIQUET's work provided us with the „Règles internationales pour la nomenclature botanique" in three languages.

The situation in 1905 was much more favorable than in 1867; the leading principles had become generally in use, such as to allow working out the details; and these details were much better known, owing to the nomenclature-strife during long years and to the summarising work of BRIQUET; sufficient examples had been treated, not in the least owing to KUNTZE's work, so as to ascertain the consequences of the proposed rules. That caused the Congress to choose 1754 as starting point for the names of genera, instead of 1737 (First edition of LINNAEUS' „Genera Plantarum") which latter date properly speaking was obvious.

Yet, alas, the consequences were still terrifying enough for many botanists; in the first place this was a result of the sharp contrast of the different groups as regards nomenclature (the German, English and American group); every group took exception to the names that would have to come instead of the names according to the interpretations of that group. But the fault lies also with old botanists such as ADANSON (1763); ADANSON was an opponent of LINNAEUS' work for reformation, by which many old names were put aside, which themselves were rejectable or gave rise to misunderstandings. ADANSON fixed many of such old names in his work „Familles des Plantes" (1763); and as far as those names had not yet been dealt with by LINNEAUS at that time, they have rights of priority and we are bound to them for ever; moreover, KUNTZE intentionally unearthed them again in his „Revisio" of 1891. But

the congress of 1905 by majority of votes violently ended the question by excommunicating the greater number of those names of ADANSON and such like, placing them on a list of exceptions, a „codex inhonestans" (dishonoring the botanists) as Kuntze called it, not quite unjustly.

For the rest the Congress, likewise by majority of votes, decided about the opposed principles of the different groups of botanists as regards nomenclature; so a compromise was concluded with regard to the so called Kew Rule, although compromises, as well as lists of exceptions, are perhaps necessary for the present generation, but at all events are an evil, especially for the coming generations who did not participate in the strife nor felt the necessity of the evil.

By the Rules of 1905, completed in 1910, unity of nomenclature has been made much more attainable; but of course it is not only the rules drawn up that decide about the result, but it is also the spirit of unity that exists or is going to appear among the botanists; now this spirit is making progress too [1]).

Yet, there still remain many difficulties in applying the Rules; often different interpretations are possible. In my article „De wetenschappelijke namen onzer houtgewassen", I „De Gymnospermae" in „Mededeelingen der Landbouwhoogeschool" [2]) Vol. 27 no. 5 1923 a number of names are cited (according to the rules of 1905) which

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1) The scientific names of our woody plants, I the Gymnospermae, in Communications of The Agricultural Academy at Wageningen, 1923.

2) SARGENT, in the second edition of his „Manual of the Trees of North America", has been converted to the Rules of 1905. BAILEY, who wrote the beautiful „Standard Cyclopedia of Horticulture" is very far on the way to it and REHDER (of the Arnold Arboretum) wrote to me, that at the International Congress at Ithaca a number of American botanists, hitherto following the American rules (Philadelphia Code), intend to apply the International Rules of 1905.

The „Philadelphia Code" adheres a.o. to the principle „Once a synonym always a synonym" and to priority of place by the side of the one of time. Of course it does not acknowledge the list of exceptions to the Vienna rules of 1905, nor the declaration of non-validity of tautological names.

On account of the above the American plant-names of that American group of botanists deviate greatly from the European ones. They have e.g. the generic names *Tumion* instead of *Torrya, Mohrodendrum* instead of *Halesia, Bikukulla* instead of *Dicentra;* the specific names *Pseudotsuga mucronata* instead of *Ps. ts. taxifolia, Catalpa Catalpa* instead of *Catalpa bignonioïdes;* etc., etc.

Nor do all botanists in Europe follow the rules of of 1905; in their „Synopsis der Mitteleuropäischen Flora" ASCHERSON and GRAEBNER acknowledge tautological names. Before his death a „Wörterbuch" by *Voss* was published, in which he adheres to KUNTZE's rules previous to 1905. In the extensive work „The Trees of Great Britain and Ireland", ELWES and HENRY choose some names according to their own subjective feelings. Many botanic Gardens follow the Index Kewensis.

are generally accepted, although they are not generally used, i.e. *Araucaria araucana* KOCH instead of *Araucaria imbricata* PAV., *Abies lasiocarpa* NUTT. instead of *A. subalpina* ENGELM. (whereby an *A. lasiocarpa* LINDL. and GORDON is excluded as an artname, but may remain as the name of a variety of *A. concolor* LINDL.), *Picea Mariana* B. S. P. instead of *P. nigra* LK, *Pseudotsuga taxifolia* BRITT. instead of *Ps. Douglasii* CARR., etc.

Concerning some names e.g. *Abies alba* LK (syn. *A. pectinata Dec.*, *Abies Picea* LINDL.), *Picea excelsa* LK (syn. *P. Abies* KARST.) and *P. canadensis* B. S. P. (syn. *P. alba* LK), *Tsuga Mertensiana* SARG. (syn. *Ts. Pattoniana* SENECL.), there exist different interpretations which I explained in the first Yearbook (1925) of the „Ned. Dendrologische Vereeniging" by way of example, together with similar controversies in some species of the genera of foliaceous trees: *Ulmus*, *Magnolia* and *Rhododendrum* (cf. also Mitth. der Deutschen Dendr.Ges. no. 33, 1923[1]).

There are many cases of this kind; they all lead to the point that some botanists on account of the International Rules declare one of two competing names to be not valid and quote the other in their works; whereas other botanists on account of the same Rules, reject in their publications that adopted name of their colleagues and place it amongst the synonyms, on the other hand use again the name declared not valid and send it into the world as legal name. Consequently both competing names are at the same time valid and not valid, notwithstanding the Rules of 1905.

Unity can only be obtained by international deliberation and agreement, not only of the Rules themselves but likewise of the application of the Rules in all critical cases.

To attain this, explanations of all such critical cases are necessary; moreover they are desirable for botanists, practical men and amateurs, in so far and whenever they want to make a critical choice between two or more competing names.

Subjoined we find a number of such explanations. The records of various authors, they contain, have been derived from the original sources, as far as has not been stated otherwise.

These expositions are now particularly important, because after some years another international botanical congress will be held, which will also treat of nomenclature.

Now the directors of the great Herbaria are the most suitable

[1] Here on p. 20, the 2nd—4th lines from below, the part that stands immediately behind *A. chinensis* should be exchanged with that which is added behind *Azalea mollis*.

persons to treat the questions of nomenclature at those congresses; for those Herbaria contain the material of plants and books, necessary to the study of nomenclature.

I was pleased to discover that the Director of the Dutch Government Herbarium, whose material has contributed to my research, was of the same opinion and invited me to publish the result of my deliberations and investigations in the „Communications of the Government Herbarium".

No. 1. Introductory case. *Pinus halepensis.*

Our *Pinus halepensis* is described by DUHAMEL DU MONCEAU in „Traité des arbres et arbustes etc." 1755 p. 126 as follows: *Pinus Hierosolymitana praelongis et tenuissimis viridibus foliis* PLUK.: Pin de Jerusalem, dont les feuilles sont très vertes, longues et menues.

This circumscription is a phrase without a trivial name. LINNAEUS himself also indicated the species in that period principally by a phrase; a trivial name („nomen triviale") was added in 1753 for convenience; but LINNAEUS warns emphatically against forgetting the art-name (that is the phrase, „differentia specifica" or „nomen spicificum" of LINNAEUS)[1]). This art-name (phrase) was arranged methodically by him and had to be such, that there was to be found in it exactly what was wanted to distinguish one species from the remaining known species; 12 words were the highest number allowed[2]).

[1]) „Trivialia nomina in margine apposui, ut, missis ambagibus, uno quamlibet Herbam nomine complecti queamus; haec vero absque selectu posui, quippe quem alius dies poscit. Caveant autem quam sanctissime omnes sani Botanici, umquam proponere nomen triviale sine sufficienti differentia specifica, ne ruat in pristinam barbariem scientia"; which means: I added trivial names in the margin so as to be able to indicate a plant without trouble with one word; I chose them arbitrarily although later on they will have to be made according to good rules. But let the botanists take care not to propose trivial names without sufficient distinguishing phrases, as otherwise the botanical science would fall back into a barbaric state (Introduction to „Species Plantarum"; also in my book „LINNAEUS" p. 54); therefore he warns against what we call „Nomina nuda" (but see the note on p. 7).

[2]) „Nomen specificum nil aliud erit quam nota qua distinguam species congeneribus." „Qui speciem in genere quodam, sub quo plures antea detectae et nominatae sunt species, novam detegit, ille non modo novae suae speciei nomen specificum imponat, sed et corrigat vel emendet vel augeat nomina specifica reliquarum congenerum....." „In specifibus nominibus tantum 12 ad summum verba seu vocabula concedimus". This means: The art-name must not be anything else but a description by which the concerned species is distinguished from the other species of the genus. Whoever discovers a new species in a genus in which other species have already been discovered and denominated, must not only make up the art-name (phrase) of that new species, but he also has to review all others..... In art-name to the utmost 12 words are admitted. (Critica botanica no. 293, 294, 291; also in my book „LINNAEUS" p. 45, 46).

The phrase of DUHAMEL does not at all fulfil this condition; it is a pre-Linnaean phrase, taken from earlier authors. Likewise the other art-names of DUHAMEL were such phrases, e.g. *Pinus canadensis quinquefolia floribus albis* etc. etc. GAULT. (our *Pinus Strobus*); *Pinus maritima major* DOD. = *P. maritima prima* MATTH. (our *Pinus Pinaster*); *Abies taxi folio* etc. TOURN. (our *Abies alba*), *Abies piceae foliis brevioribus* etc. RAND. (our *Tsuga canadensis*).

In his introduction DUHAMEL writes that he follows TOURNEFORT as to nomenclature; and although he recognizes that the phrases often do not answer the intention of a short clear description, yet he rejects making new ones but chooses from the existing phrases the most useful ones. Amongst the names of botanists, followed by him, sometimes LINNAEUS is found (the only botanist who improved the phrases in such a way as DUHAMEL himself wished it as appears from the above); but in his work I did not find a single phrase of LINNAEUS. DUHAMEL does not treat trivial names at all; they were novelties which he, like other botanists, disliked thoroughly (cf. SCOPOLI in no. 5 *P. montana* hereafter and MILLER in No. 19 *Picea canadensis*).

Consequently there is absolutely no reason, and it were against DUHAMEL's spirit and that of the cited authors, to take the second word of DUHAMEL's phrases for Linnaean trivial name. In many cases it would also be impossible, as is to be seen clearly from the quoted examples, the second word being in different species not fitted to be a trivial name. It is only DUHAMEL's art-name *Pinus sativa* C. B. P. (i.e. CASPAR BAUHIN Pinax 1623) that accidentally satisfies our present Rules and therefore is legal; but as it is not the oldest name for the species it represents, i. e. *Pinus Pinea* L., it is not valid. All other quoted names of DUHAMEL are and remain phrases. A *Pinus Hierosolymitana* DUH. does not exist and so cannot be a competing name for *Pinus halepensis* MILLER. But if that art-name *P. Hierosolymitana* DUH. is made artificially, then it is inconsistent, as most authors do, to put it amongst the synonyms of *P. halepensis* MILL. and not to recognize it as the oldest and legal name.

One of the species of DUHAMEL, cited as example, was, now written in full:

„*Pinus canadensis quinquefolia, floribus albis, conis oblongis et pendulis, squamis Abieti fere similis* GAULT. vel *Pinus americana quinis ex uno folliculo setis longis, tenuibus, triquetris ad unum angulum totam longitudinem minutissimis, conis asperatis* PLUK.; Pin de Canada ..... ou Pin de Lord Wimouth." This is our Weymouth Pine, which

has got the following methodical art-name (phrase) from LINNAEUS in „Species Plantarum" 1753: *„foliis quinis scabris"*, and the trivial name *Strobus*; this trivial name stands „in margine".

The well-known and accepted Linnaean species *Pinus Strobus* L. is a fine example to show how careful one must be when declaring the description of a species from that old time „insufficient" for the legality of the name. The description of LINNAEUS (his art-name) now-a-days would be certainly quite insufficient to characterise the species, compared with the other species of *Pinus* with 5 needles; but LINNAEUS only had to discern *Pinus Strobus* from *Pinus Cembra*, and for this purpose 3 words were sufficient. *Pinus Cembra* L. has the following description (art-name in the sense of LINNAEUS): *„Pinus foliis quinis laevibus."* Probably we should distinguish the two species, even if we only used a few words, in a different way; but the sawlike-edged needles of *Pinus Strobus* and the almost entire ones of *P. Cembra* are also sufficient.

Even Linnaean trivial names of the isolated species of, at that time, monotypical genera, without an art-name (phrase) are legal names for us. So *Paeonia officinalis* L. is properly speaking a „nomen nudum"; but, according to the requirements of his methodical art-names (phrases), LINNAEUS was not obliged to add anything to the trivial name, as the only species could be distinguished by nothing from unknown other species.[1]) Therefore *Paeonia officinalis* L. is rightly recognized by all botanists and used as a legal and valid name.

In the same way one must judge the names of MILLER, SOLANDER (AITON), D. DON (LAMBERT), etc.; their names likewise had only to give sufficient differences between the species known in their time.

Not acting in this way and declaring a species, i.e. one of MILLER's, „insufficient" because it is insufficient to us now-a-days, and because one wants to get rid of MILLER's name, one ventures on unsafe ice, yea one tumbles at once into an unexpected gap, where, in the sudden peril of life, one sees floating past one's spiritual eye the names of hundreds of „insufficiently" described species.

It is only by international agreement to place a name on the list of the „nomina rejicienda" that we may be relieved from that name without risk of evil consequences. Sapere aude!

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[1]) . . . . nomen specificum nil erit quam nota qua distinguam species a congeneribus; ergo ubi unica species, nulla distinctio, adeoque nulla differentia (specifica) . . . . which means: the art-name (phrase) only has to give the difference with the other known species; therefore no description is wanted, where there is only one species, and thus no art-name (phrase) here is possible (Critica botanica no. 292.)

No. 2. *Pinus Pinaster, maritima, Larico and halepensis.* [1])

Pinus maritima was by that name first described by MILLER in 1768, next by LAMARCK in his 'Flore francaise' of 1778 and in his Encyclopedia, volume V, of 1804. MILLER already described this species, as so many others, in the 7th edition of his Dictionary of 1759, but without trivial names, which were only then brought into fashion by LINNAEUS and had only practical, no scientifical significance. But gradually they were treated as specific names in stead of the true Linnaean specific names (methodical phrases) and officially established as such at the Paris congress in 1867. In 1759 MILLER evidently attached little value to it; but in the 8th edition of 1768 he added trivial names to all descriptions; and consequently MILLER's species do not hold good for us until 1768, as far as the names are concerned.

DUROI, in „Harbkesche Baumzucht" 1772, quotes MILLER's description; it runs: *Pinus maritima foliis geminis longioribus* (rather long) *glabris, conis longioribus tenuioribusque.* Not much of a description for us; but for that time sufficient to distinguish the species from the remaining known species; and that was what LINNAEUS required from the (Linnean) specific name (what we call diagnosis). The two long needles and the long cones are an important indication. Therefore I don't agree with GRAEBNER, who, disagreeing with an article by Voss on names of Conifers, writes in the Mitt. der Deutschen Dendr. Ges. 1908 p. 68, of *Pinus maritima* MILL.: „seine Beschreibung lässt absolut nicht erkennen was gemeint ist". In judging the descriptions of species we should place ourselves in the time, when they were made. Voss was a passionate lover of altering names; GRAEBNER is conservative and, irritated by Voss, is growing subjective

Voss, like his great master KUNTZE, has overshot the mark. His nomenclature is foolish and would, if applied, give a great deal of extra confusion. The advantage of his exaggerated endeavour is, that we may expect, that there are nowhere hidden old names which are good but forgotten. And in the case of *Pinus maritima* Voss is right.

The name of *maritima* is much older than MILLER; *Pinus maritima major* DODONAEUS, *P. maritima prima et altera* MATTHIOLI, *P.m. minor* C. BAUHIN „*Pinax*" are our present *P. maritima* (*Pinaster*); the

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[1]) The translation of Nr. 2—5, 7—16, 18—25, 27—29 and 31—33 is made from the original Dutch text by Miss C. Schut, Nunspeet.

illustration in DUHAMEL „Traité des arbres et arbustes" 1755, of *P. maritima altera* MATTH. is a clear proof of it.

MILLER was also the first to describe *Pinus halepensis;* WILLDENOW in „Species plantarum" IV 805 gives MILLER's diagnosis: *P. foliis geminis tenuissimis, conis obtusis, ramis patulis.* The „folia tenuissima" (very thin needles) are an important indication.

Next in 1789 SOLANDER described *Pinus Pinaster* in AITON's Hortus Kewensis". AITON's phrase (Linnean specific name) runs: *P. foliis geminis margine subasperis conis oblongo-conicis folio brevioribus basi attenuatis squamis echinatis* [1]). The prickly fruitscales are of interest.

POIRET in Lamarck Enc. V 1804 mentions only *P. maritima* and *P. halepensis;* he considers *P. Pinaster* SOL. as a synonym of *P. maritima;* as author of *P. maritima* he does not mention MILLER but GMELIN (Syst. Nat. vol. II 17....?) and LAMARCK „Flore française" 1778.

LAMARCK writes *P. alepensis.* The name has been derived from the town of Aleppo, which is also (now officially) called Haleb; so we may be expected to pronounce Aleppo.

WILLDENOW (1805) has *Pinus Pinaster, P. halepensis* and *P. maritima* side by side; *P. Pinaster* and *P. halepensis* are well characterised by the added diagnoses of resp. AITON (Solander) and MILLER. To both of them he adds LAMBERT's (1803) description, in his work on Pinus 1st volume 1803; and LAMBERT took both just as we do now. (He describes *P. Pinaster* with *„foliis elongatis"* and *P. halepensis* with *„foliis tenuissimis";* for length of the cones LAMBERT gives resp. 5—7 inches and 5—8 cms.). But with WILLDENOW's *Pinus maritima* the case is different; WILLDENOW does not base it on MILLER's original description (in which the long needles and cones have been given), but on LAMBERT's, which runs: *P. foliis geminis tenuissimis, strobilis ovato-conicis glaberrimis solitariis pedunculatis.* The cones are drawn with a length of $6^1/_2$—$7^1/_2$ cms. (first ed. volume I 1803 No. 3). This however is evidently the same plant as *Pinus halepensis.* The illustrations given by LOUDON of all three WILLDENOW's species corroborate all this.

Consequently from LAMBERT's and WILLDENOW's time there has been confusion; LOUDON in „Encyclopedia of plants" 1829 and later gives the three species after WILLDENOW; but in his „Arboretum et Fruticetum" of 1838 and later, he only mentions *Pinus Pinaster* SOL. and *P. halepensis* MILL.; *P. maritima* MILL. does not even occur as a synonym.

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[1]) WILLDENOW „Species plantarum" 1085 and LAMARCK in his Encyclopedia, give AITON's phrase verbally and correctly.

CARRIÈRE (Traité des Conifères 1855) has *Pinus Pinaster* SOL. with *P. maritima* LAM. as a synonym, and *Pinus halepensis* MILL.

LINK on the contrary in 1841 („Linnaea" vol. XV) is not yet convinced of *P. maritima* LAMB. and *P. halepensis* being synonymic; he mentions the three species and writes: *„plerique autores aut veram P. maritimam aut P. halepensem non viderunt, hinc confusiones inter utramque species, uti mihi quidem videtur satis distinctam"*. So for him there is only a confusion with *P. halepensis*.

LOUDON in „Arb. et frut." (1838/44), quotes LAMBERT'S *P. maritima* as a variety to *P. halepensis* with the observation; „a very doubtful variety"; the ripe cone drawn by LAMBERT is a cone of *P. Laricio* according to him.

Whilst *P. maritima* MILL. was originally a synonymous species of *P. Pinaster*, it is connected by LAMBERT with *P. halepensis* (*P. maritima* LAMB. is now universally regarded as synonymous with *P. halepensis* MILL.) and moreover partly with *P. Laricio*.

This latter was aggravated by KOCH in his Dendrology. KOCH gives *P. Pinaster*, *P. halepensis* and besides *P. maritima* with MILLER as author; as a synonym he mentions *P. Laricio* POIR.; and the entire description with that of the varieties applies to our *P. Laricio*. [1])

This conception of KOCH causes GRAEBNER to write in the Mitt. der Deutschen Dendr. Ges. 1908 p. 68 by *P. Pinaster* SOL., that the name of *P. maritima* is not admissible since it is used for three different species. And ELWES & HENRY follow his lead in their work „The Trees of Great Britain & Ireland".

This however is a dangerous experiment; for this or something like it is the case with many names. International deliberation is needed on the special application of the Rules of nomenclature in this case, and in many other cases. The principles (Rules) should be kept intact and the applications pure (as in a lawsuit); but the result may be jointly accepted or rejected (put on the list of the „nomina rejicienda").

Nearly all botanists write *Pinus Pinaster*; among the practical men the lawful name of *P. maritima* is frequently found.

No. 2a. *Pinus laricio*, *nigra*, *nigricans* and *austriaca*.

Pinus Laricio POIRET in LAM. Enc. V 1804 is described as follows: *P. foliis geminis, longissimis, difformibus; strobulis ovatis, squamis basi*

[1]) According to ENDLICHER „Synopsis Coniferarum" 1847 and CARRIÈRE „Traité des Conifères" 1855, AITON in Hort. Kew. 2nd ed. V 1813 also published a *Pinus maritima* identical to *P. Laricio* POIR.

angustrioribus, apice crassissimis, non angulatis (N). It is, POIRET writes, closely related to *P. maritima*, on account of the length and shape of the leaves; but they lack uniformity; „elles sont prèsque toutes comme chifonnées et courbées en divers sens, glabres, très lisses, aigues". The cone differs from *P. maritima* in colour and in the shape of the scale. No synonyms or older descriptions are given.

A rival name is *Pinus nigra* ARNOLD in „Reise nach Mariazell in Steyermark" 1785. The journey is made on foot, with Vienna as a starting-point; according to ARNOLD this is the best way of seeing and enjoying a great deal; in a carriage we travel faster, but we sit in a narrow confined space, we long to arrive at the next inn and on arrival probably we do not get father than the inn-yard. That is the right thing for people, who only want to eat and drink, to arrive and return. Etc.

With respect to the „Schwarzföre" he observes i.a.: „Da dieser Baum bis nun als eine Abänderung der Weiszföre ist angesehen worden, so hat man ihn genauer zu unterscheiden unterlassen. Was mich vermuthen läszt dasz diese Schwarzföre von der Weiszföre ganz unterschieden und eine eigene Art (Species) ausmache, sind:

1. Die von der Weiszföre ganz unterschiedene männliche Blüthen; denn man findet beiläufig 12 bis 13 männliche Blüthen in drey Reihen, da man bey der Weiszföre deren über 30 in sechs Reihen zählt. Ihre Farbe ist bey der Weiszföre blasgelb und bey der Schwarzföre hat jede Schuppe rothe Punkte auf gelbem Grunde, und sind wohl dreymal so grosz als an der Weiszföre.

2. Ist der Samen verschieden. Das Samenkorn ist viel gröszer, und die Flügel am Samen sind viel länger. Die Lage der Zäpfschen sowohl als die Schuppen selbst sind verschieden. Die Nadeln sind auch bey der Schwarzföre länger und stärker, und die Rinde schwarzbraun, bei der Weiszföre aber gelb. So ist nicht minder das Holz bey der Schwarzföre viel pechhafter und dunkler, als bey der Weiszföre.

Es scheinet dasz diese Schwarzföre in andern Gegenden von Deutschland unbekannt ist, denn alle Abbildungen sowohl als Beschreibungen zeigen die Weiszföre an. Ich habe zum Unterschied die Schwarzföre auf beykommender Tafel nach der Natur abgebildet vorstellen laszen".

The illustration gives a male and a female branch. The needles have a length of 9—13 cms., the cone of 4 cms. The male catkins are $3^1/_2$ cms long and curved. At the foot it says: *Pinus nigra.*?

From this exposition of the differences with *Pinus silvestris*, it is sufficiently clear that our *Pinus laricio* var. *austriaca* is meant. But

is the exposition satisfactory for a description of species with respect to the Rules of 1905? and is a name published with a mark of interrogation valid? He who thinks so, must call the entire species *Pinus laricio: Pinus nigra* ARN., which is done by Graf SILVA TAROUCA in „Unsere Freiland-Nadelhölzer", by BAILEY and Rehder in „Cyclopedia", „Manuel" and „Cultivated Evergreens" and by Voss in „Wörterbuch". Other authors use the name *Pinus Laricio* POIR. (BEISSNER, KOEHNE, ELWES and HENRY).

If ARNOLD's description is rejected, LINK's description of *Pinus nigra* 1827 („Abh. der Berl. Ak. f. Wiss.") takes its place; this however is not valid with respect to *P. Laricio* POIR. 1804. LINK himself mentions *Pinus nigra* by the side of *Pinus Laricio*. If POIRET's description is also rejected, there are still later descriptions of *P. laricio*, e.g. by LOISELEUR in DUHAMEL „Traité des Arbres et Arbustes" 2nd ed., which are older than LINK's description of *P. nigra* in 1827.

