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Correspondence between George Bentham and Asa Gray of Harvard University between 1839 and 1883. Original material is in the Archives, Library of the Gray Herbarium, Harvard University.

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London April 15 1839

My dear Friend

I began to be anxious to know something of your goings on when your letter reached me on Saturday and I am delighted to see what a good use you have made of your day at Paris & thank you for all the information you give. – As for me I have little to say or rather but little time to say it I received a few days ago the long expected seeds from Berlin and I saved from one of Lambert's clearings several of my desiderata of Salisbury's his Ericia cordifolia &c so that I am now finishing up and being obliged to write the whole out for my self I get my wrists quite tired by the end of the day and cannot do much in the letter writing way. I have also gone on a little with the Mexican plants and found several genera and species very interesting from their connection with the Texan flora or with the Californian flora on the one hand and the warmer Mexican flora on the other – there is a new genus of Compositae close to the Californian Agarista – the Croton gracilis Humboldt & a new genus of which we have a 2d species in Douglas' Californian plants, the true Trifolium

involucratum which is not the Californian one — Krameria ixina which as well as other Krameria I think I can show to be yet nearer Polygala than some appear to think — a Limnopidium close to the Ardana one — I hope to print the greater part in the course of this month.

I certainly look forward some day to hunting for Shortia with you on the Roan or the Grandfather but whether this can be next year I begin very much to doubt — however I make no plans so long beforehand.

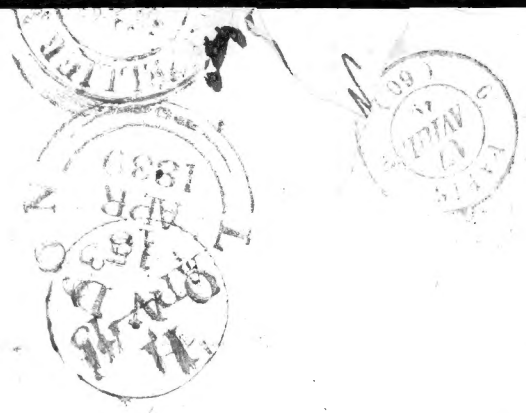
Mr Brydges left most determinately for New York by the Great Western — & what is more he has prevailed on his Uncle to follow him by the Liverpool on the 20th of this month. I trust the Great Western will have had a quick passage — as some little good to be derived from their persevering East Winds which bring nothing but snow and sleet and frost and cold. Even the lilacs & horsechestnuts have not yet opened a single leaf & we have them generally almost in flower by this time. However they say it is all the better the flowers will not be nipped.

Our friend Booth to our great regret has had a severe attack of fever but is now pretty well again — which is I believe the only personal news of our friends — The vessels for the Antarctic Expedition are commissioned and young Jos. Hooker engaged — It sails I believe in July

This will be delivered to you by my mother or sister to whom I wrote three days ago — When you have seen them I should be very glad could you find a moment to write me a line or two about them

Yours very sincerely

George Bentham



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Chez Lady Bentham
Montpellier
France

London July 4 1839

My dear Friend

It was a great gratification to me to receive your letter from Munich & Vienna I know well how difficult it is to find time to write when on a journey, and I can well appreciate the value of the time you have bestowed on me — I have followed you in your tour with great interest and only regret you should have given up the Stelvio which is I believe the grandest of all the great Alpine Passes.

I am now about to start with Mr Bentham on our Pyrenean excursion without having done a quarter of what I had hoped to get through this Spring — After the Heaths were finished I had to work up Hartweg's Mexican plants & to make a show of going on with Schomburgk's Guiana collection which is all I have done — a set of Swan River plants which I had to distribute took me ten days or a fortnight to sort — and I could not resist examining some of the most striking Papilionaceae which kindly is to publish for me — Bentham's Horticultural and other business has occupied me much I have therefore been obliged to return D Torrey's Leguminosae and Scrophulariaceae untouched as you left them — I have sent them to Wiley and Putnam's together with a copy for each of you of my "Plantæ Hartwegianæ" up to no 214 & there

is not enough to make up another half sheet I print no more till autumn when I shall have Hartweg's second years collection now just arrived at Liverpool – I have enclosed in the parcel a copy of my Incubation on Symplocos and Sequiera from the Linnean Transactions.

Much as I should like to continue to hear how you get on I will not trespass on your time till you return here but I should much like to hear what day you make here when you arrive from the continent I shall then be at Paris and I am not without hopes that I may yet catch a glimpse of you before you sail for the other hemisphere We intend spending the last week of October & nearly all Nov in Paris and to return to this place by about the 1st Dec Shall you be gone before that?

With all good wishes from Mrs Bentham and myself for your continuing to enjoy your tour I remain Ever your most sincere

George Bentham

Bentham
Sequiera &
Serophularia

LONDON
4 JUL 1839

50 54

5

GENEVE
6 Juillet

Dr Asa Gray
chez Monsieur le Professeur
de Candolle
à Geneve
Switzerland

Kentchurch near Hereford
July 22 1840

My dear Sir

The day before I left town to spend some months in the country I had the pleasure of receiving a most acceptable parcel of plants from you together with your kind letter of Apl 10 and a copy of Elliott's Flora for which I beg you to accept my most sincere thanks. I feel at the same time the full force of your hint at my neglect in acknowledging two other letters I duly received from you, but somehow or other I have always so much more writing on my hands than I get through and so many letters that require an immediate answer that I am too apt to put off writing to my friends whose letters are by far the most acceptable to receive. I am delighted to see you getting on with your most valuable Flora and have many thanks to give for the proof sheets. Since you were here I have, apropos of Lehombourgh's plants, gone through many Leguminous genera and as you will have seen by Hooker's journal proposed a rough arrangement of Caesalpiniae & Mimosae I have been induced to alter in some measure my opinion about Psoralea, and consider it as forming with Dalea Petalostemon Amorpha and some others a subtribe of Lotae connecting them in some measure with

Hedysarea but less so than I once thought — I was wrong also in referring Cercis to Sophoreae for the peculiar activation of the corolla I now find to be the most important character of Caesalpinieae — I have not my books about me here but I fear I have blundered about Drummond's specimens (without fruit) of your Mimosa strigillosa & referred them erroneously to some other genus.

As soon as I return to town (in October) I shall work up Wallich's Leguminosae — & with reference to these as well as to the first part of my Leguminosarum Genera et Species I should feel particularly obliged if you had specimens of Baptisias I prefer only the commoner species those collected by Drummond & from you, the B. simplicifolia I am also very anxious for Thermopsis montana, Sophora affinis & sericea

Dr Boott has kindly exchanged copies with me of the first part of your Fl. N. Amer. so that now his copy is all thin paper and mine all thick paper

You will have seen ere this the new part of the Linnean Transactions in which I figured a rather interesting plant as connected with a purely N. American genus. I mean the Helianphora nutans. I had not my separate copies ere I left London otherwise I should have sent you one, which I shall do when I return to town.

I had a letter a few days ago from Tomasini of Trieste who is promoted to the place of President of the Austrian Lloyd of Trieste he says you promised to write to him from America

* Do you wish to take the remainder of Hartweg's Mexican plants? The numbers now go down to above 500 but are less connected with the N. American flora than the first were He is now in Guatemala. — Will you let me know what sheets you & Dr Torrey have of my "Plantae Hartwegianae" that I may send you the remainder for somehow I have omitted you in the meandum I lost keep of the copies I gave and yet I feel confident I gave you both of you the first sheets.

I trust that if there is any botanical or other commission I can execute for you or Dr Torrey you will not fail to apply to me. I only regret I have so little I can give in exchange for your valuable contributions to my herbarium

With many thanks for your kind remembrance of Mr Bentham who hopes you will gratify us with another visit believe me

Ever yours sincerely

George Bentham

Pteleopsis (no 259) is wanting on my set.

Bentham

Dr Asa Gray

Professor at the Detroit University

New York

Ann. Nat. Hist. London Oct 22 1840

My dear Gray

I have been this morning to the British Museum to see the Brachthalmum angustifolium. Bennett who is now arranging the Compositae had laid it aide as sui generis and indeed it cannot be referred to any of DeCandolle's genera. It is evidently allied to Marshallia and Blepharipappus belonging to the tribe Galinsoga of Heliniea but is very remarkable by the palea of the receptacle. The specimens are not good but appear to proceed from a herbaceous plant with the habit of Marshallia. The lower part of the stems are wanting there are only branches of four to seven or eight inches long terminated by one to three heads of flowers each at the end of a long peduncle or branch. The leaves are very few, alternate, the lower ones linear narrowed at the base and about an inch long, smooth as well as the stems - the upper ones few & very small. Heads of flowers radiate the involucre (in a very bad state) apparently consisting of a few only, somewhat foliaceous, and probably imbricate leaflets. Florets of the ray (female?) about a dozen in number as long as the diameter of the disk or rather longer. Florets of the disk rather numerous

tubular, Calyx of the receptacle rigid, nearly as long as the florets (longer than the ripe achenia) bordered by three wings which are truncate & lacerate at the top, the central apex terminate by an arista. Then palea form a kind of cells in the midst of which are the achenia which are oblong apparently angulate & striate clothed with short appressed hairs and crowned by a pappus of about eight short broad truncate membranous palea overlapping each other. I have nothing of the kind in any of my N. American collections.

Many thanks for your names of some of Drummond's Texan Compositae — I had got so bothered by what they call a simple & double pappus in the Asteroideae that I had left most of them undetermined. You have however given me the name Stenopsis Nuttalii to two plants which in my set are totally different from each other 177 & 227. Which is the true one? — The N. American Aplopappi are not much like the Chilian & Western ones in appearance — I wish all these Asteroideous genera could be made a little more natural.

Many thanks also for the plants you and Dr Torrey send me which I have not received yet but presume I shall soon, also for the 3d & 4th parts of your most valuable Flora which I found here on my return from the Country.

October 9 I have kept this till now in the hope of receiving the parcel you announce but it has not yet come to hand.

I have been very busy at a paper on Olacineae and am now going to Schomburgk's Rubiaceae after which I shall return to Dicotyledonae on the embryo and ovules of which I have just written some observations for Hooker's Journal.

With best remembrances to Dr Torrey believe me ever

Yours affectionately

George Bentham

I shall resign the secretaryship of the Linn. Soc. in the spring — but letters addressed to me there will always reach me.

No. 31. Compos. Calif. Is from Lyon — supposed to be Cand. Olle under that name — What could he have called it. Gorin in Schum. Fl. N.G. Lessingia — this sp. D.C. does not cover it. Dougl. and the Fl. N.G. diff. from DC. descr.

per British Queen steamship

Dr Asa Gray

Professor at the Michigan University

New York

Recd March 18.
Ans. Fr. 25
Geo. Gardner

London Feby 28 1841

My dear Gray

On receiving your last letter I immediately turned to my specimens of Baldwina multiflora which I already had in my herbarium and found it to be the very Ophthalmum angustifolium of the Bentham herbarium - I indeed when I examined the plant there at Kew thought I knew it that could not find it never thinking of looking in Baldwina of which it has not the character. I have been again to the Benthian herbarium to make sure of the matter and I have no doubt of the identity of the two plants.

I have not received the small parcel you speak of in your last letter - but one which you sent last autumn has just come to hand. The stewards of the British Queen found five parcels in one of the berths the voyage before last having the name of Brown Lindley London - myself & another upon them without address - in consequence of which they were very nearly being lost & as altogether which would have been very much to be regretted as we you have kindly sent some unique specimens from your herbarium - I shall take care to return them safely. I am now moving herbarium library & all into the

country so that for the next month or six weeks I shall do nothing in botany but after that I hope to have more time for it than here in town.

Lindley showed me a letter from Torrey some time since in which you seem to incline to consider Loganiaceæ as a mere sect. of Rubiaceæ – I hope not – for although you have the genus Houstonia a Rubiacea with a capsule fruit – which yet cannot but be of the same order as so many Hedyotides with a nucifrac fruit – yet the Loganiaceæ as a tribe partake – they should indeed I should think come next to Rubiaceæ, but if you include them where will you stop – you would be obliged to take in Gyrocarpus Gentianeæ – I had intended to have examined Polypremum again but have not had time – and I cannot imagine where I have put Drummond's Coelostylis but shall probably find it next time I go through that part of my herbarium.

I shall not have to work up the Scrophulariaceæ for de Candolle for a long time to come there is another volume to come first and I fear from the accounts we get of de Candolle's health that he works but little now and that the publication even of that volume is to a certain degree problematical – this summer I intend to devote almost entirely to Leguminosæ.

You ask about Olacineæ and Ximenia I have had a paper read on them some time since at the Linn. Soc. and I hope it will appear in the next part but as to the affinities of the order I cannot say anything new – It has but little certainly with any polypetalous orders – has more with Ebenaceæ especially Symplocaceæ and perhaps the closest affinity is after all with Santalaceæ where the princeps botanicorum places them. In Ximenia you are I suppose aware that the ovary is not completely pluri-locular as I had myself (in Olacinæ Horbrevianæ) in common with many others described. There is a central placenta bearing at its apex 4 or 5 pendulous ovules which are joined together at the top of the placenta without reaching to the top of the ovary cell but below the placenta is thickened and is connected with the sides of the cell by spurious dissepiments between the ovules. Thus a transverse section of the ovary in the greater part of the length shows 4 or 5 ~~many-pore~~ uniovulated cells and it is only near the top that the transverse section shows it to be unilocular – the manner in which the placenta adheres to the ripe seed ~~in the f~~ for a furrow in it, the base of the placenta appearing a broad umbilicus and the seed appearing erect when it is physiologically pendulous is very curious and has been figured by Gærtner though not adverted to by de Candolle or Endlicher. This structure is precisely the same in Heisteria olacina.

Hooker who has been with us for a couple of weeks is writing to you by this mail and will I suppose have communicated to you the gratifying advance the Kew business has made – though he is still kept here in suspense nothing being yet absolutely settled. The news of the various members of his family is also more satisfactory but I fear that there is but little chance of the eventual recovery of Mary Harriet.

with kindest remembrances I & Tommy believe me
ever yours most sincerely
George Bentham

Dr
Wm Gray
New York

Answd, Jan

London Dec 12 1841

My dear Gray

I received last month your letter of the 14th Oct and since my arrival in town a valuable parcel of your N. Carolina plants. On looking over it I see many very interesting additions to my herbarium and some Gymnanthera which will be exceedingly useful when I come to revise that genus for the Prodromus. I hope and trust, the younger De Candolle continues it. I am now for three months in town, and excepting finishing up the genus Acacia which I have brought with me I shall not do much in botany (besides a little distributing work of Hartweg's & other collections) till I return to Portrilas.

With regard to Leptoglottis, I had already referred it to Schranckia as you will see in the Jany No of Hooker's Journal the MS of which has been in the printer's hands since Oct & which I have not therefore now before me. I had come to this conclusion from two sources 1st from a specimen carefully compared with De Candolle's by Moricand of Geneva 2d from a specimen of Nuttall's corresponding with that which De Candolle had received. I find at the base of the head male flowers, of which the filaments (in Nuttall's well prepared specimens at least) appear in the dry state flat & dilated and without anthers, but it is evident

that the anthers have been there but are fallen off and the dilatation of the filaments is observable in many true Mimosæ & Schrankiæ when very much pressed in drying. Are they so in a fresh state?

You will see in my paper on Mimosea several additions to your Tegean Flora and some generic changes which you may or may not approve of. One thing however I should be disposed to insist on is that when once a difference in the structure of the pollen is ascertained between the species with definite & those with indefinite stamens, the two cannot remain in one genus, and therefore I have excluded Acacia lutea and po from Acacia & put it into (as far as I recollect) Neptunia. — As to modification of the pod as a generic character, I think that rather too much reliance has been placed upon it, as it is often not in the least a natural distinction — Clitoria and Neurocarpum — Machaerium & Drepanocarpus for instance do not in the least differ from each other except in the pod. And if the grim Acacias (or those with spinescent stipules) be divided into genera from the pod we must make a genus for almost every species as there is every gradation from the woolly & thick pod pulp of A. farnesiana to the thin membranous pod of A. verek with the slightest trace only of a thin pithy pulp. and by confining Acacia to the polyandrous species with the stamina entirely free or irregularly & very shortly united at the base (not forming a monadelphous tube) I think we get a genus recognizable readily ~~either~~ in flower and generally in fruit. among the monadelphous spinescent with dry pods I have already published the American genus Calliandra and A. galeotiana and debbeck belong to a new Asiatic & African genus which I have called Serianthes and compressus I believe about 20 species — Your A. nilotica and its allies — most of the prickly scandent American and Asiatic species — the genus Acacias and the Australian species constitute the true genus Acacia comprising above 200 species.

When I get home I hope to be able to make you up a parcel of Brazilian plants if they are acceptable but I really do not know how far you care for plants not immediately connected with your own Flora.

Ever yours sincerely

George Bentham

Dr Asa Gray
New York

Pantritan House Hereford
July 15 1842

My dear Sir

Many thanks for Part 2 Vol 2 of your excellent Flora which I received some time since.

I am at present working up the Colemoniaceae for the forthcoming volume of De Candolle's Prodromus and I suppose you are pretty nearly close to them in your Flora. I have pretty well determined on adopting Endlicher's plan of considering my genera as sections of Gilia amongst which Leptodactylon of Hook & Arn would include my Leptosiphon & Descriptores — In Ollon the character must be somewhat altered as I always find the ovules attached laterally by a longitudinal line and not erect from the base of the central axis — The Ollon Sibirica & O. speciosa

have the cells of the ovarium 2-ovulate and whilst the P. Lapini Dougl & P. humilis Dougl referred by Hooker to P. speciosa are perfectly distinct species having besides other characters the cells of the ovary 1-ovulate as I have found to be the case in all the broad leaved species as well as in P. Drummondii divaricata, pulcra aristata tubulata (including 1 stacea) Douglasii & Hoodii

Collomia has also species with one & species with two ovules to each cell.

I had completely lost Drummond's specimens of the plant you have described as Coelostylis till the other day when on seeing it, its strong resemblance to Spigelia struck me immediately and I do not find that you have compared it with that genus from which I confess I cannot find any good generic distinction — What do you think of it! and where do you put Spigelia? At any rate one or two of Schomburgk's Spigelias must go into Coelostylis.

Yours very sincerely

George Bentham

If you have at all examined Polemoniaceae you would oblige me much by any notes on them.

JUL 6
62

Prof
Asa Gray
Mass Hall
Cambridge Mass

London Augt 24th 1842

My dear Sir

Being in town for a few days and obliged to send off in a great hurry my Solanaceæ to De Candolle which I have recently had time to finish I can only send you the following brief critique of what I have done on the N. American species

1 O. alba
G. 1 lobifolia ovarii loculis 2 ovulatis
10 O. paniculata Linn including undulata Ait Sickmannii Lehm nabra Lour, cordata Elliott?
2 O. acuminata Pursh – O. corymbosa Lour?
3 O. maculata Linn – lobifolia Mich pyramidalis Sm.
4. O. triflora Mich (mihi ignota)
5 O. caroliniana Linn
a ovata O. ovata Linn
3 nitida O. nitida Pursh O. rupestrioides Willd.
γ puberula
6 O. glaberrima Linn – O. carnea Sims
7 O. floridana sp. n. Florida Chapman like glaberrima but corymb glandular. ovary and calyx nearly of O. pilosa
8 O. neptunis Mich O. stolonifera Dest Clay
9 O. drummondii Linn O. canadensis Lour
10 O. pilosa Linn
11 O. ornitata Mich
12 O. Drummondi Hook
G. 2 Sundaluria
+ Ov. loc. 1. ovulatis
13 O. Sabini Dougl.
14 O. tubulata L. – O. rotacea L
β latifolia O. procumbens Lehm Sonna hortensis
15 O. Hentzii Nutt 16 O. cespitosa Nutt both unknown to me
17 O. humilis Dougl – perhaps O. cespitosa
18 O. Douglasii Hook 19 O. Hoodii Richards 20 O. Hoodii a new sp. from Douglasii last coll.

21 P. Richardsonii Hook
22 P. muscoides Nutt unknown to me 23 P. longifolia Nutt unknown to me perhaps P. sibirica
** Ovarii-loculi biovulati
24 P. sibirica L. 25 P. specosa Rusby

II Collomia (Ovarii loculi constanter 1-ovulati)
American species
1 C. rudicaulis Hook et Arn
3 C. grandiflora Dougl 4 C. linearis Nutt
5 C. gracilis Dougl 6 C. gilioides Benth 7 C. glutinosa Benth

III Navarretia (Ovarii loculi 2-10-ovulati rarius 1-ovulati)
N. American species:
1 N. pubescens Hook et Arn.
2 N. heterophylla – Collomia Hook Cantoisia Reichb. Gilia Sepii Don
3 N. cotyledonifolia Hook et Arn
5 N. intertexta Hook et Arn 6 N. squarrosa Hook et Arn
7 N. atractyloides Hook et Arn.

IV. Gilia (Stem aquatilis inerta nec ut in Oklon Collomia ~~Gilia~~ alias inferius inerta)
Sect 1 Collomioides Endl. ov in loculis plura
Species Boor. American
2 G. dissecta Hegelia Benth 3 G. elongata – Hegelia Benth
4 G. virgata Hegelia Benth
Sect 2 Pseudocollomia Ov. in loculis solitaria
5 G. lutea Hegelia Benth
Sect. 3 Eugilia Ov in loculis plura
Alt American species
6 G. congesta Hook 7 G. achilleifolia Benth non Hortus
8 G. capitata Dougl. 9 G. multicaulis Benth – G. achilleifolia A Gray B Mex etc
10 G. tricolor Benth 12 G. millefoliata Fisch et Mey unknown to me
13 G. inconspicua Dougl. 14 G. cicia sp n Texas Drund III. 463.
15 G. rigidula sp n Texas Berlandier
Sect 4 Spomopsis Ov. plura
16 G. arenaria Benth 19 G. sinuata Dougl near inconspicua but long flower etc n. Okanagan outlet Columbia
20 G. tenuiflora Benth 21 G. pulchella Benth

22 G. cerviniflora Ser.
23 G. aggregata Spreng (Cantua Ruiz) and 24 G. floribunda G. Don Cantua Nutt and 25 G. Beyrichiana Benth all three unknown to me are perhaps the same as G. ~~Beyrichiana~~ cerviniflora
26 G. longiflora G. Don (Cantua Ser) unknown to me
27 G. glaucoviflora Lupsia a Mexican plant
Sect V Dactylocephalus Endl.
28 G. Drusiana Endl. (Sengelia Benth)
Sect VI Linanthus Endl
29 G. dichotoma Linanthus Benth)
Sect VII Dactylophyllum Benth ov loc plurioculat.
30 G. linifolia Benth 31 G. pharnaceoides Benth
Sect VIII Microgilia aff Dactylophylli ov. loc 1-ovulat
33 G. minutiflora sp. n. from Douglas's last coll. Fl. of G. pusilla or nearly so leaves mostly entire some palmatisect.
Sect IX Leptosiphon
34 G. [illegible] gracilis parviflorus Benth
35 G. intermedia L. lutea Benth.
36 G. androsacea Leptosiphon Benth
37 G. grandiflora Leptosiphon Benth 38 G. densiflora Lept. Benth
Sect X Leptodactylon
39 G. Hookeri Oklon Hookeri Dougl
40 G. californica Leptodactylon Hook et Arn
41 G. pungens Cantua Torrey unknown to me
V Polemonium
1 P. reptans
3 P. coeruleum ? P. pauciflorum Rocky Mt Drummond Seeds many or in P. coeruleum have a stalkum the same but seeds winged perhaps a sp.
6 P. capitatum Eschsch ? – P. Richardsonii Hook perhaps an arctic large flowered var of P. pulcherrimum
7 P. pulcherrimum Hook Rocky Mt & Columbia R. In these there are 3 or 4 ovules in each cell only & often only one seed
8 P. Amoenum like the last but cor shorter than the calyx see Hook F. [illegible]

The other genera are

VI Lobelia Linn (Hortia Jeff) Mexican 6 sp.
VII ~~Centra Jeff~~ Caldasia Willd Mexican 1 sp.
VIII Centra Jeff Peruvian 6 sp.
IX Cobaea Cav Mexican 3 sp.
Total Polemoniaceae 104 sp.

Prof Asa Gray
Cambridge
Massachusetts
U. S.

AUG 25

I will answer your last letter more fully in a few days

You may direct after 21 Regent Street as usual or Contrexeville Hôtel Vosges France

Yours truly
Geo Bentham

Gentleman in the first difficult N. American genus I shall have to do and I shall arrive at it by about July or August as I have other things to do at present and Verbascum Scrophularia and Calceolaria come earlier.

I am anxious to learn what you think of what I wrote to you about Coelostylis & Spiegelia

You may direct to me here by post – parcels (but sent by a bookseller) to 21 Regent Street.

Your very sincerely

George Bentham

To Asa Gray

Contributes Hence Hereford

Feb 27 1863

My dear friend

It is now a long while since I have heard from you and I am anxious to know how you are going on the more so as I have heard nothing of any more parts of your Flora and am very desirous to learn in what state it is and when you are likely to be at the Scrophularineae and Labiatae. Young de Candolle is going on at last actively with the Prodromus Vol VIII is in the press and will be out by about June The

Scrophulariaceæ will be in vol IX and I have engaged to send him the MS, at least the greater portion of it, in the beginning of 1844 and the Labiatæ for vol X by the beginning of 1845 as the volumes are to come out regularly one a year. Now I should be sorry to have any double employ between your new species and mine. The Labiatæ you will have done before I come to them but perhaps that may not be the case with the Scrophulariaceæ, and if you can lend me any materials that you do not want back before Nov or Dec of this year you would oblige me much by lending them to me. If however you are now working or have worked the Scrophulariaceæ I should be exceedingly glad to have proofs of what you have done as early as convenient in order that I may avail myself of your labours and quote them in their proper places.

In the arrangement I shall follow the order of genera - at least as to the main points, given in Lindley's Introduction

Courtfield House Hereford
April 17 1843

My dear Sir

I have just received your of the 30th in time to answer by this mail – I shall be most happy to do as you desire with your Scrophulariae & return them to you immediately I am going up to London in a few days and shall receive while there the Scrophulariae of De Candolle's herbarium and return here after the middle of May to work at them

Much obliged for the proof pages of Mr. A. Cuttis's article which are come just à propos I had drawn up characters of Thermopsis Carolineiana & of what you had

proposed calling T. Michauxii ~~for~~ to publish in a note to a paper on E. Indian & African Leguminosae of which I am now copying out the first portion to send to Hooker — it will answer my purpose much better only to quote M. A. Curtis or in modifying the char. of Thermopsis I must exclude what genus not Asiatic belong to it. Some of the Asiatic species have a very inflate membranous pod & yet are true Thermopsis

I owe to you a very good specimen of T. caroliniana but of the other have only a specimen of "Baptisia mollis" from Schweinitz and the pod you kindly sent I should be very glad when you get one to spare to have a specimen of T. fragariifolia

I have two or three of Torrey's ~~Thermopsis~~ Baptisia which I shall return with the Scrophulariaceae

Any panels delivered either at Pamplin's or Gratten if not inconvenient as I do not much like Pamplin) to 21 Regent Street will be sure to be sent to me immediately.

Yours very sincerely
George Bentham

I have applied for your seeds & desired them to be sent through Wilby & Cutbush

Sir,

Horticultural Society's Garden, Chiswick.

April 28th 1843.

I beg to inform you that the under-mentioned Articles have been this day despatched to Dr Asa Gray, Botanic Garden, Cambridge, Massachusetts. Care of Wiley & Putnam in compliance with your request of the 21st Inst.

~~Those not sent cannot be supplied from the Garden, with the exception of~~

~~which WILL BE SENT HEREAFTER~~.

I have the honour to be,

Sir,

Your most obedient Servant,

John Lindley

Vice Secretary.

To

George Bentham Esqr.

The Carrier has been authorised to make the following charges.*

	s.	d.
Paid to the Garden for Package, and charged onwards, ...		
Carriage to London, ...		
Total £		

THE LIST OF ARTICLES SENT IS ON THE OTHER SIDE.

* In consequence of the trouble and inconvenience of remitting to the Garden the small charges made for the package of plants, the Garden Committee have arranged that they should in future be at once paid by the Carrier, and by him charged onwards to the parties to whom the parcels are addressed.

Seeds from California	26	Sorts
— — North of India	20	do
— — Swan River	3	do
— — Mexico	3	do
— — Texas	2	do
Miscellaneous	20	do

London May 1 1843

My dear Sir

The above will speak for itself – I send it to you that you may make enquiries in case the seeds should not arrive

Many thanks for Part III Vol II of your most valuable Flora which has reached me safe

Yours sincerely

George Bentham

Dr Asa Gray
Professor of Botany
Cambridge Harvard
Massachusetts
United States

Pontilas House Hereford

July 30 1883

My dear Friend

I received your letter yesterday and wrote immediately to Mr Wilkey & Cutbush to send me down the parcel here which you have kindly sent me. I hope to get on with the Scrophularineae though I have other things to do at the same time. I have done two very difficult genera which do not concern you Verbascum and Calceolaria and after Scrophularia & the Antirrhinum which are already pretty well worked up I shall soon come to Pentstemon - you great genus.

I am glad to hear you are likely to get Rocky mountain plants — Pray think of me for Leguminosæ which are my great pets — I am now publishing the E. Indian and African ones with occasional notes on American species.

As you express your anxiety to examine some Gaylussacias I enclose a few flowers and fruits from some American species which will I hope not make the letter overweight — I have a few American specimens of other plants ready for you which I shall ~~return with~~ send when I return the Crophularaceæ

Yours very sincerely
George Bentham

Pontrilas House
Hereford
April 29. 1844

My dear Sir

I received in due course your letter of the 1st. and I believe there is a former one of yours unacknowledged I was in hopes of being able by this time to have returned your Scrophulariaceae but the working them up is a long operation and though I have got through Centrotonon, the Gratiolae etc I shall not be able to finish the Gerardieae & Euphrasieae till my return from London where I am going for a few weeks – I hope however to send all back by the end of August.

You ask me about Mosses

I have not attended to them lately but am very anxious to keep up my collections and shall feel much obliged if when you visit Mr Sullivant's if you will kindly let me have a set as you offer.

It is a mistake about the Jamaica you speak of as being figured in the Botany of the Sulphur – It arose probably from there being a Jamesia Californica (Malpighiaceae) figured there – If you admit Mr Californian plants into your Flora you will one day have immense additions to make of a character very different from what you have had. The Sulphur collections were made at a bad time of year but contain more than a hundred new species besides many Mexican & tropical plants. Mr Harvey (formerly of the Cape) is just appointed to the Dublin Museum & is about to publish Coulter's collection with 11 Californian plants.

Your seeds are ordered from the Fox Sox and are probably by this time at Wiley & Putnam's

Yours very sincerely

George Bentham

Pontrilas House Hereford
March 29 1845

My dear Sir

I have been so very much engaged for the last three months that I really forget whether I ever answered your last letter or acknowledged the receipt of a small parcel of Polemoniaceæ & Scrophulariaceæ from Lieut Fremont's last expedition. I have been so much taken up with the Botany of the Voyage of the Sulphur as not to have made quite so much progress with the Scrophulariaceæ as I could have wished. I hope however by this time next month to return you Dr Torrey's specimens of Scrophulariaceæ & also the above mentioned parcel of Lieut Fremont's plants together with the MS. of so much of what I have prepared for the Gardeners

as relates to N. American plants — if I have time [illegible] copied I shall have altogether more than 1000 species of [illegible] and they give me a good deal of trouble — I am just now at Castilleja in which the specimens are often so hard compressed that I cannot [illegible] the form of the flowers — It must be a beautiful genus when growing — at least [illegible] N. American [illegible] purple species.

I have heard a report that you are just married or about to be married — if true I beg to offer my most sincere congratulations

The new volumes of [illegible] Candolle's Prodromus are very good — except the Convolvulaceae — I hope we shall now have a volume a year. — When does your next part come out?

Yours very [illegible]

George Bentham

Contrelas House Hereford
July 1. 1845

My dear Sir

On passing through London I sent addressed to you to the care of Wilby & Cutbam a MS copy of so much of my Scrophulariineae for the Prodromus as relates to N. American species – Mr Bentham copied out the greater part for me but at the last I was obliged to get it finished by a young man & had not time to read over his part but on looking over it seemed all right

The vol. will be out I suppose by Xmas

I have since seen several additional California species of Nuttallia – I shall perhaps insert them in the Addenda

I have just determined Coulter's California Leguminosae for Harvey who is going to publish Coulter's plants – the new species were 8 – 1 Lupin 2 Hosackia 1 Tripolium 1 Chaea 1 Astragalus 1 Dalea 1 Prosopis

I have got scarcely any United States Vicias – not any U.S. specimen of Lathyrus vernus – Can you spare me any?

I shall be glad to hear of the safe arrival of the specimens I returned

Yours very sincerely

George Bentham

London May 20th 1846

My dear Sir

I believe there are several letters of yours remaining unanswered and I know I have much to thank you for - your excellent text book and especially the splendid set of Allegheny Mosses so beautifully got up by Mr Sullivant and which I prize most highly. Since January I have been so hard at work at the Labiatae for the Prodromus that I have had no time for anything else. I am about to make a long tour - starting next month for Copenhagen Stockholm & Petersburg then by Moscow to Odessa Constantinople Athens & Italy & shall not be back till this time twelve-month (Mr Bentham going with me) under these circumstances I was

waiting for a few sheets of Mr Hartweg's now printing which I wish to put into the parcel.

Coulter's Californian collection is very fine - unfortunately there are but few I can obtain for my own herbarium much less any duplicates. Hartweg is now approaching that country. He crossed over to Pasqui & San Blas - then went up to Mazatlan & is I believe to go into California - If he goes into that country I shall have a set of his collections reserved in case you like to take them.

If you have anything to ask or if you will occasionally let me know how things go on in the botanical world on your side of the [illegible] any letters addressed to me 21 Regent Street will be forwarded.

Ever yours sincerely

George Bentham

afraid of keeping the Prodromus waiting if I left the finishing the Labiatae till my return and so I have done them (except some mere mechanical matters of form) ready for sending to Geneva before I go. In regard to American genera I have adopted your character of the Cynanthema. I have been obliged to take the Gardoquia Hookeri & allied species from Gardoquia & put them into Calamintha - so also the Micromeria glabella and the allied species which I had confounded with it have appeared to me to have the ripe calyx and habit rather of Calamintha than Micromeria. I was quite wrong in my account of the inflorescence of the Ptychopodium sect. of Trichostema which I have corrected - I have transferred Lycopus to the Cymoideae - remodelled the Satureineae which I make now to include my Menthoideae & Meteineae & Melissineae - and also an anomalous genus Sphacele & some others not American - rearranged the American Salvias & Hyptis - & made many alterations in the arrangement of E. Indian & other plants which do not concern you. - My species are 2350 of which Salvia alone has 400.

In the addenda to the Scrophulariaceae in DC's last vol. you will find some interesting Californian plants of Nuttall's. I know also of a curious new genera of Californian Scrop. arenicola from Coulter's collection but I had only single flowers & those not my own - & could not dissect them.

I have not had time to make up such a parcel for you as I could have wished - but to show you my desire I have put together a few things I thought you might like - chiefly Brazilian - they are on their way from the country & I shall leave them at Wiley & Putnam's for you before I leave London - but I am

now for he can go beyond must depend on the issue of political affairs. Germany is completely disorganized from one end to the other. France apparently on the eve of bankruptcy without a single step being taken to avert the calamitous. Italy involved in a ruinous and sanguinary contest and few predict any other termination to all this disorder than a general European war. May we succeed in keeping clear of it is more the hope than the expectation of the majority of our politicians.

I return to Portsea in a few days and hope this summer to make up a parcel for you that may meet with a better fate than the last.

Yours very sincerely

George Beaulieu

London June 5 1848

My dear Sir

I did not immediately reply to your letter because I wished to ascertain if possible what had become of the parcel I entrusted to the care of Messrs Wiley & Putnam for you in June 1846 and I wrote immediately to them but received no answer. On coming now to town I learn that their house in Waterloo Place no longer exists and that the partner who conducts the American business is in New York. Perhaps you could ascertain from him where it may be lying. It contained some miscellaneous dried plants & I believe some of my [illegible]

my botanical papers and was left toward the end of June 1866 at Mess Wiley & Putnams in Waterloo Place addressed to you to their care.

In the meantime Dr Boott has kindly undertaken to forward to you the sheets of Plantæ Hartwegianæ which you have not. We are now expecting Hartweg home but I fear he has done but very little. However I shall take care you have a good set of his dried plants from California as you wish - They are at the usual rate of £12 ₽ 100

I have most sincerely to congratulate you on your marriage which I presume has now actually taken place

The convulsions which are shaking Europe to its very foundations have given such a check to science that it will be long ere it can raise its head again on the continent. Private fortunes have been every where so materially encroached upon and there is so little of security for what remains that far from botanists appearing now disposed to add to their collections or encourage travellers, the few letters I get from my correspondents generally indicate rather a desire to convert their libraries & collections into money. Nees v. Esenbeck wishes to sell his herbarium. Martius is anxious to dispose of his extensive American library, unique it is said with regard to works on South America. De Candolle is far advanced in the printing of his 12th volume but

Contrieb. from Herb. Oct 27 1940

34

My dear Sir

I received a short time since yours of the 27th & beg to return you my best thanks for the note so therein contained.

I have altered the sides to. addresses in my N. Hortus. with your name attached to them – I had remarked upon the very natural group but had not found time to make good characters without more labour than I had time to bestow – 1667 does not quite agree with your char. of S. delphinifolia and I had thought it a distinct sp. – so 1666 seems to me distinct from S. malvaeflora of S. Oregana is, but specimens from the Geneva garden, from Hort Soc Garden & California two different ones from California Doug – one from Oregon Hindy and this from Hortus – altogether specimens seem to me all different in the calycine lobes & size of flower – I therefore leave Douglas's as S. malvaeflora A. Gr.

I should regret any necessity for dividing Euneanus or for further breaking up the genera of Scrophulorinea as I have already done it too much.

Unfortunately I am not a subscriber to Sandler's plants – Various causes have considerably reduced my income and my botanical purchases are now confined to necessary books, paper, cases & other indispensables.

I trust you will soon receive a parcel I sent for you some little time since with

Wallichi parvi - I have just sent to town one for Torrey which I shall see forwarded when in town next week.

The following are what have appeared to me to be undescribed yr. in Hooker as far as I have gone - If in any case I am wrong you would much oblige me by an early correction as I am just going to put my MS in the printer's hands

1626 Ranunculus canus
1627 R. alismaefolius Gray - R. flammula Torr. et Gr. non Linn.
1628 R. californicus - R. dissectus Hook et Arn non HBK - nec R. delphinifolius HBK.
1632 Delphinium patens
1646 Cardamine ~~pennata~~ pauciseta
1651 Thyanocarpus radicans
1654 Viola lobata
1661 Polygala cucullata
1665 Linum californicum
1670 Hypericum concinnum
1677 Limnanthes alba Hartw
1678 Limnanthes rosea Hartw.
1683 Leptosiphon prostratus
1686 Rhamnus tomentellus
1687 Trifolium microdontum
1703 Horachia brachycarpa
New leguminose among Coulter's Californian one Lupinus sparsiflorus Horachia oblongifolia H. rigida, Dalea mollis, Otaca crotalarioides Astragalus Coulteri)
1710 Ribes subvoluta
1712 Chamaerubus foliolosus gen. nov.
1723 Philadelphus californicus
1734 Fillaea erectopetala
1735 Sedum pumilum - (carpella reflexa)
1740 Saxifraga pellata

I have not gone much further nor got on near so quick as I expected I have much on my hands, & in addition am afraid I shall have to finish up Hooker's Nigr Flora of which not half is done. I have just copied out for printing the genus Aspalathus of my Asiatic & African Leguminosae - in that you have no interest as they are all from the Cape

Yours very truly,

George Bentham

I have not above a dozen flowering buds on my specimen of Costela Nicholsoni However I send you 4 also two or three Costela Tweedii Oliver.

1795 = new Lag. Whylie
1792. Chamactis heterocarpha
1807 Rigiopappus hemicia in new [illegible]

Contsley House Hereford
Sept 17 1849

My dear Sir

I received two days since your letter of the 24th Aug with some proof sheets of Plantae Fendlerianae – a parcel of Torrey's Leguminosae and a copy of your beautifull Genera illustrata. I do sincerely wish this truly valuable work may succeed so as to enable you to carry it through and will do anything in my power to promote it. Unfortunately things go on but badly for science in Europe. Revolutions have interfered with individual fortunes on the Continent that no one will buy anything and in England we have next to no working botanists – You

in how Hooker has been alleged to [illegible] his journal – Everything must be cheap and popular – [illegible] is too dull and won't sell.

Coulter's Mexican 802 appears to me to all intents congener to many Cape Hermannias. I have had the [illegible] a long time – a garden specimen given to me by Delile under the name of Hermannia brachiensis Delile identical with Coulter's – but I can find no record of the name published [illegible] I think a Hermannia inflata was sent to Otto from Mexico but where published I cannot tell – probably in some journal of gardening in Germany. I have not seen a Otto's [illegible] unless but in the lists of plants there figured there is no Hermannia. – Phyodium of Orst is unknown to me authentically but I believe it to be nothing but the common S.W. Mexican Melochia (Melochia) inflata figured by H.B.K. as Monogotia inflata which when [illegible] has the calyx much inflated. Your Texan plant is of course congener to Coulter's 802 and must be considered as a Hermannia unless that genus is modified – At present there is no positive distinction between Hermannia & Mahernia but an excessive confusion among the numerous forms of both – What one calls Mahernia another calls Hermannia & vice versa without any body having been at the pains of examining more than one or two species.

I have almost done looking through Torrey's paper and shall return it in a few days to the care of Chapman of the Herald with the three sheets of St. Hotte I have finished. I am at a stop now here so pressed for the Mexico Flora which I very unwillingly undertook to finish

Yours very truly

George Bentham

My dear Sir

On the other side is the reply to your request in your note of the 22d Jany

I have done little more with the Carex plants since I last wrote on them except the Umbelliferae - all of which are in your Flora except 1751 & 1752 both of which appeared to me to be new to Kansas the one I called P. tomentosum - the other P. marginatum

Thank for your notes.

I hope the goldgrubbers will not destroy all the plants - Why did the plantgrubbers never find the gold?

Yours truly

George Vasey

Montreal Feby 10

Void

PAID

3 cts

Asa Gray
Harvard University
Cambridge
Massachusetts
United States

L
FE 19
B

me heartily ashamed for England of the Icones Carpologicae which a Mr Ralph has just perpetrated.

What a sad loss the deaths of Endlicher and of Gardner! The former had done less for science since he had got embroiled in politics but is most sincerely regretted by all his friends and poor Gardner with his activity talents and means was doing wonders and in high favour in Ceylon

I shall be in town in about ten days when I shall send off a small parcel I have made up for you

Yours very sincerely
George Bentham

Dr Harvey is coming to see you as you know I presume – you will probably also see Dr Alexander who has collected a great deal in the south of European at the Cape & has I believe already sailed

Contrictas House Hereford
April 29 1849

My dear Sir

Since I last wrote I have received more than one communication from you to thank you for – but more especially for your Plantæ Rendlerianæ which I most highly approve of. You have rendered great service by working up the Sidroid plants and the interesting Compositæ you have got hold of. I only wish you had mentioned a few more of Harvey's as that would have saved me some trouble. I have been so much occupied with the Niger Flora that I have done very little more to Harvey's plants having only got down a little way into Compositæ. Among these n. 1769 rather puzzles me though I take it to be a new Aplopappus

In examining the style of Mr

1770 Lepyrgia Germanorum ~~it~~ appears to be to have been not quite correctly drawn by Lepine but much more like this – only that I have brought the hairs rather too far down – but certainly quite as much like that of Coreopsis as of any Senecionidea and on other accounts I certainly would put it among Asteroideae. Indeed though the style is the best character hitherto found it is not absolute and there are many ambiguous styles between Asteroideae & Senecionidea or between Senecionidea & Heliantheae (Synura Cremocephalum Synoeca &c)

I am very glad to hear of your going on with your admirable Genera – you will have much to do when you come to Compositae with all these minutiae which Mr Sprague represents so beautifully. By the bye I wish you would pay attention to the dimorphous flowered plants now known to be numerous not only the very marked ones as in Viola Helianthemum Malpighiaceae Geranioideae and so very many among Leguminosae but the staminose & styloose forms of Linum Oxalis numerous Rubiaceae and Verbenaceae a few Labiatae and probably many others as this is connected with a kind of reciprocity and with a notion that in many unisexual ~~flowers~~ the female organ are more readily fecundated by males from other individuals than by the stamina of their own flower (the proportion of stamina to styles in Linum & Oxalis varies also with the degree of development of the flower.)

I see you have figured dimorphous flowers of Helianthemum – in Viola you allude to it but I think you will find what you have omitted to state that Pl. 80 f. 10 is the capsule of an apetalous flower. In those species of Viola where dimorphous flowers are produced (V. odorata canina palustris among ours and a great many of yours) the petaliferous flowers seldom open their capsules and when they do the falling off of the style (of f. 8) will never produce the hooked beak of f. 10 – besides that the calyx is a little different.

Examining your work made

My dear Sir

I am afraid I forgot to answer the query at the end of your last note – about Voy. Ulpt. Dotong – There were six parts (I think) ending with an Index but my copy has been bound up ~~than two years~~ – Part the last was published very early in 1846 – I regret very much I had no copies to give away except ~~two~~ that I had long previously promised or I should have sent it to you.

I now write chiefly to say that I have sent a parcel addressed to you to the care of Mr Chapman the American bookseller

I know not whether it contains much that you may not have already but I have sent what I thought might have a chance of being useful if not to yourself at least to some other herbarium in America you might like to contribute to.

Yours very sincerely

George Bentham

London

May 22 1849

Pontrilas House
Hereford
Sept 6 1829

My dear Sir

I received your last letter about a month since whilst from home for a short time. At the same time I had a printed circular from Thomas Delf of 43 Bow ~~Street~~ Lane Cheapside London informing me that Wiley & Putnam's Agency had been transferred to him. I immediately wrote to him to ask him to forward to me the copy of the 2d vol of your Spiraquei Genera - but have seen neither the book nor any reply from him - otherwise

I should already have written a notice of it – I will take care to attend to it as soon as I receive it

Dr Wallich has now been with me for a week or ten days finishing up the remnant of his distribution – a tiresome business which I hope to get through with next week. I shall then forward your parcel to Mr Dell together with three half sheets of Plantae Hartwegianae which have printed off at last month and go down to n. 1936 – Before Nov I trust I shall finish the vol.

Pray give me good notice when you intend coming to England that I may continue to be at leisure for I reckon upon a long visit from you down here – and I hope with Mrs Gray

Yours very sincerely

George Bentham

Contoveden House Hereford
Oct 10 1869

My dear Sir

Your 2d vol of Gen. Phenet. reached me about a fortnight since and I immediately – that is as soon as I was able to look over it enough for the purpose, wrote a notice of it for Hooker. Nov. n° was already in type so that this will only come in to the Dec one – I like the work very much – you will see I have discussed deduplication a little – it is a word I do not like as giving one name to different morphological processes among which I do not believe in that to which the name was originally and, at least

Pantor Hartwigianae
Ever yours very sincerely
George Bentham

inappropriately given. The important point that two or more staminas or petals occupy often the place of one is a modern observation which you have developped, but that it is always by a splitting of the organ I do not believe any more than that the tufts of leaves in Heath and Lycopodium are formed by the splitting of one. Messrs Dunal & Moquin Tandon are very clever men, but dreadfully theoretical and very [illegible] in twisting facts into their theories.

A very careful collector, Mr Spruce is now at Pará and is going to botanize the Amazons and the hills towards Guiana - I expect his first plants very shortly. I have agreed - in the first instance at least to name & distribute them. Can you place any sets in W. America? They will be at £2 per hundred free of charge to London. Cyperaceae Gramineae and Ferns will I believe be to be had separately.

If you have ever any New Mexican etc duplicates to spare I shall be very thankful for notwithstanding my desire for them I have been obliged to forego Pendler's plants and for the last two or three years have not purchased a plant - various causes having forced me into that retrenchment & economy which has become so fashionable by compulsion, since all the world wants to boggle at republics.

I have just corrected the last proofs of the Mexican Flora which has taken up so much of my time & now shall have more time to attend to American plants and shall first finish

Pontrilas House Hereford
Dec 2 1869

My dear Gray

The Acacia from Texas in your letter received this morning is new to me – It must belong to America for although the vabers seem to show a slight disposition to articulation I observe in the ripe pod that the articles have not separated neatly and without laceration as they do in the two first sections of Mimosa – It is neither M. acanthocarpa nor biuncifera not only from the want of pubescence but (in the fragment you send at least) there are no infrastipulary aculei but the stipules themselves are spinescent – the prickles being

subulate and nearly erect of being dilated at the base and patent or recurved. It does not either appear to be taken up by "Pastor Scheele"

I am very busy with the arrangement of my herbarium and as probably I shall not have any opportunity of giving away before you come next summer we may then find some things to suit you among my duplicates. In the mean time if I do go over them I will lay aside anything I think you may like to have

The most remarkable Sandwich Island Plants we have are those in the British Museum many of which from the other Islands (not Oahu) are not in any other collection. I know as almost all collectors have only explored Oahu and the plants of the different islands are often very different from each other

Nothing is come yet from Spruce though I am in daily expectation of receiving the first package

About what time are you likely to cross the Atlantic?

Yours very truly

George Bentham

Recd
18th March.

Contrelas House
Hereford
Feby 7 1850

My dear friend

For the last three or four weeks I have been so much occupied with the coming and distributing your first package from Cara that I have not had time to look much into the matters you mention in your letter of the 7th Jany, but I do not wish to let the present mail leave without assuring you how glad we shall be to see you and Mrs Gray here. As you talk of seeing Scotland in the summer you will probably like to attend the meeting of the British Association at Edinburgh in the middle of August. If you would like to come here as soon as convenient after that is over we would go through the

Exploring Expedition plants together and I have no doubt soon name those which do not require much examination and research. The Sandwich Island flora will require more study. There is much that is new in our herbaria especially in the British Museum where the collections of Menzies Nelson and others are very extensive & have a nearly complete set of Douglas' and Macrae's – and we could put the plants into some kind of arrangement so as to give you less trouble in working them up in London. You had better on landing at Liverpool have your packages sent direct here and after you settle town make arrangements for giving us a few weeks

On receiving your letter I wrote immediately to "Messrs Wilmer & Smith Liverpool" about the box of plants you kindly send me but have as yet heard nothing from them or of the plants.

You should endeavour to leave home in June if possible in order to have all July in the North. I only hope you will have fine weather but our climate is apt to be very pluvious in other months but the present one which I believe the French voyageurs so distinguished.

Yours very sincerely

George Bentham

Contribs House
Hereford
March 7 1850

My dear Sir

I can get no tidings whatever of the boy you kindly sent – to said as you said in the middle of Dec last. Would you therefore be so good as to enquire for me by what ship it was sent off and to whom consigned – I cannot get any answer from Messrs Wilmer and Smith of Liverpool and the boy is far too valuable to be

neglected

I find I have made one or two blunders among the Californian plants of the Voy. of the Sulphur which I shall correct in Pl. Hartw. One very ridiculous one is owing to the gentleman who corrected the proofs in the first instance and which I did not perceive in correcting the revise which is Vitex and Viticeae for Vitis and Vitaceae

Yours very truly

George Bentham

Coutriclas House
Hereford
April 11. 1850

My dear Gray

I hasten to write a few words to save the mail (having been too busy of late to write at length) to announce the safe arrival of the box you sent in Dec containing both from yourself and Torrey vast numbers of species I had not yet in my herbarium They are come just in time for the Compositae to be immediately laid in. I hope you will find that Order in tolerable arrangement when you come I have just got through them in the arranging and cataloguing my herbarium – As far as

the aid of Compositae I have about 26,000 sp. of which Leguminosae 5,200 and Compositae 5,300 – I shall write to Torry next week – His Californian Coreothrogyne virgata is the same as mine only that my specimens are old and the wool is almost all gone.

When you land at Liverpool you had better send your boxes of whatever you do not want to take abroad with you – straight here they will be taken in and good care taken of them should we not be at home as is most likely. We go up to town about Whitsuntide stay there till about the 10th or 12th June and then make a tour in Shropshire and Wales we are to be back here in the end of July.

September is still a very good month here and so indeed is all the autumn only that the days get so short late in the year so that I trust you will not arrive here much later than September however at any time most convenient to you for I have no engagements for autumn or winter

Yours sincerely
George Bentham

It is a splendid set of things

Portnalls House Hereford
May 8 1850

45

My dear Sir

Your parcel of Wright's Texan plants only reached me yesterday as Mr Lowell did not go direct to London and I suppose this week's mail is the last that will reach Boston before you leave it. I fear therefore I shall not have time to go through all ~~your~~ the Leguminosae. The genus Dalea is a very difficult one on account of the recent number of vaguely described and ill-defined species wholly unknown to me. I have however done the Mimoseae which I have transcribe and between this and Monday when they letter must be posted shall examine as many of the others as I can. If you prefer any other names to mine do not trouble to change them.

No 126 Prosopis odorata Torr. – My P. pubescens Lond. Journ. 5. p. 82 is the same species – I am glad Torrey's name has the priority as it is better than mine.

No 127 Prosopis glandulosa Torr. – I do not feel certain that this is a mere variety of the common Algarobo. If it be so the species including Mimosa juliflora Lin. Prosopis dulcis Kunth and P. adquadrum DC. – ~~Mimosa juliflora~~ is the oldest specific name independently of genus, dulcis the oldest and best in the genus Prosopis.

128 Desmanthus velutinus Schech

129 Acacia constricta Gr. (Gummiferae Medibracteae) subglabra, spinis stipularibus subulatis divaricatis rectis v. subcurvis, pinnis 2-6-jugis, foliolis parvis 6-10-jugis oblongis obtusis crassis enervibus, glandula parva sub petiolaris, pedunculis medio bracteatis, legumine ~~xxx~~ angusto lineari complanato coriaceo glabro valvulis coriaceis. Ramuli tenues rigidi; novelli vix minute puberuli (viscidi?). Folia ramorum sterilium vegetiora, petiolo communi saepe 1-1½-pollicari puberulo, pinnis 2-6-jugis, ramorum florentium glabra petiolo communi raro ½ lineas excedente, pinnis plerique bijugis. Pinnae 2-6 lin. longae, foliola raro lineam excedunt. Pedunculi solitari v. cum foliis fasciculati 3-9 lin. longum. Capitula parvum, flores cum staminibus 4 lin. diametro. Bractiae alabastro breviores. Flores 5-meri rarius 4-meri. Calyx membranaceus, truncatus, brevissime dentatus. Petala calyce triple longiora alte coronata. Legumen stipitatum, 2-5 poll. longum, 1½-2 lin. latum, inter semina constrictum, sutures levissime incrassatis. – This is the only American Medibracteate species known to me.

130 Acacia Rattenii var? judging from the foliage – The inflorescence appears to have been however ~~[illegible]~~ much shorter, and it may prove a distinct species when better specimens are compared.

131 Acacia mispedata Schlecht.

132 } Acacia Berlandieri Benth.
133 }
134 Acacia virgidula Benth.

135 Acacia Wrightii, sp. n., (Eucyrtes Microflorae) glabra, ramis, stipitibus inermibus [illegible] 1-2-jugis foliolis 2-4-jugis oblique obovatis oblongisve obtusis [illegible] lineare, [illegible] legumine late lineari [illegible] 9 lin. — Texas, Wright. Folia subfasciculata, petiolo communi 2-6 lin. longo, rachibus 4-6 lin. Glandulae parvae convexae stipitatae minimae ad basin [illegible]. Stipulae [illegible], 2-3-nervia, ultimo 3-5 lin. longa, 2-3 lin. lata, fere orbiculata, inferiora saepius minores. Pedunculi 1½-2-phyllicinus, primo infra medium interrupte floriferi. Bractea [illegible] Pedicelli calyce brevioribus. Flores cum staminibus fere 3 lin. longi [illegible] staminibus linea vix longiores, pentameri. Calyx semi-5-fidus [illegible] globo. Petala [illegible] ad basin [illegible], margine [illegible] lanato-ciliata, calyce duplo longiora. Legumen stipitatum subfalcatum 2-3 poll. longum, 8-9 lin. latum. This species much resembles the A. hamulosa and other African species among the Mayacanthae as well as A. rigidula and cinerascens among the Gummiferae, but there is no vestige of any thorns or prickles. The specimen from Greg's collection which you believe to be the A. cinerascens is the one which I also should take for that plant.

136 Acacia hirta Mitt.

137 Lencaena retusa, sp. n., [illegible], foliolis 6-8-jugis oblique obovatis oblongisve obtusis retusisve membranaceis venosis, capitulis longipedibus, leg. [illegible] subcoriaceo marginatis, [illegible]. — Gemmae et folia novella parce tomentosa flavescent, ramuli et [illegible] Dulce glabra sunt. Stipulae membranaceae puberulae basi oblique ovatae, in acumen subulatum 2-3 lin. longum desinentes. Petiolus communis 3-4 poll. longus, partialis vix brevioribus. Glandulae parvae elevatae, fere stipitatae. Foliola plerique 8-10 lin. longa, 4-6 lin. lata, [illegible] fere dimidio minora; [illegible] oblique, basi secundaria [illegible] nervia in reticulato-venosa. Pedunculi floriferi pollicares, procumbentes, capitulum fere 2-glomerum. Bractea stipitata lamina [illegible] ovata subulato acuminata supra vellosa. Calyx 1¼ lin. longus, tubulosus, membranaceus, apice breviter 5-dentatus. Petala angusta oblonga, calycem paullo superantia. Stamina 10, antheris glabris. Legumen 6-8 poll. longum, 6 lin. latum, rigidum et crassum marginatum [illegible] L. lanuginosa. — The general appearance of the foliage of this species is that of some Albizzia allied to A. [illegible].

138 Acacia malacophylla, sp. n., (Vulgares, Pennatae) scandens? mollissime tomentosa, aculeis in recurvos sparsis rarisque, pinnis 2-3-jugis, glandulis parvis, foliolis 6-10-jugis oblique obovatis oblongisve — obtusis utrinque mollissime subtomentosis, capitulis globosis, legumine late lineari glabro. — Pubes mollis [illegible] ramulos et folia undique obtegit vestit. Petiolus communis tenuis, 2-3-pollicaris, partialis brevioribus. Foliola 3-6 lin. longa, obovata.

Pedunculus fructifer sesquipollicaris. Legumen 4 poll. longum, 9 lin. latum, falcatum, lanuginosum et brevissime stipitatum, planum, [illegible] coriaceum, margine leviter [illegible]. — Although the specimen is in fruit only, the remains of the flowers at the base of the pod leave no doubt as to the genus and affinities of this plant, although it is so very distinct a species in the group to which it belongs.

139 Calliandra [illegible] Engelm.?

139 b.c. Calliandra confertiflora, sp. n., humilis, ramulis petiolisque puberulis, pinnis unijugis, foliolis 8-12-jugis parvis oblique oblongis subcoriaceis subtus sericeo-villosis, pedunculis petiolo brevissimo longioribus subcorymbosis, floribus parvis sessilibus pilosis, calyce corollae dimidium aequante, legumine adpresse villoso. Stipulae membranaceo-coriaceae ovatae marginatae — fructiferae semipedales. Stipulae lanceolato-subulatae, lineam longae. Petiolus communis [illegible] semipollicaris, foliolis vix 2 lin. longis confertis, villis longis paginae inferioris obtectis, supra glabriusculis. Pedunculi subfasciculati 2-4 lin. longi. Flores in capitulo 8-9, staminibus neglectis vix 2 lin. longi. Calyx brevissime 5-dentatus. Stamina (ex sicco) pallida, vix semipollicaria. Legumen 15-[illegible], basi longe angustatum, 1½ poll. longum, 3 lin. latum. — This species ranks with the Wright Unijugae near C. brevipes, and is readily distinguished by its small stature, few leaflets and flowers and very hairy leaves. In these respects it is nearer C. eriophylla, but appears never to have more than one pair of pinnae, and the form and proportions of the flowers are different.

140. Desmanthus — The specimen is not in a state to enable me to distinguish it from D. depressus, although the pod is so much more rigid. The glandula foliorum, angulatum item and general habit, besides the examination of a very young bud, leave no doubt that it is a true Desmanthus.

141. Calliandra. California Beetle var.? — at least the specimen such as it is does not enable me to distinguish it from one of the forms of that plant which I had from Hinds — but Calliandras require good specimens to drying them well. — The one you sent me from the Cambridge Garden as raised from New Mexican seed is surely C. Tweedii from S. Brazil a plant now in cultivation and some mistake must have occurred in the sowing as so often happens.

142, same as 135 (Acacia Wrightii sp. n.)

143 Mimosa malacophylla according to your label. Where is it described? It is a good species of the Habbasia Dubiosae

144. Mimosa (Neptunia) floridana, sp. n., (Ameria Acanthocarpae) fruticosa, ramis petiolisque ferrugineo-villosis, aculeis sparsis validis subrecurvis, pinnis 6-10-jugis, foliolis 8-10-jugis oblongis acutis sericeo-villosis, capitulis oblongis, floribus pentameris vel [illegible], calyce corollae dimidium aequante, legumine lineari-falcato dense tomentoso inermi. — Ramulorum aculei sepius solitarii rarius infrastipulares, petiolorum [illegible] paari parvi. Stipulae subulatae,

rigidae, villosae, 2-3 lin. longae. Petioli communes 1½-pollicares, pinnae semipollicares, foliolis conspicuis 1½ lin. longis. Stipellae minutae setaceae. Pedunculi axillares, semipollicares, tomentosi. Capitula pisi deflorata, rhachin 4-5 lin. longa. Calyx fere lineam longus, membranaceus, breviter 5-dentatus. Stamina 10. Ovarium villosissimum. Legumen 1½-2 poll. longum, 2-3 lin. latum, apice rigide acuminatum, fere puberum, tomento supercente dense vestitum, valvulis continuis (an demum interdum in articulos secedentibus?) This species appears in some respects to connect the Habbersia Batanacutor with the Acacia Acanthocarpa, but in my specimens the pod appears to be continuous, and the habit and small leaves are those of the Acanthocarpa.

145 Mimosa bicincta Benth

146? (There was no label, but I suppose it to have been 146 from being on the same sheet as 145) Mimosa monancistra Benth.

147 Mimosa flagellaris n. n., (Acacia Acanthocarpa) frutices, minute pruinoso-puberula, aculei interstipularibus geminis conicis rectis, pinnis 6-8 jugis minimis oblongis obtusis crassiusculis puberulis, capitulis globosis, legumine lineari rectiusculo minute cano-puberulo margine tenui aculeato. — Ramuli rigidi, flagellosi, albidi. Aculei caulini circa 2 lin. longi, petiolares minutissimi. Stipulae minutae, setaceae. Petiolus communis vix semipollicaris. Pinnae confertae, 2-3 lin. longae. Foliola fere imbricata semilineam longa, rigidula, coeteroquin puberula, obtusa v. vix mucronulata. Pedunculi praecipueri 2-3 lin. longi. Legumen pollice paullo longius, vix 2 lin. latum, rectum v. leviter falcatum, crassiusculum aculeis marginalibus irregularibus rectis. — This appears to be nearly allied to the New Mexican species of which you sent me a fragment in a letter some time since, but in my opinion specifically distinct especially in the pod.

148 same as 129 (Acacia constricta n. n.)

100 is Crotalaria lupulina

101 is quite unknown to me. Can it be a Dalbergia?

97 looks like a new Indigofera

Mimosa (America) zygophylla, glabra, aculeis infrafoliaceis solitariis recurvis, pinnis foliolique unijugis, his parvis oblique orbiculatis crassiusculis, pedunculis foliis sublongioribus, capitulo globoso, floribus pentameris, legumine glabro subfalcato v. cuticulo margine nudo v. parce aculeato —

In Saguerie towards San Juan 30 miles from Saltillo Wislizenus, near Saltillo Gregg.

Allied to M. depauperata but perfectly glabrous the leaflets rather larger and thicker (from 1 to 1¼ lin. long) and never more than one pair on each pinnule of which also each leaf has but one pair. The pod from an inch to an inch and a half long is reddish and rather glaucous in the dry state very smooth ending in a very sharp point. I have only seen the flowers in a withered state.

Acacia (Vulgares Nidiflorae) Coulteri, glabra v. minute puberula, inermis, stipulis minutis obsoletave, petiolo glandulis parvis obtongis, pinnis 3-5-jugis foliolis 10-25-jugis oblongo-linearibus valde obliquis obtusis v. acutiusculis, spicis elongatis axillaribus laxifloris, floribus sessilibus puberulis, calyce corollae dimidium aequante, ovario stipitato glabro, legumine late lineari plano margine vix puberulo valvulis regularibus

Zimapan Coulter (without any no.) West Texas Wright 179

Allied to A. Acatlensis ~~but quite distinct~~ and A. Wrightii but perfectly distinct from both. The leaflets are about 3 lines long and scarcely a line broad the spikes from 2 to 2½ inches long on a very short peduncle, and the flowers not at all crowded & often distant from each other. They are, including the stamens, about 2½ lines long, the corolla itself about one line. The pod, at least 3 inches long and nearly one inch broad, covered with a minute down and obscurely veined is of a much thicker and firmer consistence than that of A. Wrightii.

~~The pod of A. flexicaulis~~

Dr Wislizenus's collection includes a specimen of A. flexicaulis Benth with fully formed pods which are about four inches long, nearly an inch wide, falcate exceedingly thick and convex, almost woody, and divided between the seeds by a thick dry pulp ~~resembling~~ as in A. farnesiana.

the habit and foliage of H. stricta or demissa, without black dots on the leaflets, but the flowers nearly those of H. Drummondii and a pod straight or slightly curved, blunt at the apex, with the upper or ~~extreme~~ seminal suture more or less convex, and usually broadest below the middle. The second group (§ lunatae) would include H. oxycarpa, Drummondii and caudata with a variable habit, the leaflets without black dots and the pod in falcaria. Flamma 10. omnia anthesfera. Ovula circa 8. [May 6 1850]

110. Hoffmannseggia demissa, gr. n., stipulis late ovatis, caule foliisque puberulis glandulosis, pinnis 4-6-jugis cum impari, racemo laxo breviter pedunculato calycibusque pubescentibus et stipitato-glandulosis, vexillo dense stipitato-glanduloso unque dilatato, leguminis recto v. vix incurvo polyspermo. — Caulis e basi perenni brevissimus, v. brevior et laxe ramosus. Folia ut H. falcariae, minima et minora. Pedunculus cum racemo 3-3½ poll. longus, pars infra medium floripera, bractea caducissima. Pedicelli 1-2 lin. longi, floriferi patuli, fructiferi reflexi. Calyx- mucrones petala paullo minora quam in H. falcaria. Ovula circa 12. Legumen 1-1½ poll. longum, vix 3 lin. latum.

The above two species with H. stricta (Herb. Coll. Trin. Dubl. Zacatecas, Coulter)* agree with H. falcaria in their most important characters, the stipules are broadly ovate, membranous, rarely blunt or pointed, the petioles long and slender with usually 3 or 4 but sometimes 5 or 6 pairs of pinnae each bearing 6 to 10 pairs of obliquely oval oblong blunt nervelessness, crowded leaflets without any odd one, the common petiole however always in my specimens terminated by an odd pinna usually rather longer than the lateral ones. In all the divisions of the calyx the pinnae are linear-oblong, rather blunt, equal or the lower one rather shorter and broader, generally persistent but sometimes falling off before the fruit is ripe. The four lower and outer petals ~~have an~~ nearly equal and scarcely oblique, obovate and narrowed into long claws which bear copious stipitate glands on their inwardly turned edges. The upper and inner petal or vexillum is equal in length but very differently shaped, it is concave or folded, the lamina ~~rather~~ smaller than in the others the claw is expanded in the middle, and the copious stipitate glands are on the back instead of the front, covering the claw and the lower part of the lamina. The stamens straight, nearly equal, the lower ones rather longer, the filaments more or less furnished with rigid hairs and a few stipitate glands (the latter sometimes wanting)

(*) H. stricta, stipulis late ovatis, ramis foliisque puberulis parce glandulosis glabratisve, pinnis 4-6-jugis cum impari, racemo stricto, pedicellis divaricatis puberulis calycibusque pubescentibus et stipitato-glandulosis, vexillo dense stipitato-glanduloso unque dilatato, leguminis falcato glanduloso. — Habit of H. demissa but differs in inflorescence and pod.

117, 120 Hoffmanseggia densiflora, gen. n., stipulis [illegible] longis [illegible] persentibus, vix glandulosis, pinnis 3-6 jugis cum impari, racemo pedunculato, per anthesin denso subcapitato ~~calycibus [illegible]~~ calycibusque dense puberulis et minute glandulosis, vexillo dense stipitato-glanduloso ungue dilatato, legumine... — Caulis e basi lignosus humilis nunc fere pedalis simplex v. parce ramosus, folia et stipulae H. falcariae. Pedunculus folio ultimo paullo brevior, glandulis conspersus magnitudine H. falcariae. Alamina 10 omnia antheriferae. Ovula circa 8.