Not until then new rivals appear, viz. the names *Pinus austriaca* Höss in „Anleitung, etc." 1830 and in „Monographie der Schwarzföre, *Pinus austriaca*" 1831, and *Pinus nigricans Host* in „Flora austriaca" 2nd volume 1831; but the question gets more complicated, on account of our finding in ELWES & HENRY l.c. that *P. austriaca* Höss already dates from 1825 (Flora VIII Beiträge 1825), and *P. nigricans* HOST from 1826 (viz. in SAUTER „Versuch einer geol. bot. Schilderung der Umgebungen Wiens"), i.e. both previous to LINK's denomination. In 1841 („Linnaea" XV) LINK himself altered the name *nigra* into *nigricans*, with the description: *Pinus nigricans, foliis elongatis rigidis, strobilis mediocribus demum divaricatis basi applanatis, squamis pyramide opaca inflexa elevata ... Folia 4 pollicaria et ultra .... P. nigricans* HOST. Austr. 2 608, *P. nigra* Abh. 1827, *P. austriaca Loudon.* (Höss is not mentioned); by its side he maintains *P. Laricio.*

In the large edition of his „Arboretum et Fruticeum brittanicum" 1838 *Loudon* gives: No. 7 *Pinus Laricio* with var. No. 5 *austriaca*; he writes that it is fairly identical with var. *caramanica* (*Pinus caramanica* Bosc.) but that it being cultivated so much at precent, he gives it a long description and a specific number, thus: 8. *P. L. austriaca.*

It might be that the name *Pinus nigra*, though the oldest, clashed with REHDER's principal of „conditional synonyms"[1]), seeing there also exists a *Picea nigra*, while *Pinus* and *Picea* were often untited and are still being united by some authors.

[1]). Cf. sub. No. 19 (*Picea alba* etc.)

This collision may take place, when the name *mariana* is rejected for *Picea nigra*. LINK did so in „Linnaea" XV 1841, where he describes *Pinus* (*Picia*) *nigra*, *Pinus Laricio* and *Pinus nigricans* (instead of *P. nigra* ARN.). At present *Pinus Laricio* and *Pinus nigra* (= *nigricans*, *austriaca*) are united and the older of the two names, i.e. *nigricans* ought to be chosen [1]).

But the principle of „conditional synonyms" is not included in the Rules of 1905, so that for persons, who keep *Pinus* and *Picea* separated, the question does not exist and *Picea nigra* may be used by the side of *Pinus nigra*. Besides, in my opinion there is no sufficient reason to reject the name *Picea mariana*.

But opinions vary with regard to this. Accordingly, international agreement will also be necessary with respect to this species in order to arrive at unity in the denomination.

Now the question still remains of the name as a variety of our Austrian form of the *Pinus laricio (nigra)*; nobody considers them two species any more. There are two rival names, viz. *austriaca* and *nigricans*.

In his „Synopsis Coniferarum" of 1847 ENDLICHER gives three forms of *Pinus Laricio* POIR.; viz. a. *Poiretiana ramis subpyramidatis*, etc.; syn i.a. *P. caramanica* HOST.; b. *austriaca* with syn. *P. nigra* LINK 1827; and c. *Pallasiana*. His description of var. *austriaca* runs: *P. Laricio* b. *austriaca, ramis horizontalibus, ramulorum cortice cinerascenti fuliginoso, foliis patentibus rigidis, squamarum ungue intus ad sulcum medianum et marginem areae seminum alae subtensae distinctissime sphacelatis*.

In „DECANDOLLE Prodomus" 1868 PARLATORE mentions the variety *P. Laricio nigricans* (*P. nigricans* HOST.)

KOEHNE likewise has var. *nigricans* (sp. HOST); BEISSNER on the other hand var. *austriaca* ENDL. (*P. nigra* ARN., *P. Laricio nigricans* PARL.); KOCH (Dendrology 1869) does not mention the variety.

BAILEY and REHDER on the contrary have the name *austriaca*, viz. *Pinus nigra* ARN. var. *austriaca* ASCH. & GRAEBN. This change of the Author's name of the variety *austriaca* follows from REHDER's conception that on changing a specific name, even without modification of the contents of the species, the names of existing varieties take the author's name after the person who first classed or classes them under that changed specific name. According to the Rules of

[1]) I shall leave it undecided whether *R. austriaca* Höss has older rights than *P. nigricans* HOST; LINK obviously thoght it had not.

1905 each new combination of generic and specific name gets a new author's name; REHDER extends this to generic name + specific name + name of variety. According to my conception of the Rules the name of the variety should keep its author's name so long as it is found with a combination of generic + specific name, having the contents with respect to which the variety has been established as such. On the other hand, if for instance a species is classed with an other genus, the contents of the species are altered (different series of characters); then it should be decided anew, whether the varieties should be kept there; in that case there is a reason for adopting a new author's name. So long as there is no unity in the denomination of species, a great number of author's names of varieties would be continuously changed without reasonable ground in consequence of REHDER's principle.

The correct name is, therefore, *Pinus nigra* ARN., *respectively P. laricio* POIR., var. *austriaca* ENDL.

As for the other varieties of *Pinus nigra* (*laricio*), botanists take them in different ways; but as a rather general result we may fix three varieties, viz. var. *calabrica* LOUD. 1838 with the synonyms var. *corsicana* LOUD. 1838 and var. *Poiretiana* ANT. 1840; var. *caramanica* LOUD. 1838 with the synonym var. *Pallasiana* (LOUD. 1838) ENDL. 1847; and var. *cebennensis* GREN. & GODR. 1856 with the synonyms var. *pyrenaica* GREN. & GODR. 1856, *P. tenuifolia* PARL. 1868 and *P. monspeliensis* SALZM. INED.

As the varieties *corsicana* and *calabrica* are published one beside the other, and so the varieties *pyrenaica* and *cebennensis*, it would be good to make an agreement about them on the question of priority. CARRIÈRE omits to mention them, BEISSNER has var. *calabrica* without the synonym name *corsicana*, and has both names *pyrenaica* and *cebennensis* as synonym of var. *monspeliensis*. SARGENT in „Sylva" gives var. *calabrica* and var. *cebennensis* without mentioning the synonym names *corsicana* and *pyrenaica*. BAILLEY in „Evergreens" has both names *calabrica* and *corsicana* as synonym of var. *Poiretiana*, and var. *cebennensis* without mentioning the name *pyrenaica*.

REHDER in his „Manual" of 1927 has var. *calabrica* with var. *corsicana* as a synonym, besides var. *cebennensis*, without mentioning var. *pyrenaica* but taking *P. pyrenaica* LAPEYR. as a synonym. From this it cannot be concluded if REHDER knows var. *pyrenaica* GREN. & GODR. and places this name behind that of *var. cebennensis*; for the *species*name *pyrenaica* does not compete with the *variety*name *cebennensis*.

Finally, if we take LOUDON 1838 as the author of var. *Pallasiana*

and not ENDLICHER 1847, then the names *caramanica* and *Pallasiana* are too of the same year and there is no priority of one over the other.

LOUDON dicusses *P.* (*L.*) *Pallasiana* as a variety but treats it as a species, under a separate number, although again with the „L" between brackets (so he does also with the var. *austriaca*).

No. 3. *Pinus Banksiana and divaricata.*

In his „Hortus Kewensis" ed. I 1789 AITON gives a variety *Pinus silvestris divaricata*, which subsequently by DUMONT DE COURSET in his work „le botaniste cultivateur, etc." 1802 was made into the species *Pinus divaricata*, which name therefore is older than *Pinus Banksiana* LAMBERT (Descrip. of the genus Pinus) 1803.

AITON's description runs: „*foliis divaricatis obliquis*"; and DUMONT DE COURSET describes the species thus: cone tortue, recourbé.

GRAEBNER deems these descriptions inadequate with regard to the Rules of 1905; so according to him *Pinus Banksiana* remains the lawful name. The „cone tortue, recourbé" however is typical for *P. Banksiana;* and for the rest the description is found in the history of the name. Whoever thinks this description quite inadequate for acknowledging the name of *P. divaricata*, cannot but testify the same of *Pinus Banksiana* LAMB.; LAMBERT's description runs as follows (also in WILLDENOW Sp. pl.): *P. foliis geminis divaricatis obliquis, strobulis recurvis tortis, antherarum crista dilatata.* The longer „Descriptio" and the English description give little more; but the illustration is beautiful. *Pinus Banksiana* LAMB. is rightly acknowledged by GRAEBNER and all other botanists as satisfying all requirements.

SARGENT first gave preference to the name of *divaricata;* in the 2nd edition of his „Manual" we find the name of *Banksiana*, just as in BAILEY's works (Cyclopedia; „Manual of cultivated plants"; Cultivated Evergreens) and in REHDER's „Manual of cult. Trees and Shrubs". In this case too international agreement is desirable.

No. 4. *Pinus excelsa.*

Pinus excelsa has universally got WALLICH as author's name (first of all in LAMBERT's "Pinus"). He gives an illustration of it in his „Plantae asiaticae rariores" III, 1832; but whereas the cones are typical, 29 cms + 5 cms length of stalk, with broad, big scales, the needles have been drawn erect and but 10 cms. long, much resembling *Pinus Strobus.* A description has not been added. The species had already been illustrated and described in LAMBERT's

„Description of the Genus Pinus" ed. II vol. I, p. 40, tab. 26. Usually D. DON is booked as the author of the descriptions. Probably WALLICH has been chosen as author in this case, because he supplied the material and the data; in LAMBERT's work stands under the name of the species: *Pinus excelsa* WALL. in litt.; and WALLICH writes l.c.: „Although this noble pine had already been admirably represented and described in Mr. LAMBERT's superb monography on .the family to which it belongs, from specimens and memorandums which I supplied, I have thought that a figure taken on the spot might fitly be introduced in to the present work; confident that my esteemed friend will interpret my motives with that liberality which during half a century had placed his name so deserved by high among the best benefactors and patrons of the science of botany." From this long apology it might be derived, that WALLICH thought the illustration in LAMBERT's work might be improved upon; but then these short erect needles in his own work are the more peculiar[1]). It also proves that WALLICH did not make the description in LAMBERT's work; so that LAMBERT (or D. DON) must be considered the author. BEISSNER apparently thought so too; he writes: *Pinus excelsa* WALL. msc. Pl. as. rar.; CARRIÈRE in „Traité des Conifères" 1855 writes more fully: *Pinus excelsa* WALL. Msc. DON in LAMB. ed. 2. vol. 1; though it stands already in Ed. 1. vol. 2. But at any rate a manuscript does not give legal force to a name or a description. Therefore we should write: *Pinus excelsa* D. DON in LAMB.

No. 5. *Pinus montana*, *mughus* and *mugo*.

This name originates with MILLER in his Dict. 1768; DUROI also has it in „Observationes" 1771 and quotes MILLER's description.[2])

[1]) DON gives (from information of Mr. LORENTZ, 2nd Librarian of TEYLER's Foundation in Haarlem), in his drawing needles with a length of $8^1/_2$ to $12^1/_2$ c.M., which is too short for our *P. excelsa;* but he describes them better as being 5—7 poll., that is $12^1/_2$—$17^1/_2$ c.M., long. The drawn cones have a length of $22^1/_2$ c.M., with a stalk measuring 3 c.M.; that is characteristic of *P. excelsa*, though not the longest occurring measure. The needles are drawn upright or somewhat overhanging, not so much as is characteristic of the species.

DON thinks *P. excelsa* so much like *P. Strobus* that he writes: „This species approaches so near in habit and on the figure of its cones to *Pinus Strobus*, that, were is not for the simple round membranous crest of the anthers, it would be almost impossible to distinguish their limits as distinct species." One could doubt if DON's material was really purely *P. excelsa.*

[2]) *Pinus montana, foliis saepius ternis tenuioribus, viridibus, conis pyramidatis, squamis obtusis,* MILL. dict.

Next, AITON in his "Hortus Kewensis" ed. I of 1789 changes it into *P. sylvestris* var. *montana*. In a catalogue BOLWILL by BAUMANN 1835 (fide LOUDON) we find once more *Pinus montana;* but for the rest the name disappears in the first half of the 19th century. [1])

PERSOON in „Synopsis" 1807 gives *P. Pumilio* LAMB. („Pinus" 1803), *P. Mughus* WILLD. a.o. authors, and *P. uncinata* DEC. (Flore franç. 1805).

ENDLICHER (Synopsis 1847) gives *P. Pumilio* HAENKE (Beob. Reise Riesengeb. 1791) and *P. uncinata* RAM. in DEC. Flor. franç. 1805 (syn. *P. Pumilio* var. *Mughus* LOUD.); CARRIÈRE (Traité des Con. 1855) has the same two species [2]); LOUDON (Arb. et Frut. 1838) gives *P. Pumilio* HAENKE with var. *Mughus* (syn. *P. uncinata* DEC.). *P. montana* AIT. and DUR. is classed by CARRIÈRE as a synonym, by ENDLICHER as form of the variety *rotundata* with *P. uncinata*, by LOUDON as a synonym with *P. Pumilio*.

In the latter half of the century the specific name of *P. montana* is again brought to the fore; KOCH, KOEHNE, BEISSNER, ELWES & HENRY, etc. have it. Three main varieties are distinguished: *Pumilio*, *Mughus*, *uncinata*, sometimes even a fourth viz. *rotundata*.

REHDER in BAILEY'S „the cultivated Evergreens" 1923 suddenly broaches the specific name *Pinus Mugo* TURRA (syn. *P. montana* MILL.).

This TURRA wrote in 1780 a „Florae italicae Prodromus", which is lacking both in our country and in Berlin; DUROI, LOUDON, ENDLICHER, KOCH, BEISSNER, ELWES & HENRY do not mention it.

TURRA'S specific name indeed was first published by SCOPOLI in Flora carniolica 2nd. ed. 1772 with the name of *Pinus Mughus;* TURRA'S way of writing it is more correct and corresponding to the Italian vernacular; when latinized that name becomes: *Mugus*.

REHDER wrote to me from the Arnold Arboretum: „TURRA'S description of *Pinus mugo*, of which I only saw a copy, is based chiefly on SEGUIER Pl. Veronenses II 256 (1745) where as *Pinus sylvestris montana altera* is described the dwarf prostrate Pine on the summit of Monte Baldo (Lago di Garda). SCOPOLI'S description is more exact and fuller; he gives as the habitat of his *Pinus Mughus* „in mountains et in Alpibus".

SCOPOLI, in T. II p. 247, describes the species thus:

1195. *Pinus Mughus.*

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[1]) *P. montana* LAM. in „Flore française" is = *P. Cembra* L. (fide LAM. Enc. and BEISSNER).

[2]) In the 2nd edition of 1867 CARRIÈRE makes *P. uncinata* to a variety of *P. Pumilio* and gives as a synonym *P. Mughus* SCOP.

Pinus foliis geminis, cono erecto; nucleis strigosis, nudis. Fl. carniol. p. 402 n. 4 (1st ed. 1760).

As a synonym he gives *P. sylvestris mugho* J. BAUHIN Hist. Pl. and MATTIOLI Diosc.

Next there follows a diagnosis and a long description, the latter beginning thus: „*Truncus vix ullus sed statim supra terram divisus in ramos longos, patulos et flexiles.* Finally:.... *Coni.... squamis.... acuminatis, superne rugosulis....*". „Habitat in montanis et Alpibus".

By the side of this *P. Mughus*, *P. sylvestris* is described.

SCOPOLI refers (see above) for his specific name (phrase) to the first edition of his work, issued in 1760. But by that time he probably used no trivial names; in 1772 he adopts them hesitatingly: (Praefatio) „.... nomina Trivialia ill. LINNAEI in hoc opere retinui etsi plurima arbitraria, multa obscura, pauca vero instructiva sint"; apparently, like so many other botanists, he dit not yet fully understand LINNAEUS' intention in using those trivial names (cf. in No. 1 *Pinus halepensis* and No. 19 *Picea canadensis*).

If this supposition concerning the first edition is correct, *P. montana* of MILLER and DUROI remains the oldest; and it does not matter if *P. montana* of MILLER and DUROI may comprise but part of the species known by this time, and TURRA'S the whole species. In the latter case the name of *P. montana* should have to be kept for the species; s.a. (sensu amplo) or emend. may be added in this case.

The main question is whether *P. montana* is adequately described.

DUROI gives the following diagnosis in Harb. W. Baumz., 1st ed. 1772 [1]): *P. (montana) foliis geminis; conis pyramidatis, squamis oblongis obtusis; trunco ramisque flexuosis*; next he fully describes it. DUROI gives as synonyms: *P. (montana) foliis saepius ternis tenuioribus viridibus, conis pyramidatis squamis obtusis* MILL. Dict.; *Pinus Mugus* MATTHIOLI. Der Krumholzbaum. Die Kleine Alpenkiefer.

MILLER'S description is incomplete, DUROI'S is such that the species is recognised. And he was the first to give the description in his „Observationes" of 1771.

Pinus montana DUR. therefore continues to be the legal name.

No. 6. *Pinus inops*, *contorta* and *virginiana*.

Pinus inops BONGARD is called by older authors and moreover by SARGENT, REHDER and ELWES & HENRY: *Pinus contorta* LOUDON.

This question is very simple. BONGARD called a conifer of the

[1]) It is the same as in the „Observationes" of 1771; we also find it in WILLDENOW „Species Plantarum", IV 1805.

isle of Sitka, consequently from the West of North-America, *Pinus inops*, considering this plant to be *P. inops* SOLANDER (in AITON „Hortus Kewensis" 1789) which latter plant grows in the East of North-America, whereas his plant in reality was a new species of *Pinus*.

The description by BONGARD is incomplete [1]), but, together with its habitat, sufficient to recognize in it our *P. contorta* (so the length of the needles ad $1^1/_2$ inches whereas *P. inops* SOL. has needles of 2-3 inches). Both species resemble each other in the details; even the torsion of the needles is to be seen, though in a lesser degree, in *P. inops* SOL.

Consequently this new species had to have an other name as soon as the fault was noticed; LOUDON named it *Pinus contorta* in 1838. So far everything looks all right, suum cuique. But lo, the above named *Pinus inops* SOL. 1789 was the same species as *Pinus virginiana* MILLER 1868. SOLANDER himself draws attention to it; apparently he did not think MILLER'S name correct; Virginia is only part of this species' habitat; *inops* refers to the infertile soil of that region.

Henceforth the species must be called by that old name *virginiana*, and consequently the name *inops* was legally free when in 1831 BONGARD gave it (although by mistake) to our *Pinus contorta;* the name *contorta* is of a younger date (1838), consequently *inops* is the oldest, legal art-name of the *Pinus* in question (our *P. contorta*).

It does not matter whether BONGARD made a fault in the determination; botanical nomenclature is full of similar mistakes, by which a new species is erroneously regarded as an already described one, or specimens of a species already described are erroneously determined to be a new species.

SOLANDER'S description likewise was far from complete; it is found in AITON Hort. Kew. III 1789, and also in LAMARCK Encyclop. and in WILLDENOW „Species plantarum"; it runns: *Pinus inops, foliis geminis, conis oblongo-conicis longitudine foliorum solitariis basi rotundatis, squamis echinatis.* And he gives as a synonym *P. virginiana* MILL. Dict. The description of MILLER'S *P. virginiana* is after WILLDENOW: *P. (virginiana) foliis geminis brevioribus, conis parvis, squamis acutis.*

With such descriptions one had to work in that time.

The Rules of 1905 count with arbitrary action (premeditated

[1]) „*Pinus inops* AIT., LAMB. Monogr. t. 13. folia $1^1/_2$ pollicaria. Spinae squamarum parum breviores quam in icone Lamberti laudata." BONGARD elaborated material from Dr. MERTENS, collected in Sitka, and he complains about the lack of notes.

negation of existing names) but do not with mistakes in determinating; it is the description that must give the decision.

The name *contorta* certainly is more characteristic than *inops*, and *inops* may cause misunderstanding if no attention is paid to the author's name; but, if we accept rules of nomenclature, we must apply same with consequence.

We can only get free from BONGARD's denomination by considering his description as insufficient and thus regarding his name as nomen seminudum; but this would be, as is to be seen clearly from the above, a dangerous action as to the consequences, because a lot of denominations, which we wish to retain, are equally insufficiently described. A better solution should be to put BONGARD's name, although the legal one, by general deliberation of all botanists, on the list of „nomina rejicienda".

No. 7. *Larix americana*, *intermedia*, *laricina* and *pendula*.

The name of *Larix americana* MICHAUX 1803 is not valid, if *Pinus laricina* DUROI in Obs. 1771 and DUROI in „die Harbkesche W. Baumzucht" 1772 or *Pinus intermedia* (DUR.) POTT 1800 (2nd ed. of Harbk. W. Baumz.) = *L. intermedia* LK 1841, LODD. Cab. 1836 (non *P. i.* FISCHER 1831 = *Larix sibirica* LEDEB.) is the same plant as *L. americana* MICH. 1803. There are even two other names, likewise older: *Pinus microcarpa* LAMB. 1803 and *Larix tenuifolia* SAL. 1805; these two names however are more recent than DUROI's resp. POTT's names, and will not be taken into account.

BEISSNER in his „Handbuch der Nadelholzkunde" 1891 and 1909 (2nd ed.) cautions against the fact, that *Larix americana* is often confused with *L. europaea* var. *pendula* and that *P. laricina* DUR. and *L. intermedia* LODD. are the weeping forms of *L. europaea*. Under *Larix europaea* var. *pendula* BEISSNER writes in 1891: „Diese Form soll ursprünglich aus Nord-Amerika gekommen sein, *ohne jedoch dort einheimisch zu sein*";.... and in both editions he continues: „*Auf keinem Fall gehört daher diese schöne Trauer-Lärche zu Larix americana* MICHX, mit welche sie z.B. von PARLATORE in D. C. Prodr. XVI 2 p. 409 verwechselt und ebenso von C. KOCH Dendr. II p. 263 zusammengeworfen wurde, die aber mit ihren feinen Blättern und den kaum 2 cM. langen Zapfen (den kleinsten aller Lärchen) sofort zu unterscheiden ist". He asserts that the *pendula* form (i.e. according to BEISSNER *Pinus laricina* DUR.) „ausser im Wuchs sich in nichts von der europäischen Lärche unterscheidet". He

assumes that the European weeping larch was imported into America or was cultivated there and was next exported as an American larch. He also refers to ENDLICHER; in his „Synopsis Coniferarum" of 1847 on pag. 132, the latter calls the American Larch *Pinus microcarpa* LAMB. and gives as a synonym *Pinus intermedia* DUR. II; (i.e. POTT's 2nd ed. of DUROI's work, in 1800); by its side he gives as a species *Pinus pendula* SOLANDER (in AITON Hort. Kew. 2nd ed. 1789; SALISBURY called it in 1867 *Larix pendula*) with *Larix intermedia* LODD and *Pinus laricina* DUR. Obs. and Harbk. W. Bz. as synonyms. ENDLICHER calls this *Pinus pendula* a „species dubia" and adds that the synonyms cause confusion with the weeping variety of the European *Larix;* he describes the *„strobuli .... margine ut in L. sibirica inflexi".*

CARRIÈRE has *Larix microcarpa* (syn. *P. intermedia* DUR.) with var. *pendula* (this variety in the 2nd ed. with the synonyms *P. Laricio* DUR. and *P. pendula* SOL.).

In his paper „Abietinae horti regii botanici berolinensis cultae", in „Linnaea" XV 1841, LINK also mentions a *Larix intermedia* by the side of the East-American, the European and the Siberian species, and he puts DUROI (POTT)'s *Pinus intermedia* and the *P. intermedia* in „Pinetum Woburnense" below them with notes of interrogation. As a synonym he mentions *P. pendula* and puts a note of interrogation behind the habitat America. The specimens in the Berlin garden, LINK writes, are still young, bear no cones, but are distinguished from the European larch-species by the broader needles. The author in „Pinetum Woburnense" also gives those broad needles according to LINK, but he received plants from the Hortus Woburnensis under the name of *P. intermedia*, and those have no broader leaves than *Larix decidua.*

SARGENT (in „Sylva of North-America") reckons *Pinus pendula* among *Larix americana*, ELWES and HENRY in England (in „Trees of Great Britain and Ireland") among *Larix dahurica;* but BEISSNER puts this *P. pendula* SOL. or *Larix pendula* SAL. sub *Larix europaea* var. *pendula.*

BEISSNER was the man who knew the Conifers best; his opinion therefore is important. But he was an ennemy of new names: He writes: „so ist es auch ganz ungerechtfertigt, für *L. americana* MICHX in Sinne des Prioritätsgesetzes den ältesten und dazu denkbar unpassendsten, gar nicht in Betracht kommenden Namen *L. laricina* wieder hervorzusuchen". There is passion in that sentence; and passion is not scientific. Meanwhile B. forgets to proclaim the same

ban on the synonymic name, which has the right of priority after *L. laricina*, viz. *L. intermedia* DUR. 2nd ed. and which he does acknowledge as the American Larch. BEISSNER may have been mistaken and have wanted to reject *intermedia* so completely; the name of *L. laricina* can hardly be considered extremely unsuitable: *L. intermedia* on the contrary is a foolish name; to POTT (DUROI 2nd ed.) this meant an intermediate species between *P. laricina (americana)* and *europaea* (= *decidua*); but when, as is done at present, *laricina* and *intermedia* are combined to one species, *intermedia* is no more an intermediate form. Moreover *P. intermedia* (DUR.) POTT. resembles from the nature of things (viz. as an intermediate form) *europaea* more than *laricina* does, so that for that reason too BEISSNER had more reason to class that *P. intermedia* first of all with *L. europaea.*

Voss in „Wörterbuch der deutschen Pflanzennamen" 1924 agrees with BEISSNER and calls the weeping variety of the European Larch-species *Pinus larix laricina;* but the American species he calls *Pinus intermedia.*

So long as the 2nd edition of DUROI's „Harbkesche W. Baumzucht" has not yet been seen, the fact that by the side of *Pinus laricina* a *P. intermedia* is described in it as American Larch, makes the impression, that also DUROI (or rather POTT) is considering *P. laricina* of the 1st edition as a weeping form of the European species and gave a new name to the American species or conversely now (in the 2nd edition) describes the true American species under *P. laricina* and gives the seemingly American species the new name of *P. intermedia.*

That second edition seems to be rare; in Holland it is not present, neither at Kew [1]); I received a facsimile of the pages concerned from America, but finally I got the book itself from Berlin. Herein *Pinus laricina* and *P. intermedia* are distinguished as two different American Larch-species; *P. laricina* DUR. Obs. and Harbk. Wilde Baumz. ed. 1 is confirmed and *P. intermedia* newly formed. It is peculiar that of this new species POTT writes: „von diesem in Nordamerika einheimischen schönen Bäume finde ich bei keinem Schriftsteller einige Nachricht ausser in MARSHALL's angeführte Schrift (here under the name of *Pinus larix rubra*), whereas in ELWES and HENRY's „Trees of Great Britain and Ireland" there is mentioned as a synonym: *P. intermedia* WANG. Beitr. Holzger. Forstwiss. Nord Am. Holzarten p. 42 t. 16 f. 37, 1787, i.e. 13 years before DUROI's

[1]) At Kew there is also only the first volume of the first edition.