110. Hoffmanseggia densiflora, gen. n., stipulis late ovatis, caule foliisque puberulis et glandulosis, pinnis 4-6 jugis cum impari, racemo laxo brevius pedunculato calycibusque puberulis et stipitato-glandulosis, vexillo dense stipitato-glanduloso ungue dilatato, legumine recto v. vix incurvo, polyspermo. — Caulis e basi lignosus, ramosus, v. brevius et laxius ramosus [illegible] Pedunculus cum racemo 3-3½ poll. longus, pars supra medium floriferus. Bracteae caducissimae. Pedicelli 1-2 lin. longi, floriferi patuli, fructiferi reflexi. Calyx majorem petala paullo minora quam in H. falcaria. Ovula circa 12. Legumen 1-1½ poll. longum, vix 3 lin. latum.

The above two species with H. stricta (Herb. Coll. Trin. Dubl. Zacatecas, Coulter)* agree with H. falcaria in their most important character, the stipules are broadly ovate, membranous, scarcely pointed, the petiole long and slender with usually 3 or 4 but sometimes 5 or 6 pairs of pinnae each bearing 6 to 10 pairs of obliquely oval oblong obtuse nerveless leaflets without any odd one, the common petiole however always in my specimens terminates by an odd pinna usually rather larger than the lateral ones. In all the divisions of the calyx are linear-oblong, rather blunt, equal or the lower one rather shorter and broader, generally persistent but sometimes falling off before the fruit is ripe. The four inner and outer petals ~~[illegible]~~ nearly equal and scarcely oblique, obovate and narrowed into long claws which bear copious stipitate glands on their incurved outer edges. The upper petal minor, ovate or oblongo-ovate in long th. but very differently shaped it is concave or bolded in the middle, and the copious stipitate glands are on the back instead of the front, covering the claw with the lower part of the lamina. The stamens straight, nearly equal (the lower ones rather longer) the filaments more or less pubescent with rigid hairs and a few stipitate glands, the latter sometimes wanting.

(*) H. stricta, stipulis late ovatis, ramis foliisque puberulis parce glandulosis, calycibus, pinnis 4-6 jugis cum impari, racemo stricto, pedicellis divaricatis puberulis, calycibusque puberulis et stipitato-glandulosis, vexillo dense stipitato-glanduloso ungue dilatato, legumine patulo glanduloso. Habit of H. densiflora but differs in inflorescence and pod.

the five inner filaments always left hairy than the five outer, and all ten (in all the flowers I have examined) antheriferous, the ovary glandular, the style smooth, club-shaped at the apex, with a contracted opening more or less ciliate, but these cilia and the thickening of the apex varying more or less according to the age of the flower. The pod is flat the margin slightly thickened and the apex remains blunt after the falling off of the style. These four species with H. trifoliata Lag. (Port Denise, Middleton!) differing in its foliage, and H. gracilis Hook. & Arn. (Chile Cuming 1080!) and H. prostrata Lag. (Lima Cuming n. 1069) in both of which the petals are scarcely glandular and the claw of the vexillum long and narrow, would form the section of Hoffmanseggia proper. The H. viscosa Hook. & Arn. (W. Columbia Cuming n. 1175! and Peyta Lindchand!) may be also referred to the same section although the claws of the petals are shorter and the pod less marginate and more readily dehiscent. The H. glandulosa Vog. from South America, which I have not seen must be very near H. viscosa but with a very long glandular raceme (oxycarpa unless it is already named in Gregg's collection)

119 (12) Hoffmanseggia, sp. n., stipulis ovato-acutis integris, ~~caule~~ ~~petiolisque~~ pinnis 2-6-jugis cum impari foliolis oblongis crenoribus eglandulosis calycibus obtusiusculis parce glandulosis, petalis ellipticis-oblongis subnervis brevipime stipitatis, leguminis falcati acutissimi stipitato-glandulosi. — Foliage nearly that of H. falcaria, flowers of H. drummondii, but with rather narrower petals. Pod an inch or more in length and not above 3 lines broad

120 same as 117 Hoffmanseggia densiflora.

121 Hoffmanseggia melanostricta (S. Schauer Linnaea 20 p. 746 sub Pomaria) at least as far as the specimens go which accord pretty well. They perfectly agree with Schauer's description, but distinct from H. Jamesii? which would be the oldest name

122 same as 119 Hoffmanseggia (oxycarpa)

123 Hoffmanseggia drummondii Torr. Gr.

124 Hoffmanseggia condata, from your label where described?

If we consider the section Pomaria as characterized by the nearly sessile petals only differing from each other in the vexillum being rather broader all with few or no stipitate glands, where they exist they are generally dorsal on the vexillum, we may subdivide it into three or four distinct groups. The first (5 Gladiatae) including H. gladiata Hook. Coll. Frem. Dubl. (Zimapan Coultes) (a) and H. platycarpa Hook. Coll. Frem. Dubl. (Mexico Coultes) (b) with

(a) H. gladiata, stipulis ovato-acutis, pinnis 3-6-jugis cum impari foliolis oblongis crenoribus eglandulosis, calycibus acutis hirsutis glandulosisque, petalis oblongis brevipime stipitatis leguminis lanceolato-falcati ~~subfalcati~~ hirsutis et parce glandulosis.

(b.) H. platycarpa, stipulis ovato-acutis, pinnis 2-6-jugis cum impari foliolis oblongis crenoribus eglandulosis, calycibus acutis hirsutis glandulosisque, petalis ovatis vix stipitatis leguminis late oblongo pubescente vix glandulosis

Pontrilas May 15
[1858]

My dear Gray

recd May 6 1858

I wrote last week sending you descriptions of Mr Wright's Mimosa & Hoffman's Leguminosa. I have since compared the other Leguminosa which is all I have had time to do. We are so far from home for near two months and I have many things to finish up

79 and 125 (Dalea pogonathera) this must be the plant figured by Moricand as specimen n. 2 of his D. penicillata, whilst D. lapiflora is certainly the one he figures n. 1. and describes more especially as D. penicillata. I am [illegible] to agree with you that the two are distinct

93 is without doubt D. alopecuroides and all those marked by you as

better have the boxes of plants to be looked over at Pontrilas sent direct from Liverpool to me addressed Pontrilas Hereford

Yours very sincerely
George Bentham

new are new to me also

95 and 96 both appear to me to be Eyrenhardtia amorphoides. I have large small and intermediate leaved forms from various parts of Mexico and Texas. Texana Scheele must be precisely the same thing the calyx teeth vary slightly but the variations do not correspond with the differences in foliage.

97 must be Indigofera Lindheimeriana Scheele Linnaea 21. 466 - it comes nearest to I. anil but the whitening of the leaves on both sides the long spikes &c appear to be sufficient characters to prove it a distinct species.

103 Desmodium - new to me - near D. canescens but quite distinct

109 Phaseolus returns Benth.

106 & 107 Galactia both new to me

105 Rhynchosia sp. new to me different in inflorescence from all I know except an unpublished one from Buenos Ayres which appears distinct in foliage & pubescence.

110 Phaseolus new to me near P. gonocephalus Benth but with a much larger pod.

111 Phaseolus (Dioscorea) between P. filiformis Benth Bot Volph and P. pedicellatus Benth Ann Mus Par.

116 Cercidium different from either of the two I have

I regret I had not a week or ten days more - I could have sent you characters for novelties - but it takes a great deal of time in the first place to ascertain that things are new - before you come to describe them

Pray as soon as you land let me know where you go I suppose you will go through London to the Continent if so send me a line ~~addressed to Gower~~ enclosed to Dr Boott who will kindly forward it to me if I left London - and as I shall probably be in Bedfordshire I would come for a day to see you in your way - You had

Contrisley House
Hereford
Sept 10 1850

My dear Gray

We are quite ready to receive you the earliest day you can make it convenient to come You say the 1st or 2d let us say the 1st October (next Tuesday week) If you come by the Express train which leaves Paddington station at 5 minutes before ten it lands you at Gloucester before one You will find a Hereford coach (the Mazeppa) starting from Gloucester station at one o'clock which will arrive at Rosp a little after three and at

Llandinabo between ½ past 3 and 4 – We are 16 miles from Ross only 10 from Llandinabo but there are no horses or vehicles to be had at the latter place so if you come on by the coach to ~~Ross~~ Llandinabo, if you will write to me beforehand, I will send a fly from an inn close here to meet you at Llandinabo – otherwise you must take a fly from Ross – or if Mrs Gray does not like the trouble of the coach by writing beforehand to Mr Barrett Royal Hotel Ross he would send a fly to meet you at Gloucester Station and by only changing horses at Ross you would come on in the same fly from Gloucester here. If you do not take the Express, the next train starting ½ past ten does not get in to Gloucester till near three when another Hereford (the Arrow) coach starts via Ross & Llandinabo

I hope this fine weather may not be all gone before you come

Yours very sincerely

George Bentham

Do not go on to Hereford as that is quite out of the way and 12 miles from us through our post town

Portsoken House
Hereford
Sept 20 1850

My dear Gray

I will take care the fly is at Llandinabo on Tuesday in good time and wait for the Coach which leaves Gloucester at 3 if you do not come by the Magpie which leaves at 1 — If you come by a still later train you will only find a Coach to Ross as the 3 o'clock one is the last which goes by Llandinabo.

The periodicals are I believe

delivered on the evening of the last day of the month — Perhaps you would kindly call at 21 Regent Street on Monday and desire the porter then to send you on Monday night whatever he may have for me —

Yours very truly

George Bentham

E E C, Portreitas Dec 26 65

[1965]

My dear Gray

Your & Mrs Gray's letters received yesterday were the more acceptable as we had begun to be anxious at not hearing from you so long after having been told that you were expected last week at Kew and on Tuesday I wrote to Harvey to ask whether you were still there or not.

Thanks for the information about "Upper Louisiana Boraginy": there is an Eriogonum pauciflorum Rusby which I saw in Lamberti's herbarium but which I now cannot recognise in any of our collections.

I have finished the Eriogonum all but a little copying out — I worked hard at them expecting every day a letter from at Lowdale

to say that the vol. was in the printers hands & that my MS was working immediately. The letter has since come but instead of immediately it will not be wanted till 1852 – which is very provoking. The Colonia and Plantaginea are to be commenced printing immediately and the 14th vol only commenced when they are done – The Lauriniae for the 14th vol. will not be begun working till the end of 1851 so that my MS stands a good chance of not being published these two years. In the mean time my names will be taken or some "Pastor Schenk" will be publishing my species under other names unless I can get a synopsis printed somewhere and in 1852 I shall be called upon to go over the same ground a third time which is far from agreable.

Among your Texjie plants there was a Melastoma to which you gave the MS name of M. Vitiensis – Naudin has just published a new Texjie Melastoma under that same name & probably that same species. I see he entirely ignores the Melastomaceae I published above a twelvemonth ago in the Niger Flora.

With heartfelt wishes for your speedy & complete recovery and that you and Mrs Gray may enjoy during the coming and every succeeding year all those blessings you both so well deserve – believe me

Ever yours most sincerely

George Bentham

Pontrilas Dec 31

My dear Gray

I am sorry to say your Wright's Texian plants are certainly not here and must have been packed off by mistake into one of the Liverpool boxes – as soon as you were gone I sorted out all my bundles about and cleared my room & ~~you~~ bundle of yours was among them – I perfectly recollect the parcel in question – The last day there were some of the N. American plants originally destined for London which you looked over and put for Liverpool instead probably you then put the Wrightian one in question on to the wrong heap

I shall write from Boulogne to tell the precise time when we return through London as I hope & mean come down to Kew for an hour to see the Hookers & yourselves

I send a box with Hookers, yours & Torrey's Encyclopedia – it will leave this on Saturday

Ever yours
Geo. Lindley

coming to town before Easter
I am exceedingly loth to give
it up because I had looked
forward with so much
pleasure to spending 3 or 4
weeks with you in town but
various considerations interfere
I may come up perhaps one day
and certainly shall if Dr
Hooker comes home

Ever yours sincerely

George Bentham

Pontrilas 1872

My dear Gray

Since my return I have been very busy working up enough of Brown's plants for a commencement of my second Report in order to show I am doing something and to get published what others took so much trouble to send me months ago – I am also working up Pari passu Champion's Hong Kong plants as I must show that also a beginning so that as my specimens are now it will be difficult for me to answer your queries excepting as I come to the respective families in working

up others unless you are in any particular hurry - as to leguminosae pray let me know by what time you want them as upon that will depend how much I can do to them

I return your Alchornea character - I cannot reconcile myself with its affinity with Euphorbiaceae - No trace of cocci with a persistent axis - and erect ovules and seeds - In those families having habitually pendulous seeds if there occur plants with some or all the seeds erect the radicle retains its usual position with relation to the funiculus in such instances as occur to me And here you have the radicle also pointing to the base of the funiculus. It may not be Celastraceous but I think nearer Celastraceous than Euphorbiaceous - and we cannot be certain that there is no disk till we have seen the male flowers because I believe in some other dioecious genera it disappears in the female flower. The bifid stigmata (or stigmatic branches of the style) may occur in any family where they are usually simple as for instance Cleome among Capparidae

Your parcel is come but I have not had time to open it

We go today - to spend a week with the Sandomores but I shall occasionally come over here to work

I begin to doubt our

Pontotoc Feb 17 19

My dear Gray

You specimen of Myriocaphalus is very much like mine but the leaves are ~~much~~ shorter the heads smaller ~~the~~ and the scales of the general involucre in my plant have the lower bracts portion longer with a strong green rib with the appendage of the top like that in yours. The minor forms have little or no long hairs I should think all belong to the same species – I have it from Texas and from Drummond's first unnumbered collection I have not Drummond's later numbered sets – nor the other species you mention

I see another Indian chief in Idaho it brings me

of D Hooker

Yours truly

George Bentham

Portsea March 8 1857

My dear Gray

Whilst working up Gomes' Brazilian and Champion's Hong Kong plants I have been also laying in Wright's & other N American ones but as I have only got as yet as far as Malpighiaceæ (in my arrangement which is nearly De Candolle's) I have not much to say about the list you kindly sent me – and for which I have many thanks to give as it enables me at once to name all my Wrightian plants – The Krameria parvifolia appears quite identical with Hindt's California plant – although my specimen of the latter may be rather more hairy I quite agree with what you say about Polygala scoparia – My

specimen of Sida sagittifolia may no point any more than Hooker's. I have no clue to Corchorus ~~[illegible]~~ filiolobus Link but the memorandum on Shuttleworth's label of the true C. siliquosus from Florida – It is however the only species I have which agrees with Link's character as copied by De Candolle – I have the true C. siliquosus from Jamaica and other W. Indian Islands and from Yucatan (unlikely Torrey)

Mr Bentham wrote last week to Mr Gray and is rather anxious for an answer about what is the best way to send very small parcels ~~to~~ Canada but still rather too big to send by post – Do you know whether the steamboats take them for a moderate charge – and how do they get on afterwards? – perhaps after all the post is the best way when they only weigh two or three ounces

I am very sorry to hear that Lady & Miss Hooker are both confined with colds – this splendid weather ought to drive them away.

How is Mr Gray's health? I hope she has gone through our damp winter better than she expected – I am very much disappointed at losing the prospect of spending a few weeks with you in London before you go abroad – but we cannot leave home before Easter – so I must work hard – I hope to be at Leguminosae in a fortnight and shall then work up Wright's

Yours very sincerely

George Bentham

or pyriform without angles and smooth (P. pinnata) or ovate sharp angled or narrow winged almost like of Urvillea (P. barbandensis) or with three large wings at the top and back like a Thouinia (P. mexicanitis) or almost any intermediate form – so that there is plenty of scope for puzzling one's brains.

Yours very sincerely

George Bentham

In writing to Hooker and Henry yesterday I was only thinking of his son's return – I intended to have asked him to take care that I see the proofs of my papers on Spruce's plants. Will you do so for me?

Portsea March 6 '83

[135]

My dear Gray

Gray thank Mr Gray for her note – Hooker himself was kind enough to write me a few lines containing the good news which I received yesterday – otherwise Mr Gray's note would have relieved me from much anxiety as I knew by the papers that the news [illegible] come in – so I am not the less obliged to her. I should have written to her but that I wanted to say a few words about Serjania you ask whether a specimen of Wright's is Serjania or Paullinia mine is but a fragment without fruit – and without fruit one cannot distinguish the genera with certainty – Wright's plant is very near to a Serjania which I have always taken for S. racemosa Schum.

but about which name I have now some doubts – and to a Paullinia which from specimens I appear to have called in Bot. Sulph. Paullinia pinnata (with acuminate leaves) and Serjania lepidina (with rounded blunt leaves) I have now Guatemala specimens in good fruit showing it to be a true Paullinia – Wright's plant is near them both but apparently distinct and as I see that in the Serjanias allied to it the inflorescence is lay the lateral branches being developed and in the Paullinias of the group the flowers are more densely fasciculate & almost sessile I suspect Wright's plant to be a Serjania

Torrey sent me from Eaton & Edwards Monterey collection under n. 10 two plants – one in fruit (ternate leaves) as Moviliosa apparently new the other in fl. only with bitternate leaves is the apparently the common Serjania which I take for S. racemosa Schum.

Would you kindly look at Hooker's Serjanias and see whether Hooker has made any corrections to my Bot. Sulph. names – also if Hooker has Schumacher's paper on Serjania (from the Copenhagen transactions) which I have not compared his figures & description with what I have called Serjania racemosa

Michx' Paullinia diversiflora is P. pinnata L.

Walpers' Paullinia Meigeniana is Serjania cuspidata

Moviliosas have always leaflets simply ternate & generally small flowers

Serjanias have leaflets either simply ternate or bitternate – seldom if ever pinnate – Racemes generally loose and bright flowers

Paullinias have leaflets sometimes but rarely simply ternate – mostly bitternate simply pinnate – pinnate with the lower pair trifoliolate – or supra-decompound. Inflorescence variable but flowers often fasciled & subsessile – fruit either thick stipitate globoro-trequetrous like a Cupania (P. corporodia)

Coventry April 17 1851

My dear Gray

It is very provoking that we should just miss each other again and that you & Mrs Gray should be at Paris precisely at the time we shall be near or in London. I am very angry with Mrs Gray for thus always running away from us and shall not forgive her without a promise from you both to spend another week or two with us here before you return to America.

Thanks for the information about the letter at the post office. Self had written to me and I have written to the Secretary of the Post Office - whether I shall get it or not is a matter of doubt. I got one the other day directed to me "Professor of Botany London" "Try University College - Not known there - Try King's College - Not known there" and at last try Botanical Home Parks.

Many thanks about the Chagres plants you speak of they will be

dysocarpa -

I thought I could have worked up ~~your~~ Leguminosae whilst waiting the other sets from various sources I was obliged to do but have not had time to finish and must do it when I return - In a set of about 100 Javanese Leguminosae from whom I expected much there are not half a dozen new ones - not so many as in Champion's Hong Kong set or in Spruce's Pastazem collection - the common E. Indian Leguminosae has a very wide Geographical range - whilst your New Mexican ones seem very local

Dr Oersted (or as they write it Dr Ørsted) of Copenhagen has asked me to determine his Nicaragua & Costarica plants amounting as he says to about 2000 specs & keeping a set for myself - I have been obliged to decline excepting certain families - Do you know anything of him?

Ever yours sincerely

George Bentham

most acceptable – Whatever you have for me I should feel much obliged if you would send by Carrier to – 11 Regent Street the porter there will pay the carriage – for Hooker's house is so full any extra packages are in his way.

I had a letter from Porrey last mail & shall write to him before I leave home.

De Candolle writes to me that his family are all well again – he is greatly [illegible]

When at Paris you need Mr Weddell may tell him how much I regret not having had an opportunity of making his acquaintance when he was in London though I was there at the time and just missed him at Lindley and at Kew. I trust when next he comes to England he will come and see me here. I am more and more interested in South American plants – Spruce's Amazonian ones which I am now distributing are now more numerous in specimens and in the present set (about 200) are many very interesting ones amongst others a new genus of Eleagnea, quite distinct from Conulbum with the habit of a Schoepfia. If you happen to know of a subscriber in Derry pray mention them.

I hope the Mr Vezey & Mr Bellew collectors will pay attention well to the Mimoseae which appear to be numerous there – N. 179 (139) of Wright is not among Wallichian plants and I cannot make it out. My specimens certainly look as if the inflorescence had been spicate whilst the one you have in town looked capitate – but one cannot always tell for certain in fruit specimens. The two 180 (129) and 162 (140) which I called A. contorta may be distinct species but they appear to be two intermediate forms between two extremes among Wallichian – In Wallichian collection the pods are sometimes loose and twice I found one half of a pod with one specimen and the other half of the same pod in another sheet with another species. The name I have given in my notes and shown to 163 (144) was Mimosa

London May 12 1851

My dear Gray

Above is an order for £3.16.6 on the Jardin des Plantes which you would very much oblige me by receiving for me – I had intended receiving it through Vilmorin but missed the opportunity At the exchange of 25.00 this will make 95f 60c out of which I shall be obliged to you to give Mrs Gray 50f which she has paid for Mr Bentham and some other small sums she may want for some little commissions she has kindly undertaken. – I have also a commission to trouble you with – that is, to procure for me a copy of Achille Richard's Flore d'Abyssinie if it is to be had without the non-botanical part of the work to which it is attached – I will give you the remainder of the price of it as soon as you

Received June 12 '51

come back if you will kindly advance it for me.

Since we have been in town I have not had time to look at any plants – even at Hooker's the two days we were there – The Great Exhibition occupies us in town and I have had a great deal of conversation with the Hookers & some others about St Joseph's affairs which I hope are now in excellent train for giving him a footing at Kew – temporary at first – but which must lead to his permanent position there.

Every one is in admiration of the Great Exhibition which its most violent opponents dare not abuse now as they did before it opened – I only regret you were not here at the opening which truly was a grand sight

We remain in town till the 20th when we return to Pontrilas and I shall immediately resume work I

hope to be very much pleased there the whole summer during which we must have another visit from you and Mrs Gray

With kindest remembrances to her believe me ever most sincerely yours

George Bentham

Dr Asa Gray
9 Rue Richepanse
à Paris

Pontrilas May 22 1851

My dear Gray

I found your letter here on reaching home last night and have many thanks to return to you for all the trouble you have had about my commission – but I am afraid I must give you still further trouble and cause you to think me very tiresome and unreasonable when I beg you if possible to undo what you have done and return the work to the bookseller – I was quite horrified at the price – so ~~very~~ much beyond what the thing is worth or what I can afford to give whatever be its worth My notion of the Flore d'Abyssinie was a couple of volumes of text at about 10f each with some 20 or 30 francs worth of plates making it come to about a couple of pounds – To give

£10 for a work before it is finished which when done is not worth a quarter of that sum seems to me quite preposterous – but I do hope Gaillière will take it back as indeed he ought not to consider it as a concluded bargain till you could get an answer from me – and I have no time in writing this.

We have had three very agreeable but very busy weeks in town Nine mornings in the Great Exhibition of three or four hours each and the last day we could scarcely come away from it – besides some of the usual exhibitions etc – two days at Kew and very little time to see our friends – none for botany – to which I am now going to apply myself again and shall profit by the memoranda you have kindly sent about Compositae etc.

I think that the prospects of Dr Hooker's being employed at Kew – temporarily in the first instance – are very fair and the matter is progressing favorably – when once this it will be more easy to get him permanently attached to the garden.

This place is looking very beautiful just now – We live in hopes of you and Mrs Gray spending another week or two with us here

Yours very sincerely

George Bentham

Portrolas June 15 1857

My dear Gray

We were at Blackbrook (Mr Crawford's) when your letter came and on Friday morning were kept so late that post was already gone out when we got home - which will account for my having taken no notice of it. I am delighted to hear you spent your time so agreeably at Paris and hope that may have in some measure made up to Mrs Gray for having been obliged to defer Italy till her next trip to Europe. On the 1st August the railroad across Ireland will be opened and good steamers running from Galway to New York will considerably shorten the voyage across the Atlantic and I hope we

may then see you oftener over here – One thing however now I cannot let you off from – that is another visit to Portsloe even if only for a few days – There is much I want to look over with you among the Weighton & plants – and unless you come we shall never cease ourselves for having so stupidly missed Mr Gray both times that we have visited London since you were here – so come you must whether you will or no.

The sum due by Martin is £6-10-0 for Sprunis plants sent in October last There will be a further sum due for the set now in distribution of which part was sent off in April but I shall not make up the accounts till the whole is sent off which I hope will be early next month If you do not owe Martin as much as the £6-10-0 I can add on any remaining balance to the next account – or if you owe him anything more than that you might save the balance with me.

Yours very truly

George Sullivan

Contoocook June 26 50

My dear Gray

We are very much disappointed at your endeavouring to back out from your promised visit here. We cannot expect nor wish to stand in the way of any thing Mr Gray may see before leaving Europe but if you can still manage it without interfering with your more important arrangements I do hope you will give us a day or two on your way to somewhere or other

With regard to our account the best way of remitting the balance will be by a Post Office order on the Hereford Office

Spruces plants will be ready in about a fortnight the

parcel you found at Kew contained
the genera as far as Leguminosæ
inclusive – the remainder will
be about 150 genera so that the
set altogether will amount to
near £5 — but I cannot tell
exactly till they are distributed

As soon as I have got rid of
them I set to work at Leguminosæ

Yours very sincerely

George Bentham

Acton Scott
Shrewsbury
July 10 1851

My dear Gray

I duly received your note from Ipswich but have been too hard worked to make any answer having been anxious to finish and despatch the remainder of Spruce's Lantaveen specimens before coming on a visit there for a few days and it is no joke labelling distributing counting and packing 22 sets (or 24 of fern) However I got them all sent off yesterday morning and enclose your parcel in a box to Hooker. It contains 176 specimen which with 94 sent in May makes 270, amounting to £5..8..0 — This with the balance of our account may

be sent home either in two P.O. orders on the Hereford Office or in a crossed cheque on a London banker as most convenient.

I am delighted to hear there is still a chance of our seeing you at Portreilos and even Mrs Gray I only wish I could have asked her to bring her Aunt and Cousin but unfortunately the capabilities of our house and establishment are limited. We are obliged to reserve room for one or two friends who are coming to us this summer but your and Mrs Gray's room will be ready to receive you during the whole of August – excepting only the 12th 13th and 14th when a bowmeeting at Whitfield on the 13th obliges us to invite for that day & the night before and after that members of the archery

Society living in distant parts of the County – they come however on the afternoon of the 12th and leave in the morning of the 14th and any other days during the month we shall be quite at your & Mrs Gray's service – There are many things I want to see you about

I began looking over the fleurs & take out mine but had not time to finish – I will do so as soon as I get home next week – Many thanks for the trouble you have taken about them

Yours very sincerely

George Denison

Kindest remembrances to Mrs Gray

The enclosed is for Mr Gray
Coulterella

My dear Gray Sept 11

Sir W. Hooker who has just spent a few days with us brought me down your parcel for which many thanks

963 Wright is one of the sixteen Cracoides of Sephronia a group very distinct from Sephronia and much nearer Courseria It must be considered as a distinct genus (including T. caribaea T. mollis T. ochroleuca T. glandulifera A. etc) and I think your species different from all known to me I have it from publishing species forsey gathered by Dr Edwards near Monterey and marked F — Cracoides is a very bad name for a genus which has hitherto prevented me from establishing it as such.

1020 is no lupin that I am acquainted with I have not L. Mexicanus but that is described with much fewer leaflets and the upper lip of the calyx bifid — yours is entire — It comes near L. Ehrenbergii & L. leptocarpus but is I think different from either

The other Leguminosae do not seem to

call for any remark. your new Demoria are all new to me – I thought at first your D. grammipolium was D. liaeoripolium DC. perhaps I have from Central America but the fruit is different (the artists must have separate separate)

Sept. 14 – just received your last

Your Cassia leptoloba seems to be the same as my C. leptocarpa Linnaea 22. p. 28

The Eryngiophyllum varies so much that I do not think it safe without further data to consider your orthocarpa as more than a var. I have others with exactly the same leaves but fruit as usual even a more curved.

952 is surely Phacelia Wrightii

I do not profess P. macropus

The little Morphilovinum is a purple – close to Conobea multifida it has the upper division of the calyx enlarged but not so much so as in Herpestis & the habit is so different from Herpestis – yet however is certainly intermediate between the two genera – the stamens are more distinct than usual in Herpestis

Schistophragma is at first sight exactly like it but the calyx & fruit are quite different It must go next to Conobea multifida

The Mitracarpum & the Cassia are both I think good genera

Yours truly

George Bentham

Portreiar House Hereford
Sept 25 1857

My dear Gray

We were very glad to hear of your safe arrival home – We were a little anxious about your voyage which we feared would be a rough one as we had high winds just after you sailed. Since then we have had beautiful weather – nearly four weeks without rain a most unusual thing in September and though with cold alternations we have had great heats – to us at least who seldom get what I call comfortably warm

We have been very quiet since you left – I went off last week my Leguminosæ Fingerhutiaceæ and am now at Hong Kong alternating with Amazon plants

I am much rejoiced that Jos.

about to Warford His address is Barrie Upper Canada When we last heard he was about to start with two of his brothers-in-law on a five weeks excursion up Lake Huron to witness the annual distribution of presents to the Indian Chiefs whilst Lady Bruyères was to go with her mother to Niagara – I suppose they will be coming back after the middle of October

With kindest regards to Mrs Gray Everyone's friend

George Bentham

Hooker's prospects are so much improved. No answer came to the memorial but a private application from Sir William to Lord John did the business at once and he is to have £400 a year for three years to arrange his collections. That with what the Admiralty give him for three years for Flora Antarctica and what he gets from his father & from Mr Hooker's father will give him time to look about him. He is now at Kew hard at work. He is to end Hooker's house – I shall be in town in November when I expect much pleasure in seeing them comfortable.

I trust you will find Drosophyllum plants in some bundle coming marked outside. Lord cannot be here – at least I cannot think of any place where it could have got hidden. It cannot have slipped down behind a cupboard or been carried off with the ashes like a brush or a bobbet.

In looking through your Am. Egypt. Egyptiaca Leguminosae we marked a plant "Dalbergia microphylla sp. n." from Fuegia which is no Dalbergia but Desmocarpum sennoides.

Desmi uliginosa from Tongalabou appears to have the leaflets usually 7 (instead of usually 5) the racemes shorter the pod rather thicker and less veined than in the more common D. uliginosa but the number of ovules appears to have been that of D. uliginosa and without flowers I cannot consider it as a distinct species.

In notes to Ol. Jungh. I have given lists of species of many eastern genera of Hedysareae Phaseoleae Dalbergieae and Dunbrinioid genera.

Thanks for your kind enquiries

Acton Scott Thursday
Nov 28 1857

My dear Gray

Before I left home a month ago I was exceedingly busy finishing up two or three things I had on hand and was not aware you were getting on so rapidly with Wright's plants therefore I did nothing with his Leguminosae I shall not be home now till the 8th or 9th Dec but will immediately send you the Coffamonuggia MS as to the Dalea I fear you will have the trouble of characterising them yourself for you have already studied them and it would take me some time at present to work up the genus as I must do before I publish any

Thanks for the Chromolaena fruit

Mrs Bentham will have told Mrs Gray of the B[illegible] we have enjoyed

of poor Bromfield — I have just heard of the death of another Botanical patron though not much of a Botanist Mr Fielding of Lancaster who bought Prescott's Rufian herbarium and had accumulated in various ways a very large herbarium is just dead.

Yours very sincerely

George Bennett

Pontrilas House
Hereford
Dec 8 1858

My dear Gray

As far as my own specimens are concerned I find I have no additional materials to make any alteration in the enclosed which I have carefully looked over. I shall, winter work up Seemann's Leguminosa from the Sierra Madre of N. W. Mexico and shall then go through several Mexican genera but that will be too late for Wright's so that instead of the labour of other men I shall have all the benefit of your labours. I long to see something again from your pen. As for me Spruce's last Barra plants call upon me for my whole time till I have got rid of them.

Yours very sincerely

George Bentham

United States
via Liverpool

Dr Asa Gray
Cambridge University
Boston

Pontrelas Dec 20

My dear Gray

I find that a Cleome from Rio Janeiro of the Amer. Expl. Exped. which we could not find in DC. or Wolp. and named C. papaveifolia as new, is the C. dendroides Rom. et Schult. – R. & S's Cleome was dom. after DC's which one is apt to forget

Enclosed you list of Hortmann's Nos made up as well as I can at present

The Manilla paper will wait for the present as I have enough to last for many months & perhaps do nearly all the Cambridge herbarium

I hear Mr & Mrs Loring are to be at Hooker's as soon as he has got a little settled in his new house – When I saw it a fortnight ago it did not look anything like ready to receive him and yet they were to be in it by X mas eve – I am very sorry not to be able

to meet them Mr & Mrs Gray now and to have missed them by being in town a little too soon but I trust that on their return I may have the pleasure of making their acquaintance either in town or here.

Pray thank Mrs Gray for the specimens of beans which I suppose I am indebted to her for as they are marked "Mrs Gray's beans". I will report upon them the first time I work at Leguminosae – the Lima bean seems to be P. lunatus and some of the other varieties of P. vulgaris

I have compared the longflowered Mirabilis with our "Sweet Marvel of Peru" or M. longiflora and can find no other difference than the smooth corolla without viscosity in M. longiflora the leaves are equally the same as in yours, the stem leaves always petiolate except the upper pair or sometimes the two upper pair [illegible] sessile.

With every good wish for the New Year and many others to follow to yourself and Mrs Gray I believe me

Ever yours most sincerely

George Bentham

Coutrilas House Hereford
Feby 4 1852

My dear Gray

I received some time back your letter of the 5th Jany but was in the midst of Spruce's distribution and thought I would wait till I could either give you an account of that or announce to you the arrival of the box you so kindly send I have now at length finished this tedious task and cut off the packages last Saturday I have however kept yours as I find I have no memoranda how to send it to you. Perhaps I had better make up a little box and send it to Brown and Tapley at Liverpool to forward to you I will put in at the same time the notes on Sendtner's Chagres plants with the names of such as I have been able to determine

The small parcel Torrey sent me through Hooker reached me just before your last received visit here he looked it through together I will return the few Eriogonum also in your box. with the two sheets wanting of Lantana Hartwegiana.

I have advice of the box you send being despatched from Liverpool — Many thanks for the paper of which with the duty and carriage will only cost one third of what I pay for paper for covers here — Then two reams will last me a long time but as you do so kindly offer them I shall be most thankful for a further supply by and bye and should be a great loss if I grudged the duty I have not received the box yet but shall probably by Saturday next

Your set of Spruce's Surra plants contains 286 species amounting to £ ~~[illegible]~~ 5..14-6

You recollect giving me a commission to get for you from Italy Bertoloni's Miscellanea Botanica in which he

Texas or Alabama plants. I have executed it though I am afraid you will think it almost as bad as the commission I gave you for the Flora Australiensis — there are ten 4to parts with many of the plates coloured for which I am charged including duty etc. £ but as there is so much about American plants in the work if you do not take it yourself you will I have no doubt find some one to take it off your hands — for it is not easy to get books published at Bologna and not the property of a bookseller

Yours very truly
George Bentham

Dicotyledons Chapman Feuder in myset

2 Spondias
5 Tapirira dulcis L.
6 Schinus sp. n.
7 — mexicana Ch. Schl
8 — microphylla HBK
18 Sida canescens Cav.
24 Byronima verbascifolia Rich
26 Curtia rugosa Pohr
27 Tetracera volubilis L.
28 Illicium
29 —
30 —
32 —
33 Clidemia
34 ?
35 ?
37 —
38 Opaa?
43 Serjania
44 —
45 —
47 Thyrsophyllum
48 Heteropterys?
49 Brachypterys lucealis A. Juss.
50 Dolichocarpus
51 Inga sp. n.
53 Hippocratea ellipticia HBK
54 Neolandra?
55 Polygala paniculata L.
59 Psychotria
60 —
62 —
64 ?
65 Palicourea
66 Rhynchorium phaseoloides DC.
70 Centrosema Salzmanni Bent.
71 Phaseolus Trupettianus HBK var. glabratus
72 Rhynchosia
75 Pachyrhizus angulatus Rich
78 Desmodium off. D. incanum sed distinctum
79 Stylosanthes brachycarpum Benth var. brachystachyum
80 Canavalia obtusifolia DC.
81 Erythrina glauca Willd Buchanan-Hamilton Mss.
83 Dioclea sp. n.
84 Desmodium triflorum DC.
85 Cassia occidentalis L.
86 — virgata L. var?
87 Pithecolobium (Cathenitium) sp. n.?
90 Cassia puberula HBK?
91 Mimosa Pittoriana Mart
92 Cassia obtusifolia L.
93 Guttifera illoricta aff.
95 Carica reticulata Willd.
96 Mimosa pudica L.
98 — asperata Willd.
99 Archynomene cibata Vog
105 Myrtus (Sect Myri)
106 Lecia sp. n.?
107 Chrysobalanus Icaco var.?
108 Gouania corylifolia Reiss
109 Murcotia debilis Cw.
110 Petalotea?
113 Pterogastra sp. n.
115 Jefferson J. coffini proxima an dubium?
117 Passiflora foetida Cav.
118 Tacsonia sanguinea?
121 Passiflora sp. n. aff. P. bipleura
122 Passiflora (Astrophea) sp. n.
123 Melothria?
126 Anguria an A. Makoyana Lemaire?
127 Rourea oblongifolia Hort. Kew.
128 Connarus sp. n.?
130 Cordia peruviana β mexicana DC?
131 Hedera arborea DC.
132 Eryngium foetidum L.
135 Vinum (Chondrodendron)
136 —
138 Chiococca racemosa Jacq var. ovata
139 Rondeletia obovata DC.
141 Spondias aff. S. lutea
144 Borreria spinosa Ch. Sch
145 Spermacoce tenuior L.
146 Diodia scandens Ko.
148 Morinda
149 Spermacoce rostellata Nauc.
177 Cephaelis tomentosa Willd.
179 Coccocypselum aff. C. repens
180 Sabicea sp. n.
181 — sp. n.
182 Eugenia
184 Tabernaemontana?
185 Casearia (Piparea)
186 Casearia (Crateria) Cryptocerasus
187 Gustavia
191 Cassipourea ellipticia Pohr.
192 Casearia (Tromona)
193 Erythroxylon
194 Hasseltia sp. n.?
195 Ceibonum
196 Monimiaceae aff. Citrosma
197 Polanum
200 Bleekeria Tweedii Mobl.
207 Malpighiaceae
209 Cybelandra Cumbaviana Mobl.
211 Heteropterys reflexiflora Benth
213 — — chamaedryoides var. latifolia
215 Stemodia parviflora Ait
216 — sp. n.?
217 Herpestis Monnieria HBK
219 Stachytarpheta jamaicensis Vahl.
220 Lippia geminata HBK
221 Hyptis verticillata Jacq.
225 Bleekeria?
226 Hyptis spicata Poit β rostrata.
228 Ocimum microanthum Willd.
231 Hyptis capitata Jacq
232 Tournefortia bicolor Lam.
234 Tabernaemontana grandiflora L.
236 Hydrolea spinosa L.
237 Anisacia
238 Manettia cordifolia Bert.
239 Ipomoea pes caprae L.
240 Batatas acetosaefolia Chois.
241 Ipomoea umbellata R.S.
248 Physalis
250 Hormodendron sp. n.
251 Solanum
252 —
253 —
254 —
255 Morisia M. scandens similis
264 Cotonoropsis pettata Mig
266 Artanthe
268 —
269 —
270 —
274 Euphorbia pilulifera L.
275 — hypericifolia L.
276 — (Chamesyce)
277 — hypericifolia L.
278 — (Chamesyce)
279 Dalechampia heteroptera Mart
280 Myriocarpa stipitata Benth
281 Acalypha leptostachya HBK?

284 Lonicera
285 Ficus
286 Ficus
287 Coccoloba uvifera
289 Gen. nov. Cinchoniaceae Rondeletieae affin.
290 Cittarexylum
291 Avicennia
292 Croton
293 Porouqueira
295 Nidea gen. n.?
296 Bignoniacea?
297 Begonia humilis Dry
302 Peperomia pellucida HBK
304 Guaiana amara var. grandiflora
305 Dolicocarpus
307 Cocklospermum serratifolium DC
308 Anacardium occidentale L.
310 Pachira
312 —
314 Ardisia
316 Myrsinaceae globulifera
317 Terpsichroeanthus chionopetalus HBK
318 Tanaedoxon gen. nov.?
326 Apeiba 328 Bixa Orellana var
332 Drepanocarpus?

Mrs Thorp

Dr Asa Gray
Professor of Botany
Cambridge University
United States
America

Mrs Thorp

Mr Bentham
Kew
Surrey
England

2093
Please transfer this specimen to Mr Bentham
The Compositae are those I have already received
Have not yet received Mr Hooker's

Contrietas House Hereford
Feb 10 1852

My dear Gray

I received your box on Saturday night – with many thanks for the paper which is admirable – and right as to size – except perhaps that some of the sheets are rather bare in one direction – the breadth of the whole sheet or length of the folded sheet which should be 16½ inches full and some on that rather bare – not enough to be of any importance In the other direction the size is ample 21½ inches is quite sufficient in that direction for even full covers. I shall be very glad to have more. I do not think it would come dearer than I pay here if I were to pay the American price besides the duty etc

Wright 130 is certainly not so near Glottidium as I thought but nearer to some Astragalus such as Homolobus, and to such allied genera as Caloptaca Gulbeantoedtia and Caragana

My Eologania, are not numerous they are
with ovate ovate cordate ovate oblong or ovate lanceolate leaflets
C. nitidomedia! near Mexico Graham Col. 7 lines long with appressed pubescence
C. valdiviana? } Col. 5 lines long with spreading hairs / Thomas – Isle of
C. pulchella? } Thomas, Mexico Coulter rusty pubescence probably C. ovalifolia
2 Mexico Berlandier & Hartweg garden from Mexico pale pubescence & teeth of calyx narrower and more acuminate especially the lower one
Wright's specimen has still shorter calyces – barely more than 4 lines or 4½ and pubescence of the plant more rubby

with narrow lanceolate leaves
C. ~~[illegible]~~ angustifolia! Mexico Hartweg Rhynchosia Graham Leon
Hartweg – Col. 6-7 lines long its pubescence rather appressed
2. N. Mex. Wright Col. 4-4½ lines long its pubescence very soft

probably these are all varieties of two species C. pulchella and angustifolia The only pods I have are those you now send with Wright's and some meagre ones from the garden specimen of pulchella.

Schlechtendahl describes an ovalifolia with much larger flowers than any of mine and a new species obovata unknown to me the most [illegible] of Buckton

via Liverpool

Dr Asa Gray
Cambridge University
Boston
United States

Kew May 13 1852

My dear Gray

Having received your letter in town I answer it as well as I can from hence from Sir W. Hooker's specimens

435 you may put into Aniacanthus or Dicliptera as you please I cannot well distinguish the genera which ought to have been left in Justicia Greggi 587 is Aniacanthus pumilus Nees! 435 Wright is a new species but in flower is very near the Dicliptera Boliviana Nees. – The D. ramosa is very different

436 is another of those things that I should have left in Justicia I have not means of examining it very exactly here but it appears to me to have the characters of the above the cor. & fil the 3 lower divisions not so deeply cleft but the upper scarcely broader than one of them 2 stamens inserted low down anther cells parallel not mucronate & capsule as in the others – the calyx more deeply cleft – I have no flower here to look

Alexandrium barbatum A. Gr. – is quite distinct from any I know – certainly no var. of R. dulce

433 & 434 seem to me both to be new species of Adhatoda (Tylocalyx) but I have no flowers here to look. They are neither of them in Ld. Hook excepting from Wright and Lindheimer – I will look at Monechma petrosella when I get home in about ten days

Sir W. Hooker says he hopes to send you a parcel off tomorrow morning

Yours very sincerely

George Bentham

19 CENTS

1850 MAY 14 HONG

21

Asa Gray

Cambridge University

Boston United States

some months has been lying perfectly helpless and is thought by all around him to be dying. I hope he is not so bad and may partially recover. However that may be he has been making arrangements for his herbarium going at his death to Cambridge University (I mean our Cambridge) and I believe I shall see to the arranging and getting it and get certain portions for myself and I may in that case want to purchase a considerable quantity of paper forever and I think yours will turn out to be best & cheapest price freight & duty.

It is I believe now quite settled that Fulbright's [illegible] goes to Oxford University who build for it at the Botanic garden and lay aside an annual sum towards keeping it up.

I have been almost entirely occupied with Indian Leguminosae – I have worked up about 100 species of Astragalus (including Oxytropis) and small allied genera. I hope Joe Hooker and T. Thomson are going to begin immediately their Flora Indica and if so I shall do the Leguminosae. I am also getting on with Florula Boryana as fast as I can get it printed but it is miserable work only getting in 8 pages at a time and every now and then "no room" even for that. In the mean time Hance is making a mess in Walpers' Annales – his new genus allied to Dalbergia is the old Dalbergia cochinchinensis and he has a new genus of Cucurbitaceae of which the essential character is to have no ovary at all! – Prest has published an "Epimelia Botanica" antedated as usual by two years and replete with blunders.

I sent a paper on Arctic Macroalgae Rubicaules to Copenhagen in April – and am about to do his Compositae.

With hundred regards to Mrs Gray to whom Mr Bentham will write shortly believe me ever your most sincere friend

George Bentham

Among Wright's Polemoniaceae

490 = Gilia rigidula Benth var puberula
500 = — inconspicua D.
501 = — longiflora Don
496, 497 and 499 appear to be new Gilia

Before I forget it I must mention that the Amer. Expt. Expedition plant from Sydney which we named Tecoma australis is not the true plant figured in Bot. Mag. t. 3869 but appears to be Tecoma jasminoides Lindl.

Wright's 434 is certainly Monechma pilosella Nees and no Monechma as you suspect. – 436 must be a new genus.

I cannot rightly understand Nees American genera and do not think them near so well done as the Indian portion – and I can now often looking at the plants again say no more than I did in Torr without reworking up Nees Justicioid genera which would take up a long time.

Gray do not send the money for Gymnocoma etc. without hearing from me for I may very likely give you the commission to lay it out

some months has
and it thought by a
I hope he is not so c
However that may
arrangement for
death to Cambridge
Cambridge) and I be
and getting it and
regret and I may in that can want to question
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I am also getting on with Flora Boreali Americana
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work only getting in 8 pages a time and every
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meantime Hance is making a mess in Walpers'
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to Copenhagen in April – and am about to do his
Compositae

With kindest regards to Mrs Gray to
whom Mr Bentham will write shortly
believe me ever yours most sincerely
George Bentham

12

Dear Gray

Before I forget it I must
mention that the Amer. Expd. Expedition
plant from Sydney which we named
Tecoma australis is not the true
plant figured in Bot. Mag. t. 1065 but
appears to be Tecoma jasminoides Lindl.

Wright's 434 is certainly Mimulus
pilosella Nees and no Mimulus as you
suspect. – 436 must be a new genus.

I cannot rightly understand
Nees American genera and do not
think them near so well done as the
Indian portion – and I can now often
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more than I did in town without
reworking up Nees Justicioid genera
which would take up a long time

Gray do not send the money
for Gymnocoma etc. without hearing
from you for I may very likely
give you the commission to lay it out

in paper for covers

We returned from Kew on Tuesday last – I was very busy whilst there but got one week at Kew for botany whilst Mr Bentham was in Bedfordshire I spent it chiefly at Retrogabon and taking notes from Capt. Mason's determinations of Hooker's tropical Gramineae

Brown & Bennett's last part of Plantae Javanicae is I hear out at last I have not seen it but Brown's Bennettia is now forestalled by Tulasne's Cremostachys

De Candolle's new vol. is out Danieli Solanea with 900 species of the genus Solanum! – ten or dozen out of S. tuberosum & more than that out of S. nigrum

Tulasne has just published his detailed memoir on Podostemon with beautiful illustrations this is a most accurate work

Sir Hooker's first part of N. Zealand Flora is also just out and the 2d part all ready for press and printing.

I suppose I shall now soon have to send De Candolle the Eriogonum I will then send Torrey back the few I have of his last parcel with the names.

Ever yours sincerely

George Bentham

I shall probably not stir from home (except for a few days) this summer and hope to get through a little of the work that is accumulating

Eaton & Edwards Monterey n. 89 is the same as Wright's 435 and I think certainly a new Amicacanthus

Contrexéville Vosges

June 2d [1852 - PCS]

Yours of the 18th May just arrived many thanks for the paper – Pray let me know what it costs per ream – I believe you knew Dr Lemann he had some attack of paralysis last autumn and now for

Ventnor June 17/86

My dear Gray

I see in Hooker's herbarium that you have ascertained that the Indian Lagenophora as well as L. Billardierii y. DC. belong to Y. pauchenus – do you maintain the two genera as distinct – and do you consider the one from Malacca Hong Kong etc as distinct from the Sydney one? & what name do you give it? I should be very glad to have an early answer so as to be in time for that part of Flora of Hong Kong etc – If it be distinct from the Sydney one pray give me your char.

I am occasionally puzzled by Orsted's Nicaragua Compositae which I am working up – there is not much new but many that are difficult to make out – Schlechtendahlia Bacchoris scandens (not taken up by De Candolle) and my Bach. asperifolia which is allied but seem generally from one to 6 or 8 female fertile flowers in

the male head and one two only in the female head thus making a mess of the generic characters — Most of De Candolle's herbacous Mexican Conyza as well as the European C. ambigua have all the outer flowers ligulate and belong really to Erigeron near canadense Conoriceae etc, whilst C. lyrata has all the characters of Blumea — indeed between Blumea and Erigeron Conyza falls to the ground unless with Sch. Bip we suppress Blumea and consider the great mass of them as Conyzae — Then I know not what to do with Gymnopsis without any trace of pappus and yet no Wulffia or Montagnea

I have put up for you the sheet you wish for of Pl. Wrightian. I hope to receive the copy you kindly send me in my next parcel from town

Many thanks Mr Carey for his memorandum on Hartweg's Californian Borraginaceae & I am no doubt he is right and shall feel thankful for any correction to Plantae Hartwegianae which I shall do so in an Appendix

Many thanks for the paper which I may now shortly expect.

I enclose specimens of Jaegeria microides which you most likely have not got

With kindest regards to Mr Gray

Yours very sincerely

George Bentham

I have written to him again to ~~[illegible]~~ alter some names in compliance with your best - also I had ~~published~~ described as Galinsoga calva what your observations have reminded me was put into the genus by H BK and transferred by DC. to Galinsoga where I never thought of [illegible] forest - I have altered it to Galinsoga urticifolia - I have asked for a spare copy of the paper for you. - I hope you are describing Seemann's for him.

Definitively I put Phaca into Astragalus there are unilocular Astragali in [illegible] all the groups and in many a gradual passage from the complete disepiment to none at all. All the scapiferous flowered Tragacanths ~~are~~ without the disepiment

I think I am clearing up a little the tribes of Papilionaceous genera - at least I hope so - I must do something for Flora India for which I am doing the Leguminosae

Mr Bentham must again defer writing to Mrs Gray - she fell and hurt herself a fortnight ago and must keep it in a sling for weeks to come - as however her worst is over she will now begin to write a little and as soon as she can fill a sheet without fatigue she will herself write

Ever yours sincerely

July 15 1852 George Bentham

July 15 1852 15

My dear Gray

Many thanks for the paper just received - I have also received the amount due from you for Bertoloni and for Spruce's plants with many thanks - and the first part of your most valuable work on Wright's Plants - I regret ~~that~~ before I received it I had already dispatched my enumeration of Rostkovius Compositae for I had not ~~thought~~ of examining what Eupatorium deppianum and tulocoryne Mexicanum beyond ascertaining their identity and therefore have not referred the former to Brickellia or the latter to Gnaphalodia as I have no doubt you are right in doing. I have ~~published~~ described in it several new Veronicae Eupatoria and Senecios - One Eupatorium I had half a mind to make a genus of - the achaenia of Eupatorium but the pappus of 5 setae only - not palea as in Ageratum but slender as in Eupatoriums I was also much puzzled with a long series of Eupatoria allied to Schiedeanum a panculatum (both of which I had got wrong named or in great confusion when you saw my herb.) and I fear I may have made too many species. Conyza subdecurrens and its allies ought I should think to go into Erigeron (Cronquist) Many new Heleonthemum - Viguiera hirta Verbenaceae a fine Tithonia very near one of Seemann's but distinct two Lepechinias which had I seen you

book I should have called Zexpenia a new genus with the habit of a large Rubinia (of the many headed sts) which I have called Podachoenium because the achoenia are born on a stipes half as long as the achoenia & compressed or winged the anther are almost palea. Like you I have reduced Platystephium & Eglely vincora - DC. E. dominogensis & elaborata is I think a distinct species and I have added another - A. Cazalia puzzled me with the very flowery female but without anthers but otherwise like those of the dioi or rather smaller - not filiform as in Crockthilia nor legulate as in Eaeia - a Crockthilia cordifolia I reduce E. mikania Gardner. I know it from numerous plants in Brazil the W. Indies & Mexico - I think it distinct from your E. hieracifolia though very close is & I think E. hieracifolia from Mexico below. E. cordifolia - Altogether British Compositae amount to under 670 species but many of the new ones from some of the mountains they call volcanos (especially Fraser and Mazaya both I believe in Mexico) are very distinct. I have kept one or two specimens for you but unfortunately there are very few to spare

I find that there are some misplaced labels in my N. Zealand plants from Cunningham which may have occasioned wrong determinations in your Aus. Egypt. plants - at least I have found one Lactuca calycaris and L. Tarxacum had the labels interchanged - but you will easily find this out as L. calycaris is a Petrouthera and L. Tarxacum a Dercoid new genus (Nesodoxhne E.D. Hook) which includes L. Tawa

I have just worked up Thermopsis and Baptisia - which are perfectly distinct genera though difficult to characterise on account of the E. Indian species of which the fruit passes gradually from T. lanceolata to the inflata fruit of T. inflata - still T. inflata fruit is very different from any Baptisia. Is habit is Baptisia like Thermopsis? All Thermopsis of which the lower part of the stem is known to me have a perennial root often throwing up annual stems of which the lower stipules are leafless and reduced to a membranous sheath - next one two or more stipular sheaths with 2, 3 or 4 foliaceous lobes and then pass into the regular leafy stipules with a leaf between them - the passage is much more gradual in the Asiatic than the American species but the lower leafless stipules may be seen in all but T. mollis of which I have not the lower part of the stem and T. fraxinifolia which I have not got at all - How is it in these two - and have you a specimen of the latter to spare?

I have not the lower part of the stem of a single Baptisia - are their stems annual or perennial? Is their growth like that of Thermopsis? What is Baptisia Sonnerat Leaveno?

Since I wrote the above I have heard from Asa Gray that he is printing my Enumeration of his Rubiaceae & Compositae

see why they should not follow the fate of the others – There is every gradation from no false dep[illegible] to the complete one – and that in the greater number of the natural groups of Astragalus – the true Tragacanths have scarcely ever any disseminement

I hope you have not many new ones – If you will absolve the few remaining unoccupied names

I suppose you have heard of the promising trip on which the Jos. Hooker T. Thomson and Harvey have started for Kotschy land

Lindley & his daughter are coming down here next week for a fortnight country air

Mrs Bentham's arm is getting well though more slowly than I hoped – She will have yet to keep it for weeks in a sling

I expect to have to get work shortly on Eriogonea but do not touch them again till I received the specimens My MS was ready & I dont like to [illegible] till it comes near printing

Ever yours
George Bentham

Portrielas Augt 5 (1852)

I will send more stamps another time these are what I happen to have about me – I hastily un stamped envelope.

My dear Gray

If your specimen of Ash be the same as my F. latifolia, the whole must be reduced to F. americana – The leaves in my specimen are very much broader and rounder and all the points are emarginate like the two herewith sent. – It is however not impossible that all may be mere varieties of F. americana

Your Watthenia (W. Sonora 904) certainly appears distinct from W. americana All my specimens of the plant (which are very numerous from Asia Africa and America) have all the very villous calyces etc. and only vary in the form of the leaves the more or less dense and sessile or pedunculate inflorescence lengths of teeth of calyx length of free part of filaments more or less pubescence of petals – none have any approach to the cinereo tomentose indumentum of Wright's plant.

I have however precisely Wright's

plant from British Guiana (Rob. Schomburgk 2d coll n. 497. Rich Schomb n. 761) which I had considered as probably a new species. The ovary is tomentose but scarcely villous such as in your W. cinerascens (the ovary is very villous) but from Minas Novas is very near but appears a more robust plant with the inflorescence generally terminal in large compact more or less leafy cymes - with however occasionally a few axillary heads. The flowers are large & the ovary very villous.

There is a M. glomerata Bred from Panama only known to me by the diagnosis in Walp: which appears to have the same whitish indumentum but the characters do not agree.

I do not possess the Heterostylum to compare your H. Winetia with - It does not answer to the char. - The Tepic plants of Dot-Calyx were mostly in Hooker's Herb.

Sondtnia rejaminus agrees with South American specimens except that the pedicels are shorter and the petals apparently minuter but I suspect this may arise from the flowers at the season they were gathered being semi-abortive though fertile like the apetalous flowers of the odorata set of Nola.

S. parietariifolium DC. is merely identical with S. rejaminum though put in a different section. It is evidently by mistake as Kunth's species are put under Labellum calyce vix duplo longiore subrepile although all have the Labellum "longe unguiculatum" and one has it calyce "quintuplo longius" DC. had not seen S. rejaminum when he described S. parietariifolium.

Arenaria saxosa appears to me quite distinct from A. decumbens of which I have Mexican specimens of Galeotti's from Dr W. Hooker and of Hall & Reed's n. 13 from Dr Torrey.

All the European Thaces and Asiatic Thaces must go into Astragalus except possibly A. baetica which I have not yet examined and somebody makes a new genus of. - As to American ones I have not carefully examined the large inflated podded ones but I do not

1352

My dear Gray

I enclose a tracing of Schieden Lignitrina from the pen of Miss Lindley – the two Miss Lindleys are at present on a visit here with their father and are very nice girls

When you next write pray tell me whether there is any place where I can send for you small parcels I now want to send you a copy of my paper on Javanese Leguminosae – an 8vo pamphlet and know not what to do with it.

I have been taking advantage of Lindley's visit to get my Orchideae in order – I have a tolerable collection of them – thanks to you I have most of your W. American ones – but not Wuttallii Tepalaria which I understand is very rare

Lindley is going to publish a revision of the order but his plan is not to follow regularly from the beginning but to take up in the first instance such genera as he can best work up and leave till last those about which his data are as yet insufficient. They will all be printed uniformly so that they can be bound up in any order that may appear desirable

Have you got Sloane's Jamaica? If not I have a duplicate copy which I shall be happy to send you

Ever yours sincerely

George Bentham

Contrexéville Aug 5 — 1862

My dear Gray

I was just writing to you when I heard that you were that day leaving Kew and I then knew not where to direct to you — I have this morning heard from Harvey that you will be with him on Friday — It has been a very great disappointment to us not to receive you & Mrs Gray again for however short a time but I know we have no claims for taking up more of your time & making you & Mrs Gray come so far out of your way still if you yourself could somehow spend another day here before you cross the Atlantic I should feel very much gratified — I have some Nicaragua & Costarica Compositae I want much to show to you — I

want to settle with you what is to be done with the Egypt. Speed. Leguminosae and to talk over various matters which you will have heard much about whilst in town. We are getting much more comfortably settled here now and could I have have received Mrs Gray before [illegible] and shown her a little more of the beauties of our country now that we have a vehicle and horse. I suppose however we must give her up till the next time she comes to Europe – but you must come if you can

I received this morning Torrey's poaret and a porcelyon seed for me to Regel these with some Borneo plants from Hooker & some Am. Egypt. Speed Leguminosae

What shall I do with your poaret offers?

Yours very truly

George Bentham

62

Pontoise Sept 27

[1858]

My dear Gray

As the enclosed have been some time on its travels I thought you might like to receive it in town and enclose it. If not inconvenient would you kindly ask at 21 Regent Street whether there is anything there for me — probably a small parcel with the new Atlantic Magazine & Journal &c —

I do not know whether I mentioned that coming by the Express train you will be here by about half

past five – in very good time for dinner – we dine at ½ past 6 – and if we do not hear to the contrary expect you on Tuesday – I only hope Mrs Gray will not find this retired place dull.

Yours very sincerely

George Bentham

Montreiles Oct 7 1852

My dear Gray

We are exceedingly concerned to hear of Mrs Gray's accident I trust from what you say there was no internal injury - but bruises are bad enough - We know what they are from the great length of time Mrs Bentham was recovering from her bruised arm - she was near three months before she could raise her hand to her mouth and has not even yet quite the free use of it though she considers herself a quite recovered Crey give both our kindest remembrances to Mrs Gray and do not fail to let us know how she goes on when you write.

I was in town for a couple of days when your letter came - I had been to pack up poor Demonin's herbarium - I only returned on the evening of the 30th when there was of course no time to get a boy to Liverpool by the 1st of this month - so if there is no other opportunity I shall want to send what I have for you till your next Pyrenean venture - Five good boxes are just come from him.

Many thanks for the precious Tyrolese and for Stansbury's Salt Lake reports

George Bentham

My dear Gray,

I have just arranged my Solanum Dunal's book is abominable as to multiplication of species - every slight garden variety is made a species of - every slight discrepancy between a description and a specimen from the same set is made a specific distinction and many species are the result of mere carelessness - Fuchsia boreale is a fiction (Tournefort's plant being F. antipoda bugulaefolia) The 13 Lycopersicums are but two - the 59 Morella are (perhaps L. californicum?) are but one - Solana 168, 178 and 209 are identical though put so far apart - Solanum 454, 457 and 469 - about 20 species belong to P. Melongena - altogether I would undertake to reduce the 900 Solana to 500 at the most, the 50 Capsicums to two or three. Lycium 3 to 8 all belong to L. barbarum - Daturas Hyoscyamus & Nicotiana require reducing in the same way - the unfortunate Petunia parviflora pegging 3 times as P. parviflora P. nycticula Nierembergia vinculata Lycto-phoryma portoria & L. montevideensis. Sepea ventita is repeated under Cestrum Sepea corymbosa and Cestrum atrovirens are identical etc. etc. It will be very difficult to make out a Cestrum or a Solanum by this book. Have you looked at Voigt's? There are two genera Nierembergia or Petunia one must be H's Bouchetia but I cannot quite make it out nor do I equally see the generic distinction between Bouchetia (a very bad Nierembergia) and Nierembergia (Tepoa form of Nierembergia avenacea) I wish you would clear up the N. American Solanum - I shall not criticise Dunal's book publicly because I cannot speak well of it and I have too great a personal regard for him to risk offending him Yours ever

George Bentham

By the bye the stamps you put on I fear of no use – the cover of the book was not open at both ends and it was I believe beyond weight – It came to me in a parcel by coach and I think carriage paid – by whom I know not. The stamps were not sold and will do again – I enclose a couple of dozen

Of the plants you send

The Iponoea from the garden N. Mexican seed – is as far as I know new – near I coptica but much finer cut leaves etc. Wright's no. 500 (of my set) is the same with the lower leaves however not quite so fine

Rosted's Costarica 260 I have called Ewegeron (Conyza) subspinatus – I have not yet got a copy of my paper from Copenhagen where I understand it is nearly finished printing but in my rough copy I see: "Habitu Conyzoidi

rage approximatus ad peppers

singly" – leaving the specific name blank to be written in in the fair copy. I suppose I meant my Heterochaete stenta but I forget. The specimens of 260 have not all that rigid aspect, some look like Kunth's figure

I enclose some seeds of my Heterochaete I see most as I described them hairy in the middle & smooth round – some have cilia also on the edge – and some have the smooth part very narrow almost disappearing

I do not venture absolutely to unite the true Conyzas without any bristles at all but short tubular female flowers and the central flowers (both) with Blumeas on account of the bristles which are sometimes however almost imperceptible – but I have not examined Blumeas enough for the purpose

Kunth's figure of Conyza gnaphalodes is excessively unlike my Heterochaete stenta but may be the same for all that.

So Kunth's figure of Ewegeron gnaphalodes is very unlike the specimen you send me of Wright's – and without ascertaining on Kunth's specimen that he is wrong in the outer pappus (which is not likely) I do not see how you can ignore it by uniting them. I have nothing like your plant from Arcuchon

Your Eupatorium Ionora is hardly distinct from my E. multiflorum it is smaller, more downy, the leaves rather deeper crenated & the inflorescence rather more compact but are these sufficient characters? There is a whole set running from E. Scheidianum to E. paniculatum & again from both to a slender large one I have called E. capillipes which it is very difficult to distinguish though the extremes are so very different

Contoctas Oct 7
[1856]

My dear Gray

All searches are in vain I have again taken out all the bundles from my boxes and find nothing of the kind. When first you wrote about the missing parcel last year I was in a freight for fear I had taken your set for mine and sorted it out into my "Inverendu" bundles but since then I have laid in the whole of my Polypetalæ and have certainly no Wright plants but the single set you sent me before you came to Europe and which has only the old not the new number. It occurs to me now that perhaps the missing parcel never came here at all - You looked over with me my sets of all the collections you had given

me - Wright's tenders etc and I think it must be that that you recollect - and I sincerely trust you may yet find your set at home for I cannot conceive how it can have vanished from here

I am exceedingly busy and write in a hurry but I thought you would be expecting to hear the result of my renewed search

Yours very sincerely

George Newham

Pontrilas Nov 11

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My dear Gray

I answer your of the 19th Oct in a hurry as I am very busy.

Cracca will be the best name for Tephrosia Pert Cracoides.

Wright's new Scrophularia is certainly the beauty of the genus – all the rest being so very ugly

A vol. under cover open at both ends not weighing more than 1 ~~lb~~ goes by our post for 6d – it may have written matter or blank paper in it but no letter.

A pamphlet however light – if even under 1 oz – if

under cover open at the ends pays 6d – to pay a letter postage it must be sent as a letter.

Any number of pamphlets under one cover making together under 1 lb pay 6d.

Had you ever any duplicates from the late Mr Lemann? any of Griffith's Khasiya and Malaca plants for instance? – if not there are a few good things I can send you – Pray tell me when next you write.

I shall probably want half a dozen reams of the green cover paper for Lemann's Herb. from Cambridge but will let you know when next I write

Yours very sincerely

George Bentham

Pontoise Dec 4 [1852] 7

My dear Gray

It was with great anxiety that we waited for the post this morning, which fortunately brought us Mr Gray's letter with as favorable accounts as we could have expected although your sufferings appear to have been more than we conjectured from Mr Gray's first letter. I should have come to join you had not I reckoned upon Dr Harvey's being with you so much sooner than I could now see, in you cannot be in better hands. I long to hear of your being over the water and under his roof, where you will be so much better than in an inn. I thought indeed you might have been cared

over before this and therefore when a letter came for you yesterday from Messrs M'Neal & Co I redirected it to Harvey at Dublin.

I am really quite ashamed at accepting the very handsome present of Weddell's valuable book which came in my parcel yesterday. I am already so much in your debt for the important increase to my herbarium from Newfoundland etc courses - if I had known of your intention I should have prevented it but now that it is done I have only most sincerely to accept my thanks. This morning I had a letter from Decaisne in answer to mine offering to procure it for me at a considerable discount which I should have accepted had not the parcel come just in time to save it - so again many thanks for it.

Decaisne desires me "de vous remercier cordialement la main de vous part" en attendant qu'il puisse "faire lui même" and to say that he has plenty of work for you if so disposed in Trécul's collections from Texas & the Missouri.

We have much missed you and Mr Gray - and now we have not the consolation of thinking you are enjoying yourselves with your excellent friends at Dublin - I have set to work at Cryptogamic which are some of them rather bothersome - I find many of Nuttall's Mss names different from those he published. There is an old one of Pursh's from "Upper Louisiana, Bradbury" which I do not recognise - I saw it formerly in Lambert's herbarium - to whom is it likely to be from?

Yours very sincerely
George Bentham

Kindest remembrances to Dr Gray

Pontefract
1 May 10 1857

My dear Gray

Every letter I write before leaving home is to apologise regrets and make excuses for having left undone something I had promised to do - and you I fear must share the same fate.

I send a box to Hereford tomorrow addressed to you care of Messrs Brown Shipley & Co carried to Liverpool - containing Spruceana Dilleniaceae to Compositae 299 ys. £6.0.0

Two fresh Nos of Bertoloni Miscellanea

(These amounts will go towards paying for genus covers)

A copy of Cosson's Jamaica

Duplicate sheets of H. Wrightiana returned

Leguminosae Junghuhnianae a thin pamphlet which I thought yet I have but little to show for it.

Ever your most sincere

George Bentham

A letter addressed poste restante Allemich will find me there till the end of July

could go by post but the Hereford post office say no

Rubiaceae Oesterdianae

Compositae Oesterdianae all but a sheet which I have not yet received

I intended to add some duplicate plants but I have not had time to look them out — they must wait our return

Leguminosae Oesterdianae are not yet printed — and Thom only sent half the MSS — including the genus Acacia

Give your & Mrs Gray's to Mrs Bentham. I sincerely hope we may meet Mr & Mrs Loring in town

We start on Saturday morning & embark for Holland about the 6th June stay a little time perhaps a fortnight in Holland then work our way to Munich where stay some time — then to Geneva & home in Sept. or Oct through France.