2nd edition, revised by POTT. KOCH mentions as a synonym of *P. laricina* (= *americana*) *Pinus intermedia* WANG. but no *P. intermedia* DUR. 2nd ed.; SARGENT reversely *P. int.* DUR. 2nd ed., but no *P. int.* WANG. It appeared to me, that WANGENHEIM does not give *P. intermedia*, but only *P. laricina* DUR. 1772; consequently POTT and SARGENT are right and KOCH, ELWES and HENRY are mistaken.

In his „Dissertatio inauguralis observationes botanicas sistens" 1771 JOHN PHILIPP DUROI describes *Larix laricina* thus:

18. *Pinus (Laricina) foliis fasciculatis deciduis; conis subglobosis squamis laxis orbiculatis glabris* (this is the denomination as LINNAEUS introduced it: first generic name, then specific name in the form of brief methodical diagnosis and a trivial name between brackets or in the margin). *Abies foliis fasciculatis acuminatis setaceis cinereis* GRONOV. Fl. Virg. p. 153.

Angl. The New Foundland black Larch Tree.

Germ. Schwarzer Nordamerikanischer Lerchenbaum.

Vide Tab. 3 der Harbkesche Wilde Baumzucht.

Floret Majo. Habitat in Canada.

Folia glauca. Gemmae nigricantes. Conus floriferus dimidiam partem pollicis longus, quartam partem latus, sessilis, squamis viridibus apice rubicundis. Conus maturnus suffuscus, squamis septemdecim et octodecim crassis constans, ideoque multo minor quam in P. Larice. Rami tenues. Prodit jam flores arbor aetate septem annorum.

And in „Harbkesche Wilde Baumzucht" II Bd. p. 83 DUROI writes: „*Pinus* (*Laricina*) (der schwarze nordamerikanische Lerchenbaum, the New Foundland black Larch Tree)... sodasz die reif gewordenen gelbbraunen Zapfen nur einen halben Zoll Länge und etwas über einen viertel Zoll Breite haben. Die Anzahl Schuppen bei diesem Zapfen ist... zu siebenzehn bis achtzehn Stück... Die Zweige sind dünne und herabhängend. Die Nadeln weichen von den europäischen der Farbe nach ab, indem diese etwas dunkler, mehr seladonfarbiger ausfält."

The cones described clearly remind us of *Larix americana;* he does not mention the colour of the one year old branches; the name „schwarze nordamerikanische Lerchenbaum" he gives, may refer to the buds, of which he writes; „die Blätterknospen sind beinahe schwarz."

There is an illustration on tab. III; the height of the cone is $1^3/_4$ cms.

As to the habitat DUROI writes: „Nach dem Berichte (1756) des Prof. KALM im zweiten Theile seiner Reisen, S. 274 wächst er in den Östlichen Jersey und in Canada." I have not been able to find

this, either in the Dutch issue of 1772, nor in „Des Herren Peter KALM's Beschreibung der Reise nach dem nördlichen Amerika", eine Uebersetzung of 1757; KALM writes in the 2nd volume on p. 474 at New Jersey „Tannen ... von der Art mit gedoppelten Stacheln ... (in a note: *Pinus foliis geminis* etc. GRON.) KALM's book is interesting; it gives a description of North America at that time, not only botanically, but in all possible respects.

WANGENHEIM in his „Beitr. zur deutschen holzgerechten Forstwissenschaft" of 1787 on p. 42 does not give anything new on *Pinus Laricina*, *foliis*, etc. In his tab. XVI the length of the cones is $1^1/_4$—$1^1/_2$ cms.

J. F. POTT, herzoglicher Braunschweiger Leibartz, who had been DUROI's collaborator in 1771, wrote, as we have mentioned, a second edition of DUROI's (by POTT still written „du Roi") „Harbkesche Wilde Baumzucht", in 3 volumes in 1800; the 2nd volume is the first half of the 1st volume of the 1st edition; 2nd and 3rd volume are bound together. In the 2nd volume p. 85 he describes *Pinus Larix* L.; as a synonym he gives *Larix decidua* MILL.; the cone is slightly longer than an inch, an inch wide and contains 30—40 scales. The branches are pendulous.

For *Pinus (Laricina)*, *foliis* etc. he refers to DUROI 1st ed. and WANGENHEIM and gives as habitat KALM's statement. Beside the synonymous pre-Linnean name of GRONOVIUS, he gives the synonym *Pinus (pendula) foliis fasciculatis mollibus, obtusiusculis; squamis strobilorum bracteas tegentibus* ... AITON Hort. Kew. (1789) vol. III p. 369 (afterwards changed into *Larix pendula* by SALISBURY) and *Pinus Larix nigra* MARSHALL „Beschreib." [1]) 1788 p. 185.

On p. 114 and following pages, *Pinus intermedia* is described with the synonymous name of *Pinus Larix rubra* MARSHALL „Beschreibung" p. 184. POTT thinks MARSHALL's description inadequate, and moreover he makes 2 species of MARSHALL's varieties. His *Pinus intermedia* „steht in Ansehung seiner Verwantschaft in der Mitte zwischen dem weissen und zwischen dem schwarzen Lerchenbaume", i.e. between *Larix decidua (europaea)* and *L. laricina (americana)*. The difference is stated thus: „Stamm gerade wie an dem weissen Lerchenbaume; seine Rinde weniger gerissen, weisslich. Zweige wachsen ebenfalls so wie an der vorigen Art." (i.e. as with the European Larch). „Blätter in allem den anderen beiden Lerchenbaumarten gleich, ausser dass ihre Farbe etwas dunkeler als an der

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[1]) This is the German translation of MARSHALL's Arbustum americanum, etc. 1785.

weissen und etwas heller als an der schwarzen Art ist...". „Zapfen in ihrer Jugend roth, in der Reife hellbraun, oval, walzenförmig, dreiviertel Zoll lang, einen halben Zoll breit, also auch in der Grösse das Mittel zwischen denen von dem vorigen (i.e. *P. Larix*) und von dem folgenden (i.e. *P. Laricina*) Lerchenbaume haltend. Schuppen an jedem bis fünf und zwanzig Stück (again an intermediate number)...".

„Saamen wie an den andern Lerchenbäumen."

„... Sie wachsen (also) zwar nicht so geschwind als die weissen Lerchenbäume, übertreffen aber darin die schwarze Art, vor der sie überdem wegen des sehr geraden Wuchses ihres Stammes einen Vorzug haben. Sie übertreffen selbst darin die weissen Lerchenbäume...

POTT does not give a more definite habitat than North America.

The two East American species are now universally considered one and the same species; and the description sufficiently indicates, neither is a form of the European species; and that, if it were the case with either of them, this must be *Pinus (Larix) intermedia* and not *P.* (*L.*) *laricina*. The nomenclatoric result is, that that the oldest and legal name of the East-American Larch is *Larix laricina* C. KOCH 1872 (*Pinus*—DUROI 1771). Consequently, in my article „the Scientific names of our woody Plants" I the Gymnospermae (Transactions of the Agr. Acad. vol. 27 No. 5 1923) on p. 16 *L. intermedia* LK should be made a synonym and *L. laricina* KOCH should be put in its place. There also stands: *Pinus intermedia* DUR. 1772; this should be DUR. 1800 (2nd edition of „die Harbkesche Wilde Baumzucht". [1])

Whether *Larix pendula* SAL. 1807 (*Pinus pendula* SOL. in AITON „Hortus Kewensis" 1789) is the American species, is a different question. POTT (1800) identifies it with *Pinus laricina* DUROI. The description in the Hort. Kew. runs: „*Pinus foliis fasciculatis mollibus obtusiusculis, squamis strobilorum bracteas tegentibus*", and is hardly adequate (the description of *Larix europaea* differs only in „*bracteis extra squamas strobilorum exstantibus*"); DUROI's name of *laricina* is not given, although with other species of plants his names are often mentioned. AITON and SOLANDER themselves regard it as the American „Black Larch Tree".

ELWES and HENRY write that they saw SOLANDER'S manuscript, on which AITON'S description is based, and that the species originates from New Foundland and is described: „with leaves longer and

[1]) For other additions and corrections we refer to the sheet printed for that purpose, and obtainable from the writer.

cones shorter than the European larch"; but specimens of it in the herbarium of the British museum, with SALISBURY's handwriting, are, according to E. and H., pp. *Larix americana*, for the greater part however *Larix dahurica*, just like LAMBERT's illustration of *Pinus pendula* in 1803.

LAMBERT's description is as follows (also in WILLDENOW „Species Plantarum" 1805: *Pinus foliis fasciculatis deciduis, strobilis oblongis, squamarum marginibus inflexis, bracteolis panduriformibus acumine attenuato*, In the „Descriptio" it says moreover: *Strobuli vix uniciales;* and in the drawing the cones are slightly larger than an inch.

His *Pinus* (*Larix*) *microcarpa* (syn. *P. laricina* DUR.; our *Larix americana*) LAMBERT describes with *strobuli parvi, semiuniciales* „the cones being much smaller than those of *P. pendula*".

Apparently *Pinus (Larix) pendula* has originally been the East-American larch, and has afterwards been confused with the European or Asiatic specimens. EICHLER in E. u. Pr. „die Nat. Pfl. Fam." uses the name *L. pendula* SAL.

The possibility of an error in the „Hortus Kewensis" is not excluded; in it AITON describes the Central-European *Tilia alba petiolaris* (= *T. tomentosa* MOENCH var. *petiolaris*) as *Tilia alba* and as originating from North America.

The matter is of little consequence, because the name is rejected at any rate, but it has given much confusion in literature.

No. 8. *Larix dahurica* and *pendula*.

In the mentioned article „the Scientific names etc." we also find *Larix dahurica* with TURCZ. (1838) as name of author, as it is also found in other books. This TURCZANINOW gave an enumeration of plants in a „Catalogus plantarum in regionibus baicalensibus et in Dahurica sponte crescentium" (in „Bull. de la soc. imp. des naturalistes de Moscou" I 1838): „Le defaut de livres et divers autres obstacles ne m'ont pas permis jusqu'a présent de publier la flore du pays que j'ai parcouru pendant neuf ans de suite...; j'ai voulu au moins publier le catalogue des plantes que j'ai trouvées". And in that catalogue of names only, he mentions a.o. *Pinus Dahurica* FISCH. (Larix) i.e. that FISCHER published it as *Larix dahurica*. But in „Synopsis Coniferarum" 1847 ENDLICHER writes *Pinus* (*Larix*) *dahurica* FISCHER m.s. (= manuscript), i.e. that FISCHER did not print the species. In that case the name is invalid according to the rules of 1905 (even according to those of 1867); and as TURCZANINOW does not give a description, so his authorship does not count; so either

the name should be: *Pinus dahurica* ENDL. 1847 or *Pinus (Larix) dahurica* (FISCH.) ENDL. 1847; for ENDLICHER gives to it a description.

However KOCH does give a printed quotation of FISCHER's name, viz. the same as sub. 9 for *Pinus (Larix) intermedia* FISCHER!; next, as *Larix* it is first described by CARRIÈRE in 1855; so, if KOCH is right, it should be *Larix dahurica* FISCH. or otherwise *L. dahurica* CARR.[1]) If however ELWES and HENRY are right, and *Larix pendula* SAL. 1807 (*Pinus pendula* SOL. in Ait. 1787) = *L. dahurica*, the name of *dahurica* should be entirely dropped and SALISBURY's name is valid! His description (In Transact. Linn. Soc. 1807) runs: *Larix pendula. Strobuli vix pollicares, oblongi squamis margine incurvis, obtusis, bracteae panduraeformes.* Syn. *Pinus pendula* LAMB., *P. pend.* SOL. Sponte nasc. in Canada montibus frigidis, legit G. Bartrand.

Larix dahurica is characterised by very small cones, at most 25 mms. long; the branches of the full-grown individuals are pendulous. SALISBURY's description therefore does indicate it. On the synonyms and on the habitat America see sub. 7. The lawful name is therefore *Larix pendula* SAL.

On account of the confusion with this *Pinus* or *Larix pendula* (cf. also sub 7) the name might be rejected, provided it is done on international deliberation.

No. 9. *Larix sibirica*, *intermedia* and *altaica*.

FISCHER[2]) makes us revert to *Larix intermedia*. There namely exists, besides *Pinus (Larix) intermedia* POTT. (or DUROI), which appeared to be identical with *Pinus (Larix) laricina*, a *Pinus (Larix) intermedia* FISCHER, likewise mentioned by TURCZANINOW in the above catalogue[2]). In his Dendrology KOCH takes this species for *Larix sibirica* LEDEB. and he puts FISCHER's name first; LEDEBOUR to be sure published the species in his Flora altaica. IV, p. 204 (fide LEDEBOUR in Flora Rossica. II, 1847/9) in 1833, while KOCH (not LEDEBOUR) gives for FISCHER: Fisch in Schtagl. Anz. f. Entd. in d. Phys. Chem. Naturgesch. u. Techn., VIII, 3. Heft (1831); so FISCHER's name is older[3]). BEISSNER on the contrary keeps LEDEBOUR's name,

[1]) KOCH is wrong, see sub. 9.

[2]) See above sub 8.

[3]) In his „Flora Rossica", III, 1847/9 LEDEBOUR calls the species *Pinus Ledebourii* (*Abies* — RUPR., *Larix sibirica* LEDEB. Flora altaica, IV, 1833), while he gives the specific name of *sibirica* to *Pinus sibirica* TURCZ. (syn. *Abies sibirica* LEDEB. *Flora altaica*). In his „Flora altaica" namely LEDEBOUR distinguished *Abies* and *Larix*, hence he could use the name *sibirica* in both genera; in writing his later „Flora Rossica" he classed both genera with *Pinus* and had to give an other specific

but as a variety of *Larix decidua* (*europaea*); and he puts under *Pinus mitis* MICHX, as synonyms, *Pinus echinata* MILL. and *Pinus intermedia* FISCH. ex GORD. *Pin.*, p. 170.

In SARGENT'S Sylva we find under *Pinus echinata* MILL. as a synonym *Pinus mitis* MICHX, but no *Pinus intermedia* FISCH., which seems peculiar, if according to BEISSNER'S statement this species is described in GORDON'S work. This however is not the case; GORDON gives *P. intermedia* FISCH. (without literature cited) as a synonym under *Pinus mitis*; so BEISSNER ought to have written under *P. mitis* MICHX: *Pinus intermedia* FISCH. *fide* GORDON in *Pin.*, p. 170.

It is not known to me, why GORDON took it for an American species of pine.

In his „Agriculturist's Manual" 1836, the Englishman LAWSON speaks of a *Larix intermedia* as a Siberian species already known (so probably he means *Larix intermedia* FISCH.); he does not give a scientific description: „... with pendulous branches and very large leaves; but like many Siberian or northern continental plants it produces its leaves at the first approach of spring..."; KOCH takes this plant of LAWSON'S for a different species than FISCHER'S, viz. for a form between *Larix decidua* (*europaea*) and its *pendula* variety. ELWES & HENRY give *Larix intermedia* FISCHER and *L. i.* LAWSON as synonyms of *Larix sibirica*.

SARGENT regards LAWSON'S *Larix intermedia* (but not FISCHER'S) as a synonym of *Larix americana*, without mentioning on what his opinion is founded; the other opinions are much more obvious.

Of course the matter could be cleared up with FISCHER'S description; but who knows this? The title KOCH gives, is not known in any library in our country, nor in Berlin, Kew and Arnold Arboretum; and from Leningrad (St. Petersburg) I did not get any answer to my question hitherto.

SCHTSCHAGL'S perodical (the name is also translated from Russian as TCHAGLEFF, STCHEGLEFF and SCHTSCHEGLOW) is mentioned a few times in the „Bulletin de la Soc. des naturalists de Moscou", vol. I, 1829, a.f.; but FISCHER'S paper is not referred to.

It is a pity that DUROI (POTT)'S name *Pinus (Larix) intermedia* has got into disuse; for now that name is free and the Siberian

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name to one of the species concerned; in this he follows RUPRECHT, who had already done so in „Beitr. fl. Russ. Reich.", II, p. 56, 1845 (fide ELW. & HENR.). ENDLICHER, in his „Synopsis coniferarum" 1847, likewise takes *Pinus* in a wide sense and also writes *Pinus Ledebourii* (syn. *Abies* — RUPR.) for our *Larix sibirica*, but incorrectly uses the more recent name of *Pinus Pichta* FISCH. for *Abies sibirica*, so that the name of *sibirica* entirely disappears from his writings.

larch has a right to that name, if FISCHER gave an adequate description. One should feel inclined to maintain *Pinus* (*Larix*) *intermedia* (POTT) DUROI as a separate species!

For the present at any rate we keep *Larix sibirica* LEDEB. as the lawful name. But FISCHER's name should not be forgotten; FISCHER was a medical man, but devoted his life to botany, was consecutively director of the botanical gardens in Moscow (1804) and Petersburg (from 1823); both of them he brought to fame. He imported many plants from Siberica and the Caucasus. (data from KOCH's Dendrology).

GORDON l.c. mentions, besides *Pinus intermedia* FISCHER, which he identifies with *Pinus mitis* MICHX, a *Larix altaica* of FISCHER'S (likewise without literature cited), which he regards as a synonym of *Larix sibirica* LEDEB., to which KOCH and ELWES & HENRY agree; BEISSNER does not mention it, no more does LEDEBOUR in his Flora Rossica; besides GORDON mentions a *Larix sibirica* FISCHER, which according to GORDON, is not LEDEBOUR'S *Larix sibirica* but synonymous with *Larix kamtschatica* CARR.. BEISSNER has that *Larix kamtschatica* as a synonym to *L. dahurica*, KOCH deems it to belong to *L. intermedia* (= *sibirica* LEDEBOUR); ELWES and HENRY do not mention it, nor does LEDEBOUR l.c.. LOUDON has *L. intermedia* LAWS. and *L. sibirica* FISCHER as varieties of *L. europaea*, side by side together with *dahurica;* besides *L. europaea* he only has *L. americana.*

It would be strange however if FISCHER had not lawfully described the Siberian larch under one of the names mentioned; and if so, he deserves that that name be used. In this case too, international deliberation and decision are necessary; personal opinions lead to knowledge but not to unity.

Postcript. On finishing this chapter I received a letter from Prof. Boris Fedtschenko, Director of the Petersburg Herbarium, in which he writes i.a.: „Was ihre Fragen über *Pinus intermedia* FISCH. und *Larix altaica* FISCH. anbetrifft, so sind es allerdings *nomina nuda.* Weder in Schtschegloff's Anzeiger noch irgend wo an anderer Stelle giebt es eine Beschreibung von beiden Arten. Leider konnte ich auch nicht diese Pflanzennamen in unserem Herbarium auffinden, obgleich wir das ganze Herbar von Fischer besitzen und dieses in voller Ordnung ist".

No. 10. *Larix leptolepis, japonica* and *Kaempferi.*

According to BEISSNER a.o. *Larix leptolepis* GORD. 1858 (*Abies* — S. u. Z. 1842) is the same plant as *Larix conifera* KAEMPFER 1712

and as *Pinus Kaempferi* LAMB. 1832. For the same reason BAILEY calls it *Larix Kaempferi* in „Manual of cultivated plants" 1924 and in his latest work „The cultivated evergreens" of the year 1923, REHDER in his „Manual" of 1927. In his „Wörterbuch" 1922 Voss calls it *Pinus Kaempferi.*

What we know as *Pseudolarix Kaempferi* is a Chinese species of tree; but KAEMPFER described Japan; so with his name he must have had the Japanese larch in mind: such is the train of thought.

First of all it may be objected, that there exists more than one species of Japanese *Larix*, so it has to be decided whether KAEMPFER meant our *Larix leptolepis;* and even if this is accepted a priori, KAEMPFER's name ought to be controlled; is there an adequate description?

KAEMPFER writes in his „Amoenitatum exoticarum politico-physico-medicarum" fasc. V. p. 883: „*Pinus in genere, cujus variae sunt species* etc. *Seosi, vulgo Kara Maatz Nomi. Larix conifera, nucleis pyramidatis, foliis deciduis*". From this it cannot be concluded whether a *Larix* is meant or a *Pseudolarix* according to the present day meaning; neither can the species of *Larix* be derived from it.

LAMBERT mentions a *Pinus Kaempferi* in the different editions of his „Description of the Genus Pinus". This work is rare; part of it is also lacking in the Kew Gardens' library, but the British museum in London has a copy; Teyler's museum possesses volumes I and II of the 1st edition. LAMBERT only gave the name in the introductory of this volume II 1824, without any description; he had no material but only an illustration (KAEMPFER'S?); in the volume mentioned he writes as follows: „Having lately seen drawings, done by Japanese artists of the *Pinus Abies* and *Larix*, noticed by THUNBERG in the Flora japonica, I am now fully satisfied of their being perfectly distinct from the European species, with which THUNBERG has confounded them, as I had at first suspected. For the former I would suggest the name of *Pinus Thunbergii* and for the latter, noticed by KAEMPFER, that of *Finus Kaempferi*" [1]). The name is therefore a nomen nudum. The name of *Pinus Thunbergii* was adopted at the time by PARLATORE and provided with a description, but *Abies Kaempferi* LINDL. in Penny Cycl. I 1833 is nomen nudum (information of the Kew Gardens); the name of *Abies leptolepis* S. u. Z. 1842 (*Larix leptolepis* GORDON 1858) is the first with adequate description of this species, so that the specific name of

[1]) Dr. RENDLE send me word that this communication was repeated in the editio minor of 1832 in exactly the same words.

Kaempferi must be dropped and *Larix leptolepis* GORD. (*Pinus* —ENDL. 1847, *Abies* — S. u. Z. 1842) continues to be the legal name.

The name of *Larix japonica* CARR. for this plant dates from 1855 and thus was given earlier than *L. leptolepis* GORD.; CARRIÈRE bases the name in the first edition of his „Traité des Conifères" on a Hortus-name which is of no value to us, but in 1867 (in the 2nd edition) on *Pinus japoncia* THUNB. „Flora japonica" 1784, which is however due to an error, since THUNBERG gives the species under the name of *P. Larix*, identifying it with the European species of larch. CARRIÈRE moreover gives the synonym of *Larix japonica* CARR. Man. des Pl. IV: he does not mention this work in the first edition of his „Traité" and I did not see it mentioned anywhere. Nor does CARRIÈRE state a year; from the sequence of the synonyms it might follow that it is older than the first edition of the „Traité"; but probably not older than *Abies leptolepis* S. u. Z.

No. 11. *Pseudolarix Kaempferi*, *Fortunei* and *amabilis*.

Pseudolarix Kaempferi in the usual sence is a species indigenous in China only and consequently it cannot be *Pinus Kaempferi* LAMBERT, which is based on KAEMPFER'S *Larix conifera*, a plant from Japan; KAEMPFER probably meant *Larix leptolepis* GORD., at any rate a species of *Larix*. So it seems a priori excluded, that the specific name of *Kaempferi* might be maintained for the Chinese species. MAYR (1890) „Abietineae des japanischen Reiches" calls it *Pseudolarix Fortunei* and REHDER of the Arnold Arboretum in BAILEY'S „the cultivated Evergreens" of 1923 and in his own Manual of 1927 gives it the name of *Pseudolarix amabilis;* VOSS in his „Wörterbuch" calls it *Pinus pseudolarix.*

REHDER may have done so on account of his principle of „conditional synonyms" according to which the possibility must be taken into account, that *Larix* and *Pseudolarix* are united to one genus and the name of *Kaempferi*, to which according to REHDER *Larix leptolepis* has the oldest right, must not be given to a species of *Pseudolarix; Pseudolarix Kaempferi* as a *larix* should not be allowed to keep that specific name by the side of *Larix Kaempferi* (= *leptolepis*) and the name should become a synonym. The name of *Fortunei* might be rejected for a similar reason, viz. on account of *Keteleeria Fortunei* CARR.