This is a morning season for botanists & amateurs Miss Lindley — Miss A. Wallich are already spliced — Miss Hooker was to have been married this month but has had her neuralgia so bad that she is now in Jersey or Guernsey with Sir William Mr & Candolle is to be married in a fortnight to a great friend a M. Pictet — a young banker of Geneva

I have been so hard at work this winter that I want respite

whether I shall end my days here or I live much longer

As soon as I have leisure I shall distribute the remainder of Gowen's plants – Nothing received from him for the last 8 or 10 months and no news of him for so long that his friends are getting uneasy

Kindest regards to Mrs Gray I believe Mrs Bentham is writing to her

Ever yours very sincerely

George Bentham

Pontrilas Dec 6 1[illegible]

My dear Gray

On our return home about six weeks ago I found your letter of the 23d May which had arrived shortly after our departure and now yours of the 15th Nov has come to hand and lazy as I feel I cannot defer thanking you for them – We had a very pleasant tour through Holland & Germany spent nearly three weeks at Munich and six days at Carlsruhe & returned by Paris where however I could only remain three days and had but three hours at the Herbarium

Some of the memoirs you sent me have gone astray at Hookers but I hope they will make their appearance in a parcel I expect

down in the course of this week.

I have no objection to your name for the Sandwich Island Acacia heterophylla if you are quite sure of its being distinct – I had seen the station of a heterophylla at the Mauritius and only seen it as a long cultivated species in French botanic gardens – The Sandwich Island specimens appear to me quite to correspond with the old garden ones.

I am working up some Australian Leguminous Dicotyledons – I find one of your Am. Expt. Expd. which we called Oxylobium obtusifolium but I do not think it can be that plant and at any rate is a Chorozema rather than an Oxylobium though somewhat anomalous in both genera – I am disposed to call it Chorozema pumilum. It is also among the Dividivi Bay plants of which I think you had a set.

Our friend Martins has got much aged in his looks his hair is now white – The whole family were very friendly & we enjoyed our stay much – I made arrangements for the Leguminosae for his Flora

At Geneva I verified a good many doubtful species of the Prodromus but had not time to go through the whole

I am now as hard at work as external circumstances will permit but Mrs Bentham has had a return of the nervous low-ness she suffered from three years ago which puts me out a little and we are here rather isolated most of our neighbours away and the dullest weather we have had for a long time – This place is much spoiled too by the railroad embankment – which is to be shortly opened for traffic – convenient but ugly – so that I begin to doubt

Poughkeepsie Dec 18 1853

My dear Gray

The Ortea bijuga Dl. is certainly closely allied to the African Afzelia Cuthbertsonia Intsia and Berlinia and to the American Eperua Parivoa Ortea and Vouapa, but if there one kept distinct the Ortea is certainly the one of them all it is farthest from in habit and in the pod. I am not acquainted with the Intsia madagascariensis but the Intsia amboinensis is probably a congener if not the same as Ortea bijuga and I think, as far as we know both Intsia and Ortea bijuga, cannot well be generically separated from Afzelia. Intsia madagascariensis is said to have unequally pinnate leaves but the allied Eperua & Parivoa appear to have them both abruptly and unequally pinnate on the same plant.

Are you sure Sprague is right

about the upper petal being outside the two lateral ones? if so that would be a solitary exception among Coralpinieae.

We were much alarmed about the report of Dr Torrey's death and are all most heartily glad to hear it had no foundation.

Mrs Bentham continues poorly Her friend Mr Aiton has been staying a few days with her and takes her tomorrow into Hampshire where I join her on Christmas Eve – We have had a miserably dull cold autumn We scarcely see the sun one in three weeks and never more than one day at a time Yesterday we had a really fine day Today it sleets and snows and does all sorts of nasties.

I do not know whether I told you in my last that if I can make arrangements for the continued use of my herbarium for my life or if my it remained my own I intend giving it over next summer to Kew Museum and taking a house at Kew giving up Portsea which is getting too expensive for us

With kindest regards to Mrs Gray believe me

Ever yours most sincerely

George Bentham

July 14 1854

My dear Gray

I was much gratified at receiving your's of the 21st June as it had been long since I had heard from you – but I fear it has been still longer since I wrote to you. The fact is the total change in my position has quite put me out and I have less courage than ever to sit down to write a line even to a botanical friend and such a one as yourself. Mr Bentham's health is in a very uncertain state and we are consequently very unsettled. We have our house at Kew till the middle of next month and where we go after that is quite undecided. I shall hope to be within

work [illegible] between that is doubtful — in the mean time I devote as much time to my pursuits as inexpert interruptions allow — and here will at any rate be my address for some time to come.

I am naming a fine set of Spruce's plants from Rio Negro and the rest of the last Sabrix ones — I cannot make much of your leguminous 646 of Thurber's Mexican collection. I should have thought it something in the Bonpandia way but that gen say the radicle is slender and incurved — at any rate I know of no Galegous genus to which I should at once refer it — and Galegous it must be.

So long as I can work at the Herbarium I shall be most happy to look at any plants for you. In the meantime the Acacia? crassifolia has got mislaid — but I suppose I shall find it in arranging some Mimoseae I have to work upon very shortly.

I look forward with great pleasure to seeing your first part of Exploring Exped^n plants I cannot help still taking an interest in the herbarium and hoping [illegible] they were still my own and our equally gratified as before by any contributions towards it.

With kindest regards to Mrs Gray believe me

Ever yours sincerely

George Bentham

forward a plan I have long had in contemplation for the publication of a quarterly octavo Journal of the Linnean Society – the Zoology and Botany separable as in the Annales des Sciences Naturelles – If we succeed in carrying the measure and if Hooker & myself edit the Botany (we have promises of good editors for the Zoology) we shall rely upon you to procure us some subscribers in the U.S. for the Botany the Zoology or both

I have been much occupied with the Cambridge Herbarium & also as usual pottering at Leguminosæ but I do not get through work here as at Kew

R Brown has been very unwell with cough etc but is better again and I hope is getting quite over it. The Hooker remarkably well

With kindest remembrances to Mrs Gray Ever your's sincerely

George Bentham

April 27 1855

I believe I acknowledged with thanks your most valuable volume on the Am Eqn. plants but I have been so put out that I know not to whom or what I have written the last twelvemonth

My dear Gray

I feel so much ashamed in taking up the pen to write to you that I really can scarcely muster courage to do it now. The fact is that since I have left our quiet comfortable home at Pollards I have almost dropped all correspondence. We are however going on very well In the point the most important for me Mrs Bentham's health & spirits nothing could be better We have spent the winter in a very nice lodging in Belgravia near many of my wife's friends and I have been every day (missing perhaps one in two or three weeks) to Kew where I get about six hours work In the winter I distributed

a batch of Spruce's plants, consisting of San Gabriel, and Rio Negro plants from Monopetalae to the end. Your parcel contains 270 sp. It is being put up with your set of Dr Hooker & Thomson's first batch of E Indian plants. I have also added two new parts of Bertoloni's Miscellanea Botanica which you subscribed to, half a dozen copies of my Plantae Hartwegianae and a paper I wrote for the Hort. Journal on the origin of some cultivated plants being a commented abstract of an Italian work of Targioni Tozzetti. I owe you for the paper for genera covers I received more than a year ago but I cannot find out how much it is. If you will kindly let me know I will make out an account and send it you. The balance I suppose will be against you but not much.

I have several more boxes from Spruce but have not yet had time to set about them.

We think of spending the month of June in Paris then to visit friends in the Country for two or three months and in Sept or Oct. we hope to settle ourselves in a flat we have taken in the new Victoria Street Westminster. In the meantime letters addressed to Kew will always reach me.

The necessity of reform and renewal of activity in our Linnean Society is now so much felt that Dr. Hooker has taken up the matter with his usual energy and has brought

We have taken an apartment at Paris for a month or six weeks from the 8th of next month – we shall then spend a couple of months more visiting in the country and in the beginning of October hope to settle in Victoria Street and I shall then resume regular work at Kew

We have had much discussion in the Linnean Society – it has ended in a determination on their part to publish besides the transactions a quarterly 8vo journal in which Botany & Zoology will be separable – to be sold to the public & given to members – and we hope to keep the Society up to the mark

Your box containing what I mentioned in my last and the first batch of Hooker & Thomson's Indian plants was sent off to the care of Drowne Shipley of Liverpool last week

With kindest regards to Mrs Gray

Ever yours most sincerely

George Bentham

London May 16/55

8vo 2

My dear Gray

I thought you knew me better than to imagine that I could take offence at nothing when all the fault between us is on my side – I would beg you to remember that I never can see any use in taking offence even where there is any apparent ground and I believe I am not apt to do so and as to your visit to England I feel as much obliged to you for the pleasure and gratification we received from the time you and Mrs Gray kindly bestowed upon us as for the numerous contributions to my herbarium & library I have

received from you. You fancy I expected you to make some mention of me in your book – In the first place I know very well your preface is not come out yet – and in the next place I am not one of those who care in the least for any prefatory compliments – It was a great pleasure to me to work with you and I got many valuable specimens by it and if I named a few plants for you you named at least as many for me – so that if you make a public acknowledgement of what you are pleased to call my assistance you will only put me into the disagreeable dilemma of not knowing how to acknowledge publicly the assistance you have rendered me – so that I hope you will think no more of anything of the sort

I wrote about ten days ago with very lame excuses about my long silence – but if you knew what it has been to me to break up our home in the country & part with the collections which have absorbed the last 25 years of my life you would easily conceive how difficult it is to resume my correspondence etc. at least till we get regularly settled I do not regret what I have done because the main object of the change – the restoration of Mrs Bentham's health – has been effected – but I cannot deny that it has been at some personal sacrifice.

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Perrystone Ross
Herefordshire
Sept 20 1855

My dear Gray

I cannot hear of your being within access without making an attempt to meet you. I shall therefore come up to town on Saturday & accepting a bed at Hooker's spend Sunday at Kew - unless I hear from him that you have delayed your journey. I do not leave this till after post hour on Saturday

Ever yours sincerely
George Bentham

London Feb 25 1856
91 Victoria Street
Westminster

My dear Gray

As usual I have I believe more than one of your letters to thank you for - and especially for the last with Torrey's name for Hartweg's Monocotyledony - I must try and finish N. Hartwegianum but I am more than ever overwhelmed with work - I have just read at the Linnean Society a paper on Loganiaceae to which I now refer besides the genera in the Prodromus Buddleia and the little genera by it - and Desfontainea I reduce some genera - for instance Medicia & Leptoxeris to Selsemianum - and suppress Ignatia as a pure myth - flowers of Strychnos with seeds of a Strychnos - all this took me more time than I thought - I am

Mexican or some new River River Myrtaceae - My Leguminosae will come partly at least into the second part - The quarto transactions will go on as usual for the present at least one part to appear on the first Monday in Nov every year for. Hooker's Balanophoreae are printing for this year's part.

The first part Zoology is chiefly occupied with descriptions of new insects from Singapore - one of a series of papers which Mr Wallace Saunders is having prepared at a considerable cost to himself on the insects of the Moluccas with a view to considerations on their geographical distribution We are trying to instill a little life into the Society and already the meetings look better and we have an influx of new members

With kindest regards to Mrs Gray Yours very sincerely

George Bentham

now at Leguminosae — I was last week for a day at Paris I went as far as Lyons with my nephew who is in a very precarious state of health and is gone to Montpellier to try what his native air will do.

The new Linnean Soc Journal is coming out at last The first number will be ready on the 1st of March Each part will contain (besides the short reports of the meetings) three sheets Botany & three sheets Zoology Four parts will appear in the year Plates at present only when given extra by authority but I hope by and by to have them frequently Every fellow gets a copy gratis and the Journal will be sold to the public at 3/ the part or 12/ the year for the two sections together 2/ the part or 8/ the year for each section separately We are anxious to push the sale as much as we can as it will cost the Society a good deal Will you let me know how many copies you will take for the first year Botany alone or both and I will get them for you with the trade discount of 25 per cent which is allowed to fellows & to booksellers and it is quite as well you should have it as the booksellers — besides that will save the Society the 10 p^r cent commission booksellers charge besides — and let me know how to send them

The first part Botany contains chiefly a paper by Bunbury on the botany of Madeira and one by

91 Victoria Road
Westminster
July 2 1856

My dear Gray

It is a very long white since I have written to you but in addition to the laziness in correspondence which has grown upon me since I left Portsea I have an additional difficulty this time in writing to you – which is that I must confess my sins the discovery of which has most intensely disquieted me – so I may as well begin at once and make a clean breast of it. If there was one thing I thought myself more certain of than any other in botanical investigations it was about the structure of the flowers of Arachis and Hybanthus and so much so that I have been led into some sharp observations about those who differed from me – and now I find that I am all wrong! On the occasion of doing the Leguminosae for Martius' Flora Brasiliensis I soaked and examined an immense number of spikes of Hybanthus from their earliest stage of development and although I always found fecundated ovaries very different in the shape of their short styles from the

the absurdity of it.

A young Frenchman M. Bureau has just published as a thesis for his degree of Doctor – a detailed paper on Loganiaceae with very careful details as to the genera he could examine he follows you in rejecting most of them into Rubiaceae – I have no objection provided you leave none behind and suppress the order altogether.

A half sort of Dr. Brad is to appear very soon with Polygonum Protea and Myristica.

I have been very hard at work of late – Spruce's plants give me a great deal of trouble I only wish I had time to describe some of the numerous things he has sent. Hybanthus Miers is Alsodeia of which one species is Neuteria Lutea Poepp. – Erismea (among Vochysiaceae) has a large winged fruit like a Dipterocarpus. The two Leguminosae of the upper Rio Negro are very numerous and beautiful

I have had to work up the S. American Dermodia I am afraid one or two of your West Mexican ones are mere varieties of common tropical ones

With kindest remembrances to Mrs Gray I remain ever yours most sincerely

George Bentham

P.S. Leave town at the end of the month but remain in England all the summer & come to work again in the beginning of October.

have of the style in the unopened or just expanded flowers yet after some time I succeeded in tracing as Mr Wicks has done in Arachis, the change from the one to the other - the moment the style breaks off the lower fragment curves back and forms at the end of it what I always took for a thickened ~~callo~~ stigmatic surface but which is a mere callosity which examined under the microscope shows no stigmatic papillae - and both as I am to be convinced of no gross or error I must gulp it down and beg of you to do amende honorable to Mr Wicks in any way and in any publication you may think proper - It will be a lesson for me never to be positive again.

You will have received longer this the second part of the Linnean Journal - the third is printing I have nothing to do with the editing which is all in Bennett's hand but now that once the thing is settled he has taken to it zealously. As it is as it were a child of mine and Dr Hooker and myself had such hard work to get it established I feel very anxious for its success - I have got a few copies taken on the Continent and I take several myself which I give to some who can't buy but still as they give to all the subscribing fellows of the Society (which I did not contemplate) the sale is as yet but small and I sincerely hope you will get a few more taken on your side of the water. I have paid for the year for those copies you ordered and will send you the account with that for a set of Spruce's plants I am now distributing.

The Linnean Society has just made a move in obtaining rooms in Burlington House Piccadilly from government. We shall be there in so much better a situation that that alone independently of the being rent free will I hope be of great advantage to us.

You may have observed that I have in various publications strongly supported Babes views as to Wheat being a cultivated form of Aegilops ovata - this has just had a further confirmation by Professor Henslows experiments. He has been carefully sowing Aegilops ovata and now the third year two stalks have shot up assuming the Triticum form - notwithstanding the complex (and often contradictory) arguments by which Godron and others and now Jordan demonstrate

Vernor Park
Sept 8 1856

My dear Gray

I had left town some time when your letter of the 20th July reached me and have since been visiting about. As this will still continue till the end of next month I do not delay longer in answering you although I cannot in doing so consult Babington. I have no doubt whatever that the Acacia you speak of is A. tortuosa – the fruit you sketch and describe is exactly the one of that species. A. Farnesiana and A. tortuosa are the two common ones in the West Indies and Central America and since materials have accumulated on

300 fewer than in Babington. His 7 or 8 Batrachiums are in my mind but one or at most two. His Lappas all one – the Lamiaceae (coprolalia officinalis mirantha etc) all one. The 30 or 40 Rubi Hieracium or Roses I should reduce to about half a dozen of each – in short the more I see of European plants the more I am persuaded that the northern ones have never been better distinguished and the real species better estimated (in most cases) than by Linnaeus whose truly philosophical views and extraordinary ~~appreciation~~ methodical mind have never been equalled before or since his time –

This winter however I must not at Leguminosae forget Martius' Flora Brasiliensis – I have done Genistae Galegeae & Hedysareae and just begun at Phaseoleae. The enormous number of fragmentary specimens published, ~~species~~ occasion immense labour in working out synonymy – a most unsatisfactory operation

our herbaria we are obliged to admit that both are extremely variable in foliage and often scarcely to be distinguished from each other without the fruit I shall look again however at the points you mention about the shape of the flower – I think it will turn out that several of the species I have admitted are but varieties of the one or the other – A. Cavenica (the original one from Chile and O. nervosa Pers) has the fruit of Sarmentosa and is I think merely a small leaved variety although it is not impossible I may have sometimes mistaken forest small leaved varieties of tortuosa – and if I do not misrecollect macracantha & macrocanthoides differ from tortuosa only in foliage – but I shall go through the whole subject carefully for the Flora Brasiliensis

When you come to have large sets of specimens of your Western Centrolenons I think you will find many of them vary like your common Eastern ones and that I have admitted too many species – some of them run into one another in cultivation although the number we have in our gardens is fast diminishing Californian plants are not so much in fashion as they were not being so easily grown in beds as the Pelargoniums Petunias etc from the Southern hemisphere – Certainly Centrolenons vary much in the size of the flower and the breadth of their leaves

At odd times I have been working up British Plants and if I ever publish them according to my own views I should enumerate in the British Flora about 200 fewer species than in Hook and Arn and

In the mean time our tour in the country has done us a wonderful deal of good. Last winter I had got into a very uncomfortable state of digestion which has now got quite right again although I feel that coming near upon 76 I cannot do what I could at 26 and I see little prospect of my vigour lasting till I have finished the various botanical jobs I have in hand – I doubt ever completing my monograph of Leguminosae towards which I have done so much

My wife joins me in kindest remembrances to yourself & Mrs Gray

Ever your most truly

George Bentham

sent with your third parts.
I paid for you the first year (four parts) of two complete copies at 9/ and four botany alone at 6/ making together £2.2.0

I have been waiting to send your Grasses plants because I thought Hooker would have something to send with them. I will however send them off next week. Your parcel contains just 600 gr. amounting to £4 —

There is no hurry about remitting this - I have now a good sum of Grasses in hand to meet drafts I am expecting from him and to the Lennon journal that will do at any time. I only hope that you will get some more sale for it -

I believe the Hookers are expecting some paper from you - when they pay you can pay me out of it but there is no hurry

Yours ever sincerely

George Bentham

91 Victoria Street
Westminster
Dec 6 1856

My dear Gray

I have long been going to write to you but have been waiting till I had looked into Hartweg's Monocotyledons. I have now done his plants and am reading my MS to prep having been so much afflicted by Torrey's determinations you kindly sent me. Comparison with Douglas's original specimens has however indeed me to make a few alterations.

2006 (Coulter 739) is the true Fritillaria biflora Lindl.

2007 is a distinct species which I call F. recurva because the perigonial leaves are turned back at the top which is not the case with any other Fritillaria — it is Fremont's 348 of 1846

1980 (Coulter 740) or F. mutica of Lindl is not I believe at all distinct from F. lanceolata Pursh as appears from the numerous specimens in Hooker's and my own herbaria

So F. biflora which is Coulter's 737 & 738 and is among Wheeler's plants appears to me to be identical with F. Kamtschatica

As you suggested I have called 1990 & 2009

Antitea (not Amianthium) Fremontii Torr.

2000 differs from Brodiaea congesta in the stamens all antheriferous I call it B. capitata and for 2001 I prefer the name of B. multiflora ~~& that~~ of parviflora for the flowers are not smaller than its allies

B. multiflora B. congesta B. capitata and Triteleia grandiflora Lindl are so exactly alike in habit and flowers that they cannot be generically separated from the purely artificial character of the stamens any more than the species of Allium with dilated & nondilated filaments in B. multiflora the outer stamens are petaloid anantherous entire, in B. congesta petaloid anantherous bifid; in B. capitata petaloid antheriferous bifid; in Triteleia grandiflora (for B. umbellata) scarcely dilated and antheriferous

I should be for uniting Triteleia Bentham Dichelostemma and Calliprora with Brodiaea and perhaps joining the whole lot to Milla, and make a genus with the inflorescence habit and most of the characters of Allium but with the stamens inserted at the top of a rather long tube to the corolla giving it so very different a shape

Nectaroscordium Nothoscordium and Hesperoscordium would still be intermediate I have not sufficiently examined them but I think the two first are better in Allium than out of it

2015 I have called Damasonium (not Alisma) californicum Torr. It differs very slightly from D. stellatum of Europe in its more numerous carpels with longer finer points – Its leaves are also narrower and more pointed from Australian specimens of D. australe Pur. it differs in nothing but the rather longer points of the carpels. The leaves the number of carpels etc are identical.

1975 i Spiranthes parviflora Lindl

1976 Platanthera elegans Lindl.

1977 Iris longipetala Herb

1978 Iris tenax Dougl. var.

1962 Quercus chrysolepis Liebm

1963 Q. agrifolia Née

1964 Q. lobata Née

1965 Q. Douglasii Hook et Arn.

1966 Q. rubra Linn (not Liebm.)

1967 Castanea chrysophylla Dougl

1968 Q. densiflora Hook Arn.

I received two or three days since your Manual and am very much pleased with it

You will have received I presume the additional copy of the Linnean Journal you wrote for I had it

Many American genera extending into Asia and Europe diminish gradually in species as they go Westward whilst the West European genera and species are mostly unknown in America. Two or three aquatic or bog plants are perhaps the only N. American plants common to W. Europe and not extending all across Asia – the Arctic flora is again another category. Pray turn your attention to some of these points and particularly to the connection between the United States (comprehending Eastern flora) and the Asiatic although more or less (and how far?) interrupted by your mountain backbone.

In my British flora I have of course made large use of other work. Ledebour's Flora Rossica is excellent but one of those of most use to me has been your Manual not only as supporting me in many corrections of often repeated errors in descriptions and circumscription but in suggesting many that had not occurred to me. Species must be judged by a consideration of the forms they affect not in one particular spot but throughout their geographical area.

A specimen of Chitonia I saw the other day at the Linnean Society show

91 Victoria Street
Westminster S.W.
April 2 1857

My dear Gray

I received a day or two ago a small parcel from you containing the figure and description of Boykinia (stipulacea Hebem) and a specimen of a Japan Indigofera with the q^y "what is it". As far as the specimen goes it is identical with Indigofera decora Lindl. a Chinese plant brought by Fortune.

As you requested in your last I have sent to Torrey the proof sheets of the remainder of my Californian N. Hortus, not that they will be of much use to him for I merely quote his names where I agree with him which is the case with nearly all. I had no time to enter into detail or to reform Kunth's Liliaceous genera only giving a few notes which I sent to you in my last. I hoped long ere this to have done with Plantae Hostii but the printer has kept me waiting so long that I can only tomorrow send

Let me know what sheets are wanting to complete your copy & there of any of your friends which you to whom I may have given it.

the index to Pacific.

I have been much interested in your letters to Dr. Hooker and in your papers on the distribution of your plants etc. Since I reviewed De Candolle's Geographie Botanique for the Edinburgh Review I have had my attention a good deal turned to the distribution of plants and the cross connections of different floras. General facts from one who like yourself knows a little what a species is are very much wanting before any conclusions good for anything can be drawn - and some day or another I think much light will be thrown upon the subject. In the mean time I get very angry at the confusion into which specieslumpers are plunging the science. European Salices Hieracia Rubus & Rosas as every one knows have long since been undeterminable and they are now doing their best to place half our common genera into the same category. This has indeed me now for some years past to devote add time to the preparation of a Popular British Flora and for the last two years I have worked a good deal at it from living and dried specimens & I shall cut off a couple of hundred species at least I must be very cautious how I do it and shall be obliged to draw up a separate argumentative paper so that I do not see my way quite yet to the end although in the preliminary operation I have come as far as Cyperaceae - I mention all this to you not because the work will be of any interest to you but because I find it necessary to state the general geographical area of each British species (in order to show the Botanists how little they know of a species if they will only study British specimens) and there are some curious points connected with the distribution of those that are common to Europe and the United States. Most of them (*) appear to have come to us or gone to you - not across the Atlantic but round by Asia

(*) I do not of course mean plants of modern introduction

I hope correctly that the Okanogan Cletoria accumulata is identical with C. Mariana and Mariana and mentions one or two instances that have lately turned up to support Okanogan in its vagaries – You mention I think in a letter to Jos. Hook. that the latter turned up in Japan.

Another thing – Henslow is teaching popular botany ~~and~~ with English names – and I have agreed to put English names to my Flora but not the chaotic ~~English~~ nomenclature commonly called English but an attempt at generic and specific names which Henslow Jos. Hooker and I settle in committee. Where a popular name such as Oak Willow Must etc coincide with the genus we adopt it as generic but where the trivial name is specific we are obliged to take the Latin name for the genus occasionally anglicizing its termination I wish you would do something of the kind in your books and make use of a regular English Nomenclature in your elementary works instead of the local trivial names which ~~convey~~ no idea to us here

I made no mistake in my charge to you for I proved plants for your parent only cost 200 you amounting to £4.0.0 which I shall get from Hoole. I have had no time yet to distribute any more – the arrangement of Kennedy's plants for Cambridge and the laying in my own Inverenda take me up a great deal of time. I contrive to get 3 hours at Kew at least 5 days in the week besides a couple of hours work at home but that is not so much as I had at Portrieles

I have just lost my only nephew he was progressing rapidly in his profession of Engineer when he went out to Corsica in 1856 to superintendent the laying down the Electric Telegraph caught the malaria fever and returned 1855 pretty well but with frequent returns of fever which brought on Bright's disease & dropsy, has suffered much. It is now fifteen months since he went to the South of France as we feared in a hopeless state and although he has frequently rallied and even come over here in summer for a short time ~~but~~ we dared he could not get over it and his suffering have now at last been put an end to at Nervi near Genoa – he was the only representative of our family after myself and sister as we have no relations – but it turned out about six months ago that he had been some time married to a respectable person but very low in life – and has left two children – what they will turn out we know not but I hope they may be some consolation to my sister who is dreadfully cut up. We expect her home from Nervi in a day or two.

With kindest remembrances to all I may believe me –

Ever your most sincerely

George Bentham

he is a wonderful man – the work and good work – he goes through is astonishing while at the same time his business as assistant Director of the Garden – and the scientific position and influence he has in Society and the scientific world make large inroads on his time. He has been very hard at Australian Restiaceae & Cyperaceae for his Flora of Tasmania

J. Kirke who is going out with Livingstone to the Zambesi seems a very good man – and that is a very good field – if the fever does not laid him prostrate

Kindest remembrances to Mrs Gray from Mrs Bentham & myself We go on steadily & quietly and have therefore nothing to say about ourselves. I wish we had a chance of seeing you & Mrs Gray in our comfortable home here

Ever yours sincerely

George Bentham

I wrote this the other day but did not send it because I thought I would just look at your Am. Suppl. Cyped. when I found your beautiful plates & descriptions of Diplopetalums and Cordyloclis.

91 Victoria Street
Westminster
Feb 14/80

My Dear Gray

I have long been going to write to you but for one reason or another have always put it off – In the first place as you kindly interested yourself in my British Flora and wished to see it as printed off I waited till I could say I had sent you some of the sheets but that has missed fire. I stipulated for two clean proofs that I might send you one – then came delays and one thing and another – and now that it is fairly in train I find I only get one clean proof which I am obliged to keep for indexing etc. However it is now going on rapidly and well I hope be out in May Now that it is known I am doing it some of my friends say it is a pity I should employ myself upon the Flora of a country so well known that there is nothing more to be said about it, and others think I am incompetent as not having made British Botany my special study, which is not very encouraging – but I was anxious

to try the experiment of a Flora for beginners according to my own views and if I fail I will readily give them up. The title fixed upon is "Handbook of the British Flora" – You will see I have adopted some of your suggestions.

You ask how I could have stated that Morinda had pendulous ovules – I have been trying to find out how that could have been for I have no record of having made the examined them and did so many Rubiaceae on occasion of the Niger Flora as well as when doing some Brazilian ones on different occasions. The Niger Flora was got up under great pressure from the bookseller. Dr. Hooker when he went to India left the MS not half finished – the Rubiaceae were untouched and I had none of Hanbury's notes to help me and had to examine them all with but little time to do it in. Having ascertained the structure of most Guettardeae and having on other accounts fancied that Morinda should go with them I believe I had put in my MS Morindeae with a mark "to be examined" or ex as I generally do and in sending to press had inadvertently overlooked the mark – a very careless thing to do – but – Bailleon threatened Sir W. Hooker with law if he did not provide MS by a certain time or reimburse all the outlay already incurred.

Seeing in Wallich's Catal. a Blepharistemma congumbonum Benth" of which I felt perfectly innocent I have been led to examine the plant – which is between Capparoideae and Gynotrocheae (Dryptopetalum) and which Miquel has named Dryptopetalum incembranaceum – and am just finishing up a short paper on the Leptotheca tribe of Rhizophoreae including Carallia (Bootia Miq.) Pellacalyx, Hydnocarpus Antoutheria Gynotrocheae Crongdyle Blepharistemma and Capparoideae and perhaps another new genus. I have which I first wrote, thinking I strongly thought you had not got it for you any of the set in your Amer Expt. Exped? Harvey has brought one from the Keeje group of islands (near Antoutheria?) but scarcely in a state to describe. It is none of yours.

I believe I told you that I had sent to Martius the MS of Brazilian Papilionaceae all but Dalbergieae & Sophoreae since that I have been obliged by press of other things to leave Leguminosae aside for the present (except a revision of Mueller's notes on Australian Acacias just sent to the Linn. Soc.) and now I must give all my spare time to make up another batch of Sprucean plants as he will be wanting money – He is now at Baños in Ecuador having had a very severe journey up the Huallaga over the Andes but they say his health which was very bad in England, is wonderfully good with all his hardships and fatigues.

Dr. Hooker keeps you no doubt au courant of all that is going on here.

a thick fleshy albumen in the same family – Geraniaceae (including Oxalideae) – Sapotaceae – Rhizophoreae etc. but I do not expect it in Rubiaceae.

Martius is printing my Brazilian Leguminosae – but I am afraid the selection of the plates will not be of the best. There is no one who will make the drawings here on his terms or indeed can drawings be got within a reasonable time on any terms – and Martius has not very copious material and notwithstanding what I say seems disposed to treat the subscribers with ~~copied~~ two or three copied plates – I have however sent him specimens to figure of some genera – but it is awkward printing a work at such a distance from the author that he cannot see the proofs.

We are delighted with the prospect of seeing you again on this side of the water and sincerely hope you will bring Mrs Gray with you.

Yours ever sincerely

George Bentham

91 Victoria Street
Westminster
April 4 1858

My dear Gray –

I shall be very much obliged to you for the Hong Kong things of Wright's you mention and shall be happy to name any doubtful ones generally. Dr Harland (recently appointed Colonial surgeon there) has been over here and brought with him a great many interesting species which he and Hance had collected making an addition of at least 80 or 90 species to those enumerated by Seemann from that little bit of an island – including a handsome new Melastomaceous plant – not a Melastoma – from the top of Victoria Peak and a fine Carex's besides the C. chinensis and C. indica already known from there. I named Dr Harland's plants for him and have kept the novelties with the intention of getting ~~upon~~ up a paper for the Linnean on the additions to Seemann's list. Amongst others there is a

shrub which has all the characters of Reptonia (you are aware I suppose that Reptonia & the adjoining genus DC. Prod. are identical as to species) but the inflorescence different of which I should be very anxious to see more perfect specimens. There is also a very fine Polygala. If you are publishing Wright's I had better perhaps send you the descriptions of Karland's so as to make one paper of both.

Spruce's Cinchonas and Ovenos plants which I am now preparing for distribution supply many capital things – One I consider a great catch Alexanthes Brachiemia in excellent flower – which shows that the strongly doubted origin of the plant was after all correct – and the specimens look as if they had served as the model of Desfontaine's or rather Herpin's figure made up from mere fragment. I feel more and more convinced that this and Napoleona should be associated with Myrtaceae and are not more anomalous than Lecythideae and Barringtonieae. I have already also come across Ramatuela H.B.K. with a second species – a second species of Lecythis Schomb. which in describing for him I referred to Pachylaena thereby it has 5 stamens – a second species of Rhoptrostylum H.B.K. but with only 5 stamens & anomalous lectus – 5 or 6 new Melastomas several fine Sloaneas etc.

Griesebach is doing wonders with the West Indian Flora. What is known has been published in so many independent places that when they come to be investigated the same species prove to have been placed so frequently in different genera that the necessary cutting down is greater perhaps than in any other exotic flora. I think his book promises to be a very useful one.

I am afraid it will be some time before you get any of Spruce's Banos plants for they are not yet despatched from that country – and after those I am now doing there is still the Upper Amazon and Tarapoto collection which I have not even unpacked

You startle me about the embryo of Quettardeae which adds another instance to the many we know already of a thick almost exalbuminous embryo, and

91 Victoria Street
Westminster
Nov 28 1858

My dear Gray

I have to thank you for one or two letters received since I returned to town - together with determination of Hong Kong etc Rubiaceae & Compositae I shall be very happy to send you my paper on Hong Kong plants as soon as I can finish it. For the present I am forced to lay it aside to finish the Brazilian Papilionaceae for Martius - A first part to the end of Phaseolus is printed and I believe will be out very shortly the plates are prepared & drawn so I have no hand in them the text has taken me much more time than ~~any~~ I had any idea of as I have had to work up at the same time almost all South American Leguminosae and most Asiatic and African ones in order to acquire some fixed ideas as to the genera and species I find one gets quite wrong in establishing genera on the plants of one country without close comparison with others I have had to suppress or remodel many

intermediate part disk - hypanthium etc in a few cases can only be justified if applied to all - and it is a difficult to say how much of the expansion beyond the ordinary thickness of the ages before it divides into separate petals etc or their lobes or teeth is disk hypanthium etc as distinguished from tube calyx etc on the one side or from a thickened axis on the other. If no one settles all these points satisfactorily I intend trying my hand at it apropos of some Rosaceae.

I certainly mean ovary to be the ovule bearing portion of the pistil - but when we talk of a compound ovary we mean an ovary of several carpels the same as when we speak of a compound fruit - In general works the ovary of Ranunculaceae like the pistil is said to be apocarpous the one and the other is used in two senses a general and a partial one. This perhaps is not right and I should have said "sometimes ~~[illegible]~~" instead of "in general" the word ovary is used to designate all the ovaries of a flower". I do not see how you can well avoid doing so in families like Apocynaceae where the carpels are either distinct or more or less combined.

I am reading a very long paper on the Sinaean which I hope you will criticize without mercy

With kindest regards to Mrs Gray and many thanks for her letter believe me

Ever yours most sincerely
George Bentham

of the Brazilian genera I made at Vienna in 1836 – and you will readily see that Berg's American Myrtaceous genera clash very inharmoniously with Blume's & Wight's Asiatic genera and subgenera – Berg has enormously multiplied species but he has worked better than some – and the forms of S. American Myrtles are really so numerous and so difficult to define that it will be a long while before any one comes to improve upon Berg – Griseb. seems to be working now upon much better principles.

I am now hard at work at Dalbergieæ and hope to finish them and Leguminosæ in the course of January I shall then take the Hong Kong Flora and finish that before I commence the Australian Flora.

Dr. Hooker has shown me your review of my Handbook and I am much flattered by the compliments you pay me. I admit some of your criticism but not all. The English Nomenclature is I know in many respects very unsatisfactory although I bestowed more time and thought about it than the thing is worth. I could answer some of your why-nots Milfoil is Achillea millefolium Cotton thistle will not make one word like Rocket – I cannot bring myself to call Myosotis versicolor a Forget-me-not which applies to one species only in this country – Gardeners never call the cultivated M. sylvatica a forget-me-not – but I had better have left Myosotis. I thought it worth while to shorten Ceratium as being very common but perhaps not – certainly not Holosteum as it is thousands to one of any persons picking it up in England. Lindley wants to shorten many more Latin names – others pooh-pooh the whole thing and I do not much like it

My definitions of perigynous and epigynous are not good but the whole nomenclature of inferior and superior hypogynous perigynous epigynous etc requires revision – I was going to say something on the subject in my paper now reading at the Linn. Soc. but I have not yet matured my views and reserve them for another occasion – the difficulty is to settle what is peduncle and receptacle (that is axis) and what is calyx petal stamen etc. that is where does one begin & the other end – for the reserve of calling the

91 Victoria Street Westminster
July 19 1880

My dear Gray

I was from home when I received your letter but being again for a few days in town I investigated Hieronyma at Kew on Saturday - Planchon had rightly put into the genus all the American Nacourteas - and that is evidently Clos's idea in his monograph of Nacourteaceae in the 4th vol 4th Ser. Ann. S. Nat Hist. of which only a few generally have yet appeared. He places Hieronyma between Nacourtia and Xylosma - probably not acquainted with the latter - for I think you are quite right in uniting them - and I presume you have ascertained that Xylosma is the oldest name - The American species in the Kew Herbaria are

1 Hieronyma intermedia Seemann Bot. Her. p. 249 Veraguas remarkable for its hermaphrodite flowers - or at least female flowers with stamens - possibly other individuals may have more developped stamens and abortive or semiabortive ovaries

2 H. nitida Hellen. Jamaica Purdie ♂ and ♀ specimens mentioned Purdie ♀ only
a slight variety Veraguas Seemann ♀

3 H. mexicana Planch. MSS H. nitida Cham. & Schlect vig Hellen. nec H. nitida but perhaps truly distinct Mexico (Xalapa & Vera Cruz) Schiede ♀ Botteri 478 ♀ & ♂ 891 ♂ Galeotti 4517 ♂ 7030 ♀ Linden 950 ♂ Chayes Sadler 194 ♂ 329 ♀

4 H. clavigera Planch. Nacourtia clavigera H. B. K. Prockia obovata Presl. Mexico Tabico Bentley ♂ and ♀ Oaxaca Galeotti 4519 ♂ Orizaba Botteri 975, 1057 and 1058 all ♀ R. Mello 820. Guatemala Friedrichsthal ♀ Yucatan Schiede 65 ♂, 66 ♀

5 H. flexuosa Blanch. Macourtia flexuosa HBK. Mexico Bryophyta Broleri 1069 and 1070 both ♂ Xalapa Linden ~~Ref~~ 952 also ♂ (and Galeotti? without a no. perhaps one of Linden's specimens)

6 H. spiciflora Macourtia spiciflora Tul. Ann. S. Nat. Ser 3. v. 7. p. 294 Columbia Triana 166 ♂ Bogota Holton 833 ♂ 834 ♀

7 H. prunifolia Blanch Macourtia prunifolia HBK. H. Beatteana Tul. Columbia Hartweg 890 ♂ Triana 353 ♂ Holton 697 ♂ Chachapoyas Matthews 3050 ♂ Caracas Dirubel ♂ – These specimens are all a little different from each other but seem all to be one species. I have seen no ♀

8 H. sp. n.? Macourtia nitida Spruce Death in Kew Journal. Cambona Spruce ♂. R. Negro Spruce from Rio Negro ~~1600~~ 1533 ♀ ♂ is probably not specifically distinct.

9 H. sp. n. Macourtia calophylla Spruce Rio Negro 1600 ♀ ♂ seems a very distinct species

10 H. Rahieuii Blanch. Bahia Salzmann ♂ ♀ Brazil Sellow ♀

11 H. Gardneri Blanch. Ceara Gardner 1450 ♂ ♀

12 H. Tweedii Blanch. Banda oriental and Uruguay Tweedie ♂ ♀

Species dubia specimen sine fol. Guiana Roth Schomburgk ed coll. 729 Rich Schomb. 1104

Species a me non visae

R. cordata HBK an cad. ac R. spiciflora Tulasne?

R. elegans Tul.

R. velutina Tul.

R. racemosa Bred.

and another of Bredi which I have not noted as being probably not a congener.

A box is made up for you at Kew containing among other things your set of Spruce's Canjuione Orenoco & Upper Rio Negro plants and Zarapata ferns in all 393 sp. = £7.17.0 – There will be the new bot. of Linnaean Journal but I cannot send the account yet as there is some uncertainty about the arrangements (to add the introduction for) for the morphological matter we have – so I will send it in Oct & then you can pay me all together. This set contains many good Humboldtian plants – unfortunately some of them could not reach to your parcel as Spruce was cramped for paper on the Orenoco.

In the box I have taken the liberty of putting a copy of my Handbook of the British Flora for Mr Gray – it is not scientific enough to offer to you – I had prepared a paper on details with general considerations on terminology (specially referring to the stem the bracts and fruits) – on genera & species – and on geographical distribution & was to have read it at the last Linnean meeting – but several others were anxious to get a hearing and mine being very long was deferred till after the recess.

I have only had time to go through the Hong Kong Malvaceae Flora. Determine Wright's to be

1 Clematis parviloba Gardn & Champ.
2 C. Meyeniana Wall (also Loo Choo!)
3 Delima sarmentosa Linn.
4 Urena microcarpa Champ.
5 Urena discolor Vahl.
8 Sinoëcia cuspidata H.f. et T.
10 Corchorus macrocarpus W. et A.
11 Berchemia racemosa Miers
12 Stephania hernandifolia Walp.
13 Cyclea dettoidea Wright (?)
15 Alsomitra Cumingii Dc.
16 Capparis membranacea Gardn & Champ.
18 Cardiospermum glomerata Roxb?
19 Viola Patrinii Dc.
20 V. diffusa Ging (V. tenuis Blk)
(See Chas & remarks thereon)
21 Salomonia cantoniensis Lour.
22 Polygala arillata Ham.
23 P. glomerata Lour. & Dr. P. densiflora Dc.
24 P. elegans Wall. P. Lowreiri Gardn & Champ.
26 Pittosporum glabratum Lindl.
(Dennis 32 is not P. glabratum but seems nearer P. pauciflora of Hook et Arn. but not exactly)

P. not Sida rhombifolia nor cordifolia" the S. fallax Walp.?

30 Abelmoschus pungens Wall probably a var. of A. moschatus.

44 Reevesia thyrsoidea (R. Wallichii Dr. does not appear distinct)

43 Sterculia lanceolata Cav.

45 Brutteria aspera Blk.

46 Waltheria americana (W. indica)

47 Corchorus acutangulus Lam.

48 Triumfetta angulata Lam.

49 T. pilosa Roth (T. cana Blume)

51 Grewia parviflora Bunge var glabrescens.

42 Hepteca latifolia Gardn et Champ. appears to be true Tilia – nothing to do with Tiliaceae or Grewia – and probably no congener of Lowreiri's Hepteca.

52 Elaeocarpus lanceaefolius Roxb? E. serratus Champ.

54 Eurya chinensis Dr. (E. japonica according to Champ. Thwaites letter)

55 E. Macartneyi Champ (E. japonica according to Blume – Either these two Hong Kong species are distinct from each other or nearly the whole of the Asiatic species are forms of E. japonica

56 Pentatroemia japonica Thwait. Cleyera fragrans et C. dubia Champ.

57 Eucomanthes Chinensis Champ (Eucomanthes Chinensis Hook & Arn)

59 Rutaphylax emyoides Gard & Champ

59 Polygala austrorii Sw.

60 Camellia spectabilis Champ.

61 C. apiculata Champ.

62 C. salicifolia Champ.

63 C. intermedia sp. n.

65 Saurauja trentyla DC?
the Prochostigma argute, Zuc. Loo Choo n. 31 does not seem specifically distinct from Actinidia callosa Lindl.

67 and 1 specimen of 613 Garcinia oblongifolia Champ

66 and 2 ♂ of 613 G. multiflora Champ.

68 Calophyllum membranaceum Gard & Champ

70 Hypericum japonicum Thunb.

72 and 610 Acer oblongum Wall.

71 Acer oehrcellatum Champ.

90 Turpenia Nipalensis Wall

89 T. argute Seem. Ochrantha Lindl. - ~~[illegible]~~ Eyrea Champ - scarcely distinguishable from T. insignis from America

73 Mychelium Lichi Camb

74 Glycosmis citrifolia Lindl.

75 Sclerostylis buxifolia Benth

76 Vitis parvifolia Roxb.

77 V. Canata Roxb

80 V. - Cissus angustifolia Roxb.

79 V. cantoniensis Seem.

81 Averrhoa carambola L.

83 Oxalis corniculata Linn.

82 O. Martiana Zucc! (as O. corymbosa DC?) has several names quoted by Zucc. and is often met among tropical weed

83 Zanthoxylum nitidum DC

82 Z. cuspidatum Champ

84 Z. avicennae DC.

85 Z. triphyllum Jacq. - Z. plebeiofolium Champ

86 Toddalia floribunda Wall

87 Cynometra reticosa et C. pedunculata DC

88 Aruncus sumatrana Roxb

96 Euonymus nitidus Benth.

95 E. ~~[illegible]~~ longifolius Champ

94 E. longiflorus Champ.

93 E. hederaceus Champ.

Loochoo 54 seems E. ciliatus Wall.

91 and 611 Celastrus Hindsii Benth

92 C. Championi Benth

Loochoo 53 which I have also from Amoy is very near C. Wallichianus.

97 Ilex gracilipes Champ.

98 I. memecylifolia Champ.

99 I. viridis Champ

100 I. asprella Champ.

101 I. pubescens Hook & Arn.

100, 109 and 473 seem to me to be all forms of Rhus succedaneum from which perhaps R. acuminata may not be distinct but I shall examine them more

107 is a puzzle. certainly not Rhallea Mothii - the leaves look like Rhus succedaneum - do the two loose fruits really belong? [Yes. I have it now!]

110 Canarium Pimela rather than C. Decumanum which ought to have pubescent leaves - these are glabrous.

111 Rourea microphylla Planch

112 R. santaloides Wight

102 Ventilago Maderaspatana Gaertn

104 Berchemia racemosa Lib. Zucc. which I formerly confounded with B. lineata

103 B. lineata DC.

105 Dendrotrophe Thesium Decaisne.

106 Rhamnus virgatus Roxb

475 A puzzle. leaves and inflorescence of a Ventilago but fr. of a Rhamnus - No fl. Have nothing of the kind from anywhere else.

56 Loo Choo is Rhamnus crenatus Lib. Zucc! as you suppose.

Many thanks for your interesting subscription article which duly reached me

We leave town for the west of England the day after tomorrow & return in October

Your boy is not gone yet. I have put into it a few of Wilford's Hong Kong plants as far as I have gone through them - they come to you from the Hookers

Yours ever sincerely

George Bentham

91 Victoria Street
London SW
83
January 14 1859

My dear Gray

Immediately on receiving your note enclosing to Hooker I wrote to Kippist the Librarian of the Linnean Society and ascertained that the usual copies of the Linnean Journal No 9 (a complete one by botany) were delivered in the usual manner addressed to you at Triebner on the 21st August & then wrote to Triebner and enclosed his answer upon which you can make the necessary enquiries at Munroe & Co. I trust you will find the parcel safe there

I am afraid you will be much disappointed when you see my paper ~~illustration~~ explanatory of my Handbook for our excellent friend Scott has made some mistake. The part relating to geographical distribution - which only contains a few general hints - has not yet been read - What I have read has only been some remarks on the terminology of duration bracts and fruits and on my ideas of genera and species - I hopeat to read the

In case of further delay in your receiving no of the Linn. Journal I have just written to Mr Kippist to send you a copy containing Darwin's paper by post

Yours very sincerely

George Bentham

geographical distribution part (which I have just rewritten out) at our first Bot. meeting - some of the detailed notes on individual genera which conclude the paper are not quite finished yet. When it will be printed I do not know I fear it is too long for the Journal and will probably make a supplemental part next year.

I have been detained an unconscionable time at two Dalbergian genera Machaerium & Lonchocarpus - of the latter I have been obliged to examine over and over again specimen after specimen till I am quite sick of it - so difficult to match flower and fruit - and fruits so different when flowers & leaves to all appearance the same. I have been obliged to suppress Sphinctolobium and Neuroscapha and it is with great difficulty I can keep Derris and Lonchocarpus distinct & only by putting L. pterocarpus DC and L. longifolius (H. Jps.) into Derris and some asiatic & African ones into Lonchocarpus but I do not see my way quite clear yet. It is very difficult also to distinguish Gliricidia from Mellettia and I believe Otonema cannot stand - and all these but with more or less deficient pods come very near your Wisteria which however I have not yet studied well. At any rate I think that Mellettia must be expelled from Dalbergieae. A. de Candolle has got Muller his quondam if not present herbarium keeper to do the Euphorbiaceae for the Prodromus. He will have much to do to reconcile Klotzsch and Baillon who are both to publish their species (in opposition to each other I suppose) this summer. It is a pity so fine a family should be so hacked. A. de is now finishing the Begonias and is then going to do the Cupuliferae in order to bring them out with Anderson's Willows. Meisner is advancing in the Lauraceae.

I trust we shall soon have from Hooker his Introduction to his Tasmanian flora - with some startling facts in Geographical distribution. He has I believe been working it out with great care. We want something rational for a relative after Agardh's high flown display of imagination

as for instance Mettenia Chinensis (which has no No attached to it & that I take may be a guide). There was I believe a specimen of his of Lonicerium Pinicola (1103) which I have somehow mislaid. Have written that that plant is not in Hong Kong. He gathered it in "Daniel Island" Thompson & Gray let me know whether Wright really found it well in Hong Kong - or whether I must strike it out of the Flora

I have made a few corrections in the determinations of Vitis, Ferebenthaceae etc which I sent you last year but I have unfortunately left the memorandum at home where I do not go today and if I do not send this letter today it may linger I know not how long - I shall mark Wright's numbers carefully throughout the margin of my paper.

You ask "where is Agardh's paper published" I suppose by this time you have seen and marvelled at the substantial 8vo beautifully printed in a close small type - He has worked hard at it for years and observed a great deal but I do not think his book will contribute much to that clearness of method which is essential to enable us to form any idea of the vegetable kingdom wholesale and retail

You mentioned I believe somewhere

91 Victoria Street
Westminster
April 7 1859

My dear Gray

I believe I have several of your letters unanswered but on looking them over I do not find any thing particularly requiring a reply - only so far as general thanks - for although so bad a correspondent myself I am always particularly glad of letters from you and only hope that you are carrying into effect what you said you intended to do in one of your last years letters - finishing off your Amer. Explor. Exped. with a view to paging in a period when you must bring Mrs Gray with you. It's long to see you both again and our crossing the Atlantic is now quite out of the question. Do not however come this summer as we shall be away we propose going abroad about the second week in June and shall scarcely be back before November.

I got the Brazilian Dalbergieae and horex off my hands but about 10 days ago when I sent them off to Martius. They took me up so much more

time than I expected for I had to work up in detail non-Brazilian as well as Brazilian species in order to settle the genera. Besides these days in each week I have had to work with Mr Oliver (to whom I owe to assist me these days) either on the Cambridge Herbarium or at Spruce's plants. I am now getting on with the determination of his Rarapoto collection which I shall distribute before I leave town.

Since I cut off the Brazilian Papilionaceae I have resumed the Hong Kong Plants I am revising the whole Flora and as I must reexamine so much and compare with E. Indian now this for foreign plants are mostly laid in I give generally short specific characters and general distribution which rather lengthens the time it takes as well as the paper itself. I doubt if I shall finish it before I go but will send you as much as is ready – but pray tell me how to send the MSS – It is too much for post – the book post does not take MSS – Shall I send it through Trübner: but then it must not be pendu as Linnean Journal or I do. – The Hong Kong Flora is much less Japanese than I expected. It consists chiefly of 1 widely spread Arcatic plants many of them weeds – 2 North Indian extent in Khasiya Sikkim & Himalayas 3 South Indian extent in Ceylon Malacca & Moluccas and Philippines & more Eastern which we have only from the Moluccas or Philippines 5 Chinese proper which we have as yet either only from Hong Kong or only from the adjacent island and continent of P. China. We have however very little from China excepting from the immediate neighbourhood of Hong Kong or Macao and a few small Bunge collections where already the vegetation is different and shows more of Bunge's North China Pekin etc plants. Some Japanese plants do certainly extend to Hong Kong but they seem to bear a less proportion to the Flora than the Khasiya does. However I shall work all this up more accurately when I have done the number of Phanerogamic species will be I believe near 1000. As far as I have finished 460 of Beemann's enumeration have become 600. With Wright I have no memoranda, and none of his are evidently garden plants

to Europe. I believe however he is procuring some other employment and I doubt whether we shall hear much more from him. I have now on hand this Tarapoto collection which is considerable and a small Ecuadorian one which by his desire I wait to distribute till I receive the next as the sets of many are only completed in what has still to come – the foolish war between Peru and Ecuador although it appears to have been hitherto bloodless interferes with the despatch of Spruce's collections.

~~Dr Pittier~~ Pittier's Venezuela (Tovar) plants contain many very good things I am particularly anxious about tropical American plants (especially of course Leguminosae) the central American flora is remarkably varied I have seen a good deal from Costa Rica – our surveying expeditions etc and am surprised at the number of remarkable plants in one collection and not in others according to the mountains ascended – Many must be very local there

I hope to print a Synopsis of Dalbergieae in the Leguminosae at least of American genera. Of Lonchocarpus I have only 20 Brazilian species out of 46 ~~[illegible]~~ altogether ~~[illegible]~~ – and I reject a few of the old genera into other genera but include Pterocarpus & Sphinctolobium – In Dalbergia I include Hygrotomeon Microlobium and Amerimnum. I also reunite the sections of Pterocarpus except Ateleia which is a Coralpinieae (I saw a specimen in Wright's Cuba plants of one species and have seen specimens of ~~other~~ another in other Cuba collections) – Millettia must be decidedly excluded from Dalbergieae the pod always opens when quite ripe in two valves – I have not again worked it up ~~[illegible]~~ and opinion it comes very near Glycidea and other Robinioid genera – and I believe my former genera Mundulea and Otoema can scarcely stand – at least characters from the calloxities or from the fold at the base of the vexillum break down generally except as species – In all these Leguminosae the great difficulty is to match the flowers and fruit In Acosta they are very much mismatched and since this time many a species has been made up (by myself as well as by others) of the flowers of one with the

fruit of another, owing to loose fruits having been sent by collectors also with the wrong flowering specimen. Collectors themselves are often deceived by the intricate manner in which the branches of different trees or lianes are intertwined. But in most cases we get flowers without any fruits. There are 7 or 8 Central American Lecythidaceae of which I have never seen the pod, and I hope you will impress upon all ~~collrs~~ your collectors in tropical countries the necessity of gathering fruiting specimens with the leaves attached.

With kindest regards to Mrs Gray Ever yours sincerely

George Bentham

what you have seen in the papers about the Government grant for an Australian Flora. When it came however to putting it in the estimates, ~~there~~ Colonial Office found they had so many extras that they had to cut down, and topped this off in the first instance. Since then letters have been written to the Colonies themselves to take it up. If they do in a satisfactory manner that will be my chief occupation for some years to come but I shall finish up the Hong Kong revision first.

You ask about your account. It is I believe as follows.

1858 June	Linnean Journal Botany 1 copy 2 first vols 6/ for 4/	12.0
July	Linnean Journal vol 3, 2 complete and 5 Botany	2.8.0
	Spruce's Cinchona etc collection 393 sp.	7.12.0
1859 Nov	Linnean Journal Supplement 7 copies (at 3/ for 4/)	1.1.0
		£ 11.18.0

Mitten's chapter will be concluded in another supplemental part which will be charged rather less.

Mr Spruce appears to be now settled in the Ecuador and talks of not returning

which I unite Blackwellia for beyond geographical origin the distinctive characters are fictitious as hitherto given – purely artificial if modified so as to give them reality.

I have laid aside for you a few of Wilford's Hong Kong plants which you appear to have either not good or not at all from Wright amongst others a 5th genus of Hamamelidea. – The Dicalyphium which we have from Wright is curious and very anomalous Hamamelidea. It has a close allied sp from Griffith also in fruit only and Champion's specimen (which I could not make out before leaving) have one young male flower. I should like much to see the young ladies to make them out properly. Wilford's new genus is nearer to Cuttigma

With kindest regard to Mrs Gray Ever yours sincerely
George Bentham

I hope to be at work again at Kew early in Nov – We move to Paris for a fortnight or 3 weeks then to the Pyrenees & in Sept on to Madrid provided this atrocious war does not interfere.

57 Loo Choo = Thermopsis chinensis Bth (Anon. Fortune n. 54) differs from T. fabacea in the stipe calyx and some other points

58 Loo Choo = Medicago lupulina L.

59 Loo Choo = Melilotus indica All.

60 Loo Choo = Astragalus lotoides

61 " = Ormocarpus sennoides (Dolichos cochinchinensis Lour.!)

62 " = Desmodium podocarpum DC

63 " = Lespedeza cuneata Don

64 " = Vigna? the specimen is insufficient to determine

65 " = Dolichos Lablab.

66 Bonin = Agrees with Mucuna gigantea except that it has not the prominent hairs on the pod and the foliage is less hairy (these they fall off?)

67 Loo Choo = Derris uliginosa Bth. β Lourieri

68 Bonin = Derris (Brachypterum) chinensis Bth.

69 Loo Choo = Wisteria glabra Bent.

71 Loo Choo = Prunus macrophylla Sieb. Zucc!

72 Loo Choo = Rubus reflexus B. A.

73 Loo Choo = Rubus parvifolius Linn

74 Loo Choo = Rubus rosaefolius Sm.

75 Loo Choo = Agrimonia Eupatorium L. (quite the common European form)

76 Zanegar = Rosa multiflora var?

77 Bonin = Raphiolepis japonica Sieb. Zucc! several apparently distinct varieties – but not R. integerrima which has a fruit like this  or even long.

78 Bonin Osteomeles anthyllidifolia

79 Loo Choo Rubus – unknown to me and not in our herbaria (R. [illegible])

80 Bonin Photinia sp. } both in fr. only and I
479 Wilfordia Photinia sp. } cannot equally match them

82 Bonin Terminalia Catappa L.*

316 Loo Choo Balanophora dioica ♀ (J.D.H.)
317 — Balanophora dioica ♂ (J.D.H.) June 7th [1859]

84 Loo Choo Melastoma macrocarpum Don

85 Bonin Syzygium. Leaves of S. odoratum but distinct

86 Bonin Syzygium unknown to me.

87 Loo Choo Sehnera, apparently nummularia DC. the same as Myrsorenis Ach.

88 Bonin Trichosanthes, not T. cucumerina.

289 Loochoo Parnassia, not in our herbaria.

89 Loo Choo More like Kalanchoe varcoy than K. gastulata but not a very good [illegible]

90 Loo Choo — ? Sedum which we have also from

290 near Hongkong } Tornora, but undetermined

91 Loo Choo Sedum, something like S. mucronatum Bot. and Ach but seems quite distinct.

94 Loo Choo Hydrocotyle nitidula Rich

95 Loo Choo Hydrocotyle rotundifolia Roxb.

96 Loo Choo & Bonin Hydr. asiatica Linn

101 Kankeah: Paratropia Cantoniensis H. & A.

104 Loo Choo Ficus articulatum Burm. or F. microphyll

107 Loo Choo Viburnum unknown to me

260 Loo Choo Loranthus ferrugineus Roxb?

28 Loo Choo Camellia Sasanqua (see Seem.)

Dr. Hooker's speculations are to divergence of species are rather startling but they may be as plausible as any others upon a subject which must be mere speculation. They may carry one very far. My friend Arnott used in his mycological days to call his babies Gymnostomum but it seems now that we are really to consider that a man and a mop are sprung from the same stock which has diverged and produced these extremes by selection. Much as I look up to J.D.H.'s views in general I am not in this instance convinced - but I am now too old and too lazy to enter into controversies so that I shall confine myself to the old systematic routine and go on describing species as if they were really distinct and grouping them into genera etc for convenience of study.

I have left with the Linn Soc for publication a short synopsis of Homalium with

91 Victoria Street
London S W
June 7/89

My dear Gray

I have deferred writing to you till the last moment and now I have very little time. We start for the Continent tomorrow morning.

I left with Dodd this morning to forward to you the MS of my Revision of the Hong Kong Flora down to Leguminosae – I forget where you said you would publish it – but I have sent a few prefatory words in the form of an address to the Editor of ... If it is in a publication which has no editor ~~[illegible]~~ alter this to a Preface – or Prefatory note or whatever you please.

There is a blank in the first page which I got to fill up yesterday at Kew but you will easily fill it up – I am afraid I must trouble

+ I should like to have Kew's full set of Venezuela Leguminosae at £2.2.0 the 100

I send herewith my determinations of a few Loochoo & Bonin things as far as I have gone with the Hong Kong

I have read with great interest some proofs of your Japanese paper but have not seen quite all

I have been distributing (with Oliver's assistance) Bonin's Tarapoto collection which has much that is very interesting — as far as Compositae is all that I have had time to do – your set is left at Kew to go with other things. It contains 230 sp amounting to £4.15.0 —

I have settled with Jos. Hooker that as soon as he receives the £11.13.0 which you are sending him he is to pay it in to my banker – I have pretty well made up the £200 I have to meet a bill ~~[illegible]~~ expected from Spruce to that amount

you to go over the proofs carefully yourself. My hand is not always very correctly read by printers besides that I am myself liable to make mistakes in copying. I have however read it all over with as much attention as I could.

You will see that for the present I have put Actinidia (to which you are quite right in referring Heptaea latifolia Lour. et Champ.) into Dilleniaceae and left Saurauja in Ternstroemiaceae. That is because I feel quite convinced that Actinidia is Dilleniaceous, the carpels do not meet in the centre but are in a ring round the axis (a protuberance of the torus) as in Nymphaea - and the calyx aestivation though very nearly valvate is not quite so - not like that of the genera of Illicieae.

As to Saurauja that may be Dilleniaceous too but I am not quite convinced yet - the carpels appear to me to be much more united in the axis - but the Hongkong specimens are very unsatisfactory and do not induce me to work up the genus.

I had intended at first to quote the numbers of ~~Dalat~~ collectors but Hance's would only be for his own satisfaction and I have sent him his list of names. Wilford's are not enough for distribution and what are given can just as well be given with names as numbers. As to Wright's I know not whether they are distributed or not - at any rate I have put his numbers in pencil in the margin for your guidance.

I have given the Linn. Soc. a synopsis of Dalbergieae 286 species in which I have worked up all the Asiatic & African as well as American species to the best of my abilities. I include Lonchocarpus and Derris & Cogniaux - but I exclude Millettia and Glycinidia which have a deficient pod. I have consequently not worked up the closely allied genera Wisteria Millettia Glycinidia Mucuna and Otosema and cannot accurately fix their limits but I presume you are right that W. chinensis must remain in ~~Millettia~~ Wisteria and perhaps the above 5 ought to make one genus

Bagnères de Bigorre
Augt 6 1859

My dear Gray

The occasion of my writing to you from hence where I can have so little of what can be interesting to you to write about is that I have just discovered that in my paper on Hong Kong I had quite overlooked Tulasne's Nudibaccas Ann. S. Nat. Ser. IV. v. 8 p. 120 seq. and if that part is not printed I must beg you to correct my name or add a note - or suspend the whole till I return home in Nov which would be perhaps best. As far as my recollection of my species goes it seems to me that what I called V. maderaspatana includes Tulasne's V. calyculata Lathriana and sulphurea and that the V. bracteata Wall (I forget what name I adopted for it) includes Tulasne's V. maderaspatana denticulata & macrantha & perhaps V. cernua - but his characters are confused and I cannot understand

Scilopia Schrb. 1789 should be substituted for Phoberos Lour 1790 if Clos is right.

I am not quite very also whether I paid attention to the 8 part of Clos' monogr. of Flacourtiaceae in the same Vol of the Ann. S. Nat - if so that I no longer keep up entering up my Index I overlook & forget these things

his delineations without the specimens. I do not believe that there are any more species in India than those I have described – and I know by experience that Velanei are often individual forms. The question is was I right in referring the common one with the ring round the centre of the fruit to Gaertner's original one? If not, then the other must take Gaertner's name and my Madeira plant must take Velanei's name of Cinchonum (which would be best). If you do not wait my return home pray look into it and make the correction as necessary and say in a note that you do so at my request I having perceived that I had overlooked Velanei's paper.

The occasion of this has been that in leisure moments here I have been with the aid of Weddell's book roughly sketching the outline of portions of a work for Dr. Hooker and I have had some thinking contemplation and have worked at at odd times a Genera Cloatorum with short characters as much contracted and synopticised as we can. This will be of course in great part a compilation giving a view of genera as now constituted without working up in detail which would require monographs for which life is too short – but we intend verifying the characters in one species at least of each genus of which we have specimens and adding our own knowledge as either Dr. Hook or myself have personally examined at some time or another a great majority of the known genera. The work will be chiefly Dr. Hooker's, and he may live to see it finished but in the meane time I shall do what I can to assist.

Mr Bentham and myself have been here since the 2nd July having spent a fortnight at Paris and a few days at Bordeaux & Toulouse. We enjoy much a quiet holiday and though the days are often intensely hot as all over Europe this summer yet we have at nights a delightful cool mountain air. Weddell is at present settled here (for the sake of his old father) and is a great resource to us he & Mr Weddell (an Arequipa lady a very nice person & excellent musician) are both tri-annually – they have had a good deal of distress from the loss of 2 out of 3 children but seem now very comfortable. He is going on with his Chloris Andina making every year a journey of 1 or 2 months to Peru – and he is finishing for press an

I fear I cannot afford to purchase Sendtner's Rubiaceae or any plants but Leguminosae – Let me know the amount of his plants that family you have got for me & I will send you for it in your account – I have now a account for 1 of the present vol of Linn. Journ. & Francis Tarapoto plants. I shall distribute more in spring.

71 Victoria Street S.W.
Dec 25 1859

87

My dear Grey

We returned from our Continental trip the last days of November having much enjoyed a visit to the Pyrenees where we spent nearly three months of the hottest weather and as soon as it cooled a little, proceeded into Spain where we made a seven weeks tour. Entering from Perpignan we visited Barcelona, Valentia, Madrid Toledo Cordova, Sevilla Cadiz Gibraltar, Malaga, Granada and Alicante returning by Barcelona and Marseilles. Travelling in ~~this~~ Spain is fatiguing for ladies and the country is in general bare and treeless but there is much of interest in the towns and there is great evidence of progress and activity in the larger towns and in the railroads and high road which they are at ~~pres~~ last rapidly proceeding with. If indeed they do not experience too severe a check by this Moorish war which threw the whole of Spain into such a state of excitement the last weeks that we were in the country, they will in a very few years have advanced much in the career of civilization. Botany I found there at a very low ebb – the splendid herbaria and drawings of South American plants they possess at Madrid are never looked into from year's end to year's end and their botanical gardens, with the greatest natural advantages are among the poorest in Europe. They have however some naturalists of considerable ability. D. Graells who is at the head of Natural history at Madrid is a very well informed gentlemanly person, so is Prof Colmeiro. Both have published various pamphlets on Spanish plants and from Colmeiro we have a Catalogue raisonné of all botanical works and memoirs written by Spanish or Portuguese botanists or relating to the botany of the Peninsula followed by biographical sketches of all Peninsular botanists – which is well done and evinces great research altho much that is manuscript or insignificant is brought in to swell the list. Prof Cutanda who has the charge of the herbaria at the botanic garden is about to publish a flora of the district

of Madrid - Prof Costa at Barcelona has published a clapboard with an appendix describing some Catalonian plants and here and there a few notices of Spanish species may occasionally appear - but that appears to be the sum total of the Spanish botanical literature of the present day

I found a letter from you on my return and thank you for it - I leave you to do what you think best with my revision of the Hong Kong Flora and begin printing whenever it suits your convenience. I have revised the Ventilagos in which Tulasne has certainly made far too many species from imperfect specimens. He has however fixed on the right one to retain Gærtner's name which I had misapplied to Roxburgh's plant and I have rewritten my observations on the other side of this sheet begging you to substitute them in their proper place I am now going on with the Revision but slowly as I have many other things to do - I am in Rubiaceæ and thank you for your notes from your "Proceedings" I know not what to say about the Hedyotis Anotis may perhaps very well go with Houstonia as a distinct genus - but I think Oldenlandia & Macrocnemia must follow Diplophragma into whatever group they are put. They are all specially septicidal although some split a cosp at the top as well and run very much one into the other in habit. I think also they are nearer to true Hedyotis than to the Anotis-Houstonia-Oldenlandia set.