The principle however has not been legally established, and would, if established, give rise to great nomenclatoric difficulties; it is only desirable to take it into account in giving specific names

in future, to which the Brussels' congress on nomenclature 1910 encourages us.

Next we shall consider whether the name of *Kaempferi* is invalid; REHDER assumes this and in „Journ. Arn. Arb." I p. 53 he gives it as a reason for his new name *Pseudolarix amabilis (Larix amabilis* NELSON *Pinaceae* 1866).

Pinus Kaempferi LAMB. 1832 is illegal, as we have seen sub No. 10, moreover it does not represent our plant; LINDLEY, in Penny Cyclop. vol. I p. 34 (1833) mentions *Abies Kaempferi* with LAMBERT'S *Pinus Kaempferi* as a synonym, with reference to KAEMPFER, without description of his own (information of the Kew Gardens). But afterwards, when the Chinese species was introduced into Europe, it was taken for LAMBERT'S *Pinus Kaempferi;* LINDLEY, who introduced it (in the Gard. Chron. of 1854), called it *Abies Kaempferi;* and also FORTUNE, who traversed China, positively meant the Chinese species with his *Larix Kaempferi* 1853; LINDLEY'S description settles the question (l. c. p. 255 „New Plants" No. 58 *Abies Kaempferi* LINDL. in Penny Cyclop. Vol. I (1833): *A. foliis fasciculatis deciduis, . . ., strobilis oblongis . . . fragillimis, squamis . . . accuminatis (piramidatis) . . . deciduis . . . .* And he thinks he recognises in „nucleis piramidatis" of KAEMPFER'S description the acuminate scales of his *Abies Kaempferi.* LINDLEY writes that from FORTUNE he received material of the latter's *Larix Kaempferi* from China and recognised it as his own (LINDLEY'S) *Abies Kaempferi.*

In DECANDOLLE'S Prodromus 1868 PARLATORE classes it with *Pinus*, likewise with the specific name of *Kaempferi* and with the distinguishing feature „*strobilis . . . squamis deciduis*".

The specific name of *Kaempferi* therefore is legal and as far as I know, the oldest; it dates from 1854; NELSON'S name *amabilis* dates from 1866; in 1890 MAYR gave the specific name of *Fortunei*, which also stands first in ELWES & HENRY'S work; in 1923 REHDER again unearthed the name of *amabilis.*

The legal name therefore continues to be *Pseudolarix Kaempferi* GORD. 1858 (*Abies* — LINDL. 1854).

No. 12. *Cedrus libani, libanitica, effusa* and *patula.*

By the side of *Larix* and *Pseudolarix* we find the genus *Cedrus*, one of the species of which is *Cedrus Libani* LOUD. 1838. LOUDON, BEISSNER and others give as author BARRELIER; and KOCH even has a different specific name, viz. *Cedrus patula* SAL. What must one think about it?

BEISSNER c.s. are right in saying that BARRELIER was the first to give the species the name of *libani*, viz. in „Plantae per Galliam, Hispaniam et Italiam observatae iconibus aeneis exhibitae, (opus posthumum)", a fine folio, issued by ANT. DE JUSSIEU; on p. 122 sub No. 1345 it says:

„*Larix orientalis, fructu rotundiore, obtuso.* Inst. R. Herb. 586. *Cedrus Libani* BARR. Ic. 499. *Cedrus conifera, foliis Laricis* C. B. Pinax 490. Le cèdre! Fig. 499 (there are 4 figures on one page) shows a branch with needlebundles and cones; at the foot it says: *Cedrus Libani.*

But that was in 1714 i.e. before the introduction of the now legal nomenclature. LINNAEUS called it *Pinus Cedrus*, and so did AITON in Hort. Kew. 1789, up to and including PERSOON in 1807 (Synopsis); in the meantime SALISBURY had called the species in 1796 *Pinus effusa* and in 1807 *Larix patula.* Not before 1836 LAWSON again called it *Cedrus libani*; a short time after, LOUDON did so in „Arb. et Frut." 1838, LINK in „*Linnaea*" 1841; and if no other botanist did so between 1753 and 1836, the correct name of the author for *Cedrus libani* is LAWSON and not BARRELIER.

This author's name however is of less consequence than the specific name; if between 1753 and 1807 not a single botanist described the plant with the specific name of *libani*, SALISBURY's names of 1796 and 1807 have the right of priority.

SALISBURY called the Ceder of the Libanon *P. effusa* in „Prodromus Stirpium in horto ad Chapel, Allerton vigentium" London 1796; and with that speciesname Voss in „Wörterbuch der deutschen Pflanzennamen" 1922 puts her in the genus *Cedrus* as *C. effusa.* SALISBURY's name *Larix patula* is to be found in „Transactions of the Linnean Society" vol. VIII 1807 p. 313; and it is a curious thing that SALISBURY mentions here LINNAEUS' and TREW's synonyms but not his own name *effusa* of 1796. With the speciesname *patula*, KOCH puts her in 1873 in the genus *Cedrus* as *C. patula.*

Who wants to get rid of these two names *effusa* and *patula*, needs an author who, between 1753 and 1807, used the specific name of *libani.* TREW comes to the rescue or rather TREW may be made to act that part. The case is thus:

In 1757 CHRIST. JAC. TREW wrote a treatise, entitled: „Cedrorum Libani historia earumque character botanicus cum illo *Laricis, Abietis Pinique* comparatus", published separately and at the same time in „Nova Acta" I of the Acad. Leop. Carol. In *Abies* our *Picea* is included.

After an accurate comparison of the characteristics of the libanon-

cedar with those of the common European species of *Larix*, *Abies*, *Picea* and *Pinus*, TREW comes to the conclusion that the *Cedar* forms a separate genus. The features described are generic and specific ones; in that period only this *Cedar* of the *Libanon* was known.

TREW does not use specific names in our sense of the word, i.e. trivial names in that time, not introduced by LINNAEUS until 1753. TREW gives the specific name as LINNAEUS used, i.e. a short methodical description according to our ideas; even when quoting species from LINNAEUS' „Species plantarum", he omits the trivial name (found there „in margine"). Where in his Latin text he speaks of *Cedrus Libanitica* or *Cedrus Libani* he means: the *Cedar* of the *Libanon* Mountains; and in his catalogue of names, given in the course of time to that cedar, *Cedrus libani* BARR. is given, but TREW does not adopt that name, nor does he add a description in the modern sense. Therefore it might be maintained that TREW did not sufficiently legalise the name of *Cedrus libani* to allow us to put it in stead of *C. patula* (SAL.) KOCH.

On the other hand we can argue as follows: TREW described the cedar of the Libanon so clearly and unmistakably by his detailed comparison of the characteristics with those of *Pinus sylvestris*, *Picea excelsa*, *Abies alba* and *Larix decidua* (these specific names were not given by TREW) and besides fixed it so completely in a plate with habitus and another with the details, that the deficiency of a direct modern description may be overlooked. For the rest he does not intend using specific names in a modern sense, but he writes of „*Cedrus Libani*[1]) or *Cedrus Libanitica*[2]) (a difference as e.g. *Abies Normannii* and *A. Nordmanniana*); and according to our modern standpoint we can take that combination of words as a specific name; the rules of nomenclature of 1905 have retrospective effect down to 1753 and from 1753 the names are interpreted according to those rules; therefore „*Cedrus Libani*" is a correct specific name according to those rules. Besides TREW gives the pre-Linnean specific name of *Cedrus libani* BARRELIER in his list of names[3]); and

[1]) TREW p. 19: Supra laudatus Schultzius me certiorem reddidit Cedrum Libani ab ejus regionum incolis hodie adhuc appellari Aeres . . . (S. reported that Cedrus Libani was called Aeres by the native inhabitants.) p. 20: Si ullibi „Aeres" de alia arbore quam de Libani Cedro explicari potest. . . .

[2]) TREW p. 4: Tabula prior Cedri Libaniticae totus habitus . . . delineatus. LINK gives the name *Cedrus libanitica* in his Handbuch 1831 (II p. 480) and PILGER in E. u. P. die Nat. Pfl. Fam. 2nd ed. 1926; in my opinion *Cedrus libani* is the better name. REHDER has also in his „Manual" of 1927 chosen the name *libanotica*.

[3]) TREW p. 5: Cedrus Libani Ger. 1454, Camer. Kreuterb. 33*b*. BARREL. ic. 499 . . .; Pinus foliis . . . L. Sp. pl. p. 1001 n. 6.

LINNAEUS likewise gives it as a synonym to his name of *Pinus Cedrus;* this strengthens TREW's name as modern specific name.

In this question of nomenclature there is again a personal element; international rules do not settle the matter; certain cases should be considered and settled individually. For the present I think that in the above case *Cedrus libani* (TREW) LAWS. can be maintained.

No. 13. *Picea ajanensis* and *jezoënsis.*

Picea ajanensis FISCHER 1847 (fide LINDL. and GORD. in Transact. Hort. Soc. V, 1850, sub *Abies ajanensis* L. and G.) and *P. jezoënsis* CARR. (*Abies Jezoënsis* S. u. Z.) are placed side by side by CARRIÈRE in his „Traité générale des Conifères" of 1855, i.e. as two species; but *Picea ajanensis* is classed with „Espèces peu connues"; and after the description of *P. jezoënsis* he observes as follows: „La plus grande incertitude règne encore sur le *P. Jezoënsis.* En effet, si l'on examine les différentes figures qui doivent nous le rappeler (voy. l.c.), on voit qu'elles sont loin de se rapporter au même object... La même contradiction se trouve dans les déscriptions... Ces divergences d'opinion démontrent que figures et déscriptions ont été faites à plusieurs reprises sur des matériaux insuffisants et probablement d'après des cones détachés de rameaux prevenant d'origines diverses."

P. ajanensis too gave rise to uncertainty, but in a different way; VEITCH brought an *Abies* (now *Picea*) *Alcoquiana* [1]) from Japan, described by LINDLEY in Gard. Chron. of Jan. 12. 1861, p. 23. KOCH adopts that species in his Dendrology, and adds *Abies* (now *Picea*) *ajanensis* as a synonym to *Abies* (now *Picea*) *sitchensis* (= *P. Menziesii*).

But it is evident from LINDLEY's description („leaves... flat, not 4 sided, $^1/_2$ inch wide, cones... 2 inches") and it has been observed later on, that this so called new species *Abies* (*Picea*) *Alcockiana* is a mixture of different conifers, one of which is *Picea ajanensis* CARR.

KOCH made an other mistake in classing *P. ajanensis* with *P. Menziesii.*

Now these errors are known, though their influence is still felt in the nurseries.

But we are not yet finished with *Picea jezoënsis*; BEISSNER maintains it in his first edition of „Handbuch der Nadelholzkunde", but writes that it is closely related to *P. ajanensis* and may be an „unwesentliche Form" of it; „hoffentlich gelingt es durch Einführung

[1]) The name should be *Alcockiana,* because the plant was called after ALCOCK, the English Ambassador in Japan.

glaubwürdigen Originalmaterials, dies bald fest zu stellen". In the 2nd edition of his work he identifies it with *Picea ajanensis;* KOEHNE does so too in his Dendrology, so does BAILEY in his „Cyclopedia of horticulture" of 1917, ELWES & HENRY in „the Trees of Gr. Br. & I." and REHDER in his „Manual" of 1927.

But let us now consider the question of nomenclature; the name *jezoënsis* is older than *ajanensis* (respectively 1842 and 1847 or 1856), so the species ought to be called *Picea jezoënsis*, which name is used by REHDER.

What is *Abies Jezoënsis* SIEB. and ZUCC.? Description and drawing certainly remind us of a species as *ajanensis;* the needles however are much more acuminate than in that species. The specimens of S. & Z. came from different parts, and were not gathered by themselves from the tree which they found flowering in a garden at *Jedo;* but a branch with flowers was sent to them by the Imperial physician from the capital (Jedo is meant, not Tokyo as ELWES & HENRY write), and a drawing (prob. of a branch with cone) by a traveller who had seen the species in its natural region. [1])

From CARRIÈRE'S above effusion it appears, that S. u. Z.'s species has given rise to much confusion; apparently the material mentioned is the cause of this, but it is likewise a reason to agree with ELWES & HENRY'S opinion that *Abies* (*Picea*) *jezoënsis* S. u. Z. is a species dubia, which must not be used as a legal name in stead of *Picea ajanensis* FISCH.; as a separate species it may of course be maintained by who ever wishes to do so.

No. 14. *Picea hondoënsis*, *acicularis* and *bicolor*.

By the side of *P. ajanensis* we also find *P. hondoënsis* MAYR 1890, which is also found in ELWES & HENRY'S work, but which according to BEISSNER and others is *P. ajanensis*, viz. *var. microsperma* MAST. 1861 (sp. Lindl. 1861).

According to REHDER in BAILEY'S Cyclopedia, *Picea ajanensis* itself (called *jezoënsis* by REHDER) is not a species either but a variety of *Picea bicolor* MAYR 1890 (*Abies* — MAX. 1866). Beside *A. bicolor*

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[1]) „Crescit in insulis Jedo et Krafto et colitur in hortis procerum circa urbem Jedo, ubi florentem vidimus..." „Cet arbre... se cultive comme rareté dans les jardins des seigneurs à Jedo. Pendant notre séjour dans cette capitale nous en reçumes une branche en fleurs entre autres plantes rares par le médecin ordinaire de l'Empereur... De même un échantillon de bois et un dessin nous fût donné par le ci-dessus dénommé Mogani Toknai. Ce voyageur trouva le Jezo-matsu sur l'île de Jezo et dans la partie du sud de Krafto..."

MAXIMOWICZ introduced an *A. acicularis* into literature and into the nurseries.

This *Picea bicolor* is used by REHDER as the legal name for *Picea Alcockiana* CARR. 1867 (*Abies* — VEITCH or LINDLEY 1861). BEISSNER too regards them as synonyms, but gives precedence to CARRIÈRE'S name. According to BEISSNER'S statement in „Handbuch der Nadelholzkunde" MAXIMOWICZ himself rejected his *Abies (Picea) acicularis* and placed it as a synonym sub *Picea Alcockiana* CARR.; according to BEISSNER the species was only put down „in schedis", so it is not legal according to the rules of nomenclature. [1])

MAXIMOWICZ likewise acknowledged his *Abies (Picea) bicolor* to be a synonym of *Picea Alcockiana;* and according to BEISSNER he did not attach any value to the name given by himself, which is not very suitable either.

Nevertheless ELWES and HENRY accept the name *bicolor* as legal name and so does REHDER; they assert that LINDLEY'S description of his *Abies Alcockiana* in Gard. Chron. 1861 „comprises the leaves of P. hondoënsis and the cones of P. bicolor. The type-specimen, in which both are mixed in one packet, is in the herbarium at Cambridge." So the question depends on acknowledging *Picea hondoënsis* as a separate species or as a variety of *ajanensis* resp. (according to REHDER) a variety of *bicolor*; for if they are considered to be one species, LINDLEY'S description cannot be a confusion of two species. [2])

With all these complications it is safer to accept with MASTERS, that *Picea bicolor* MAYR is a separate species and to keep the name of *Picea Alcockiana* CARR. by the side of it. This prevents moreover confusion of *Picea polita*, which is sometimes called *Picea bicolor*, with *Picea Alcockiana* and consequently (since *P. Alcockiana* is confused with *P. ajanensis*) also with *Picea ajanensis.*

Generally speaking it is much safer to maintain species which are formed but not sufficiently understood, separately as species and, if desired, to neglect them as such, than to add them as synonyms to well-described species, which consequently will share in this uncertainty, especially if the rules of nomenclature require, that such an uncertain specific name stands first. People apt to

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[1]) Also a *P. japonica* REGEL or MAXIM. in Hort. bot. Petropol. and Index Seminum 1865, 67, is nothing but this *P. Alcockiana.*

[2]) REHDER gives in his „Manual" of 1927 the relation in this way: *Picea bicolor* MAYR (*P. Alcockiana* CARR.) with var. *acicularis* SHIRAS.; *Picea jezoënsis* MAX. (*P. ajanensis* FISCH., *Abies Alcockiana* VEITCH p.p.) with var. *hondoënsis* REHD. (*P. hondoensis* MAYR, *P. ajanensis* var. *microsperma* BEISSN. non MAST.).

notice slight details will probably make many specific names which will be declared superfluous by more superficial investigators; but studying the matter more closely, it may be of great interest that those various plants with their trifling details do not get mixed up.

No. 15. *Picea morinda*, *Smithiana* and *khutrow*.

Picea morinda LK 1841 was called *Abies Smithiana* (*Pinus Smithiana* WALL. 1827) by KOCH in 1872 and *Picea Smithiana* by BOISSIER in 1884; this latter name is now also used by REHDER and by ELWES and HENRY. LOUDON mentions the species in the second editions of his „Arboretum et Fruticetum britanicum" (1838 and 1844) under the name of *Abies Smithiana*, in the abridged edition of 1842 (and 1869) under the name of *Abies khutrow* (*Pinus*—ROYLE 1839) with the name *A. Smithiana* as a synonym. BEISSNER has again *Picea morinda*.

Which name are we to consider legal? The history of this spruce fir is as follows:

In „A numerical List of dried specimens"... (1827) WALLICH gives under No. 6063 *Pinus Smithiana;* as the names are without description, they are not considered legal. In 1832 WALLICH published his work „Plantae asiaticae rariores"; in this work *Pinus Smithiana* is described and illustrated, so the name is legalised. In Penny Cyclop. 1833 LINDLEY calls it *Abies Smithiana;* he means an *Abies* in our sense (with cones erect) and not a *Picea* as our *Picea morinda* is.

In his „Agriculturalist's Manual" of 1836 on p.p. 369—370 LAWSON writes: „*Abies Smythiana* vel *Morindo*, Smyth's Himalayan Spruce fir. Specific characters: Tree tall,... branches... somewhat pendulous,...; leaves about an inch and a half in length, fine and almost straight, spreading nearly equally on all sides of the branchlets, mucronate or bristle-pointed, somewhat flattened, or having two prominent rounded angles and two less distinct of a darkish green colour, very faintly marked with a silver tinge on the somewhat channelled spaces between the angles." Next he reverts to the long, fine needles. LAWSON writes that he did not see the cones of this plant; but he did see the cones of an *Abies pendula*, found by CAMPBELL in the Himalaya; this is *Abies pendula* GRIFFITH of GORDON'S „Pinetum", used by GORDON as a synonym of his *Abies Smithiana*, which synonymy was acknowledged by the later botanists; so that we may say, that LAWSON had complete material of „*Abies Smythiana* or *Morindo*". Those cones resemble the cones of the common spruce

fir, LAWSON writes, but they have „scales which are almost round and entire". LAWSON adds that he does not know a description of the plant (so the one of WALLICH's neither).

In his Pinetum vol. III (1837) LAMBERT describes the species as *Pinus Smithiana* WALL., and gives an illustration. In „Illustrations of Himalayan Botany" 1839 ROYLE describes his *Pinus khutrow*, likewise with illustration.

In 1841 LINK gives the name *Picea morinda*. In the nurseries and gardens there also occurred an *Abies (Pinus) morinda*.

The oldest legal name seems to be *Pinus Smithiana* WALL. pl. as rar. 1832. Fortunately his work is present in the library of Teyler's institution. In vol. III p. 24 he describes *Pinus Smithiana*, a.o. with *foliis ... tetragonis ...; strobulis terminalibus, solitariis, erectis, ovato oblongis, squamis obovatis rotundis, planis.* In the longer description it says: „*Rami ... tuberculis ab insertione foliorum decurrentibus densissime notati, ... Folia ... subtetragona ...; pollicem ad sesquipollicem longa ... strobilus ... 4—6 pollicaris ...; squamae ... integerrimae, marginibus subincurvis, ...; semina parva ..., ala terminata ... unguem longa.*

The wing of the seed is drawn smaller than BEISSNER's and ELWES & HENRY's descriptions denote (twice instead of three times the length of the seed). For the rest an important difference in WALLICH is the erect position of the cone. In the habitus the pendulous form of the branches is not given by WALLICH.

In the genus *Abies* the character of quadrangular needles is exceptional; whereas in *Picea* there are no instances of an erect cone.

Had WALLICH our *Picea morinda* in mind?

The director of the Kew Gardens kindly instructed DR. BRAID to inform me concerning the plants in the Kew Herbarium. DR. BRAID communicated to me that there are two sheets marked No. 6063 *Pinus Smithiana* WALL., one in WALLICH's herbarium, one in HOOKER's (which is inserted into the general herbarium). The sheet of WALLICH's herbarium is labelled: „6063 *Pinus Smithiana* WALL. Himalaya Webb & Govan & R. B. 1200"; behind it in pencil:? 6063 (6064). No. 6064 of WALLICH's herbarium is *Pinus Gerardiana*, a species of genuine pine-tree.

On a separate strip of paper it says: „Name Raggoe. Large tree. This is found on the Kunnel Hills close to the Himollank Mountain. The flowers appear to be pale yellow. Calyx brown. This is found in the month of May in flower". And on an other strip: „I have tried boiling water and hot irons in vain with these, the leaves are always thrown off."

According to DR. BRAID these two strips look as if they had been torn from a diary.

HOOKER's sheet bears a label running like WALLICH's, moreover it bears the characters E. J. C., according to DR. BRAID in the same writing. Two of its needles were sent to me; they resemble those of *Picea morinda.*

I also received a photograph of the sheet from WALLICH's herbarium; there are but few needles; according to DR. BRAID they also resemble those of *Picea morinda.* The cone is barely 11 cms long.

The names WEBB, GOVAN and R. B. on the labels denote the persons who collected the species; this is also stated in WALLICH's description; B. is BLINKWORTH. So WALLICH does not seem to have collected the species himself; neither do we know from what material he has derived description and illustration.

According to ELWES & Henry DR. GOVAN introduced the plant as early as 1818 and distributed seed, so that at the time of LAWSON's „Agricultural Manual" (1836) there could exist a great many plants in gardens; probably the plant was introduced with the native name *Morindo*, which LAWSON mentions; WALLICH altered that name in honour of the immortal President of the Linnean Society, who died in 1828 (the year of WALLICH's list). Consequently LAWSON had to deal with two names, both of which he mentions; at that time there was not yet any question of priority.

We must now criticize WALLICH's denomination; description and illustration must turn the scale in this; if we neglect the upright cone, both apply to our *Picea morinda;* and WALLICH writes: „This tree seems to be allied to TOURNEFORT's *Abies orientalis* and still more so to the specimen from China, figured in Mr. LAMBERT's splendid Monograph plate 29." Plate 29 in the 1st volume of the 1st edition represents *Pinus (Picea) orientalis* (exc. some figures which probably represent *P. ajanensis*). In the 2nd vol. plate 29 is omitted. Plate 29 in the 2nd edition is (according to ENDLICHER and others) a genuine species of *Pinus* and cannot be meant. The 3rd volume was not issued before WALLICH made his remark and consequently should not be taken into account. Therefore WALLICH compares the plant with a species of *Picea.*

The erect cone in the illustration might be considered a mistake, though an improbable one; but the positive statement of erect cones in the description renders it impossible to accept a mistake; I agree with LINDLEY, who as early as 1841 (in „Edwards" Botanical Register continued by J. LINDLEY, XXVII, misc. notes p. 7) wrote,

that there is no reason to accept, that WALLICH had made a mistake; he adds that ROYLE agrees with this opinion.

If it is accepted, that WALLICH might have described a species really bearing upright cones, there are other elements in his description that deserve attention. WALLICH described the thickenings decurrent along the branches after the fall of the leaves; this is nothing particular in a *Picea*, but it is in an *Abies; Abies Webbiana* as an exception to the rule, has „geschwollene, herabfallende Blattkissen" (BEISSNER), so much so that, as B. writes, HICKEL based a section *Pseudo-picea* upon it. That *Abies Webbiana* bears needles which, just as those of *Picea morinda*, are very long (3—5 cms). The scales are likewise broad and their margins entire, without visible bract. Moreover WALLICH draws the needles of his *Pinus Smithiana* very flat and broad (though he gives a pronouncedly quadrangular section); ROYLE saw in the broad needles a reason to distinguish his *Pinus (Picea) khutrow* from *P. Smithiana*. ROYLE draws the needles as fine as those of *Picea morinda* really are; and he gives the wing of the seed 3 × the length of the seed, as it ought to be; WALLICH'S length of the seed and width of the needles correspond to those of *Abies Webbiana*. Together with *Picea morinda*, *Abies Webbiana* forms the mixed woods of the Himalaya.

Did WALLICH describe *Abies Webbiana?* This is not the case either; the shape of the cone resembles that of *Picea*, the section of the needles is pronouncedly quadrangular (he describes the needles as *tetragona*; and they are not bifid at the apex as in *Webbiana*).

It should be added that WALLICH knew *Abies Webbiana*, for he had it described (as *Pinus Webbiana*) [1]) in LAMBERT'S „Description of the genus Pinus" I 1828; Captain WEBB namely was travelling at the same time as WALLICH and they kept up a correspondence; WEBB rediscovered D. DON'S *Pinus spectabilis;* and in honour of WEBB WALLICH called this species *Pinus Webbiana.*

Perhaps material of *Picea morinda* and *Abies Webbiana* was mixted together.

At any rate it is obvious that WALLICH'S description and illustration of his *Pinus Smithiana* do not refer to a positive, known species; so that there is sufficient reason to reject that name. So we should next consider LAWSON'S name *Abies Smithiana* vel *Morindo* (1836) in which description we recognise our *Picea morinda*, while LAMBERT described it in the third volume of his work in 1837 as *Pinus Smithiana* and ROYLE published, in his work „Illustrations of the

[1]) cf. No. 29, 4th paragraph.

Botany ... of the Himalayan mountains ..." in 1839, *Pinus khutrow*, which is described on p. 353, with an illustration on p. 84. This *Pinus* (*Picea*) *khutrow* completely corresponds with *Picea morinda* as it is now cultivated and with that, which was found in gardens under the name morinda in that period from 1820 to 40. LAWSON's name therefore is the oldest.

In „Linnaea XV 1841 p. 522 LINK reverts to the question. He agrees that the species of tree, known as morinda, corresponds with ROYLE's *P. khutrow* but not with WALLICH's *P. Smithiana*. LINK classes the species with *Picea* and calls it *Picea morinda;* this may be because he acknowledged LAWSON's description to be the first or because he applied the rule of Kew to the name *khutrow*, which allowed of a new specific name on transfer to a different genus. On account of LINK's better description and his publication being more accessible than LAWSON's, LINK's classing the species with *Picea*, as we still do, is a fortunate thing; for this has given us LINK as the author of the species.

In „Botanical Register" XXVII 1841, „miscell. notes" p. 7 LINDLEY repeats, that with his *Pinus Smithiana* WALLICH cannot have meant *Picea morinda;* it is, he writes, a *Picea;* and it should hereby be borne in mind that LINDLEY calls our *Abies*-species *Picea* and our *Picea*-species *Abies;* so he asserts that WALLICH's *Pinus Smithiana* is an *Abies* (in our sense); he writes: „a *Picea* or Silver Fir"; silver fir likewise refers to *Abies*. He does not think there is a reason to accept that WALLICH has been mistaken.

But LINDLEY regards *Abies* (i.e. *Picea*) *morinda* and *Abies* (i.e. *Picea*) *khutrow* as two different species; with him therefore the name *khutrow* is left out of account for the *morinda*.

ENDLICHER in „Synopsis Coniferarum" 1847 and CARRIÈRE in „Taité des Conifères" 1855 unite the two and call the species *Pinus*- respectively *Picea khutrow*.

In „The Pinetum" 2nd ed. 1875 (may be already in the 1st of 1858) GORDON gives further information on the native names of our *Picea morinda*. *Morinda* means „nectar or honey of flowers"; on the young cones and elsewhere we find resinous drops resembling honey. He mentions many other native names signifying „Fir tree", „Prickly Fir" and „Wood Pine". An other denomination is Row; it refers to the resin-drops or tears, or on the pendulous habitus of the whole tree. ROYLE's name *khutrow* is barbaric; it should be *Koodrow* („weeping Fir") or *Koodrai* („prickly fir"). GRIFFITH's name *A. spinulosa* is based on that prickly character.

GRIFFITH's name is not legal; he also published an *Abies pendula*

which appeared to be identical with his *Abies spinulosa*; so the two names (of ca. 1850) are synonyms in regard to the older names *Smithiana* and *morinda;* of these two the specific name *morinda* is older in use and was first provided with an adequate description. Yet the species is frequently called *Picea Smithiana.* International agreement is desirable.

No. 16. *Picea pungens* and *Parryana.*

Of *P. pungens* ENGELMANN 1879 there exists a rival specific name *P. Parryana* SARG. „Sylva" and „Manual" 1st ed.

In Mitt. der D. Dendr. Ges. 1907 Voss refers that name to EHRHART 1788; but in EHRHART's „Beiträge" no *P. Parryana* occurs.

SARGENT has as a base the name *Abies Menziesii* var. *Parryana* ANDRÉ 1876. That *Abies Menziesii* was not LINDLEY's species (our *Picea sitchensis*) but a species of ENGELMANN's in 1862 = *P. Menziesii* ENG. 1863 non CARR.; and finally in 1779 ENGELMANN [1]) called it *P. pungens.*

In Illustr. horticole 23rd vol. 1876 p. 198 ANDRÉ wrote: „Dans le beau parc de M. le professeur Sargent ... près de Boston ... La plus belle espèce de Conifère ... a été une forme d'*Abies Menziesii* vraiment admirable ... Il a été introduit récemment du Colorado par le Docteur C. C. PARRY qui en a apporté des graines ... M. Sargent m'a dit que la plante est encore inédite ... Je n'ai pas entendu dire qu'elle était encore été nommée, publiée ni décrivée. S'il en est ainsi, je propose de l'appeler *Abies Menziesii Parryana.*

SARGENT acted as ENGELMANN did and made the plant into a species, adopting ANDRÉ's name. According to the rules op 1905 the name of *pungens* is legal, which was acknowledged by SARGENT in the 2nd edition of his „Manual".

N.B. in 1858 GORDON described a *Pinus Parryana*, which appeared to be synonymous to *P. ponderosa;* an other *Pinus Parryana* is mentioned by ENGELMANN in 1862 (non GORD.), which was called *Pinus quadrifolia* SÜDW. 1897 by SARGENT in „Sylva" and „Manual" 1st ed. (probably according to the American rule holding good at that time: „once a synonym always a synonym"); but in the 2nd edition of the „Manual" it was rehabilitated, not however as a species, but as *Pinus Cembroïdes* var. *Parryana* Voss.

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[1]) ENGELMANN first regarded this species as *P. Menziesii (sitchensis);* afterwards he acknowledged it to be a new species.

No. 17. *Picea rubra, rubens* and *americana.*

Picea rubra LK is called by KOCH: *Abies americana;* this depends upon KOCH's considering *Pinus americana* GAERTN. 1791 as a synonym.

GAERTNER gives as synonym MILLER's *Abies americana*, so intends to describe the same species; whereas *Abies americana* MILL. and with it *Pinus americana* GAERTNER generally is taken to be our *Tsuga canadensis.* Nevertheless KOCH perhaps is right; GAERTNER's description really is vague [1]); it describes the cone with form and size of a small hen's egg (so $\pm$ 5 cm); but his picture shows a cone of $4 : 2^1/_2$ cm; form and size rather correspond with *Picea rubra* than with *Picea canadensis (alba); Picea nigra* can be disregarded as GAERTNER describes same separately (as *Pinus mariana* = *Abies mariana* MILL.) and illustrates same unmistakably; and *Tsuga canadensis* has a still much smaller cone. *Picea canadensis (alba)* is not treated by GAERTNER; it has a bigger cone.

Therefore we have to write: *Abies americana* KOCH non MILL. The name *americana* can be set aside by regarding GAERTNER's description and picture as insufficient; a dangerous action; a number of MILLER's names then come as well into consideration for being treated in the same way; and who will point them out? [2])

LINK's description of *Picea rubra* is also incomplete compared to *Picea nigra* and even to his *coerulea (alba);* he gives for the length of the cones of *rubra:* somewhat longer and broader than *nigra,* and for that of *nigra* and *coerulea:* $1^1/_2$ inches. In reality *rubra* stands between *nigra* and *alba* with a length of about $1^1/_2$ inches. Likewise the description of *Abies (Picea) rubra* by POIRET in LAMARCK Encycl. V, 1804 (quoted by LINK) is incomplete; the length of the

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[1]) *Abies foliis linearibus obtusiusculis bifariam versis, conis subrotundatis* (MILL. Gerd. Dict.) *Strobilus magnitudine et forma ovi gallinacei minoris, totus e spadiceo cinerascens. Squamae coriaceae, crassae, triangulares, latere exteriore rotundato, subcrenulato. Nuculae paulo minores quam in praecedenti, ab exteriore saltem latere membrana alari vestitae. Alae ovatae oblongae, subaequilaterae, vel saltem latere exteriore non adeo gibbae ut in priori. Secedenti similis, sed lobulis cotyledoneis quaternis.*

MILLER's description was related to me in the same words by the Kew Gardens; the *„folia bifariam versa"* point to *Tsuga canadensis* and not to *Picea rubra.*

2) Who acts, as REHDER does, and declares a name illegal, because it is based on an error, may reject the name *Pinus americana,* because GAERTNER bases it upon an interpretation of *Abies americana* MILLER, which is wrong according to our conception; moreover MILLER's name *Abies americana* is based upon a wrong interpretation of *Pinus canadensis* L. But in the first place not everybody accepts this (cf. Farwell's conception sub No. 19), and secondly an error is not a legal-reason to declare a name invalid.

cone here is said to be only 1 inch equal to that of *Picea nigra;* in *P. alba* it is given, more exactly, as 1—2 inches. But LINK and POIRET both quote LAMBERT'S description and picture („Descr. of the Genus Pinus" 1st ed. Vol. I 1803); and according to SARGENT in „Sylva" LAMBERT has excellently fixed *P. rubra* in word and picture. LAMBERT'S description (also to be found in WILLDENOW „Species Plantarum" 1805) runs as follows: *P. foliis solitariis subalatis, strobulis oblongis obtusis, squamis rotundatis subbilobis margine integris.*

In the „Descriptio" LAMBERT adds: *strobuli 1—1½ unciales, rubicundi...*; and the plate gives a branch with cones, 2½ cm long. But that branch was obtained from a tree in England; two cones, coming from America, are figured on the plate with a length of 5½ and nearly 6 cm.! I cannot join in SARGENT'S admiration.

LAMBERT describes the cones of *P. nigra* and *P. alba* better (in the text resp. 1 and 2 inches, in the drawing resp. 3½ and 6½ cm.; all with material from a garden in England).

With regard to the name *americana* by GAERTNER („Fruct. et Sem." II 1791) there is no difference whether we derive *Picea rubra* from LINK (1841) or from LAMBERT (1803); and the combination of name *Picea rubra* has been used originally by LINK.

There also exists an *Abies americana* DU MONT DE COURSET 1802, which, according to SARGENT in »Sylva", does not represent our *Tsuga canadensis* but *Picea canadensis (alba).* This name is not to be taken into consideration at all.

Then there is a *Picea rubra* DIETRICH Flor. berol. II, p. 795, 1824. This name led to DIETRICH'S name being put as author's name behind the American species in SARGENT „Sylva" and likewise in my article „the Scientific names etc."

What is this *Picea rubra* DIETRICH? In 1824 ALBERT DIETRICH published a „Flora der Gegend um Berlin oder Aufzählung und Beschreibung der in der Mittelmark wild wachsenden und angebauten Pflanzen". Under the head „Conifers" he mentions: *Abies nobilis* M., *Picea rubra* M., *Pinus sylvestris* L., *Pinus Strobus* L. and *Larix gracilis* M..

Each species has a brief diagnosis and a long German description; on p. 795 we find sub *Picea rubra* M. (i.e. mihi): *Pinus foliis solitariis subtetragonis acutis, ramis inferne nudis, strobilis cylindraceis, squamis interioribus rhombeis margine erosis. Pinus Abies* L., WILLD. Prodr. n. 702, KUNTH ber. (i.e. Flora berolinensis) p. 263, SCHLECHT. flor. p. 497. From this synonymy it may already be concluded that we have to deal with the common spruce fir *Picea excelsa* LK. This is corrobotated by the long description:

„In Wäldern häufig. Blüht in Mai. Der Stamm baumartig, eine Höhe von 140—160 Fusz (i.e. 47—53 M.) erreichend, mit einer rothbraunen, im Alter rissigen, schuppigen Rinde bekleidet. Die Äste unten nackt, stehen quirlförmig, sind bogenförmig mit den Spitzen nach oben gerichtet, bei alten Bäumen hängen sie schief herab,... Die Blätter nadelförmig, bleibend, $^1/_2$—$^3/_4$ Zoll lang (i.e. $12^1/_2$—19 mms)... 4 kantig mit 2 scharfen und 2 stumpfen undeutlichen Kanten, spitz und an der Spitze gelblich und etwas krummgebogen,... Der Zapfen 5—6 Zoll (i.e. $12^1/_2$—15 cms) lang, walzenförmig, hängend,... Die Schuppen nicht auseinander fallend... Die Samen... geflügelt."

All this applies to *P. excelsa* Lk and not to *P. rubra* Lk, which attains a height of 20—30 (rarely 40) M, is rare in our woods, has more pronouncedly quadrangular needles of a length not above 10 (—15) mms, and cones from 3—4 cms long.

Has therefore the common spruce fir a right to the name of *P. rubra* Dietr.? The name *rubra* given to the red American spruce fir (viz. *Pinus rubra* Lamb. 1803) already previous to Dietrich's description of the common spruce fir, gets out of use when the older specific name *americana* (*Pinus americana* Gaertn. 1791) is given to this American species of spruce fir, so that Dietrich's name *rubra* would be justified for the common spruce fir if the name of *excelsa* were not much older (*Pinus excelsa* Lam. Flore franç. 1778).

Not only does Dietrich require the name *Picea rubra* for himself (by placing the letter m. behind it), but also the generic name *Picea;* the chapter is headed: *Picea* M. with a proper diagnosis. Usually Link 1827 is mentioned as the author; but Dietrich has a right to it; he was the first to take *Picea* as a separate genus.

Beside, the new name *Picea rubra* for the common spruce fir Dietrich has the new name *Abies nobilis* M. for the silver fir (*Abies alba* Mill.); he gives *Pinus Picea* L. and *Pinus Abies* Duroi as synonyms and adds a description. Obviously he does not know Miller's name and description. Finally it appears from the description that *L. decidua* Mill. is meant with *Larix gracilis* M. Dietrich does not mention synonyms in this case; the name is no more valid than *Abies nobilis;* though Dietrich's descriptions are much completer than Miller's.

H. F. Link wrote a preface to the book. It is therefore a striking fact that in his paper entitled „Abietinae horti regii botanici Berolinensis" in „Linnaea" XV 1841 Link does not mention Dietrich's names at all. He gives *Picea excelsa coerulea* (i.e. alba), *nigra* and

rubra; obviously he does not know GAERTNER'S *Pinus americana* or takes it for *Tsuga canadensis;* therefore he cannot use the name *Picea rubra* in DIETRICH'S sense and gives the name *excelsa* in stead of his own previous name *vulgaris* (1827).

DIETRICH'S names are not mentioned anywhere (LOUDON, ENDLICHER LINK, KOCH, BEISSNER, ELWES & HENRY); only, as stated above, SARGENT mentions DIETRICH as the author of the American *Picea rubra* and for that reason ELWES & HENRY write that *Picea rubra* DIETR. is our *Picea excelsa.*

Yet DIETRICH'S work makes a favorable impression; among others he wrote a flora of Prussia and a botanical terminology.

But we revert to *Picea rubra* LK.

SARGENT calls the species in his „Sylva" and in the first edition of his „Manual" *Picea rubens* (*P. rubra* falls away according to the principle „once a synonym, always a synonym" of the Philadelphia Code which at that time was still followed by him [1]) and in the 2nd edition of that „Manual": *Picea rubra*, He considers *Pinus americana* GAERTN. = *P. mariana (nigra).*

As regards JACK'S interpretation to give the name of *Picea canadensis* to *P. rubra*, see under no. 19.

The result is therefore that we only can keep the name of *Picea rubra* LK 1841 (*Abies rubra* POIRET in LAM. 1804, *Pinus rubra* LAMB. 1803) by declaring that the description of GAERTNER'S *Pinus americana* is insufficient, and that otherwise the species must be called *Picea americana* nov. comb. (*Pinus americana* GAERTN. 1791).

Here again international deliberation ought to take place, as otherwise, according to personal opinions, different botanists will act differently.

No. 18. *Picea polita* and *Torano.*

See sub no. 23.

No. 19. *Picea alba*, *canadensis*, *glauca*, *laxa* and *coerulea;* *Tsuga canadensis* and *americana.*

Picea canadensis B. S. P., the white American spruce fir, is called by BEISSNER and by ELWES & HENRY *Picea alba*, by KOCH *Abies laxa*, by REHDER *Picea glauca.*

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[1]) *A. Picea rubra* LK relies upon *Pinus rubra* LAMB. 1803; *Pinus rubra* MILL. (synonym of *P. sylvestris* L.) dates from 1768.

If *Picea* and *Tsuga* are regarded as two genera, *Picea canadensis* based upon *Abies canadensis* MILL. 1768, and *Pinus canadensis* DUR. 1771, is the oldest name for our American spruce fir. LINK's name, based upon *Pinus alba* AITON 1789 and still in frequent use, is in defiance of the international Rules. „But", says REHDER in „Journal of the Arnold Arboretum", I. p. 45, *Picea canadensis* is a name that has to be kept for our *Tsuga canadensis*, in case *Tsuga* will be replaced in the genus *Picea* by botanists [1]).

This was done at the time by LINK, who gave the name of *Picea canadensis* to our present *Tsuga canadensis*, in accordance with *Pinus canadensis* LINN. Sp. pl. II 1763.

LINNAEUS' phrase runs: „Pinus foliis solitariis linearibus obtuisiusculis submenbranaceis". The „folia membranacea" clearly indicate our *Tsuga canadensis*. From the nature of things LINK could not call the white American spruce Fir likewise *Picea canadensis (Abies canadensis* MILLER 1768) and gave it the name of *Picea alba* in accordance with *Pinus alba* AITON Hort. Kew. 1789.

MILLER's description (Dict. ed. 8 nr. 4, with trivial name) runs, according to a communication of the Kew Gardens and conform to LINNAEUS' statement of MILLER ed. 7 without trivial name in Sp. pl. II: *Abies canadensis;* The New Foundland White Spruce Fir. „Abies foliis picae brevioribus, conis parvis biuncialibus laxis". MILLER adds: „the fourth sort is a native of North America, from whence the seeds have been brought to England and great numbers of the plant raised. This is called by the inhabitants in America the White Spruce Fir. It grows naturally on the mountains and higher lands and arrives to a much greater size than most of the other sorts." This surely is our *Picea alba;* the length of the cone, the name of „White Spruce" prove it. *Picea alba* usually reaches a height of 20—25, but may even reach a height of 50 meters; *P. rubra* is usually 25—50, rarely 35 meters high, according to Sargent. Yet some people doubt this interpretation of MILLER'S *Abies canadensis.*

AITON's description of *Pinus alba* runs: „Pinus foliis tetragonis lateralibus incurvis, ramis subtus nudiusculis, conis subcylindraceis". He gives *Abies canadensis* MILLER as a synonym and calls the species also White Spruce Fir. Besides *Pinus alba* he describes *Pinus canadensis* L. with „foliis membranaceis" and the

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[1]) This is the principle of „conditional synonyms", devised by REHDER and, though recommended at Brussels in 1910, not made obligatory and without retrospective effect.

name of Hemlock Spruce Fir Tree. Accordingly his *Pinus alba* must be our White American Spruce Fir. And LINK was right in choosing that specific name for his *Picea alba*.

But as soon as the Hemlock Spruce Fir forms a separate genus, it (the American White Spruce Fir) must be returned its specific name of *canadensis*, which MILLER gave it in 1768. Probably that name was due to an error, because MILLER mistook *Pinus canadensis* LINN. for the white American Spruce Fir, which is not described by LINNAEUS.

By the side, MILLER gives the name of *Abies americana* to the Hemlock Spruce Fir. Neither AITON in „Hortus Kewensis" 1789, WILLDENOW in „Species Plantarum" 1805, LINK in „Linnaea" 1841, ENDLICHER in „Synopsis Coniferarum" 1847, nor GORDON and afterwards ELWES & HENRY mention MILLER's name. Only KOCH and SARGENT give it as a synonym under their *Abies* resp. *Tsuga canadensis*. ENDLICHER however does mention *Pinus americana* DUROI (= *Abies*—MILL.) under his *P. canadensis*.

It might be considered, according to REHDER's wish, to put that name of *Abies canadensis* MILLER aside internationally, if we could get rid of it by doing so. This however is not the case; in his „Harbkesche Wilde Baumzucht" 1772 DUROI likewise gave the specific name of *canadensis* to our white American Spruce Fir, and his description is such that it cannot be regarded inadequate as might be the case with MILLER'S. However, the name could be put aside because DUROI places the species under *Pinus* and there existed already a *Pinus canadensis* LINN. 1763 (our *Tsuga canadensis*) so that DUROI's name, by virtue of the International Rules of 1905, having retrospective effect till 1753, would be unlawful.

Neither does this hold good, for DUROI called that *Pinus canadensis* L. *P. americana!*; so he used the name *canadensis* but once in the genus *Pinus*. „Yes but", the reader will say „that was not permitted; arbitrary changes of name are forbidden by the International Rules, so invalid!" It was not arbitrary however; DUROI thought, just like MILLER, to recognize the white American Spruce Fir in *P. canadensis* L.; he gives the name as a synonym under his *Pinus canadensis*, so he acted in good faith. Of course just like MILLER, he did not at the same time recognize the East American Hemlock Fir in *Pinus canadensis* L. and thought, like MILLER, to have found a new species in this and gave it the name of *Pinus americana* (*Abies americana* MILLER). FARWELL, in Bull. Torr. Bot. CLXLI 1914 p. 621—9 evidently shares MILLER's and DUROI's opinion of *P. canadensis* L. and calls, rightly from that point of view, our *Tsuga canadensis*: *Tsuga americana* FARWELL.

But if we see MILLER's and DUROI's mistake, the name for the Hemlock Fir should be: *Tsuga canadensis*, by the side of *Picea canadensis* for the American Spruce Fir.

An other old name for our *Picea canadensis* is *Picea laxa;* KOCH calls it by that specific name in 1873; and as accordingly to him *Picea* belongs to *Abies*, it is called *Abies laxa.* SARGENT calls it *Picea laxa* in „Garden & Forest" 1888.

The name was first formed by EHRHART in „Beitrage zur Naturkunde" 3rd Bd. 1788; on p. 24 it says a.o. nr. 12. Die weisse Fichte. *Pinus laxa. P. ramulis glaberrimis; . . . foliis . . . tetragonis . . . lineis 4 longitudinalibus punctatis; strobulis oblongo-ovalibus, pendulis; squamis obovato-subrotundis, integerrimis, tenuibus,* . . . Canada.

As synonyms EHRHART gives *Abies canadensis* MILL. dict. ed. 8, *Pinus canadensis* DUR. and *Pinus Abies laxa* MÜNCHH.

MILLER'S name is oldest (1768), MOENCHHAUSEN'S dates from 1770 (der Hausvater vol. V [1]). For those, who admit the specific name of *canadensis*, *laxa* is a synonym.

JACK (fide ELWES & HENRY) in „Garden and Forest" X 1897, doubts that MILLER should have meant the white American Spruce Fir with his *Abies canadensis* [2]) and he proposes to give our *Picea rubra* the name of *P. canadensis* and keep EHRHART'S name of *Picea laxa* for our *P. canadensis (alba).* The name of *alba* is more recent than *canadensis* and *laxa*, it dates from 1789 (AITON Hort. Kew.) and could be passed over by JACK.

KOCH arrives at the same conclusion through a different cause; he cannot use the name of *canadensis* for the white American Spruce Fir, because he places both *Picea* and *Tsuga* under *Abies;* and he gives that specific name to our *Tsuga canadensis;* therefore he must give our *Picea canadensis (alba)* the oldest preceding name, according to him *laxa* EHRH. (1788).

KOCH'S giving the specific name of *canadensis* to our *Tsuga canadensis* is correct, if MILLER did not give that specific name to our *Picea canadensis (alba)* until in the 8th ed. of his Dictionary (1768); our *Tsuga canadensis* received that specific name as early as 1763 (2nd ed. Linn. Sp.pl.) i.e. earlier. But KOCH (unlike later authors)

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[1]) Moreover *laxa* has been given here as a variety; as a specific name it is not mentioned until EHRHART mentioned it in 1788.

[2]) MILLER described our *Picea nigra* as *Abies mariana* and *Picea alba* or *rubra* under the name of *A. canadensis, A. Pinus rubra* MILL. does not appear in Dict. until 1795 and is *Pinus sylvestris.*

See for MILLER'S description of *Abies canadensis* p. 48.

adds to his *Abies canadensis:* MILL. Dict. 7th ed. (1759). If we had to proceed according to that year, we (and KOCH) should have to give the specific name of *canadensis* to our *Picea canadensis (alba)*, and *Tsuga canadensis* should have to get the specific name of *americana* (*Abies americana* MILL.). To this name of MILLER KOCH also adds: Dict. 7th ed. 1759; according to that date we should expect the sooner that KOCH had given the name of *americana* to *Tsuga canadensis*, for that specific name were older than *canadensis* (1763).

Why did not KOCH do so and did he give the names as if *Abies canadensis* MILL. and *Abies americana* MILL. date from 1768 (8th ed. Dict.)? The solution is plain. The director of the Bot. Dep. of the British museum informed me of the fact, that the 7th edition of the dictionary did contain descriptions, but no specific names; they are not used before the 8th ed. This is comprehensible, as LINNAEUS only a short time before, in 1753, published his „Species plantarum", in which trivial names occur for the first time; those trivial names were secondary matter, for convenience sake; the specific name, a phrase methodically constructed, was primary. Of course those trivial names were not directly accepted everywhere: it was a great novelty, which did find its opponents. MILLER therefore in 1759 (7th ed.) still gave Linnean specific names and did not add Linnean trivial names until 1768 (8th ed.); for us those older specific names have become short descriptions, the trivial names specific names (very un-linnean). KOCH expresses in his quotations that MILLER described the species concerned in 1759 and adds MILLER'S trivial name of 1768; he attaches more value to the description than to the trivial (our specific) name; and as he did not yet live under restriction of the Rules of nomenclature of 1905, he could indulge in this luxury.