As you say my Revision is only to be published when complete the short Introductory Notice I gave must be replaced by another which I cannot write till I have gone through the whole Flora - Has Col Munro sent you the enumeration of his Hong Kong grasses & characters for the revision? if so I should like to have it as soon as printed in order that I may quote it as I like to go over every thing myself in order to give unity of plan to the Revision. By the bye I have no complete copy of what I sent you and have lost the memorandum of the figure at which I left off - it will be for you when you write tell me what was the number of the last species - and when you begin printing let me have a sheet by post. I suppose it would be too expensive and troublesome to send proofs for correction for I believe the Boxpost does not allow of any written matter

Yours very sincerely
George Bentham

Papilionaceae tendlerianae (Venezuela)

.1792 Evolvulus sp. n.
.295 Cytisus canariensis Linn.
.301 } Crotalaria stipularia Desv.
.2214 }
.300 — pumila Ait.
.299 — micans Linn.
.298 — anagyroides H.B.K.
.313 Indigofera anil
.1795 — sp.
.1797 — mucronata Spr.
.314 — lespedezioides H.B.K.
.310 } Dalea nigra Mart. & Gal.
.311 }
.312 — domingensis DC.
.1796 — sp. D. diffusae proxima
.2224 Tephrosia cinerea Pers. var
.245 — lyterlactya DC.
.315 — toxicaria Pers
.2220 — sp. n.?
.2216 Agati grandiflora Desv.
.246 Cracca sp. (genus novidendum)
.2217 Dipteryx rennoides Benth?
.2222 Coursetia (Sabinea florida DC.)
.309 Arachis hypogaea L.
.1793 Ptyloranthus procumbens Sw.
.297 — vicosa Sw. var. acutifolia
.296 — guianensis var?
.293 Zornia diphylla Pers
.290 Poiretia scandens Vent.
.292 Chaetocalyx hebecarpa Ait.
.291 — pubescens DC. gnov.
.194 Nissolia fruticosa platycarpa Ait. X
.2212 Aeschynomene sensitiva Sw.
.2388 } — americana L. var. major
.1779 }
.289 } — — var minor
.1780 }
.2213 }
.287 — falcata DC
.1781 } — brasiliana DC.
.2210 }
.1791 — paniculata Willd.

.294 Desmodium barbatum Ait.
.279 }
.280 } — incanum DC.
.281 }
.282 }
.1783 — micanum DC
.284 } — — var villosior
.285 }
.277 } — capillare DC.
.278 }
.276 — cajanaefolium DC
.283 — sericophyllum Schlecht? — Benth. Leg. Ecuad.
.1790 — Darlaei Benth
.2211 — scorpiurus Desv.
.1788 — asperum Desv.
.286 — pachyrhizum Vog.
.1782 — (Chalarium) sp.
.1789 — molle DC.
.1784 — tortuosum DC. var?
.1785 }
.1786 } — spirale DC.
.1787 }
.244 Lathyrus tingitanus L.
.2199 — sativus L.
.305 Clitoria, C. arborescenti proxima
.2201 — — an eadem?
.1794 — guyanensis Benth.
.252 Centrosema Plumieri Ait.
.262b } — Brasilianum Ait.
.1778 }
.262 — pubescens Ait.
.261 — virginianum Ait.
.247 — bracteatum Ait.
.260 Teramnus uncinatus Sw. = X
.269 — — ?
.274 Galactia sp.
.2206 — fusca H.B.K. var volubilis (G. velutina Ait.)
.1776 — tenuiflora W. & A.
.1775 Stenolobium coeruleum Ait.
.1800 — brachycarpum var brachystachyum Ait.
.272 — galactioides Ait.
.273 } Collaea? v. Galactia? off G. fusca
.1774 }
X = 138 Might. Cayla.

· 229 Dioclea lasiocarpa Mart.
· 250 — guianensis Btth. var. grandiflora?
· 271 Canavalia vellosa Btth.
· 240 — gladiata DC.
· 251 — sp.
· 266 Mucuna flagellipes Vog.
· 1790 } — pruriens DC.
· 2200 }
· 2597 Erythrina corallodendron L.? (v. E. umbrosa HBK? calyx dent.)
· 304 — umbrosa HBK.
· 306 — glauca Willd
· 307 — velutina Willd
· 300 — sp.
· 2203 Phaseolus lunatus L. var. macrocarpus
· 260 — — var? (P. xuarezii Zucc?)
· 253 — speciosus HBK.
· 255 — — ?
· 256 — appendiculatus Btth
· 254 } — — ? (P. amplus Btth?)
· 1777 }
· 2205 — sp.
· 259 — peduncularis HBK
· 257 } — Trujillensis HBK
· 2202 }
· 265 — linearis HBK.
· 1799 — semierectus Linn. var.
· 264 — erythroloma Mart.
· 250 Vigna luteola Btth.
· 2209 — vexillata Btth.
· 303 Cajanus indicus Spr.
· 2207 Rhynchosia reticulata DC.
· 275 } — minima DC.
· 2200 }
· 267 } — sp.
· 270 }
· 302 Eriosema rufum E. Mey.
· 2215 Abrus precatorius L.

+ Linn 2210
258.

· 2220 Machaerium sp.
· 1860 — Meritypanum Btth
· 1750 — — ?
· 2226 — Humboldtianum Vog.
· 2225 — acuminatum HBK.
· 1913 — — var
· 1865 — Seemanni Btth
· 2310 — sp n?
· 2227 — sp.
· 1862 Platymiscium polystachyum Btth.
· 2221 Lonchocarpus guatemalensis Btth var.
· 310 — violaceus HBK
· 1861 — macrocarpus Btth
· 1863 } — Pendleri Btth
· 2219 }
· 2223 Tessicalyx Pendleri gen. nov. I have sent in the chocolate optimi new genus to the Linnean Society – the loose fruits distributed with the specimens are those of a Guaiacum.
· 316 Myrospermum frutescens Jacq.
· 2210 Dowdichia virgilioides HBK.
· 1751 Ormosia fastigiata Tul.
· 1864 Coralpinia aff?

rather a Guaiacum

+ 1860

91 Victoria Street S.W.
June 28 1880

88

My dear Gray

Since I last wrote to you our Colonial Office has liberally come in to Sir W. Hooker's views with regard to the publication of Colonial Floras and he has proposed to me to write that of Hong Kong. There is a great demand for it here on the part of young men and others going out to China but it must be written in English so that I shall have to rewrite what I have hitherto done adding generic characters & synoptical tables. This would render you useful the publication of the Revision you so kindly undertook to correct for me in the Smithsonian Contributions. Would

number to the Foreign Land Box which you will receive in due course.

The General Mandarin practically my understating the Australian Flora - at least alone - but they perhaps do it in conjunction with Oliver who is a capital worker and becoming an excellent botanist

With kindest regards to Mrs Gray

Ever yours sincerely

George Bentham

I have done Hong Kong Revision and have a few corrections to make to your names. I will send you the list of Wright's Nos - one unnamed is sent with the Rubiaceae now a printing specimen of Coralliea

If you kindly get me off from printing my Hong Kong Revision in the Smithsonian Contributions I shall be most happy to send you a dozen copies of the complete Flora to give to those about you the most interested such as Wright etc.

you therefore think it very ungracious in me if I were to ask you now to cancel this arrangement and send me back that portion of the MS I have already forwarded to you? I suppose you have not begun printing yet – If you have pray tell me what expense has been incurred and also what expense they may have put you to in any other way and I will deduct it in your account from what you owe me for Sim Jones & Spruce's Plants. As to the trouble you have been at for me in the matter I am so much in debt to you already in that respect that I dare not think of a debtor & creditor account between us in that respect. If you consent I shall be very glad to have the MS back by the next mail steamer as the Colonial Office are I believe anxious that a commencement to the Flora should be made as soon as possible

Hooker and I have pretty well settled the plan of your Genera and we are seriously at work at it alternating with our other work. I have sketched out several families and finished Ranunculaceae which I shall have set up in type to settle definitively matters of form and calculate bulk I think the work will be half the bulk of Endlicher's. We shall not however begin printing till all Malaya flora are done. In the mean time we shall try and settle and set up in type our sequence of families as we see more than ever a need of more uniformity. We will send you a proof before we print it off

By the bye Cyrtorhyncha Mitt. and Aphanostemma A. de St Hil. are both good species of Ranunculus. The ovule is erect in both – There is nothing like looking oneself without taking things on trust

My Cypripedium dalbergianum will now be out as a supplement

Wright 211, 235 & 245 appear to be Randia cauthuroides
243 & 244 ≠ Dyelopora verrucifloram
217 Guettardella Chinensis

You will receive by this post a specimen of Hook et Dentth. General Mantorum for which we intend to be jointly responsible. What I do Porter checks & what he does I check – He has been hard at Cruciferae whilst I with his aid have got up these Ranunculaceae & have detected our several other orders – We should be obliged by suggestions

I find after all I cannot keep Actinidia in Dilleniaceae of which it has neither the calyx nor the anthers nor the seed. It must go with Saurauja into Ternstroemiaceae but I do not approve of Choisy's proposal to put the true Ternstroemiaceae next Theaceae and retain only the Camellieae under Guttiferae

I think I shall have near 1000 Hong Kong species (Menogam a term) and after all reductions still probably 500 genera – not much above 2½ species to a genus.

Yours ever sincerely

George Bentham

91 Victoria Street SW
London Oct 22 1860

My dear Gray

I last week received your with the proof of the 1st sheet of my intended Revision of Hong Kong Flora which I did not return waiting for your second letter received today kindly agreeing to stop the printing. As soon as I know what the printers bill amounts to I will set down in your account against what you owe me for Gower's Voyage to and from Japan. – I have only again to repeat thanks and excuse for the useless trouble I have put you to.

I have just done Hong Kong Compositae making little alterations in your names – chiefly reductions of DC's genera. Aplotaxis cauthuroides must go into Saussurea – Gynoxis into Senecio I take the Lagenophora of Asia to be the true Billardieri (L. Gaudina Mig L. Harveyi Hooker & L. pachystyla F. Muell) for Hooker's Tasmanian one may be distinct – Asteromoea Sieber Heterocia Cantoniensis and H. serrata are all one species and as a genus I cannot distinguish

it from Bottonia — and to Wollonia I should also ascribe Calimeris incisa (Heteropappus incisus) which has also the very conical receptacle and the ray achenia usually 3 grooved and the pappus almost paleaceous. The other Calimeris, including your ciliata ought I think to be referred to Aster — Aster Deutzianus Steele (Diplopappus asperrimus DC. D. laevis Benth) become Aster trinervius Roxb. but Wright's 2084 appears distinct. I describe it as A. brevipes sp. n.

Inula Hookeri must certainly remain in Inula (I. cappa DC) next to our I. conyza. Xanthium indicum is certainly neither but X. strumarium for I dispute I follow Miquel in adopting the specific name alba. The Wollastonia is all W. biflora DC. — I should unite Wollastonia to Wedelia if it were not that other American genera must probably go in and that would require more revision than I am quite prepared to do — that Lipochaeta is not generically to be distinguished from Chrysanthemum I have long been persuaded — Grangea should surely come in the Cotulinae of which it has the style — Dichrocephala on the other hand is a true Asteroid (Miquel makes a shocking mess of Compositae one of his new Dichrocephalas is Myriactis Nepalensis) — Pleiogyne cordrospermum 287 and Maclea hemiphoricia DC. are neither but Cotula anthemoides

Gnaphalium confertum Wth is G. hypoleucum DC. — G. javanicum, ramigerum & confusum DC. & G. Zeylanicum Mig all belong to G. multiceps Wall. — Gynura ovalis and auriculata DC. G. bulbosa Hook & Arn and Cacalia thesioides DC. are all G. pseudochina which is both wild and cultivated in China, but cultivated only in Java India and the Mauritius. Emilia as a genus has not a leg much less a stick to stand upon distinct from Senecio. S. campylodes DC & S. Hindii in Benth are S. chinensis DC. — Leptolaena Roemperi is a Tarchonanthus it has the anthers tailed and some of the florets bilabiate — and indeed I suspect it is the wild state of Tarchonanthus grande Lindl. — as with Tarchonanthus seem into Leptolaena, bilabiate florets are frequent in that genus even in the L. sibirica (see Reichbach's figure) and the anthers are slightly tailed in L. aromicorides DC & in a new Indian sp. — Gerbera ovalis must be reduced to G. piloselloides which we have from N. Wallich from Madagascar and from Abyssinia (G. Schimperi Sch. Bip.) To Xeria vericolor belongs also Lactuca gracilis DC

Wright 239 in Corollas
— 227 & 247 I have called Hedyotis longiradiata
— 216 = Hypanoxpermum Griffithianum
230? = Randia dumetorum except the specimen in fr. which is R. lanceolata

London April 11 1860

My dear Gray

I have been a long while answering several of your letters and thanking you for all the trouble you have had about my paper on the Hong Kong Flora – but I have had much to occupy me besides private affairs that have worried me and I thought I would wait till I could say that I had received the MS – I now know that Prof Cooke has arrived and has the parcel with him and I shall no doubt get it in a day or two or perhaps find it to-morrow at Kew where I have not been since last Thursday

I am going on with the Hong Kong Flora in English but it is a great addition having to give generic characters as I find it will no more do to copy generic characters from books without verification than to write out specific diagnoses – I also devote part of the week to General Flora at which Hooker is working hard We hope to get out Thalamiflorae in the end of summer

He describes a Fagus as a new genus of Lapindaceae – a common Mexican Vettiva as a new genus of Ternstroemiaceae the Glycosmis citrifolia as a new Moringia etc etc etc. He is getting as bad as Brent and Mendel were

I am much puzzled with the aestivation character in Anonaceae which Hook & Thoms have adopted in Flora Indica – the N American Guatteria have mostly imbricate petals but not always the outer ones – Uvaria Grandiflora is a very distinct plant – but Miquel (Magnum) seems to come very near in character to Annona and Porcelia – unfortunately I have no good examinable specimens either of Porcelia or of the Mexican plant. Have you? and can you oblige me?

Darwin's book has made a great stir here – and Dr. Hooker's Essay on the Australian Flora made me deep ponder the paper I read at the Linnean approaches of the British Flora – because some of my views have become partially modified by his reasoning – the consequence has been that much that I said in that paper is now out of date – and it must be rewritten before it can be printed – and that is now out of the question

Ever yours sincerely
George Bentham

Your account stands thus

1859 May	Linnean Journal 2d Supplement to vol. 3 7 copies at 1/6	10..6
	Spruce's Tarapoto plants 230 sp.	£1..15..0
Nov	Linnean Journal vol 4, 2 copies complete + 5 Botany	2..8..0
1860 March	do Supplement to vol 4, 7 cop. at 3/9	1..6..3
		8..19..9

On the other hand

Printer's acct	£2..5..0	
Fendler's Papilionaceae	3..0..0	
do Memoirs & Cassiqiaria	2..5..6	9..10..6

which leaves due from me to be carried to a fresh account — 10..9

Fendler's Papilionaceae arrived about 10 days or a fortnight ago I have not yet had time to open the parcel but will look them through and in laying them out ~~read~~ note you the names to send to you — at the same time that I name another parcel of Leguminosae that has been sent to me for the purpose

As to Wright's Cuban Leguminosae I must forego them — indeed I was rather hasty in ordering Fendler's — I have so many calls on my income under present circumstances that I can ill afford to bestow much of it on the Kew Establishment — towards which Sir W. Hooker contributes so much from his own pocket.

I have been working up Terra Australis and read a few notes at the Linnean the other day taking a very different view of them from Choisy — and including Mazzeravia as a tribe — I make a tribe too of Lauroeja Actinidia and Stachyurus although these genera connect them on the one hand with Dilleniaceae (which is exceptional in Dilleniaceae) on the other with Ericeae — I fear your Dracontia cannot stand as distinct from Lauroeja — I. Nagelianus and several others have the styles more or less united — and the same diversity of free or united styles occurs in 5 or 6 Terastrocemineae genera — Have you seen Turczaninow's last batch of genera and species in the Bull. Mosq. for 1858 + 1859?

April 13th I found yesterday at Kew yours of the and note all you say of Gen. Ol. for when we revise for prep. We should have liked to have given references but that would have required a degree of literary research which would have entirely defeated our object of getting out within a reasonable time a consultable enumeration of all phenogamic genera. Every one must have D. & Walp & other references must be looked for there. Where however there has been a complete enumeration of species in any work subsequent to Walpers & often where species have been added we refer to that. Although we cannot refer to all species published since Walpers that must be left to future volumes of that work. Where also a complete enumeration is given in a late vol. of Walpers we do not refer back to the preceding ones or to D.C. ~~[illegible]~~

We have lately received specimens of Bruegeria from Milford with

ripe fruits which are nearly square

the stigmata being on the lower outer corner. We have also from Wilford a splendid new Weigela from Manchuria with lilac petals longer than the sepals

I cannot distinguish Philadelphus generically from Schizandra the Japanese species which is Magnoliaceae from Manchuria being intermediate and the Philadelphus may be as well said to be 5-merous as 3-merous It is impossible to tell precisely where the sepals end and the petals begin the anthers are different in every species and either we must have as many genera as most of species or unite them all into one.

Prof Cooke has not yet left the parcel that I am here of but I suppose I shall have it soon,

London Nov 1 1860
91 Victoria Street S.W.

My dear Gray

When I returned home more than two months ago I found your letter of the 4th July asking me for female flowers or sketches of those of Boehmeria chinensis Hance. I have been very busy since then and much worried by private matters which I hope must serve as an excuse for this long delay. However I gave the specimens to Fitch to make out dissections of the female flower and only received the enclosed from him two days ago. The flowers are from dried specimens. He seems to have put a partition between the two ovules which is a mistake (the ovary is different of direction) - otherwise all seems

369 Ruellia repens L.
371 Justicia adhatoda L.
372 — medicinalis Wall
373 — zeylanica L.
370 — Chamaeranthemum Anders.
374 Dicliptera chinensis Nees
233 Codonacanthus pauciflorus Nees
492 Perilla lanceolata Benth.
307 Salvia plebeia Br.
300 Scutellaria indica L. (212 of Loo Choo is a var.)
309 Anisomeles ovata Br.
390 Leonurus sibiricus L.
391 Lycopus asiaticus Wall.
392 Teucrium quadrifarium Ham
393 a miserable dwarf garden specimen of Satureia hortensis?
220 of Loo Choo Statice sinensis Gr. probably the same as S. bicolor Benth. 227 is different. Are these labels misplaced?
394 Achyranthes Boerhaavia Siebera
395 H.K. Cyathula prostrata
396 Alternanthera sessilis Br.
419 Polygonum plebeium Br.
402 — perfoliatum
401 Amaranthus dubius
402 Cyathula pathanopylon Nees
403 Marsilea vestita Chamy.
404 } — — reniform Bl? — Ill. Thun. 495 } mexicana Wall non Kit Zucc.
404 Abroadaphne brevifolia Wall
97 404 & 405 labels misplaced?
437 Tetranthera monopetala Roxb
406 — — ellipsifolia Jeff. (T. Roxburghii Nees)
408 } — polyantha Wall.
409 }
410 Actinodaphne sinensis Nees
411 Litsea ceylanica Nees
Cassytha filiformis
459 Helicia cochinchinensis (not H. lanceolata Blume)
470 Cansjera Rheedii
413 Urticastrum viridiflorum Blume
414 — nutans Chamy
390 Aquilaria grandiflora Wall
400 Henslowia frutescens Wall
444 Euphorbia Sieboldiana
445 — hypericifolia L.
446 — thymifolia L.
442 Hillingia japonica Sol
441 — sebifera Jeff
443 — discolor Chamy
439 Mappa Tanaria Ham
430 Hamea Horsfieldiana Lem
507 Claoxylon parviflorum Jus
440 Stipellaria trinervis Wall
436 Rottlera chinensis Jus
437 — paniculata Jus
500 — cordifolia Wall
497 Croton chinense Wall
434 — tachnocarpum Chamy
432 Phyllanthus ancepsis Wild
437 — urinaria L.
429 — niruri Hort G.
499 — leptoclados Wall.
427 Melanthesa chinensis Bl.
260 Loo Choo Glochidion obovatum Sol
425 H.K. Glochidion erecarpum Chamy
424 — innicum Hort G.
495 — Wrightii Wall.
490 — mollis Hort G.
496 — chelgyense Wall.
426 — littorale Blume
494 Cicca microcarpa Wall
275 Loochoo Daphniphyllum
421 H.K. Roxburghii Baill.
422 Bischofia sempervirens L.
431 Antidesma japonicum Sieb.
423 Aporosa frutescens Blume
467 Gnemon funa Chamy.
465 — Chamissoni Wall
460 — Thalassica Hance
464 Hartandia Hance ♂
461 — — ♀
463 — Hancei Wall var
462 — salicina Blume

right. The fruit is from a rude sketch sent by Wade taken from it when fresh. We have it not.

As to the genera. The special fruit of Chrysandra and the capitate one of Kadsura divide the whole of the species into two groups. Where to do the andrœcium we must make a genus almost for every species. which is a mere medley splitting. for every new species discovered instead of confirming the genera previously made on those characters. only presents a new modification

I have been very hard at work at Flora Hong Kongensis and today I take to the printer the whole of Dicotyledons. The Monocotyledons are also finished except a few Gyperaceae. It has taken me much more time than I expected. The adding the generic characters entailed much research as I could not copy them from books but have had to verify them throughout on the Hong Kong species and the close connection of the H.K. flora with that of China on one side and with that of the Archipelago, the Malayan Peninsula and even Ceylon on the other has required a great deal of research into Indian plants. The work will be an 8vo of 500 or 600 pages in the type of Hook & Thom. H. Ind.

When you write pray tell me where I can find a notice of your collector Wright's visit to Hong Kong.

As soon as I have got this matter off my hands the Genera will be my chief work. so will it be I hope for Hooker on his return. He has been enjoying himself on a trip by Smyrna Venice & Trieste to Smyrna Rhodes Mt Lebanon Damascus & was last heard of at Beyrout on his way to Alexandria whence he takes the steamer either on the 3rd or the 10th to come home.

I believe I last spring sent you the list of Wright's H.K. Plants up to Chinsita — if not let me know and I will give what is wanting. Here is the list.

375 Lantana Camara L.
616 Premna serratifolia L.
376 Callicarpa tomentosa Willd
377 — minor var. pubescens
379 — integerrima Champ.
378 — Reevesii Wall.
386 — longifolia Lam
380 — rubella Lindl.
219 Bonia Callicarpa arborea Roxb?
383 H.K. Clerodendron inerme L.
382 — fragrans Lindl.
384 — canescens Wall.
490 Gmelina chinensis sp. n.
386 Vitex trifolia var
385 — leucoxylon Hook. & Arn.

462 Quercus cornea Lour.
457 Celtis mucronata Pers. var. on C. Wallichiana R. & S.
304 Donia Gonia argentea H.
458 H.K. — velutina Blanco
490 Ficus Kightiana Wall. on F. infectoria var?
504 — retusa L. (F. nitida Th.)
451 — nervosa Roth. (F. angustifolia Roxb.)
506 — diffusus Lam
503 — Wrayii Oth.
452 — pyriformis Hort. A.
453 — vasiotica Lindl.
454 — mysorensis Champ.
455 — Champeroni Oth.
315 Loochoo Andrasia Sororata Ho.
316 ♂ Myrica rubra Sieb.
287 ♂ Ficus nervosa Miq.
506 H.K. — Benghalensis Hort. A.
456 — hispida Roxb.
502 — Harlandi Oth.
447 Pellionia scabra Oth.
449 Boehmeria nivea Gaud.
448 Urticaceae Lipeda Hom.
296 Loochoo Pennantia japonicum
299 ♂ Boehmeria ~~Dimorpha~~ Hort.
300 ♂ Villebrunea frutescens
469 H.K. Chloranthus brachystachys Bl.
460 Houttuynia cordata Thunb.
472 Enetum nucifera Roxb.
471 Pinus nucifera Lamb.
500 Rumex tenuiflorus Thunb.
509 Potter Sieboldii Schott
510 Acorus calamus L.
511 Arum maculatum Oth.
541 Belgya Roxburghii Schott
512 } Alpinia chinensis Rosc.
513 }
345 Donia? do?
514 — malum Rosc.
515 Dolichopetalum radiatum Lindl.
516 Phaeomeria Chinensis Lindl.
517 Amomum Chinensis Bl.
519 Kaempferia grandifolia Lour.
518 Spathoglottis fortunei Lindl.
521 Pachystoma Chinensis Reichb.
522 Anoectochilus angustifolia Lindl.
520 Cystopera f. lowii Lindl.
341 Donia Lunia sp?
524 H.K. ~~Cerotelochelys~~ Habenaria Lanceifera (Penilichilus chlorantha)
523 Glossorhynchus tentaculata Lindl.
525 Habenaria galeandra
526 Spiranthes australis
527 Haemaria discolor Lindl.
528 Dioscorea oppositifolia L.
529 — sativa L. (D. bulbifera aut recent non Linn.)
530 Aloe Prentiesyrenaica approx. to Aloe D. Natalensis
530 Ophiopogon spicatus Ker
532 Smilax glabra Roxb.
533 — hypoleuca Oth.
531 — lanceaefolia Roxb.
535 — Sandichandiana Oth.
534 — ferox Wall. (Cypromanthus japonicus Kth?)
530 Asparagus lucidus Lour.
536 Anthericum parviflorum (Phalangium Wight)
537 Dianella ensifolia Red.
332 Loochoo do
542 } H.K. Commelyna Benghalensis
544 }
543 — salicifolia Roxb.
549 Loochoo Tradescantia discolor
353 ♂ Amilena nudiflora
546 H.K. do non
545 Pollia sorzogonensis Lindl.
539 Phalydrum lanuginosum
547 Xyris pauciflora Willd.
540 — schoenodes Mart.

554 Panicum Leucanthum J. Gay (P. micans J. Gay)

550 Erioscaulon Wallichianum Mart.

549 ——— — — — auctorale Dr.

548 ——— truncatum Hasu

552 — heteranthum Nth. — quite distinct from E. ochetum

553 — — vetiveum Linn

The Gramineae you have from Munro

The Gramineae will be sent hereafter.

Yours very sincerely

George Bentham

Begun by mistake on the wrong page

London Feb 1/61

My dear Gray

Yours of the 20th Dec came to hand about a fortnight since but I have been very busy. I now send you below the list of N. Zealand Compositae petalae – the Compositae & Rubiaceae had been named by yourself and I sent you a few alterations & I cannot find the list of the rest – The Flora Hongkongensis is now all printed except the few last pages of the index and will be out next week. I have desired a dozen copies to be sent for you to Trubner. Pray give them as you think best not forgetting yourself. I hope you will like it it forms a vol of about ~~[illegible]~~ 590 pages and I have done it with all the care I could having examined every species as to generic as well as specific characters. In the introduction I have bestowed great pains embodying Harvey's additions and studying your ~~[illegible]~~ and other criticisms and rewriting many parts. I hope now soon to be authorised to begin the Australian flora.

Of the Amaranthaceous fragments you sent from S. California 100 does appear to me quite like a small side branch of A. racemosa which is one of the tall large-leaved species as you see by the plate. 99 or Wright's 502 in part may be a pilosiuscule variety of A. urceolata but I should not have thought it from a comparison with the ~~[illegible]~~ specimen of the latter from a much more southern country. The very stiff erect lower part of the perianth in the latter with the comparatively small spreading tips give it a very peculiar appearance.

I am more and more against voting a genus a good one merely because it has a few good characters, but to judge of its value really one must take a view of all the allied ones. Where a large group is natural and well defined I do not like lopping off a few species here and there on account of some remarkable exceptional character, for it is this which carried to excess has produced the present lamentable chaos in our botanical system. I have lately been working up Bignonieae Nolaneae Tilieae and a few small Orders for our Genera. I find your Dicliadocarpus is Blumei Trichosporum which had been put into a wrong Order – I adopt your Agatea and Rhododendron. I have had a great deal of trouble with Bignonieae. I cannot go so far

as Harvey who brings in even Hornadenia which are so near to Papaveraceae but as we upon the whole maintain two great groups of Thalamiflorae and Calyciflorae (though not taking hypogyny and perigyny as strict characters) I am disposed to maintain two Orders Bixaceae including Flacourtieae and Pangieae with the stamens and petals hypogynous or slightly perigynous and Samydaceae ~~with the~~ including Homalieae with the petals when present alternating with the calyx segments and separated via Diplophora and the stamens always perigynous Banora including Lukhia and Osneda goes to form one tribe of Samydaceae Casearieae a 2d Homalieae a 3d and perhaps Turneraceae a 4th. In Bixaceae Flacourtieae Clos and most of his Laetias with Ryania form one tribe Oncoba Mayna, Carpotroche (including Lindenia) and Dendrostylis another Bixeae proper would include Cochlospermum and as an exceptional genus Amoreuxia both of which have the perianth & stamens and pistil of Bixa and the soluble endosperm Amoreuxia has nearly the seeds of Bixa and Cochlospermum parietal placentation. Pangieae form a fourth tribe. We have then in Bixaceae two exceptional genera with the ovary nearly or totally Flacourtian and Amoreuxia. Greenbach in his Flora and in the Flacourtianeae just published has proposed many good things and cleared up many errors and synonyms but he has not the happy operation which Linnaeus Jr. Brown & de Candolle had so remarkably. His putting Prockia (Crois) with Banora into one genus under the name of Prockia is to me quite a mep. Prockia (Rolletia Scop.) must I think go into Flacourtieae as Clos suggested, and has neither the habit nor the characters of Banora and Prockia is an older and better known name than Rolletia - the former being Linn. the latter Linn. fil. - Then again Greenbach makes a Samydaceae genus Casearia of Samyda neuroceras & procera Poepp. - they are certainly not Samydas - nor yet Samydaceae but only differ from Laetia in their fewer stamens - not regularly 10 nor yet uniseriate as in Samydaceae but varying from 10 to 12 or even 15 or 16 in both species - one of which is largely Laetia casarioides and I keep them both in Laetia. Apikoia is Bixaceae not Capparideae as Clos would have it. On the other hand besides Cochlospermum (Bolidocarpus) which goes into Bixaceae Echinocarpus Blume may go in to Blume differing but slightly from Cookeia

195 H. K. Morus mostuna
200 — — coriacea
202 — Embelia ribes
203 — Pomaria obovata
204 — (x Loochoo) Myrsine capitellata Wall. (M. neriifolia Itch. Zuc.)
205 — Ardisia pauciflora
206, 207 — — crispa
208 — — punctata
209 — — primulaefolia
311 — Sideroxylon Wightianum
312 — Rapidrop vaccinioides
313 — Diospyros Morrisiana
64 — — cretica
315 — Styrax odoratissimus
314 — — suberifolia
321 — Alkanander cathartica
324 — Melodinus monoceras
322, 323 — (Label confused one is M. monogynus (Lochi chang) the other M. fusiformis)
325 — Alyxia sinensis
326 — Vinca rosea
327 — Strophanthus divergens
195 Bonia Barsonia speciosa?
320 H. K. Aganonia Lucey
191 Bonia is the Bonia plant referred by Zuccarini to his Malouetia Asiatica, but has much broader leaves than the Japanese and Chinese specimens of Rhynchospermum jasminoides Lindl.! (Malouetia Asiatica Itch et Zuc! Carechites thunbergii A. Gray!)
330 H. K. Pottia Cantoniensis
329 — Edgeanthera rosea
328, 331 — — micrantha A. DC. non Califolia
the label 331 had got misplaced with the specimen of Boscoropus Wightianus

332 H. K. — Boscoropus Wightianus H. et A. (Schistocodon Hegyni Chan)
333 — Holostemma pictum
334 — Asclepias curassavica
335 — Tylophora hispida
336 — Stephanotis (Jasminanthes) Chinensis
+ 291 — Mussaenda ~~erecta~~ lachnantoma sp. n.
337 — Gymnema affine
338 — Beatricaemo Championii
339 — Dischidia chinensis
609 — Gelsemium elegans
266 — Mitrasacme nudicaulis
270 — Buddleia asiatica
267 — Strychnos paniculata
268, 268a, 269 — — angustiflora
340 — Exacum tetragonum Roxb. (E. bellum Hance)
416 — Ehretia longiflora
417 — Rothrocospermum tenellum
346 — Cordiera oleifolia
406 — Aucuba japonica Chon
347 — Solanum nigrum
(Bonia x Loochoo) — — decandendalum
349 H. K — — sanctum
409 — — Wrightii sp. n. I may have overlooked some sp. but I cannot identify this with any of Dunals
348 — Solanum ferox
350 — Mazus rugosus
351 — Nemotesia grandiflorus
352 — Herpestis Monniera
355 Wampou Torenia diffusa
353 H. K Dopatrium junceum
354 — Torenia rubra
356 — Vandellia oblonga
359 Wampou — pedunculata

360 H.K. Hyrantheu hypopioides
359 — Bonnaya veronicaefolia (B. verbenaefolia)
361 — Scoporia dulcis
362 — Micrococca mercora
364 — Ruellia indica
200 — Utricularia diantha
367 — — coerulea
365 — — bifida
366 — — racemosa
— — — orbiculata
342 — Rehmannia bracteatus Wall / Achimenis Hanry
343 — Chirita Chinensis Lind

I am now very busy distributing your Ecuador Plants (in which I include half a hundred very fine specimens of Jameson) a large and fine set including a great many of Humboldt and Weddell's and many new ones. They will be ready early next month.

You have heard of Harvey's approaching marriage. I am told it promises well and certainly he has had time to know his bride well.

With kindest regards to Mrs Gray whom I hope you will ere long bring over to visit England again

Ever yours sincerely
George Bentham

Wolsey Victoria Street North. Address to me at Kew.

Wrights Monopetalae

(112 Loo Choo = Oldenlandia ? H. deflora var. parviflora. H. Hk. Bot. Beech rid ob. C. paniculata Roxb. videtur)

191 H.K. = Ptyldium ulignosum
192 } 111 Loo Choo } = Wahlenbergia capensis
193 H.K. = Lacoola lobelia
194 H.K. = Vaccinium Chinense Champ.
170 Loo Choo = Vig V. bracteatum nisi in V. bracteato sp. ∞ indica cum V. Chinense se includens.
H.K. = Enkyanthus quinqueflorus
197 = Rhododendron Championae
195 — Azalea indica
196 } 203 } — — squamata
341 — Lysimachia alpestris
199 } 201 } — Mussaenda sinensis

the characters are mostly artificial and yet not constant — but we must take Nature as we find her and not attempt mathematical precision where there is none.

They have persuaded me to send some observations on species & genera which I read in 1858 at the Linnean Society to the Natural History Review they will appear in the April Number. — I expect soon to have the commission for the Australian Flora — In the mean time I am working at Geneva.

I process distribution is going on the plants are named except the terms which Sir W. Hooker has in hand and I hope your parcel will be at Dubbers by the end of the month

Yours very sincerely
George Bentham

Kew March 6/61

My dear Gray

I received yesterday your of the 19th Feb. and hasten to tell you that your Banara Mexicana seems to be a good species — but not of the S. Pineda — I can find nothing in the flowers to divide the Banaras into sections, but merely distribute them into three groups chiefly by the inflorescence which is simple in Pineda and in two new species one from S. Domingo and one from Mexico which I was going to call B. Mexicana in a paper I am to read tomorrow at the

Lunicum correct but your letter having come just in time I adopt your B. megacaulis and give another name to mine. The only difference in the flower I can find is that in ~~the~~ my 1st group which includes Kunth's Kuhlia ulmifolia the sepals are lip closely valvate being usually open in the bud showing part of the petals (or inner series of sepals) in my 2d group, to which your B. Megacaulis belongs the sepals are strictly valvate & completely enclosing the petals. My species are

§1 H. paniculati sepals in elaborate non omnia
strict alterna valvate

1 B. parviflora Kuhlia A. Gray } perhaps both one
2 B. lomentosa Cav } and the same as a plant of Hooker's Flora
I have seen no authentic specimens of your or Cav's

3 B. ulmifolia Kuhlia H.B.K.
4 B. lagiflora Spruce sp. n.
5 B. pubescens Spruce sp. n.

§2 H. paniculati sepals in elaborate
strict valvate

7 B. glauca Kuhlia H.B.K. - Not mine perhaps only B. guianensis
8 B. guianensis Aubl.
9 B. velloni Gardn. very near B. guianensis
10 B. Ibaguensis Kl. I think a good species
11 B. brachiensis - Acra Schott - certainly distinct from B. Velloni

12 B. Megacaulis A. G. - the short petiole & ribbed leaves have parallel and convergent flowers seem good characters. In some respects it is near B. lagiflora

12 B. nitida Spruce

§3 Flores simpliciter racemosi v. paniculati.