But on arranging the specific names he bears in mind that the trivial (specific) names were not added by MILLER until 1768. He would have done better if he had mentioned, beside the quotations with the year 1759, the year 1768 behind the trivial (specific) name. MILLER'S dictionary is rare and most older editions were cleared away, when a new one was published; and now we are badly in want of the old ones.

Now a complication occurs in fixing the lawful name. Voss, in „Mitt. der Deutschen Dendrologischen Gesellschaft" 1907, proposes to call the white American Spruce Fir *Picea glauca*; *Pinus glauca* is a name used by MOENCH in 1785 („Verzeichniss ausländischer

Bäume des Lustschlosses Weissenstein"); so this specific name, like the name of *laxa*, is older than *alba*, but moreover older than *laxa;* in so far Voss is right; and as in his „Wörterbuch der Deutschen Pflanzennamen" 1922 he places *Pinus*, *Abies*, *Tsuga Picea*, etc. in one genus *(Pinus)*; and as the name of *canadensis* was given to our *Tsuga canadensis* before it was given to our *Picea canadensis (alba)*, he gives, justly according to his conception, the name of *Pinus glauca* to *P. canadensis (alba)*.

REHDER rejects, as we have seen, the name of *canadensis* for our *Picea canadensis (alba)* as a „conditional synonym", and gives it (in Journ. Arn. Arb. I. p. 571), like Voss, the name of *glauca*, viz. *Picea glauca;* BEISSNER, like GORDON in „Pinetum" 1858, puts *Pinus glauca* MÖNCH as a synonym under *Picea alba;* he has *P. glauca* hort. and *P. alba glauca* GORD. under *Picea alba* var. *coerulea*. But why did not KOCH, who usually acts according to priority, put that older name of *glauca* instead of *laxa*, which is more recent? KOCH writes, that *Pinus glauca* MÖNCH is only a variety of our *Picea canadensis* and consequently must not be used for the whole species; CARRIÈRE, in „Traité des Conifères" of 1855, regards it as a synonym of *Picea alba* LK, but calls it in the 2nd ed. (1867) *P. alba* var. *coerulea*, probably because FORBES in „Pinetum Woburnense" of 1839 called it *Abies coerulea* [1]); they evidently did not know MÖNCH's name.

ELWES & HENRY agree with KOCH and call the variety: var. *coerulea*; this name is lawful according to our Rules of nomenclature, because the plant has become a variety instead of a species, i.e. has obtained a different hierarchic rank; in such a case according to the Rules of 1905 names may be ignored; and *glauca* has not been used as a variety-name.

But we have not got rid of the name of *glauca* as a specific name. For though with *Pinus glauca* we mean only part of what we call *Picea canadensis*, clause 44 of the Rules of nomenclature may be applied to it; on extension (or reduction) of the conception of a species, the name is preserved; in our case that, which we have been used to call *Picea alba*, may be designated by the name of *Picea glauca* REHD. (*Pinus glauca* MÖNCH sensu amplo or emendata).

The result therefore is, that from the point of view of KOCH and Voss, who combine those *Tsuga*, *Picea* a.o. genera to one (resp. *Abies*, *Pinus*), we should call the white American Spruce Fir *Abies* resp.

[1]) SARGENT is the only one who takes it for a form of *Tsuga canadensis*. Now LINK's description is not clear, but he places *P. coerulea* by the side of *P. rubra* and *P. nigra*.

Pinus glauca (or *laxa*) and that, on our admitting *Picea* and *Tsuga* as separate genera, we should call it *Picea canadensis* B. S. P. Fortunately that recognition of the separate genera is fairly common; but yet SARGENT in the second edition of his „Manual", BAILEY in his works (under influence of REHDER) and REHDER himself in his „Manual" 1927, call the species *Picea glauca.* International consultation is necessary.

No. 20. *Picea sitchensis, Menziesii* and *falcata*; *Tsuga heterophylla* and *Mertensiana.*

Abies Menziesii was published by LINDLEY in „Penny Cyclopedia" in 1833 (the specimens and may be the name were provided by DOUGLAS). But BONGARD described the same species from specimens of Dr. MERTENS in „Observations sur la végétation de l'ile de Sitcha" as *Pinus sitchensis;* his description runs: *Foliis (solitariis) linearibus subtetragonis acuminatis mucronatis, squamis coni oblongis obtusis, tenuissime denticulatis.* In the long description it says i.a.: *Folia ... nervo medio utrinque prominulo ... 7—8 lin. longa, linea paulo angustiora. Strobuli ... pollicem vel sesquipollicem longi. Squamae ... undulatae s. tenuissime et irregulariter denticulatae, 5 lin. longae ...*

SARGENT dates BONGARD's description 1832, which gives his name the right of priority above LINDLEY's name *Menziesii;* the species is universally called *Picea sitchensis.* But SARGENT was mistaken. BONGARD's paper was published in the Mém. de l'Acad. Imp. des Sc. de St. Petersbourg, 6e sér. sc. math., phys. et nat. T. II; and this T. II is provided with the year 1833. Moreover it says: „publié par ordre de l'académie en Novembre 1833". BONGARD's paper is „lu le 4 Mai 1831".

There is more chance that *Abies Menziesii* LINDL. was published between January and November than between Nov. and ultimo December 1833. So long as the month is not fixed, the name *sitchensis* may be maintained; besides it is to be preferred, because the paper concerned was offered to the Academy as early as 1831.

But as the proverb runs, while two dogs are fighting, a third takes the spoil, so in our case there is a third name, exceeding the two others in age. In „Atlantic Journal" 1832 RAFINESQUE described plants gathered by the travellers LEWIS and CLARKE (Travels to the source of the Missouri River and across the American Continent to the Pacific Ocean, in the years 1804—6, London 1814). RAFINESQUE's descriptions are meagre, but they are founded on LEWIS and CLARKE's specimens and notes. In „Synopsis Coniferarum" 1847 ENDLICHER

reprints RAFINESQUE'S and L. and CL.'s descriptions. There we find also *Abies trigona* RAF. and *A. falcata* RAF.; the description of the first is too insignificant, cones were not found[1]); sub *A. falcata* it says i.a.: „ ... leaves acerose, $^2/_{10}$ inch in width, $^3/_4$ inch in length, firm, stiff and a little acuminated; they end in short pointed tendrils, gibbous, and thickly scattered on all sides of the branch ... those inserted on the underside incline sidewise with upward points ... grow from the small triangular pedestals ... The cone ... ovate ... $3^1/_2$ inches in length, and 3 in circumference, thickest in the middle and tapering and terminating in two obtuse points; it is composed of small flexible scales, imbricated and of reddish brown colour ... 2 seeds ..."

SARGENT placed this species, rightly in my opinion, as a synonym sub *P. sitchensis;* but BONGARD'S name being printed in 1833, the name *falcata* becomes legal; thus the species should be called: *Picea falcata* nov. comb.

Of course RAFINESQUE'S specific name might be declared not valid by general consent; but then this should be extended to his other species, i.a. *Abies mucronata* and *A. heterophylla;* these are no better and represent as distinctly (or indistinctly!) respectively *Pseudotsuga taxifolia* (*Douglasii*) and *Tsuga Mertensiana* CARR. (non SARG.). SARGENT rejects the name *mucronata* on account of the rules of 1905, but acknowledges it as oldest synonym; and he uses the name *Tsuga heterophylla* in his works, in which he is imitated in Europe.

RAFINESQUE gives the following description of his *Abies heterophylla:* „Bark rimose; leaves distichal petiolate, very unequal, sulcate above, glaucous beneath; cones terminal ovate, minute flexible. Reaching 180 feet high and 6 feet diam. Leaves from $^1/_4$—1 inch long, but all $^1/_{10}$ wide. Is it a variety of the Spruce Fir?" LEWIS and CLARKE give a long description, in which: „... leaves ... the greatest length seldom exceed a quarter of an inch; a small longitudinal channel on the upper side ... The cone is not longer than the end of a man's thumb ..." The amount given for the length of the needles will probably be due to a slip of the pen or a printer's error.[2])

We get the impression that RAFINESQUE did not know *Tsuga*

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[1]) SARGENT places it as a synonym sub *P. sitchensis;* and probably it is meant to represent that species.

[2]) RAFINESQUE also gives an *Abies microphylla,* without adequate description, also regarded by SARGENT as *Tsuga heterophylla* and here it says: „leaves only $^1/_{12}$ of an inch long"; an other printer's error? also cf. sub No 26 *Abies grandis.*

canadensis. That he described this and not a new species is improbable on account of the regions travelled over by LEWIS and CLARKE.

On RAFINESQUE's name *Abies falcata* and *A. heterophylla* international deliberation is wanted.

No. 21. *Tsuga Pattoniana* and *Mertensiana*.

In the introduction to his article „Observations sur la végétation de l'île de Sitcha (Mém. de l'acad. imp. de St. Petersbourg) 6e sér. sc. math., phys. et nat. T. II 1833, BONGARD writes: „Parmi les plantes que feu le Dr. MERTENS a rapportées de son voyage autour du monde, celles qu'il avait cueillies à l'île de Sitcha m'ont paru offrir un interêt particulier parcequ'elles viennent d'une contrée qui fait partie des possessions Russes et dont la végétation est encore peu connue". He preceeds that the excursions were only made close to the settlement and along the coast owing to the difficulties of the territory and the hostile attitude of the natives. Finally that he found no notes by Dr. MERTENS, so that descriptions were hard to give.

BONGARD's description of his *Pinus Mertensiana* runs as follows: p. 163 *Pinus Mertensiana* n. sp.

Foliis solitariis linearibus obtusiusculis, basi in petiolum attenuatis, integerrimis, squamis coni reniformibus integris.

Ramosissima; rami ramulique, delapsis foliis, valde tuberculosi. Folia solitaria, approximata, linearia, basi in petiolum attenuata, obtusiuscula, supra plana, subtus nervo medio prominulo, integerrima, 5 lin. longa, lineaque paulo angustiora.

Strobuli solitarii, sessiles, oblongi, obtusi, 1½ pollicares pl. min. Squamae reniformes, integrae, 5 lin. et quod excedit lata.

The needles with quite entire margins point to our *T. Pattoniana*.

Different measures of the needles and cones are as follows:

length of the needles of our *T. Mertensiana:*

BEISSNER 10—20; ELW. & HENR. 5—20; SARGENT 5—20 mms.

length of the needles of our *T. Pattoniana*:

BEISSNER 14—15; ELW. & HENR. 20—25; SARGENT 14—25 mms.

width of the needles of our *T. Mertensiana:*

BEISSNER 1,5; SARGENT 1,5—2 mms.

width of the needles of our *T. Pattoniana:*

SARGENT 1,5 mm.

BONGARD gives for his species a length of 10 mms., a width of a little less than 2 mms. It is difficult to decide whether this is our *T. Mertensiana* or *T. Pattoniana*.

Length of the cones of our *T. Mertensiana:*
E. & H. $2^1/_2$ cms; SARGENT $2-2^1/_2$ cms.
Length of the cones of our *T. Pattoniana:*
BEISSNER $5-7^1/_2$ cms; E. & H. 5 cms; SARGENT $1^1/_2-7^1/_2$ cms.
BONGARD gives $3^3/_4$ cms, which points to identification with our *T. Pattoniana;* besides, BONGARD calls the cone obtuse, which applies to *T. Pattoniana* rather than to *T. Mertensiana.*

The identification of *P. Mertensiana* BONG. with our *T. Pattoniana* becomes even more probable, because by the side of his *P. Mertensiana,* BONGARD also describes *P. canadensis,* thus: *Folia solitaria, subdisticha, obtusa, tenuissime denticulata, subtus glauca, praeprimis juniora basi in petiolum brevem attenuata. Rami juniores pilosi.*

From this description it cannot be concluded which of the two species is meant; but *T. canadensis* is not found in Sitcha, consequently the description must refer to our *T. Mertensiana* (not on BONGARD'S; the difference is plainly rendered by the „folia denticulata" on one side and the „folia integerrima" on the other).

On that account SARGENT and BEISSNER place BONGARD'S *Pinus canadensis* as a synonym sub *Tsuga Mertensiana* CARR. 1867 (in 1855 *Abies Mertensiana* LINDL. ((*Pinus*—BONG.)) is still one of his „Espèces peu connues"). The oldest specific name is *heterophylla,* cf. No. 20.

As on account of the various conceptions according to CARRIÈRE and SARGENT the name *Tsuga Mertensiana* may lead to confusion (but this only if the name of the author is not added!) in „The Trees of Great Britain & Ireland" ELWES & HENRY call *Tsuga Mertensiana* CARRIÈRE: *T. Albertiana* SÉNÉCL. 1867, while by its side they maintain *T. Pattoniana* SÉNÉCL. So they reject *Tsuga heterophylla* SARGENT. E. & H. add, that the name *T. Albertiana* dates from the same year as *T. Mertensiana* CARR. viz. 1867; this is true, but they omit to add, that the specific name *Mertensiana* is most positively older on account of the combination *Abies Mertensiana* GORDON 1858. Besides, an objection to this specific name *(Albertiana)* is, that there also exists a *Picea Albertiana,* which may give rise to confusion on combination of genera. International agreement is required.

No. 22. *Pseudotsuga taxifolia, Douglasii* and *mucronata.*

It is now universally accepted that *taxifolia* is the oldest, i.e. legal specific name for the Douglas-spruce fir. It already bore this name, when DOUGLAS discovered it for the second time (after MENZIES) in 1825 and sent its seed to Europe for the first time. In 1803

LAMBERT described it in his work „Description of the Genus Pinus" with that name as *Pinus taxifolia*. Meanwhile Mr. SABINE, one of DOUGLAS' patrons and friends, had called it *P. Douglasii* in a manuscript [1]); and LINDLEY legalised that specific name in 1833 with his *Abies Douglasii* in „Penny Cyclopedia"; LAMBERT himself also adopted that specific name (under the generic name *Pinus*) in the third volume of his work (1837) and so did LOUDON in „Arboretum et Fruticetum" of 1838; in „Linnaea" 1841 LINK gives it sub *Picea*.

In the first edition of his „Traité des Conifères" 1855 CARRIÈRE classed the Douglas Spruce fir with *Tsuga;* in the second edition of 1867 he made it into a new genus *Pseudotsuga;* the name *Pseudotsuga Douglasii* originated with him. [2])

Neither of the two specific names mentioned is characteristic, but the one of SABINE and his followers is sympathetic.

No more than *Douglasii* has a third specific name *mucronata*, originated with RAFINESQUE in 1832, right of priority; according to the earlier American rules of nomenclature, one of which ran as follows: „once a synonym always a synonym", the specific name *taxifolia* was not valid (on account of *Pinus taxifolia* LAMB. and *Pinus taxifolia* SAL. 1769 = *Abies balsamea* MILL.) and consequently *mucronata* valid: the name is found in SARGENT's „Sylva". But at present SARGENT follows the International Rules of 1905.

Pinus taxifolia LAMB. is acknowledged by SARGENT to be our Douglas Spruce fir, and he calls it *Pseudotsuga taxifolia* in the 2nd edition of his „Manual".

However there is an opposition against the name *taxifolia* here and there; C. KOCH thinks *Pinus taxifolia* LAMB. doubtful; KOCH had LAMBERT's illustration of the species at his disposal; it showed a great resemblance to *Abies;* and he supposes a possible confusion of specimens. LAMBERT writes that he has found the material in BANKS' herbarium; and BANKS adds in a note that the material came from MENZIES (who travelled over West America before DOUGLAS). LAMBERT proceeds: „as for the cones I can give no account of them, those which were brought by Mr. MENZIES having been unfortunately mislaid. That gentleman however informs me that they differ in their form from the cones of *P. canadensis* and that they are longer." The branches drawn bear leaves much resembling *Tsuga canadensis;* some buds, though not distinctly

[1]) In „Flora boreali americana" II 1840 HOOKER gives a *Pinus (Abies) Douglasii* (SABINE msc.)

[2]) A later name *Abietia Douglasii* KENT in VEITCH „Manual of Conifers" 1900 is not valid.

drawn, have an oblong shape as those of the Douglas Spruce fir have. KOCH's opinion that these branches might also have been mislaid, is well founded.[1]) But as in the account of his travels DOUGLAS himself writes about LAMBERT'S *Pinus taxifolia* and sends its seed[2]) from which the European Douglas Spruce firs arose, we may assume, that LAMBERT'S name *Pinus taxifolia* with sufficient probability points to our Douglas fir.

The short leaves, which KOCH mentions in his comparison with *Abies pectinata*, might be due to a question of variety:

In „Linnaea" 1841 LINK distinguishes *Picea taxifolia (Abies Douglasii* LOUD.) *and P. Douglasii* (*Abies*—LOUD). *P. taxifolia* is described *foliis linearibus obtusiusculis, subtus lituris albicantibus. Folia ultra pollicem longa*; whilst it says of *P. Douglasii: ... folia subtus pallide viridia 10 lin. longa.* The leaves of his *P. Douglasii* therefore are shorter and their undersurfaces greener.

In 1867 BEISSNER describes *Pseudotsuga Douglasii* var. *taxifolia* CARR. as follows: the tree attains but half the height, the leaves are longer, darker, the cones less pointed, the bracts shorter, slightly projecting; as a synonym he gives GORDON'S *Abies taxifolia* var. *Drummond.* In the edition of 1878 GORDON calls it *Abies Douglasii taxifolia* LOUD. (syn. *A. taxifolia* DRUMMOND and *Abies Drummondii* HORT.)

In SARGENT'S works and in ELWES & HENRY „The trees of Great Britain and Ireland" we find nothing of these varieties. But that the leaves vary greatly, also in length, everybody, who is familiar with Conifers, knows.

There is no reason to maintain a *Pseudotsuga Douglasii* by the side of *Ps. ts. taxifolia;* and *taxifolia* is the older specific name.

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[1]) In connection which this I quote the following from a report of the sale of LAMBERT'S books and herbaria in Gardener's Chronicle of respectively April 23 and July 2, 1842, tho which Mr. RENKEMA, officer of the section Systematics, etc. of the Agric. Academy has called my attention:

April 29, „The botanical books of this gentleman have this week been brought to the hammer. Considering that they were dirty and in many cases by no means in good condition, the prices they realised, are remarkable..."

July 2, „This celebrated collection has been just disposed of by public auctions. Considering that it was in bad condition, broken, soiled and in great confusion, the sum it produced (1170£) is considerable".

This might be put with the many incomprehensible inaccuracies in his great work on *Pinus.*

[2]) „I had collected last year (i.e. 1825) especially *Ribes sanguineum*...; and laid in specimens of *Pinus taxifolia* with fine cones;..." (Comp. Bot. Mag. II 1836, p. 125.)

But, if by international agreement the name *taxifolia* might be rejected through a strict application of the Rules of 1905 on account of the inadequate original description, the specific name *mucronata* is next in age.

RAFINESQUE's description in „Atlantic Journal" 1832, fide ENDLICHER „Synopsis Coniferarum" p. 126, runs as follows:

Abies mucronata RAF. Bark scaly, branches virgate, leaves scattered very narrow, rigid and oblique, sulcate above, pale beneath. Cones ovate acute, scales rounded, nervose mucronate. Rises 150 feet, leaves subbalsamic, one inch long, $^1/_{20}$ inch wide, cones very large, two and half inches long. Var. *palustris;* grows in swamps, only 30 feet high and with spreading branches.

LEWIS and CLARKE collected them on a journey right across the American continent; their notes are also given, in which it says: a.o. twigs much longer and slender in either of the other species ... Leaves straight, and obliquely pointing toward the extremeties.

ENDLICHER does not deem RAFINESQUE'S descriptions adequate to recognize the species concerned. At present this opinion will be shared by many a botanist.

If the name *taxifolia* is rejected, it should be internationally decided whether the name *mucronata* will be acknowledged or not, and if so, whether it will be placed in the list of the nomina rejicienda or not.

After *mucronata* the name *Douglasii* comes right in the end.

At present we also know an other West-American species *P. macrocarpa*, a Japonical species *Pseudotsuga japonica* and two Chinese species, *Ps. ts. sinensis* and *Ps. ts. Wilsonii.*

No. 23. *Tsuga Sieboldii* and *Araragi; Abies firma* and *Momi; Picea polita, Torano* and *Thurbergii.*

The competing names, respectively *Abies Araragi, A. Momi, A. torano*, all of them originated with SIEBOLD in Proc. Batavian Soc. of Arts and Sc. XII 12, 1830, are nomina nuda.

V. SIEBOLD writes on p. 12 („Synopsis Plantarum oeconomicarum"):

A. Momi Japon (v. v. h. b) usus: ...

A. torano Japon (v. v. sine fructu).

A. Araragi Japon. Pinus mariana GAERTN. (?) (v. v. h. b.) Lignum ...

Observatio: Nomina japonica retinui quum ex genere tam complicato absque sufficiente subsideo literario species, haud dubio illis Americae borealis affines, explorando fuerim impar.

(v. v. = vivam vidi; v. s. = vidi siccam; h. b. = vidi in horto botanico).

Koch is the only author who places these illegal names over the species concerned. Of late years Voss tried to re-introduce them. Endlicher in „Synopsis" 1847 and Carrière in „Traité" 1855 give as a synonym sub *Pinus*, respectively *Picea*, *polita*: *Pinus Abies* Thunb. Fl. jap. 1784. In his „Penny Cyclopedia" 1833 Lindley has a species *Abies Thunbergii*, not mentioned by Endlicher and Carrière; this denomination is based upon *Pinus Thunbergii* Lamb. (given by Sargent as a synonym sub *Picea polita*).

Has the specific name *Thunbergii* the right of priority above *polita?* In his work on *Pinus* vol. II 1824 (Praefatio), Lambert writes that *Pinus Abies* Thunb. is surely a different species from the European and suggests the name *Pinus Thunbergii* for *Pinus Abies* Thunb. Fl. jap. No description is added, and the question remains whether the description of Thunberg's *Pinus Abies* is deemed satisfactory as a base for Lambert's name; Thunberg's description runs: „*Pinus Abies. P. foliis solitariis subulatis mucronatis laevibus bifariis. Pinus Abies* L. Sp. pl. Crescit urbe Jedo, arbor forsan in his terris rarior quam reliquae species." Nobody will discover *Picea polita* in this description; Lambert dit not do so either; but on seeing Japanese drawings of a Conifer, he only supposed that Thunberg meant this and took it for *Pinus Abies* L.

The name *Thunbergii* however would be the oldest and legal name (and older than *Pinus Thunbergii* Parlatore 1868, a genuine species of Pinus with large buds, covered with white hair), if in 1833 Lindley provided his *Abies Thunbergii* with an adequate description. The Kew Gardens' Director sent me kindly a copy of what is said on the subject in the „Penny Cyclopedia": „No. 4. *Abies Thunbergii (Pinus Thunbergii* Lambert[1]) Monogr. Preface p. VII; *Pinus Abies* Thunberg Fl. japon. p. 275). A scarce plant in Japan, where it is found even in the city of Jeddo, according to Thunberg."

Lindley therefore added nothing to Lambert's report. So the specific name *Thunbergii* should be rejected for our *Picea polita*.

No. 23a. *Abies alba*, *pectinata* and *Picea; Picea excelsa* and *Abies*.

Plinius had *Picea* and *Abies* according to our present use; and so did C. Bauhin in his „Pinax" of 1623. Tournefort („Institutiones" 1700)

[1]) Bailley in „Cultivated Evergreens" and Voss in „Wörterbuch" write *Pinus Thunbergii* Asch. and Graebn. This is incorrect; Asch. and Graebn. call *Picea polita: P. torano* Koehne; among the synonyms *Pinus Thunbergii* Lamb. is lacking. Koehne writes in his Dendrology (1893): *Picea polita* Carr. = *P. torano* m.; *Abies firma* S. u. Z. = *A. Momi* S.; *Tsuga Sieboldii* Carr. = *T. Araragi* m.

put *Picea* under *Abies;* and he called our Silverfir: *Abies taxifolia fructu sursum spectante* (with erected cone), the common Spruce: *Abies tenuiore folio, fructu deorsum inflexo* (with pendant cone). LINNAEUS took *Picea* and *Abies* under *Pinus* and gave as trivial (our species) names the old generic names *Abies* and *Picea*, the name *Abies* to the plant that was called *Picea* before TOURNEFORT and the name *Picea* to the plant called in that period *Abies*. It was of no consequence because LINNAEUS formed a new nomenclature; and it should not have made any trouble if only one had persevered in giving to the name *Picea* the significance of our Silverfir and to the name *Abies* that of our common Spruce. But that has not happened. MILLER made in 1759 *Abies* again a distinct genus, including *Picea* (as TOURNEFORT did), with the speciesname *Abies Picea* (common Spruce) and *Abies alba* (Silverfir). In 1827 LINK separated *Abies* and *Picea*, thereby falling back upon PLINIUS and BAUHIN. If he only had taken both in the LINNAEUS' sense, all had remained well; but he gave the name *Abies* to the genus of Firs, the name *Picea* to that of the Spruces; to which names and senses the botanists are since accustomed. He gave to the Silverfir a speciesname *excelsa*, now the commonest name of the common Spruce, and to the common Spruce that of *vulgaris*. He neglected MILLER'S names.

So it is LINK who has been the cause that we have the two generic names *Picea* and *Abies* in a sense that is contrary to that of LINNAEUS of *Picea* and *Abies* as speciesnames; and those speciesnames of LINNAEUS have actual value because of our basis of modern nomenclature being the year 1753 of LINNAEUS „Species Plantarum" 1st edition. So *Abies* is the oldest speciesname for our common Spruce, and *Picea* idem for our Silverfir; and both binomials ought to be resp. *Picea Abies* (Common Spruce) and *Abies Picea* (Silverfir), which was introduced by LINDLEY for the ~~common Spruce~~ Silver fir in 1833 and by KARSTEN for the common Spruce and the Silverfir in 1882. In it self those names are confusing; the more so because *Abies Picea* MILL. (non ~~KARST.~~ Lindl.) means our common Spruce. *Picea Abies* is mentioned in REHDER'S „Manual" of 1927; *Abies Picea* ~~KARSTEN~~ Lindley (non MILL.; in the meaning of our Silverfir) is to be found in KOCH „Dendrologie" 1873 and in BAILEY'S „Cyclopedia" of 1917.

REHDER in his „Manual" of 1927 calls our Silverfir in opposition to BAILEY *Abies alba*, certainly not because he rejects the name *Abies Picea* as such, but because of his principle of „conditional synonyms": The name *Picea* must be saved for the case that again the genus *Picea* is put under *Abies;* then the name of the common

Fir should be *Abies Abies*, *Abies* being the oldest speciesname; but tautologic names are rejected by the International Congress of 1905; so the following legal name is *Picea* (from *Abies Picea* MILLER).

Moreover, if both *Abies* and *Picea* are again put under *Pinus*, as LINNAEUS did and as VOSS does in „Wörterbuch der deutschen Pflanzennamen" 1922, then the oldest and valid speciesname for our Silverfir is *Picea* (and that for the common Spruce *Abies*); so, even with the principle of „conditional synonyms", the name *Abies Picea* for our Silverfir seems to be the adaptable one. Why does not REHDER take this into consideration? Or must we take it so that the speciesname *Abies* must be reserved for the common Spruce in case that the genus *Picea* is again put under *Pinus*, and moreover the speciesname *Picea* in case that *Picea* is put again under *Abies?* Then the principle of „conditional synonyms" becomes still more complicating.

But that principle of „conditional synonyms" is not legalised! It is only recommended in 1910 (Brussels) for new names and than it is very recommendable; but in applying it to old names, it causes extra complications in nomenclature.

REHDER himself does not put *Picea* under *Abies;* so he has not the name *Abies Picea* for our common Spruce; he gives it the name *Picea Abies* ~~(LINDL.)~~ KARSTEN; *Abies* being the oldest speciesname of our common Spruce and as such the legal name; besides, the principle of „conditional synonyms" gives here no difficulty; if at any time *Abies* is put under *Picea*, then the oldest valid speciesname *Picea* (from LINNAEUS) becomes non-valid because *Picea Picea* would be a tautological name; and the next following name is not *Abies* but *alba* (*Abies alba* MILLER).

In my opinion *Abies Picea* and *Picea Abies*, *Pinus Abies* and *P. Picea* are semi-tautological names, besides names giving by themselves confusion and therefore falling under art. 4 and 5 of the International Rules. But personal opinion cannot be decisive. International deliberation and agreement are necessary. If judged legal the names might be put upon the list of nomina rejicienda; or an amendment of art. 55 might be made whereby combinations of two generic names, both still in use in different senses, are rejected.

By so doing we should obtain for our Silverfir and Common Spruce acceptable names.

No. 24. *Abies venusta* and *bracteata.*

In 1839 DOUGLAS, commissioned by the English „Horticultural

Society", travelled for the second time in Western North America. There he found i.a. a new species of Conifer, about which he writes (Oct. 23, 1832) to Sir W. J. HOOKER as follows: I will now mention another new *Pinus* to you (*P. venusta*), which I discovered last March on the high mountains of California (you will begin to think that I manufacture Pines at my pleasure). As my notes are not at hand, I must describe from memory:

Leaves solitary, two-ranked, rigid, sharp pointed, green above, glaucous beneath. Cone cylindrical, three to four inches long, and four to six inches round, erect; scales orbicular, deciduous (like those of *P. balsamea*), with an entire bractea or appendage between the scales, exserted to three or four inches and a half. When on the tree, being in great clusters, and at a great height withal, these cones ressemble the inflorescence of a Banksia, a name which I should have liked to give to the species, but that there is a *Pinus Banksii* already.

This tree attains great size and height and is, on the whole, a most beautiful object. It is never seen at a lower elevation than six thousand feet above the level of the sea, in latitude 36°, where it is not uncommon.

The description therefore has been taken from memory and there has not been an opportunity for correction, ~~if necessary~~; for DOUGLAS perished in a pitiful manner after having previously lost all his notes of the preceding 4 years in a river-accident.

His letters were printed, such as they were, in W. J. HOOKER'S Companion to the Botanical Magazine vol. II 1836.

Although this description was not produced in the most desirable way, it is satisfactory to recognize the species, and consequently has the right of priority above the name *A. bracteata*, given to the species in 1841 by W. J. HOOKER & ARNOTT.

No. 25. *Abies Veitchii.*

LINDLEY has mentioned in the Gardeners Chronicle of Jan. 12th. 1861 under the heading „New Plants" some Conifers gathered by VEITCH in Japan; i a. no. 5 *Abies Veitchii* LINDL.

HENKEL & HOCHSTETTER in „Synopsis der Nadelhölzer" 1865, give at p. 166 under *Abies Veitchii* as litterature and synonyms *Picea Veitchii* LINDL. in Gard. Chron. 1861; and so does CARRIÈRE in the 2nd Ed. of his „Traité des Conifères" 1867. If this were right, the author's name of *Abies Veitchii* ought to be HENK. & HOCHST.; but the statement depends upon a mistake, so LINDLEY remains the author.

No. 26. *Abies grandis* and *aromatica.*

RAFINESQUE in „Atlantic Journal" 1832 describes a new species *Abies aromatica*, which is joined by SARGENT to *A. grandis* with a note of interrogation. The description of RAFINESQUE reads: Aromatic fir, branches bullate balsamiferous, leaves densely scattered, forming 3 rows, sessile, lanceolate, obtuse, flexible, sulcated and shining above, gibbous beneath. Reaching 100 feet high; blisters on the branches filled with a fine aromatic balsam. Leaves very small, $^1/_8$ of an inch long, $^1/_{16}$ wide. (Again such very small needles! cf. under no. 20 *Tsuga heterophylla*).

LEWIS & CLARKE write: The third species resembles in all points the Canadian Balsam Fir. (LEWIS & CLARKE are the collectors).

Abies aromatica RAF. may be put aside as nomen seminudum; but it will be good to fix this by international agreement.

No. 27. *Abies Lowiana, Parsoniana* and *lasiocarpa*; *A. lasiocarpa* and *subalpina.*

A. lasiocarpa LINDL. & GORDON in Journ. Hort. Soc. 1850 not NUTT. is considered by some botanists a variety of *A. concolor* LINDL. & GORD. with the name var. *lasiocarpa* ENG. & SARG. (fide BEISSNER 1891, 1909). SARGENT went even further and does not mention the plant either as a variety in his „Sylva of North America" and „Manual's".

Meanwhile the plant was published by BARRON as a species in a catalogue of 1859 and in Gard. Chron. 1876 as *Picea Parsoniana*, and in GORDON „The Pinetum" Suppl. 1862 as *Picea Lowiana*, which name was altered into *Abies Lowiana* by MURRAY (in Proc. R. Hort. Soc.) in 1863, while in „West Am. Cone bearers" 1895 LEMMON again made the species into a variety under the name *Abies concolor* var. *Lowiana.* REHDER adopts this latter name in BAILEY's „Cultivated Evergreens" 1923 and in his „Manual" of 1927. So we have to deal here with two competing names, *lasiocarpa* and *Lowiana;* and *lasiocarpa* is the older both as a species and as a variety.

But there is an *Abies lasiocarpa* NUTTAL in his „North American Sylva" of 1849 (*Pinus*—HOOKER Fl. bor. Am. 1840), which is supposed to be our *Abies subalpina* ENGELMANN 1876 and therefore takes the place as an older name. But for this reason the name *Abies lasiocarpa* LINDL. & GORDON 1850 cannot possibly be used for the plant they have in mind; the name *Abies Lowiana* MURR. takes its place.

If however the plant is considered a variety of *A. concolor* the name *A. concolor* var. *lasiocarpa* E. & H. may be maintained, because according to the Rules of Nomenclature a name of a variety does not compete with a specific name; the name *Lowiana* therefore is *illegal* as name of variety.

What about the legality of the name *Abies lasiocarpa* NUTT. and its identification?

In his „Sylva" SARGENT writes of *Abies lasiocarpa* NUTT., that LEWIS and CLARKE [1]) probably already saw it and designated it, but that it was DAVID DOUGLAS „who collected it in the interior of N. W. America during his second journey in this country in 1832"; unfortunately there was found in DOUGLAS' collection but „a meagre specimen, from which the first description was made, although it was not well understood until 1876, when ENGELMANN was first able to point out its true characters". In Europe it was probably introduced by Dr. PARRY, who found it in Colorado in 1862. In that same year ENGELMANN took it for *Abies grandis* LINDLEY [2]); but in 1876 he acknowledged the plant to be a new species and gave it the name *Abies subalpina*. *Abies subalpina* ENGELM. therefore is the first entirely satisfactory name; but, as we saw, the plant is nevertheless taken for HOOKER's and NUTTAL's *Pinus* respectively *Abies lasiocarpa*, which implies, that in their description from meagre specimens we recognise the species after all; on that account in SARGENT's „Sylva" and „Manual's" and in ELWES & HENRY's great work it is mentioned under the name of NUTTALL. REHDER and BAILEY also applie it.

HOOKER's original description runs: „*Pinus (Abies) lasiocarpa, foliis linearibus obtusis (uncialibus et fere sesquiuncialibus) unicoloribus supra linea media exarata subtus linea media elevata marginibus paululum incrassatis, strobilis . . .? squamis latis subrotundatis extus dense fusco pubescentibus, bracteolis late obovatis vix denticulatis squama subduplo brevioribus apice mucronato acuminatis.* Hab. Interior of N. W. America; (last journey) DOUGLAS." HOOKER goes on:

„There are no entire cones accompanying the solitary specimen of this plant; but the scales and bracteoles, lying with the leaves, are considerably different from any other species with which I am acquainted. The former are clothed with a dense almost ferruginous down. The leaves too, are longer than in any other american species".

The needles of *Abies subalpina* actually attain a length of 1—1½

[1]) These were travelling right across the American continent from 1804—1806; cf. sub 20 (*Picea sitchensis* and *Tsuga heterophylla.*)

[2]) CARRIÈRE follows him in the 2nd edition of his „Traité des Conifères" 1867; in the 1st edition of 1855 he called it *A. lasiocarpa* L. & G.

inch (SARGENT l.c. even gives 1—1¾ inch) and the scales are tomentous. According to BEISSNER and ELWES & HENRY this tomentum is not found in *Abies concolor* incl. *A. lasiocarpa* LINDL. & GORD.; SARGENT speaks of „puberulous" in both species. The needles are considerably shorter than those of *A. concolor* s.a.; but evidently HOOKER did not know that species; he describes the related *Pinus* (*Abies*) *grandis*, but he gives not more than an inch as the length of the needles; that seems strange, but is explained by the fact that his *Abies grandis* is our *Abies amabilis*. Accordingly HOOKER's description tallies satisfactorily with our *Abies subalpina*.

In Gard. Chron., IV p. 135, 1875 (i.e. before ENGELMANN described his *Abies subalpina)* MURRAY gives anatomical characters of some species known at that time. He draws a section of a needle of „*Picea lasiocarpa*" with the resin-ducts in the parenchyma, and one of „*Picea concolor*" with the resin-ducts at the epidermis; so he meant with *Picea lasiocarpa* not LINDLEY & GORDON'S *Abies lasiocarpa* but NUTTALL'S, seeing the former has its resin-ducts at the epidermis, just like *A. concolor*. And since *Abies subalpina* has its resin-ducts in the parenchyma, MURRAY'S data are an additional indication, that *Pinus (Abies) lasiocarpa* (HOOKER) NUTTALL = *Abies subalpina* ENGELM., and that HOOKER'S and NUTTALL'S name deserve precedence as an older name, even though their description is inadequate.

The Rules of Nomenclature of 1905 are such that the oldest describer is being acknowledged as long as possible; so that we may never count upon it that a legal name, inclusive of name of author and quotation, will at the same time give a clear description; moreover the possibility remains, that the species was transferred to a different genus, or the variety was made into a species, which may be the cause of the legal name being without description. In a floristic work it is therefore advisable to add to a species, the name of which is not provided with a clear description, another author and his quotation, (if need be, eventually under a different specific name), who provided the species with the clearest description.

No. 28. *Abies numidica* and *baborensis*.

In the Revue horticole of 1866 CARRIÈRE gives a minute description of an *Abies numidica* DE LANNOY; „DE LANNOY a eu l'obligeance de m'envoyer à plusieurs reprises des échantillons à divers états de cette espèce, et c'est d'après ceux-ci que j'ai fait la déscription cidessus" (p. 106).

In the same year the following passage appeared in „Bulletin de

la Société Botanique de France" T. XIII on p. 240: „M. Durieu de Maisonneuve signala ensuite la publication récente dans un recueil de l'horticulture (the above-mentioned Revue horticole) de l'*Abies numidica* DELANNOY *comme espèce nouvelle.* Il rappelle que cet arbre n'est autre que l'*Abies Pinsapo* var. *Baborensis* Coss., découvert dans la Kabylie orientale, en 1861, par M. M. A. Letourneux, H. de la Perrandière, Cosson et Kralik". [1])

In 1866 there likewise appeared Volume XVI[2] of DECANDOLLE's Prodromus; on pag. 422 sub *Abies Pinsapo* we find the synonyms *Abies numidica* DEL., *Abies Pinsapo* var. *Barborensis* Coss. in Rev. hort. and moreover *Abies Baborensis* COSSON msc.

This conception of DECANDOLLE (i.e. PARLATORE) has been universally rejected. *Abies numidica* is considered a separate species; so we have to trace what right is due to the name *Baborensis.*

The history of the discovery and description of this species of tree has been told in a controversy between CARRIÈRE and COSSON in the Revue horticole of 1861. In connection with CARRIÈRE's description of *Abies numidica*, COSSON communicates on p. 144 and following, that Captain de Guibert, who had taken part in the Babor expedition, had imparted to Letourneux the existence in those mountains of a fir called Temeurt by the Kabyles. This gave rise to a new expedition to the Djebel Tababor and Babor in 1861. On July 21 during that expedition Letourneux and de la Perrandière were the first to see the species; Cosson and Kralik saw it next. Specimens were gathered and published by Kralik in a collection of dried plants under number 144 and the name, according to COSSON's classification, *Abies Pinsapo* var. *Baborensis.* COSSON communicated it in Bulletin de la Soc. Bot. de France T. VIII, 1861, séance du 27 Déc. p. 607, which begins thus: „M. M. A. Letourneux et H. de la Perrandière rencontrent les premiers pieds de l'*Abies Pinsapo* var. *Baborensis; ...*". In an other periodical the variety was also reported, likewise without description. The two communications are also found in Rev. Hort. l. c. p. 144. And on p. 145 of the Rev. Hort. 1866 COSSON reports, that he had first inserted the plant in his manuscript of the „Flore d'Algérie" as *Abies (Picea) Baborensis* (i.e. as a species).

It follows from the above that the name *Baborensis* may have been described as name of variety in COSSON and MAISONNEUVE's „Flore d'Algérie" of 1867, but was not before that date described

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[1]) This quotation was kindly sent to me by the Keeper of the Groningen University Library.

as specific name, consequently that it is nomen nudum compared with *Abies numidica* CARRIÈRE (not DELANNOY).

It is therefore remarkable that CARRIÈRE declares in Rev. Hort. 1866 p. 164, that in the new edition of his „Traité des Conifères" he intends to call the species *Abies baborensis* COSSON („en toutes lettres"). It should be borne in mind that not until 1867 the International Congress on nomenclature was to be held at Paris, where the question of priority for the first time would be legally regulated: up till then botanists acted according to their own insight and idea of decency. In our opinion CARRIÈRE behaved uncommonly decently towards Cosson, although in his article he was exceedingly in a hateful manner against him, in which he was absolutely wrong in my opinion.

It is also remarkable that in a subsequent article (p. 204) CARRIÈRE tells us, that, on examining the specimens coming from COSSON c.s. and those afterwards sent by DELANNOY, it appeared to him that DELANNOY'S specimens really represent a new species, *Abies numidica*, COSSON'S however a variety of *A. Pinsapo*, which CARRIÈRE calls var. *baborensis*. CARRIÈRE gives the details and finishes his retort thus: „cequi, on le voit, me permet de clore le procès en donnant gain de cause à toutes les parties qui ont pris part, cequi est un fait extrèmement rare dans les procédures."

Accordingly in the second edition of the „Traité des Conifères" we find the variety *Abies Pinsapo* var. *baborensis* COSS. by the side of *Abies numidica* DE LANN. At present that variety is no more acknowledged.

No. 29. *Abies spectabilis* and *Webbiana*.

In „Prodomus Florae Nepalensis" 1825, small 8°, p. 55, behind the description of *Pinus spectabilis*, DON adds: l.c. p. 3 T. 2 *Pinus tinctoria* et *Webbiana* WALLICH in Litt. (l.c. refers to LAMB. Descr. Pin. 1st ed. 2nd vol. 1824).

On pp. VIII and IX of the Praefatio it says, that the explorer FRANCISCUS HAMILTON (previously: BUCHANAN) collected plants in Nepal in the years 1802 and 1803 and dried them in a herbarium. „The greater part of that collection is found (the present sense applies to D. DON) in the museum of AYLMERUS BOURKE LAMBERT, where we also find the notes and the native names, written in HAMILTON'S own hand": Then follows: „I have closely scrutinized all plants in LAMBERT'S museum; and the descriptions of them constitute the chief part of this work" (viz. D. DON'S Prodomus). On p. IX Dr. WALLICH, Keeper of the Calcutta Botanical gardens is mentioned; WALLICH had many plants gathered, and made a

herbarium among other things; the specimens of many species were sent to a trading-company in England, that paid all expenses (including WALLICH's salary); and this company gave many of them to AYLMERUS BOURKE LAMBERT. „The description of these plants constitutes an other part of this work" (D. DON's Prodomus).

D. DON worked at LAMBERT'S, who evidently had a good library, and feels much indebted to him. He supplied the descriptions for LAMBERT'S work „A Description of the Genus Pinus"; in the first edition we especially meet HAMILTON'S plants.

D. DON kept up a correspondence with WALLICH; and in those letters WALLICH gave some names, i.a. the name *Pinus Webbiana;* and he sent seed to Mr. LAMBERT. D. DON united WALLICH'S *P. tinctoria* and *Webbiana* to his *P. spectabilis*, both in the first edition of LAMBERT'S Monography and in his Flora nepalensis. Captain WEBB was the finder; in the third edition of LAMBERT'S monography DON adopted the name *P. Webbiana*, given by WALLICH in honour of WEBB; at that time such a change of name did not matter. *P. spectabilis* is found in ed. 1 vol. II, 1824, p. 3 t. 2 and in ed. 2 1828 vol. I p. 54 t. 34, *P. Webbiana* in ed. 3, 1832, vol. II p. 77 t. 44. ENDLICHER, KOCH and SARGENT give for *P. Webbiana* ed. 2 vol. I p. 77 t. 44, SARGENT for *P. spectabilis* ed. 2 vol. II p. 3 t. 2, as LOUDON does. The Index Kewensis gives the 2nd edition for both names, from which it might be concluded that D. DON regarded them as two species, which is however not the case. LAMBERT'S work is rare. In literature we continually find statements about LAMBERT'S work, which are at variance. [1])

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[1]) LAMBERT'S work was published in various editions; with the first two editions the separate volumes appeared with long intervals; the first volume of the first edition appeared in 1803, the third of the second edition in 1837. The editions differ from each other, also in volumes I and II; in each edition the different copies differ in contents. Moreover there are many irregularities in the numbering of the pages and the plates, again more or less different in the different editions and copies. The 3rd, 4th and 5th editions make the question even more complicated.

With the quotations in dendrological works it often has not been mentioned what edition is meant; besides, the statement is often wrong or editions are confused with volumes. Moreover, the different authors supply the gaps in the work with respect to the numbering of the plates in a different manner. Control is difficult because the work is very rare and, as stated above, the copies differ from each other.

Teyler's Institution possesses a copy of vol. I (1803) and vol. II (1824).

A detailed exposition of LAMBERT'S work is being prepared by Mr. Renkema, officer of the section Systematics and Plant-geography of the Agr. Academy. This study will be interesting both for bibliographers and botanists.

The name *Webbiana* was in general use for this species, and i.a. ELWES & HENRY in their work „The Trees of Great Britain and Ireland" still do so; it is founded on the oldest description, but not on the oldest *printed* description; therefore the name *spectabilis* has the right of priority and we must write: *Abies spectabilis* SPACH (syn. *A. Webbiana* LINDL.).

No. 30. *Juniperus nana* and *sibirica; Juniperus communis* var. *nana* and *saxatilis.*

Juniperus nana has been described by WILLDENOW in 1796 („Berlinische Baumzucht") and in his edition of LINNAEUS' „Species Plantarum" 1805. CARRIÈRE, in „Traité des Conifères" ed. 2, 1867, mentions *J. alpina* WAHLENBERG 1812 Fl. lapp.; and GRAEBNER cites in „Mitt. der Deutschen Dendr. Ges." 1908 a synonym *Juniperus alpina*, given by S. F. GRAY in 1821 after a variety *Juniperus communis* var. *alpina* of LINNAEUS. LINNAEUS only has a variety γ without trivial name (nomen triviale); but even if LINNAEUS should have given same in one of his works, the name as variety could not compete with the species-name of WILLDENOW; and the species-name of WAHLENBERG and GRAY is of a later date.

A more serious synonym is *Juniperus sibirica* by BURGSDORFF in „Anleitung zur sicheren Erziehung etc." from 1787. He gives at p. 124: *J. sibirica.* Immergrün; Strauch; dauerhaft; muss bei uns reifen Saamen bringen. — Loddiges Catalogus. — Diese neue in der That allen übrigen, durch die gekrümmten, breitgedrückten, stumpfen, unten silberfarbigen Nadeln, abweichende Art, habe ich von Loddiges erhalten. Sie ist äusserst schön und ziert jede Pflanzung."

In this enumeration of the differences our *Juniperus nana* is to be recognized sufficiently clear. A proper Latin diagnosis fails; but same is, according to the rules of 1905, only required after 1908.

Juniperus communis L. var. γ 1753 has been called consecutively as a variety: *J. c.* var. *saxatilis* PALL. 1788, var. *montana* SOL. in AIT. 1789, var. *depressa* PURSH 1814, var. *alpina* GAUDIN 1830, var. *nana* LOUD. 1838, var. *sibirica* RYDB. 1896, and besides as a species: *J. sibirica* BURGSD. 1787 and 1790, *J. nana* WILLD. 1796 and 1805, *J. alpina* WAHLENB. 1812, J. E. GRAY 1821, *J. depressa* RAF. 1830.

The oldest name as a variety therefore is var. *saxatilis* PALL.; the following var. *montana* SOL.; under this latter name it appears in BAILEY'S „Cyclopedia" and „Cultivated Evergreens" 1923, and in REHDER'S „Manual" of 1927. ELWES & HENRY call it var. *nana* LOUD.

The oldest name as a species is *J. sibirica* BURGSD.; KOCH calls

it by this name in his „Dendrologie" 1873. As the name *J. nana*, however, has been much adopted, international agreement is desirable.

No. 31. *Juniperus occidentalis* and *Hermannii*.

In „Mitteilungen der Deutschen Dendrologischen Gesellschaft" 1907, Voss puts the older name *J. Hermannii* PERS. instead of *J. occidentalis* HOOK. Flora bor. am. II 1840.

PERSOON (Synopsis Plantarum II 1807) gives the following description:

J. Hermanni, fol. arcte imbricatis, ramulis teretibus: seniorib. subpatulis pungentibus. H. P. Cum priore. *Arbor salis alba. Fol. atro-virenta, juniora patentia.*

(The „Habitatio" of the preceding species (*J. virginiana*) is: Virginia, Carolina).

This description makes the name a nomen dubium; and moreover, the identification with *J. occidentalis*, growing in Western North-America, is very improbable.

HOOKER'S description runs thus: „*Juniperus occidentalis, ramis ramulisque patentibus teretibus, foliis arcte 4 fariam imbricatis subrotundo-ovatis valde convexis paulo infra medium glandula oblonga conspicua resiniflua notata.* Hab. N. W. America. Banks of waters in the Rocky Mountains, ... From *J. Sabina* our present species may be readily known by the ... branches and branchlets ... both being perfectly terete ... and, above all, by the large gland on every leaf, constantly exuding a transparent resin, ...".

It is desirable that it should be internationally decided to declare the name *J. occidentalis* HOOK. legal.

No. 32. *Libocedrus decurrens* and *Craigiana*.

This species was published by TORREY in a treatise „Plantae Fremontianae" in „Smithsonian Contributions" vol. VI 1854. [1]) The name *Thuja Craig(i)ana* was given to the same plant by MURRAY in „Rep. Bot. Exp. Oregon" of Oct. 1854 (according to SARGENT in „Sylva"; an other source mentions BALFOUR and Sept. 1853); whilst in Rev. hort. 1854 and in his „Traité des Conifères" 1855 CARRIÈRE by mistake classes it with *Thuja gigantea* NUTT. 1834; on account of that, this name is frequently used in nurseries for

[1]) CARRIÈRE gives: TORREY and LINDLEY Gard. chron. 1854.

Libocedrus decurrens, whilst there the real *Th. gigantea* is called *Th. Lobbii*, because VEITCH introduced it under that name.

On MURRAY'S (or BALFOUR'S) name GORDON bases the name *Libocedrus Craigana* in his „Pinetum" supplement of 1862, which name was also adopted by ELWES and HENRY in „The Trees of Great Britain and Ireland".

But TORREY'S paper was published in a treatise apart as early as April 1853 (see PRITZEL Literaturae bot. Thes.), so that the name *Libocedrus decurrens* has right of priority.

In his „Dendrology" of 1873 KOCH writes *Heyderia decurrens;* the reason for changing the generic name seems to have been that ENDLICHER does not give an explanation of the name *Libocedrus*, invented by him, at all, and that KOCH could not make anything sensible of it; KOCH therefore desired an other name, immortalizing a man, who has made himself deserving.

No more than KOCH'S name has KURZ'S name *Calocedrus* (in Journ. bot. 1873) right of priority.

No. 33. *Thyja plicata, gigantea* and *Menziesii; Thyja occidentalis* var. *plicata.*

In his work on *Pinus*, 1st ed., 1803 and 2nd ed. 1828 LAMBERT describes a *Thuja plicata;* after that NUTTALL in Rock. Mts. plants (Journ. Phil. acad. VII prt. 1, 1834) and later in his „Sylva", described a *Thuja gigantea*, just as HOOKER does in his „Flora bor. am." Vol. II of 1839.

In „Synopsis Coniferarum" 1847, ENDLICHER describes that *Thuja gigantea* of NUTTALL and HOOKER and adds LAMBERT'S *Thuja plicata* p.p. (for part of it) as a synonym; for the other part, he makes it synonymous to *Thuja plicata* J. DONN Hort. Cant. (Hortus Cantabrigensis, 4th ed. 1807); this latter being older than NUTTALL'S and HOOKER'S *Th. plicata*, he gives to this species the more recent name, and therefore having no right of its own, of *Thuja gigantea;* that corresponds.

Here again two names, *Thuja plicata* and *Thuja gigantea*, compete for the legality.

ENDLICHER adds to his *Thuja gigantea* NUTT. an other synonym, namely *Thuja Menziesii* DOUGLAS msc. (MENZIES discovered the species; next DOUGLAS found it). In his „Traité des Conifères" 1855 and 1867 CARRIÈRE makes that synonym into the species of *Thuja Menziesii* DOUGL. msc. W. HOOKER in herb. DELESSERT, with the synonyms *Thuja plicata* LAMB. non DON. (obviously J. DONN is meant)

and *Th. gigantea* HOOK. Fl. bor. am., non NUTT. With CARRIÈRE *Thuja gigantea* NUTT. is a separate species with *Libocedrus decurrens* TORR. as a synonym. Especially the last separation of HOOKER's and NUTTALL'S *Th. gigantea* makes the question complicated; and the name *Th. Menziesii* enters the fighting lists.

In „Synopsis der Nadelhölzer" 1865 HENKEL u. HOCHSTETTER follow CARRIÈRE exactly.

In „Flora boreali-americana II 1840, sub *Th. gigantea* NUTT. (syn. *Th. plicata* LAMB. p.p., *Th. Menziesii* DOUGL. msc.), HOOKER writes as follows: „LAMBERT seems to have confounded it with a different species, said to have been found by Don Luis Née in New-Spain; for his characters, probably (see below MASTERS'S research) taken from that species (specimens of NEE), do not agree with Mr. MENZIES' original specimens from Nutka, which he has nevertheless considered as the same..." [1])

According to CARRIÈRE in „Traité des Conifères" 1st ed., the same remark of HOOKER's was added to a specimen in DELESSERT'S herbarium; for that reason CARRIÈRE puts a note of interrogation before the name *Th. plicata* as a synonym. Evidently ENDLICHER also agreed, as he devided LAMBERT'S species into two (see above). Consequently CARRIÈRE and ENDLICHER could reject *Thuja plicata* LAMB., especially because there existed a *Thuja plicata* J. DONN 1807. For us, acting in conformity with the Rules of 1905, *Thuja Menziesii* only gets validity through CARRIÈRE (1855): but for us this renders the name *Thuja gigantea* HOOKER older, i.e. legal. [2])

The oldest name *Thuja plicata* J. DONN of 1807 (if, at all, it represents our *Thuja gigantea*) may be neglected, being a nomen nudum. Thus the controversy is simplified; it is however not yet ended.

There is a complication; by some botanists the above *Thuja plicata* J. DONN 1807 is considered a plant closely related to *Th. occidentalis*. The naked name of J. DONN is legalised by ENDLICHER in 1847 in consequence of his adding a description. Next, in DECANDOLLE'S Prodromus XVI 1868, PARLATORE described that *Thuja plicata* as a species by the side of *Th. occidentalis* and *Th. gigantea*. In the second edition of his „Handbuch der Nadelholzkunde" BEISSNER also main-

[1]) HOOKER does not say where that part belongs of *Thuja plicata* (DON) LAMB. which is not *Th. gigantea*. That part was founded on the specimen from New-Spain (i.e. Mexico) and accordingly could be omitted in his Flora boreali americana.

[2]) *Thuja gigantea* NUTT. sensu CARRIÈRE is of later date and must be rejected simultaneously and become *Libocedrus decurrens*. For the rest this synonymy is universally regarded to be erroneous.

tained it as a species; at present it is usually considered a variety of *Th. occidentalis*, as MASTERS first did in Gard. Chron. 1897. In practice the plant is frequently met with as a species. Nobody knows with certainty what *Th. plicata* J. DONN originally was.

Moreover MASTERS demonstrated that our *Thuja gigantea* should bear the name *Thuja plicata* D. DON in LAMBERT. That species was founded upon specimens of NÉE and of MENZIES; with NÉE's specimen the habitat of New-Spain is erroneously mentioned. The specimens are in the British Museum and MASTERS decided that all this belongs to our *Thuja gigantea* (it is to be regretted that he does not prove it). In an Appendix to Vol. XIV of his „Sylva" SARGENT adopts it; and so everywhere in the newer American literature we find the name *Thuja plicata* instead of *Th. gigantea*, and by its side *Th. occidentalis* with var. *plicata* (non *Th. plicata* D. DON!).

But this does not solve the question.

Pursuing his above remark on *Th. plicata*, HOOKER writes of MENZIES' specimens and his (HOOKER's) *Thuja gigantea* founded upon them, in comparison with *Th. plicata* DON.: „the branches are longer, slenderer and more upright than in *Th. occidentalis*, yet less flattened and ancipitate, of a deeper green colour. The leaves are **always destitute of a tubercle** [1]), and the cones are much more drooping..."

In accordance with this, HOOKER's diagnosis of *Th. gigantea* runs: *Th. gigantea* NUTT.; *ramis ramulisque compressis erectis, foliis ovatis acutis arcte 4 fariam imbricatis intermediis convexis puncto impresso* **etuberculatis** [1]), *strobilis arcte reflexis.*

In *Th. occidentalis* the leaflets have a distinct gland; in the variety *plicata* MAST. the gland is still more developed.

As described by HOOKER the deficiency of glands in MENZIES' specimens is an indication that we have really to deal with *Th. gigantea.* But presumably NÉE's specimen was different and *did* correspond with D. DON's description.

In Gard. Chron. on the contrary MASTERS takes NÉE's and MENZIES' plants for the same species (without further indication); but it is of much more importance that he writes that a note is fixed to NÉE's specimen: „*Th. plicata* NOB." (nobis = mihi = new species of mine); according to Dr. BRITTEN, MASTERS writes, this note, is in D. DON's hand; therefore that specimen is the typical specimen of DON's species. Supposing this specimen, according to HOOKER's remark, to be wrongly confused — i.e. different from — MENZIES' specimens, NÉE's specimen i.e. the typical specimen,

[1]) My heavy type. J. V. S.

cannot be our *Thyja gigantea*, because it has appeared that MENZIES' specimens represent that species. And, as HOOKER writes, the description of D. DON's *Th. plicata* does not correspond with *Th. gigantea*. LOUDON gives DON's description, translated into English; it runs as follows:[1]) Branchlets compressed, spreading, leaves rhomboid-ovate, acute, adpressed, imbricated in 4 rows, naked, **tubercled**[2]) in the middle, cones oblong, nodding Seeds obcordate (LAMB. Pin.). So D. DON describes the leaflets with glands, which is an indication and so it was to HOOKER, that D. DON does not describe our *Th. gigantea* with the type-specimen, consequently that his *Th. plicata* denotes a different species.

So ENDLICHER has probably been right after all, when he divided LAMBERT's (D. DON's) *Thuja plicata* in *Th. plicata* J. DONN and *Th. gigantea* NUTT., on the strength of the specimens given with the description. But if, on account of that, we take in LAMBERT's (D. DON's) description only NÉE's typical specimen into consideration, there is much reason to substitute his *Thuja plicata* as oldest valid name for *Th. plicata* (J. DONN) ENDL., which has subsequently become *Th. occidentalis* var. *plicata* MART.. Then the name *Thuja gigantea* NUTT. remains.

The Americans act according to their own views without taking notice of other's or European opinions; they keep publishing new denominations in books destined for the public; and Europeans set the example in so doing.

It would be better to publish new views concerning plant-names in scientific Journals; next to deliberate, and finally to jointly accept a solution and propagate it in Dendrological works, etc.

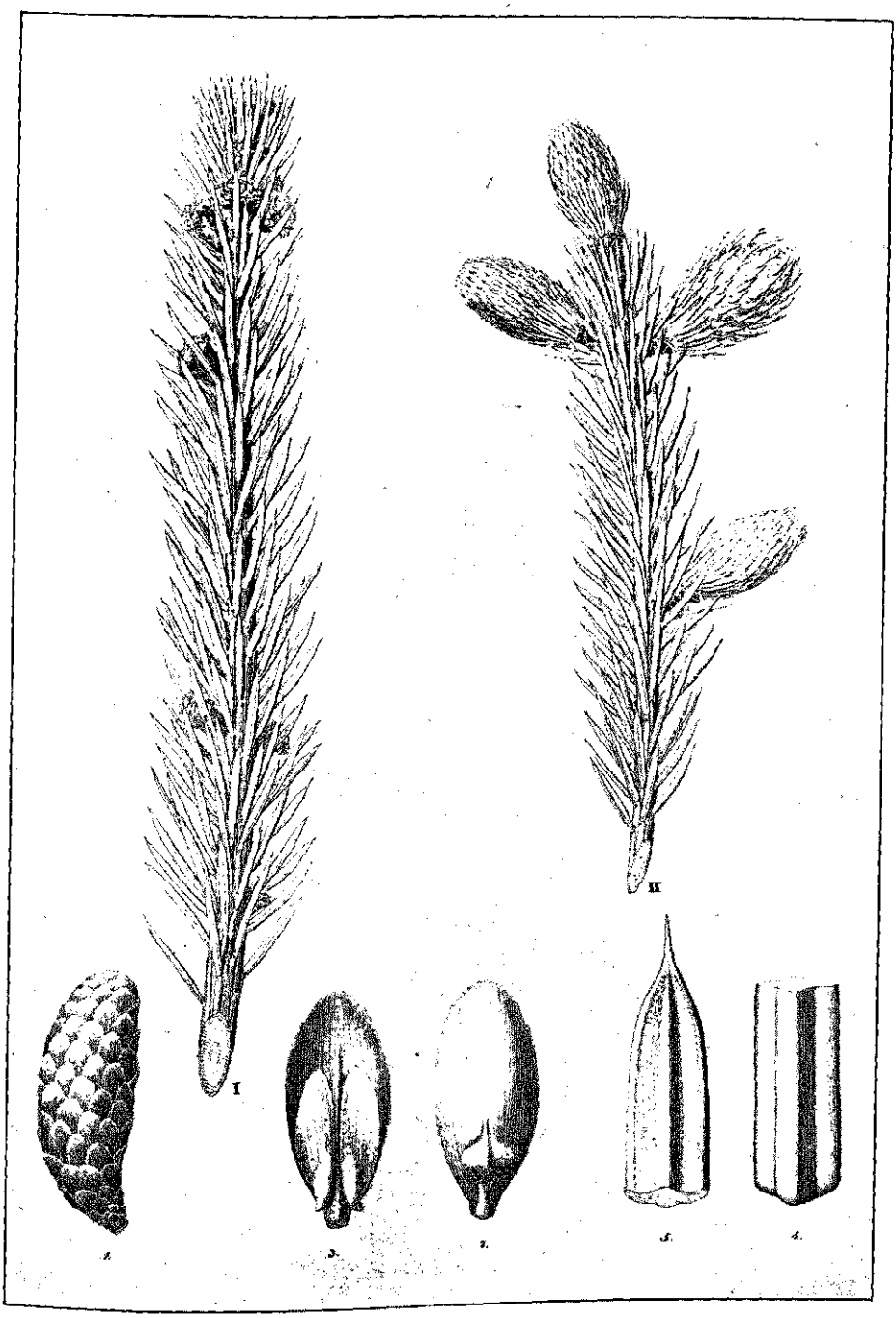
[1]) DON's Latin description runs: *Thuja plicata, ramulis compressis patulis, foliis rhombeo-ovatis acutis adpressis quadrifariam imbricatis nudis medio* **tuberculatis** *strobilis oblongis nutantibus, squamis ellipticis obtusis planis.*

[2]) My heavy type. J. V. S.

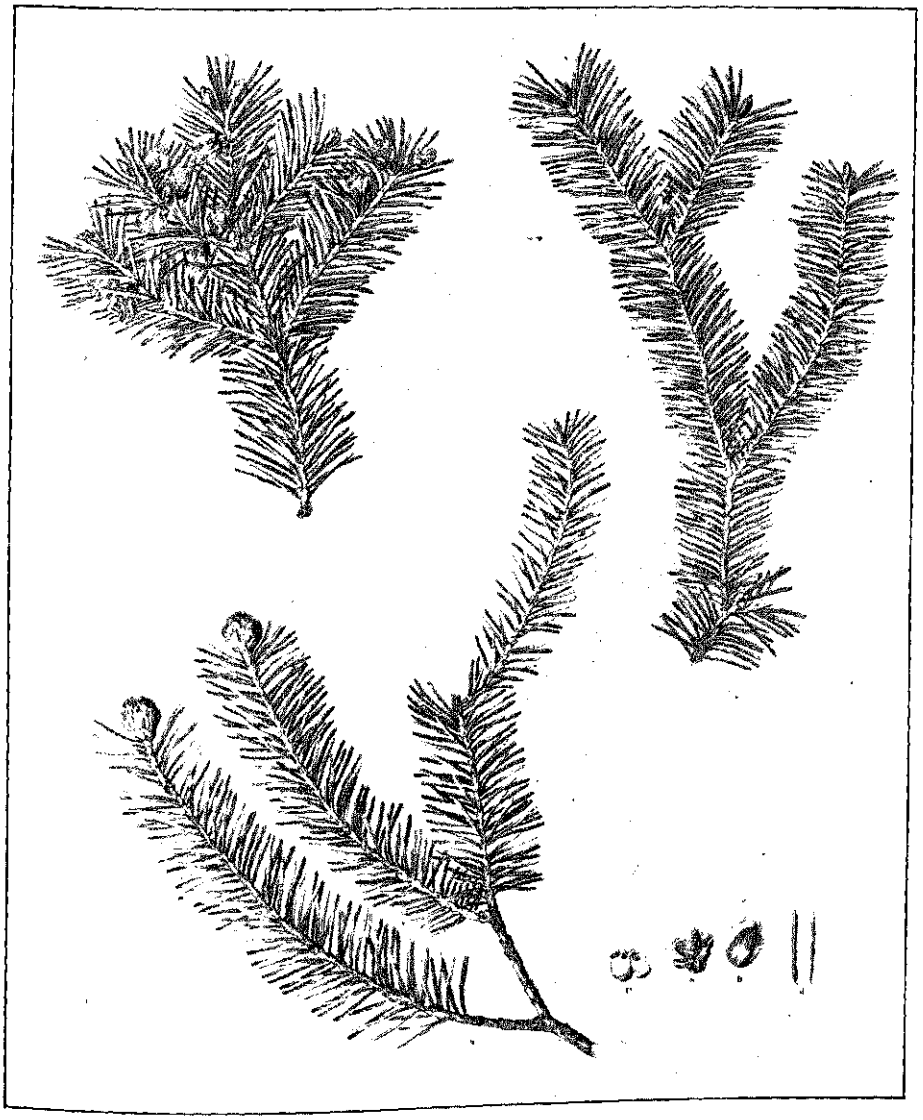
ERRATA.

p. 3 l. 17, 21:	note 1) and 2),	to read:	note 2) and 1).
„ 9 note 1):	1085	„ „	1805.
„ 12 l. 2 f. b.:	untites	„ „	unites.
„ l. 6 f. b.:	precent	„ „	present.
„ 13 note 1):	*R. austriaca*	„ „	*P. austriaca.*
„ 16 note 1) l. 3 f. b.:	is,	„ „	it.
„ 42 l. 2:	p. 84	„ „	T. 84.
„ 46 al. 5 l. 1:	Beside, the	to leave out the comma.	
„ 62 No. 23 l. 8 f. b.:	4 and 5	to read:	4 and 51.

CONTENT.



ABIES JEZOËNSIS
IN SIEBOLD ET ZUCCARINI „FLORA JAPONICA" II P. 19.
TAB. 110.



PINUS TAXIFOLIA
IN LAMBERT „A DESCRIPTION OF THE GENUS PINUS" 1E ED. I P. 27.
TAB. XXXIII.
D = TWO PETIOLED NEEDLES.

Mededeeling Rijks Herbarium No. 55 p. 57.

DATA OF LITERATURE TO BE ADDED AND CORRIGENDA

IN

"PERSONAL IDEAS ABOUT THE APPLICATION OF THE INTERNATIONAL RULES OF NOMENCLATURE, OR, AS WITH THE RULES THEMSELVES, INTERNATIONAL DELIBERATION? BY DR. J. VALCKENIER SURINGAR IN „MEDEDEELINGEN VAN 'S RIJKS HERBARIUM", LEIDEN, 1928, NO. 55 AND 56.

Part I (Meded. R. H., Leiden, no. 55)

Data of literature:

p. 18, no. 6, *l.* 1:	*Pinus inops* BONG. l.c. (cf. no. 21 *l.*1.).
„ 29, no. 10, *l.* 1:	*Larix leptolepis* GORDON Pinetum, 1858, p. 128; *Abies* — S. u. Z. Flor. Jap., 1842, p. 12, t. 105.
„ 30, *l.* 2:	*Larix Kaempferi* SARG. Silva, XII, 1898, p. 2, note.
„ 35, no. 13, *l.* 3:	*Abies Jezoensis* S. & Z. Flor. Jap. II, 1842, p. 19, t. 110.
„ 36, *l.* 7:	*Picea ajanensis* TRAUT. & MEY Flor. Ochot. in Middend. Reise, 1856, p. 87, t. 22—24.
no. 14, *l.* 7:	*Picea bicolor* MAYR Abietineae Jap. Reich., 1890, p. 49, t. III.
„ 38, no. 15, *l.* 2:	*Picea Smithiana* BOISS. Flor. Orient., 1884, V, p. 700.
„ 44, no. 17, *l.* 1:	*Picea rubra* LK Linnaea XV, 1841, p. 521.
„ 47, no. 19, *l.* 1:	*Picea canadensis* B.S.P. Prel. Cat., 1888, p. 71.
„ 53, no. 20, *l.* 13:	*Picea sitchensis* CARR. Conif., 1855, p. 260.
„ 56, no. 21, *l.* 9-10 f.b.[1]):	*Tsuga Albertiana* and *Pattoniana* SÉNÉCL. Conif., 1867, p. 18, 21.
„ 57, *l.* 21:	*Pseudotsuga mucronata* SÜDW. ex HOLZINGER in Cont. U. St. Nat. Herb., III, 4, 1895, p. 265.
l. 24:	*Pseudotsuga taxifolia* BRITT. Transact. N. Y. Ac. Sc. VIII, 1889, p. 74.
„ 61, *l.* 14:	LINK in Abh. Berl. Ak. f. Wiss., 1827, p. 179.
l. 20:	*Picea excelsa* LK in Linnaea XV, 1841, p. 517.
l. 12 f.b.:	*Abies Picea* LINDL. Penny Cycl. I, 1833, p. 29.
l. 11 f.b.:	*Picea Abies* KARSTEN Pharm. Med. bot., 1881, p. 324.

[1]) f. b. = from beneath.

p. 12, *l.* 3 f.b.:	*Picea nigra* LK in Linnaea XV, 1841, p. 520.
„ 13, *l.* 1:	*Abies mariana* MILL. Dict. 1768.
l. 3, 4:	*Pinus nigra* AIT. Hort. Kew III, 1789, p. 370. *Pinus nigra* LK, Abh. Ak. Berl. 1827 (30), p. 173.
„ 44, *l.* 1:	*Pinus americana* GAERTN. de Fruct. et Sem. II 1791, p. 60.
„ 47, no. 19, *l.* 2:	*Picea alba* LK in Linnaea XV, 1841, p. 519.
„ 48, *l.* 9:	LINK Abietineae etc. in Linnaea XV, 1841, p. 524.
„ 70, *l.* 10 f.b.:	var. *saxatilis* PALL. Fl. Ross. II, 1788.

Part I (Meded. R. H. no. 55)

Corrigenda:

p. 16, to add at the end of no. 4: The name, that follows on *P. excelsa* is *P. nepalensis* De Chamb. Tr. prat. Arb. rés., 1845, p. 342.

p. 25, line 28, to read 1807 instead of 1867.

p. 48 note [1]) and p. 62 lines 4—12, to be dropped. I see from REHDER's „proposed amendments to the international rules of bot. nomenclature" (Journ. Arn. Arb. X p. 63, Art. 50) that REHDER rejects the name *Abies Picea* LINDL. not because of an independent principle of conditional synonyms but because of that of the illegality of later homonyms of which the earlier homonyms are taken as conditional synonyms; the earlier hononym being here *Abies Picea* MILLER, a conditional synonym in the eyes of REHDER.

p. 61, line 12 from beneath, to read: silverfir instead of common spruce.
„ 11 „ „ „ „ 1881 instead of 1882.
„ 9, 8 „ „ „ „ LINDLEY instead of KARSTEN.
To add at the end of the alinea: Both are found in "Hardy woody plants in the New York Bot. Garden", 1917—'20.

p. 62, line 22, to omit: (LINDLEY).

p. 72, al. 4: The explanation of the name *Heyderia* is that KOCH made a new genus of *Libocedrus decurrens* TORR. BRITTON and SHAFER have taken it up in their "North American Trees", 1908.

p. 7, al. 2, *l.* 4: to read validity instead of legality.
„ 12, al. 2, *l.* 3, p. 27, *l.* 9: to read legal instead of valid.
„ 13, *l.* 2, to read: for *Picea nigra* and the name *nigra* of ARNOLD for *Pinus nigra*. LINK seems to do so....
l. 3, to read: *Picea* (*Pinus* AIT.) *nigra*.
l. 11, to read: and *Pinus nigra* ARN.; and LINK probably for other reasons gave his combination of names.
„ 56 e.s. (*Ps.ts.taxifolia*): See also „The American Code, the Vienna Code....", Meded. Rijks Herbarium, Leiden, no. 57, 1929, p. 31/2.
Plate *Pinus taxifolia*, to add: reduction from the original figure (nat. size) ad 5/11.

NOVA CORRIGENDA ET ADDENDA DETECTA

IN

"PERSONAL IDEAS ABOUT THE APPLICATION OF THE INTERNATIONAL RULES OF NOMENCLATURE, OR, AS WITH THE RULES THEMSELVES, INTERNATIONAL DELIBERATION?" BY DR. J. VALCKENIER SURINGAR IN „MEDEDEELINGEN VAN 'S RIJKS HERBARIUM", LEIDEN, 1928, NO. 55 AND 56.

(Former corrections and additions are to be found in I, p. 75, II, p. 2—4, and on two sheets or on one „with additions" for I and id. for II, which are separately distributed.)

P. I. Part I (Meded. R. H., Leiden, no. 55)

p. 13 footnote 1, to add: or he did not know Höss' name; he does not mention it.

p. 14, al. 2, to read at the end: ENDL. or LOUD.

al. 3, l. 7, to read: var. *tenuifolia* instead of *P. tenuifolia*.

p. 20, no. 7, l. 1 and p. 27, l. 9, to read legal instead of valid.

p. 34, footnote 2, to add: LINK writes *Libanotica*. In „Linnaea" XV 1841 p. 537 he gives the name *Libani* LOUD., without mentioning his former name; so *C. Libanotica* LINK is an ephemeral name.