13 B. grandiflora Spruce
14 B. micana Pinda R. P.
15 B. dioica sp. n. Vera Cruz & Mexico
16 B. dominguensis sp. n.

With regard to Trichospermum I was on the very Cav's detailed character taken from Mexican specimen and especially his describing the thick valvate sepals that led me to identifying it with Dicliodocarpus - for I knew there was nothing of the kind in Tiliaceae.

I am now at Caryophylleae among which I am much bewildered

2254 Calliandra sp. I cannot identify
2255 ——— sp. any of them
2256 ——— sp.
1875 Pithecolobium lanceolatum Benth
1373 ——— dulce Mart. var.
372 ——— microphyllum Benth?
195 ——— lanuan Benth.
1060 ——— var?
1371 } ——— (Chloroleucon) sp.
2251 } ——— sp.
1073 ——— sp.
2250 ——— sp.
2257 Enterolobium cyclocarpum Griseb
367 Inga semialata Mart.
368 } ..... punctata Willd?
369 }
2258 ——— vera L.
366 ——— sp.
363 ——— sp.
365 ——— sp.
2259 ——— sp.
2260 ——— sp.

I do not like the way Griseb has treated my genera Acacia and Calliandra — I do not admit 10 androus Acacias and certainly A. tamarindifolia has numerous stamens as figured by Jacquin — and as in some of the specimens quoted by Griseb but Griseb has also named in Herb Hoo a species of Pithecolobium near M. ceratonia as Ac. tamarindifolia and that I know is 10 androus — the Caulanthus too have

Recd May 29/61

My dear Gray

I have to thank you for your of the 6th and perhaps for a previous short one since I last wrote — I have now been laying in Pendlers Cercalpinieae & Mimosae and send you my determinations — premising that about Tejipicalyp I made a blunder some fruits of Guaiacum arboreum having got mixed — the true fruit is Guaiacum-like in look but a real Leguminous, remarkable from the wings being on the valves — not from the nutlets as in Pterocarpus — I am having the plant figured for the next part of Linnean Transactions

Pendler's panel contains
341 Rhopala complicata HBK
2242 Guaiacum arboreum HBK
2243 Moringa
323 Tephrosia (same as 2220)
2232 Tephrosia?
1072 Tamarindus indica L.
2235 Parkinsonia aculeata L.

332 Caesalpinia pulcherrima Lin.
340 Brownea grandiceps Jacq.
2237 —— racemosa Jacq?
2247 } Libidibia coriaria
2626 }
336 Bauhinia grandiflora Jusp.
1849 —— the same?
335 —— (Buteliu) sp.
338 Schnella (Caulotretus) monoceros?
2238 —— S. splendens off.
337 } —— (Caulotretus) sp.
339 }
2241 Cassia fistula L.
2233 —— brasiliana Lam.
2596 —— mimosophylla HBK?
326 —— bacillaris L.f.?
1850 } —— C. bacillaris off.
2239 }
1857 —— viminea L.
327 —— C. viminea off.
331 —— Humboldtiana DC?
324 —— occidentalis L.
2231 —— C. tomentosa off.
329 } —— emarginata Lin. (C. Berlandiana HBK?)
2234 }
328 } —— indecora HBK
2240 }
330 —— bicapsularis L. (C. indecora J. Vog.?)
1858 —— reticulata Willd.
322 } —— auriculiculata Lam
1852 } —— var?
2230
2236 —— hirsuta L.
325 —— marilandica Willd.
1856 —— obtusifolia L. var.
1855 —— rotundifolia Roxb.
2229 —— pilosa L.
1854 —— serpens L. (prostrata HBK)
321 —— nictitans L.
1853 —— patellaria DC.
1851 —— —— var?

319 Cassia glandulosa L. var. (C. flavicoma HBK)
320 —— —— var
2249 Entada polystachya DC.
1874 Piptadenia peregrina Benth.
361 —— sp.
1871 —— sp.
2246 Prosopis dulcis HBK
1357 Desmanthus depressus HBK
349 Mimosa albida Kth.
1859 —— Hartmanni Benth.
343 —— pudica L.
359 —— xanthoclada Benth. (Acacia arenosa Willd. ex Klotzsch)
360 —— —— off. ad aculeata.
1870 —— fasciculata Benth.?
342 —— asperata L.
1860 —— dolichonema Benth.
2244 —— sp. } I cannot at present identify
1867 —— sp. } any of them
344 —— sp. }
2245 —— sp. }
370 Schrankia leptocarpa DC.
350 Leucaena trichodes Benth
348 Acacia tortuosa Willd
362 } —— flexuosa HBK
2248 }
347 —— farnesiana Willd.
317 —— tamarindifolia Willd.
334 } —— strictata HBK?
345 }
333 —— tormentosa Desv. ex Grisch. — A. Wettiana DC.
351 —— paniculata Willd.
2253 Calliandra Schenanni Benth.
356 —— tetragona Benth.
355 —— portoricensis Benth. var.
352 —— falcata Benth.
358 —— sp. n.? v. malacophylla Benth. var.?
1869 —— Cumingii Benth.
353 } —— sp. n.? C. xalapensis Benth off.
354 }

deal with his father in Kew towards Mass and death — he has however been doing his part of Genera and we have now between 800 & 900 genera finished — and have but few large thalamiflorous families yet to do.

The two St Helena Melhanias are closely allied to (and congeners of) the Mauritius Trochetias and Dapper both in habit and character from the true African Melhanias —

The so-called authors of Agenia and of some Buettneria are puzzling I should like to examine them fresh — I have been looking a good deal into the position of the genera in Sterculiaceae altogether — and to me everything is against the idea of any dédoublement in those genera where they are isomerous with and opposite to the petals — and this has led me within the last few days to look closely at several fresh Cruciferae where to me the supposed dédoublement is also chimerical

Ever your most unwary

George Bentham.

Mind you don't neglect Botany for flighting

certainly the fruit of a Pithecolobium and not the peculiar Calliandra pod — so also in P. Saman the fruit becomes quite thick & succulent and does not open elastically as in Calliandra

I have done the Coryophylleae group for Genera — I restrict Caryophyllea to opposite leaves & capsules & so called fruit — though the ovary is sometimes divided when young by very thin evanescent dissepiments — of course I include Polycarpea etc which with Drymaria & others form a 3rd tribe (Silenea & Alsineae being 1st & 2nd) with the styles united at the base Paronychieae with 1-ovulate ovary and utricular fruit form I think a small family much nearer Amaranthaceae Portulaceae with the 2 sepals or at any rate fewer than petals form a distinct family as you propose next Caryophylleae Mollugineae with alternate leaves & divided capsule must come next to (not a tribe of) Phytolacaceae (and some of Fenzl's Mollugineae are true Phytolaccaceae) and Ficoideae including Tetragonieae & Sesuvieae are again another Calyciflorous group — at least I think we shall then get more natural groups with better characters

I have also finished Malvaceae and Sterculiaceae – in the former you have left me little to do – but Dombeyaceae must form a tribe of them as Lindl & St Hilaire proposed – They have all unilocular anthers – even I should say Cheirostemon and Fremontia for I think the 2 long cells are two distinct anthers judging by analogy – so Guazuma goes in Dombeyeae which Myrodia is true Sterculiaceae – In Sterculiaceae by a little rearrangement I think we get definite tribes and can easily distinguish the whole from Malvaceae on the one hand and Tiliaceae on the other – Stereospermum fornicatum is much nearer Bignoniaceae than Dombeya – I am now taking up Hypericineae and Guttiferae the latter of which seem to be well arranged by Planchon in the last No of the Bulletin de la Société botanique

I found some time ago still lying on my table a specimen from you of a Rubiaceae from high up on Pichincha. J.D. Cornthwaite 1855 "Chain of Mountains" which you ask me about – It seems to me to be a true Manettia of the small flowered set but a new species

Among Crowdsey's plants I brought me up two to examine from among the Balsam flora which both are Euphorbiaceous males one No 273 "Magua?" is Garcia nutans the other 373 "near Myrodia" appears to be an Alchornea

Subjoined is your account

1860		
June	Spruce's Tarapoto plants collection Compositae to the end 1524	£3 . 1 . 0
August	Bertoloni Miscellanea N. 19, 20	16 . 6
Nov	Linnean Journal N. 5, 2 copies and 5 of Botany	2 . 0 . 0
Dec	do Supplement to N. 5	15 . 9
1861 April	Spruce's Ecuador plants 5844	11 . 13 . 6
		18 . 14 . 9
	Deduct balance of last acct	10 . 9
		£18 . 4 . 0

I do not find Bertoloni's N. 17 but will continue to procure it for you

Another supplement to Linnean Journal will be out in a day or two containing Oliver's paper on Aurantiaceae and my notes on Menispermaceae Tiliaceae Bixaceae & Samydaceae – Also a regular part is I believe just ready

Sir Hooker has been away a good

Kew July 10/61

My dear Gray

I write a few lines to acknowledge the receipt of your bill for £10.9.0 in settlement of the account I sent you on May 29 – with many thanks.

Having found a tolerable resting place for Iperoxantha I looked to see where I had put it in Hor. Hongkong. and to my great disquiet I find I forgot it altogether – I had never named and described it – pack it out forsooth insertion in copying out – and omitted putting it elsewhere. I think Hanchorn's suggestion is best – at the tale of lemon which give several good genera

1 Razola, Limnia, Acanthanthera & Ravadenia

2 Hugonia and Aouchesia (limited to Hanchorn's genuine species, one of which has the seeds of Hugonia)

3 Erythroxylon and Hebepetalum (gen. non Aouchenia kunnuiæfolia Planch and R. latifolia (gren)

4 Durandea Ochthocosmus and Phyllocosmus and with exactly the same habit etc but more perigynous stamens Spiroxanthes.

I think also I find a very good collective character for Geraniaceæ to include

1 Monsonia Sarcocaulon Geranium Erodium and Beberstenia

2 Pelargonium and Tropæolum

3 Limnanthes and Floerkea

4 Viviania including (Cocaria etc)

5 Rhynchotheca Wendtia and Ledocarpum

6 Hypseocarpus Oxalis Averrhoa and another where name (forgt)

7 Impatiens and Hydrocera.

All have a lobed ovary and a persistent axis which retains the placentas except in the very few cases where the thick hard orthocarpical cocci are absolutely indehiscent (Biebersteinia Tropæolum Limnanthes and Floerkea) – The dehiscence of the whole of the Antarcticæ group is different.

I have never seen at Placenta which are very terrible cases the ovaries being often 10 minutes – Ellis is very correct in his observations and drawings but unfortunately has mismatched many fruits and made a mess of the genera and cannot agree on the Icacinæ indeed the Original Icacina very different from the two species of Apodytes Miers has joined with it, it seems to some Phytocrenæ (which must come into Olacineæ) then to Apodytes.

Harkness has done the very difficult compound leaved group Antarcticæ – Terebinthaceæ Melianthus Sapindaceæ etc – and now we have between little remaining among Calycifloræ – I believe however I am going to leave them for a couple of months

Ever yours

George Bentham

Kew Oct 24/81

My dear Gray

I have looked again at Actinidia in consequence of what you said. I see I have very badly expressed my meaning in H. Hongk. I generally find in the centre of the ovary a cavity ~~that~~ where the carpels do not meet. That is to say that if you make a cross section in the centre when the flower first opens you see the carpels consolidate in a ring round a central cavity; if you make the section above or below the axis is solid - and the styles instead of all proceeding from a central point or in perfectly consolidated formation, proceed from distinct wooden bars which are

the distinct tips of the carpels and which I found slightly divergent in the flower though they were stiff with the style as the ovary swells and the fruit is perfectly consolidated – It was, however this tendency to apocarpism in the flowering ovary which made Lindley put it into Dillenieae

Hooker tells me that the woody Fruits part is neutral.

Yours very

George Bentham

London Oct 15/87

My dear Gray

It is long since I have been intending to write to you but have always put it off not for want of taking the greatest interest in your going on - but merely from increasing laziness as to correspondence I feel as I grow old so great an anxiety to get on with the two great works I have in hand - the Australian Flora and my part of your Genera - which give me so much writing that I am very unwilling to sit down to add to writing - I must however thank you for all your kind notices of what we botanists do in this country - and for your papers from "Proceedings" which you so kindly send me What fine work you make of Buchley's Genera and Species! - I do hope you will be able after the plan of Flora Hongkongensis for the Australian colonies and hope to send the first vol. to the printers soon after Xmas Besides the splendid collections at Kew I have access to Brown's own through Bennett, those Oreis's from Hamburgh and above all F. Mueller send me gradually on loan the very rich collection he has gathered together at Melbourne so that there are very few published species I do not see authentic specimens of Hooker is finishing up a most important paper on Welwitschia and is working hard at Genera

My very kindest remembrances to Mrs Gray I do so wish something could occasion you to come over the Atlantic once more before Sir William and myself are gone from this world and of course bring Mrs Gray with you Kew our establishment at Kew is now well worth botanists coming some distance to see

Ever your most sincerely
George Bentham

to stick to Botany. I want you not only to complete in some way a N. American Flora but there are so many things you would do so much better than any one else. One is to give us a general resumé of all that is now known of the fertilization and reproduction of Cryptogams. Hofmeister's work just published by the Roy. Society is evidently a most important one - but it wants a general sketch for those who have not time to study all the details and you are too much up to the whole thing not to be able to give a clear idea of all that is essential in forty or fifty pages - I do most sincerely hope that your Government will soon make peace with the Southerns and be able again to do something for the encouragement of science.

Many thanks for your offer of disposing of a couple of dozen of your Genera which we will send you at trade price in a box of Books proposed making up for you shortly.

I am shocked at the number of mistakes - more of copying than of the press though some of the latter - which have crept in to our Genera notwithstanding all the pains we took - some owing to having begun on a different plan and thus having written some genera over and over again - such as Malvaceae for instance - amongst others the Bractiolae 6-9 and 3-6 of Althaea and Lavatera got transposed both in p. 197 and 200 I had found it out just as the copies were going to the binders and corrected with a pen in every copy except the one which you had had in loose sheets in which I beg you to correct it. Also in your own copy pray make the corrections mentioned in the Addenda et Corrigenda. There is also a bad one p. VI line 38 for adest read abest and erase the comma after Menispermaceae.

I am doing Flora Australiensis

My dear Gray

I see amongst the "Members reported deceased" in the transactions of the American Philosophical Society vol XII. Part III. 1863 the name of Major John Le Conte U.S.A. Philadelphia. Is he the Entomologist who was a Fellow of the Linnean Society? and if so could you tell us where we can see anything about him to put into our usual Obituary Notice?

I have sent to Trubner's for you a copy of the 1st vol of my Flora Australiensis and hope to have the 2nd ready this time twelvemonth if I live so long

I shall have in a day or two some copies of my Anniversary address of which I will send you a copy by post — Many thanks for your own paper of which I have received several lately and which

are all valuable – Hooker is very busy at the 2nd part of Genera and I am working at the Leguminosae but as I do them for Hooker Australian at the same time it is slow work there are such an enormous number of S. W. Australian species and they run into one another in a most provoking manner. – and next month I leave town for about 2 months holiday

Yours ever most truly

George Bentham

In the account I sent you I am ashamed to say there was a mistake in casting up of £1. The amount you owed me was £14.5.0 Dr Hooker has paid me £11.5.0 and I have received the remaining £3 from Mr Todhunter under your order and sent him the account corrected with a stamped receipt.

25. WILTON PLACE,
S.W.

Dec 30/83

My dear Gray

I should be delighted to hear that you really are at a Hvod. H. N. Amer which is so very much wanted and which you will do so well and might do so quick and I trust you will remember that although perfection is desirable yet it would be better to sacrifice a little of it to avoid delay.

I quite agree with you that Oxytropis must be kept up as a genus although purely artificial – almost as much diversity in fruit occurs in the Australian Astragalus as in the northern Astragali – coriaceous and separating into 2 completely closed hemicarpels, or inflated without any trace of internal intrusion.

As to Horaedia, in going through all the Lotoid genera I still think that Microlotus goes best as a section of Lotus otherwise I know not how to define the latter genus. All my Eulotus (Anthyllis Acmimitrocarpum, Hymenocarpos Securigera Ornithopus Dorycnium Lotus and Horaedia) pass

almost gradually into each other and are scarcely separable from the Coronilleae.

We should have been very glad to have printed your Astragalus paper in the Linnean Journal – and hope you will send us something else. I wish above all you would get us up some of your views of geographical distribution or subjects of that kind.

Astragalus vaginatus of Richardson is determined in the herbarium by Blanchet to be Oxaea australis and I think correctly it is certainly not Oxaea No. 1 of Bourgeau. The latter is not in fruit and appears to be the same as Sieber's "Astragalus No. 1 alpinus var. pedo A. Gr." in Black's hand-writing – It is scarcely however A. alpinus but without the fruit I cannot precisely match it.

Very glad to hear Mr Gray is better remember me most kindly to him.

Hooker will have given you particulars of the end of poor Dickie.

Yours ever

George Bentham

Church Stretton
Sept 7/64

My dear Gray,

I have to thank you for various pamphlets and extracts from journals which are very gratifying as showing that you keep to work although I see no signs at present of what we all want so much from you – a complete North American Flora ~~which we all want so much from you~~ Amongst others your note of the 20th May – received in August – with Dr Carson's paper on Myrospermum requires special mention. We are lamentably deficient in specimens of that genus and when I described the Brazilian one for Martius' Flora I did not feel at all confident in my identification but Mr Vaubury has been collecting materials for some time and has been investigating the different species and varieties with great care. I therefore referred the pamphlet to him and he tells me that he had already seen it and had written to Dr Carson on the subject differing from his conclusions

and certainly am not in a position to question Mr Hanbury's conclusion that "the plant described by Pereira and since his death named by Klotzsch Myrospylon Pereirae is in my opinion quite distinct from M. peruiferum Linn f. The latter is a somewhat polymorphous plant with an extensive range"

We left town in the middle of July and spent a month in the Channel Islands which I had never seen and which we much enjoyed. I continued however whilst there the correction of the proof of my Flora Australiensis and returned to town for a fortnight in August to finish up a few genera still wanting for the 2d vol. I have now just corrected the last sheet and sent the index to the printers but suppose it will still be a few weeks before it is ready out when I will take care to send you an early copy.

Kippist told me the other day that you had concluded it was a mistake early history only as the last part of the Linnean Society's Journal. The fact is that botanical matter for the Journal accumulates so much that we are obliged now and then to publish it as Botany. Zoology. Our zoological papers are chiefly such as require illustration more suited for the Lt. Transactions of which we shall publish two parts this next winter. Zoologists send their purely scientific matter to their own Society. A part of the Journal is now just out with both Zoology and Botany.

We are now visiting friends in Shropshire Radnorshire &c and shall return to town at the end of the month. My first business will be to finish up my portion of the 2d part of Genera for which Hooker has done a good deal and we hope to print this soon. I had wished to have completed a double part before printing so as to finish a volume with one index but I fear that will be too long and that we shall be tempted to issue a part as soon as we come to the end of Polypetalae. I shall have at the same time to do my share for Flora Australiensis which will be almost a long and laborious

With kindest remembrances to Mrs Gray believe me Ever yours most sincerely

George Bentham

modify my previous sketch of the tribes of Coralliniae. The true Swartzieae must leave it. They have always (which was known but I had overlooked) the inflexed radicle of Papilionaceae and the polypetalous genera Zollernia Eggertia and Alonia the upper petal always or sometimes outside, although on the two first it appears to be vascular. Bostrea is a Copaiferae, the upper petal always inside and a straight embryo – Lonchocarpus must after all go back to Coralliniae next to Dimorphandra – whilst Bostrea & Pentaclethra are true Mimoseae.

Gerstbach has I think made a mess of Mimosea in his Flora. Some unaccountable transposition of his memoranda has made him say that Acacia tenuinervis has 10 stamens only. In the specimens we have from all the collectors the genera there are as figured by Jacquin above 50. His decandrous Calliandras may have sometimes only 10 stamens but not regularly, 10 and always united in a tube not regularly alternating with and opposite the petals as in the true decandrous genera.

The Japanese collection of Mr Oldham which I have has just been determined and is very interesting – some of Zuccarini's genera and many species we had not before – a new Eurycoma amongst others – and a minute leaved Desmodium (we have such from New Caledonia)

Ever yours sincerely George Bentham

Kindest remembrances to Mrs Gray who I trust is quite well again.

25, WILTON PLACE,
S.W.

Nov 10 1874

My dear Gray

I am much interested in some investigations into the morphology of the perigynium of Carex and the copy of our excellent friend Mr Boott has turned a source of doubt which was always available. If there is no place – as I hear the genus has been more studied of late in North America I apply to you in the hopes that you may procure me the means of investigating the following circumstances.

1 Mr Boott told me that hermaphrodite flowers have been seen in the genus. I am exceedingly anxious to examine any such. Could you procure me a specimen or tell me where a detailed description is to be seen.

2 He also said, what to me is more important, that a perigynium had been observed in a male flower. This I am particularly anxious to see if possible.

Any observations on the ~~morphology~~ nomology of the perigynium, or the indication of any work

where the subject is discussed would be received with great thankfulness.

Can you also give me a complete list of North American Academies or Societies who publish Zoological or Botanical Papers, and of N. American periodicals existing or defunct devoted to Zoology or Botany or both?

I trust you received safe the 2d vol of my Flora Australiensis which I sent for you to Trübner early in October. I am now just finishing up Leguminosae for Genera Plantarum and in a few days shall commence upon Myrtaceae for Genera and for N. Austral. Dr Hooker has nearly finished most of the orders ~~now that~~ come before Umbelliferae so that I think we shall soon begin printing before we attack that formidable Order.

We are remarkably badly off for specimens of some things that ought to be common. Of Gleditschia for instance one flowering specimen one fruit and bad - although sufficient for my purpose. Of Gymnocladus we have no female flowers - beautiful male specimens and fruits - but no female in flower or bud.

I am much alarmed at having to publish about a dozen new Leguminous genera chiefly Caesalpinieae from tropical Africa. I think I shall have most of them figured in Gen. Plant., some splendid ones - one of the Entadeae with flowers 6 inches long a tall woody climber with 3 digitate leaflets - and a second species from Mauritius with the same habit & foliage and handsome flowers although not half the size - I have been obliged to incorporate all the Bauhinioid genera and reduce Guilandina Erythrostemon Cladostrichium Pomaria Balsamocarpon Coulteria Lebeckia and Cinchocarpus to sections of Caesalpinia keeping up Peltophorum and Mezoneuron with some hesitation. I have been obliged also much to

I shall be got above 600 genera
ready and can at any rate —
so that I hope the work will be out
in May or June

Ever your sincerely

George Bentham

I am two remarkably valuable
two vates — I have lately lost
one and the other I fear is dying
their makes one feel very lonely
in this world

The cultivated Rubiaceae you
sent fragments of is Hamiltonia

25. Milton Place, S.W.

Jan 20/85

My dear Gray

Many thanks for the prompt manner in which you answered my queries which is precisely what I wanted about publishing societies and journals and also for the Gymnocladus flowers & Gleditschia which were quite satisfactory. I wish has a Gleditschia from the mountains of N. tropical Africa so that it is now known in N. America tropical africa and the Asiatic mountain region from the Caspian to the eastern extremity

With regard to Carex any further information would be most acceptable — In examining numerous Gramineae & Cyperaceae lately

with reference to homology of organs
I come upon an Ureinia with
flowers intermediate between the
male and female which convinces
me in that case that the seta under
the perigynium is an abortive stamen
and appears to me [illegible] the
manner in which it is always a node
the perigynium at the base and
from the two teeth of the perigynium
having in many cases the node of the
seta and the seta itself dilated so as
in one or two flowers to have a
nearly equally 3-lobed perigynium with
a hook to each, the perigynium itself
might represent an abortive androecium
2 stamens of the outer series and one of
the inner series as is the case I believe
in most if not all the most [illegible] diandrous Cyperaceae
& gramineae — the inner one
disappearing in the diandrous ones.

In those Carexes which have the inner
seta it is always adnate to the perigy-
nium at the base as in Bicuspidia

This view of the perigynium might
in some measure be confirmed by its
total absence in the male flowers.

I am therefore most anxious to
see a male flower with a perigynium
which would quite repeat the hypothesis
and a hermaphrodite Carex which
ought to throw light on the subject.
One is yours [illegible]

I yesterday took Leguminosae
to the printer for General Plantarum
I have 397 Genera

I have adopted your views in
reducing Hemalobeae to Astragalus
& have made great reductions and
consolidations numerous synonyms
but have been obliged to establish
about a dozen new genera — especially from
our rich Oregon collections — one a
tall woody climber with digitate leaflets
a one species with a flower 6 in. long

25, WILTON PLACE,
S.W.

Sept 26/65

My dear Gray

Yours of the 12th has this moment reached me and reminds me how remiss I had been in not writing to you after the loss of our patron & friend Sir W. Hooker – I had understood that some of the Hookers had written to you and I have no doubt that you have long ere this had full details. I had just left town having seen Sir William in full vigour of body & mind on the 5th Sept and on the Tuesday 8th I understood he was all day on his legs visiting the Battersea Park and after his return home making his usual tour of the gardens. Early Wednesday morning he was seized with an affection of the throat then prevalent at Kew accompanied by great prostration and died on the Saturday afternoon – Owing to no post on Sunday

I only heard of it on Sunday and came up to town on the Wednesday following for the funeral of the poor Joseph Hooker prostrate with a violent attack of acute rheumatism with fever caught in a draft in his father's room – he had attempted to rise to go to his father at his last moments and fainted with pain – and on the Thursday the day of the funeral all he could do was to struggle to the window to see it go off and after that he was in great pain again, he was confined to his bed for a fortnight and a week later was able to move to his friend's Dr Campbell's at Nottingham Hill and last week went down to Buxton – he is improving but it will be some time before he is himself again When Sir William was taken ill none of the family except Joseph were at home Lady Hooker came up from Yarmouth the next day and went through it all remarkably well – Mr Hooker came up the day of the funeral – Oliver was in Dauphiné but returned as soon as he heard of it I went back to the country after the funeral – but came to town last week in time to see Dr Hooker before he left for Buxton and am going again for a short time but next week hope to be settled in town

The Directorship has been officially offered to Dr Hooker, – so that I hope that in the course of next month all will go on again

In the meantime as Gen. M. are printing to the end of the Mahabharata and it will be sometime before Dr Hooker will be able to revise the Mahabharata (which only requires a week's work) we publish ~~also~~ so far as it does making a part of about 300 pages – I am very busy finishing up the index before I go this afternoon so must close this – Although apprehended from the first that Dr Hooker's illness was not dangerous – but yet for some time I could not but be very uneasy lest it should bring on disease of the heart and it was most distressing to see him suffer so much – fortunately he is now very much improved & quite convalescent

Yours very sincerely

George Bentham

Hooker is now quite himself again barring a little stiffness in the joints and he looks better than he did before his sleep – he is very busy in his new office and am afraid it will be some time before he can resume Genera which are now waiting for him

De Candolle is printing Mueller's exploration for the Prodromus which I believe will be well done

Our new part of the Linnean transactions has been delayed a few days by one of the engravers but it will be out this week. I have figured in it a dozen of the most remarkable of the new Australians

The journal of the Linnean Society is now published in quite separate parts, Zoology & Botany of which 8 numbers of 4 are to form a volume so as to bind the two separately. Do you wish to go on with the copies you take?

Ever yours

George Bentham

Kindest regards to Mrs Gray. Drop us a line now & then to let us know how this & we are both well but I feel lonely in the world having

25, WILTON PLACE,
London S.W.
Nov 15/65

My dear Gray

You will I hope have safely received the remaining sheets of your second part of your Genera which I sent through Trübner & Co. Dr Hooker has now had put into a box sending to you from Kew six copies for you to dispose of which we will charge you at trade price 10/ each = £3.3.0 the selling price being 14/ You had 12 copies in the same way of the first part but as many things may have changed since then we did not like to send you any more without instructions. We shall be much obliged to you for disposing of any for us for we are very much out of pocket by the first part.

Thanks for your notes on the first sheets – I had quite forgotten ~~that~~ a record

that in one instance we have added a second figure to a genus on account of the

Bertoloni's Composite genus out of Kennedyia — as to the difference between Hypocoae and Lotea it is not great but no more it is between any two tribes of Papilionaceae which run one into another so much — The Hypocoae are mainly trifoliolate and racemose or spicate the Lotea pinnate and umbellate or capitate. But there are exceptions — the stipulate-denticulate leaflets of much Hypocoae are rather peculiar — the Lotea run into Coronilleae when the Hypocoae do not — but I hesitated much about the two genera and only adopted them because I could better distinguish them from others separately than as a whole. I am not satisfied with the arrangement of Papilionaceae but could not devise a better one.

I worked a great deal at Myrtaceae and should have adopted your Kunzea to include Anamomis Gaertn & some of Baeckea could I find anything constant in the embryo but it certainly both as to the testa and the embryo there are passages and cross passages from those of Myrtus to those of Myrtus not only in America but still more in Australia and therefore I relied for Myrtus chiefly on the vascular cells. The most distinct section of Myrtus is Eugenia but with too little of natural character to be adopted as a genus. I have followed you and Wight and the Acutis Eugenias including Jambosa etc although that destroys Greisebach's characters taken from inflorescence — for there is no other. I have a considerable number of new Eugenias for the Australian Flora for which I have done all the Order except Eucalyptus. I have been at work at them now for six weeks and have but just got through the eastern and tropical ones without doing genera and shall have to revise them when I have done the western ones. I never did anything so tedious — they are worse than Acacias and the Australians attach so much importance to them that I must mind what I am about. I find the authors not near as conform as I thought they were when I wrote out the generic character — and I believe I must take them for my first divisions although sometimes there are intermediates between the different forms.

going on well. Wishing the same
yourself and Mrs Gray the
very good wish for enjoyment
at this Christmas and New Year
believe me

Ever yours most sincerely

George Grant

I am sending under a separate cover
Eucalyptus. I have been three months
at it and have scarcely got rid of it
yet. [illegible] colonists are [illegible] over
about [illegible] Sandalwood,
Mahogany, and other jumbles
but I am obliged to be as careful as
can and they expect me to guess at them
from specimens in young bud when
the leaves of two branches of the same
tree are generally more different from
each other than they are [illegible] of
the most distinct species.

25, WILTON PLACE,
S.W.

Dec 21/65

My dear Gray

On receipt of your last I
sent to Trubner & Co a copy of the
first part of Gen. Pl. as you desired
also a copy of my paper on
Leguminosae from the Linnean
Transactions and of my last Bio of
I had previously sent the six
copies of Part II of Gen. Pl. to
complete the dozen

I have sent your note and
the account as you desired to Mr
Lobb hunter and received yesterday
the £12.2.9 I enclose a copy of
the account.

Oliver will have [illegible] to you about the [illegible] specimen you asked [illegible] the Labiate or Orthostemon called to the Mexican one already published but quite distinct. The Scrophulariaceae or a Hemichrena and to me new

I do not know what to say about the exchange of Linn. Journ. with Silliman's Journal but will mention it in Council. We are anxious to include in our Linnean Library (now a very rich one) all transactions and Journals in which there is any fair proportion of Zoology or Botany. At the same time in long sets in which as in Silliman there is so little of either and which are taken in by the Royal Society in the rooms adjoining ours there must be some hesitation as to filling our shelves with it.

About Myrtaceae I think with you that the embryo is one of the most constant characters – when you can get it – in some genera however the cotyledons are variable – [illegible] in the very natural genus Melaleuca they are very narrow and flat & very broad and folded over the radicle as in Eucalyptus and I fear the passage is also gradual from Myrtus to Myrcia which makes it better to rely chiefly on the 2 ovulate ~~ovary~~ cells of the ovary to separate Myrcia from Myrtus – the embryo however and (as to the American species) the inflorescence separating Myrcia and Myrtus from Eugenia & [illegible] which however has when all the species are sufficiently known no absolute character will be found for any of the fleshy fruited Myrtaceae and that we must content ourselves with general ones approaching to a few variable or intermediate species in [illegible] or many other genera.

Another I am happy to say is

Dear Dr. Gray — I have been much aided by Oliver's previous careful study of the Order — Your L. magteinpolius is I think a very distinct species which I have not seen in any other collection — the specimen (supposed of Fraseri) which on a hasty inspection you marked as the same in Herb. Hook is certainly different and I believe not Australian — Amongst others on the C.H. Coast is one which Dr. described from Sinai as L. indicus Desv. which it is not — as Dr. would have seen if he had looked at Lamarck's figure overlooked by him although quoted by A. S. — the true L. indicus is nothing but the common L. longiflorus.

Some different species are in Eng. nurseries ~~have the~~ in Australia have the two forms of leaves referred to by Thwaites as L. longiflorus — one with sessile deeply cordate leaves, the other with petiolate leaves narrowed at the base.

You would oblige me very much by sending me as soon as convenient any notes connected with Australian forms of these two orders ~~Dialypetalae~~ & Corniferae in which you have done so much and so well.

What are you and other Botanists generally doing in America now that the blessings of peace are restored to you? I hope any shame of your great work.

being gone on with?

Our poor friend Harvey I much fear is in a very precarious state. I understand he sits up again a little but the attack has been so very severe that I believe there about him only anticipate a fatal result. He would be a great loss. I for me since the death of my early friends Hooker and Lindley I feel that I belong to a past generation of botanists whom in the natural course of events I must soon follow with little prospect of meeting either H. Bentham or Jen. Oh – but I hope to see – hard at work.

Yours ever sincerely

George Bentham

(Extracts from an explanatory paper on the principles of the Popular British Flora).

To render the present Flora more useful to a large number of botanical amateurs who may not be familiar with the Latin language, I have felt the necessity of making use of English names, at least for the species, and, as far as practicable, for the genera also adding only the Latin ones as a guide to their concordance with more scientific works.

My first intention was merely to have taken the English names from Hooker and Arnott's British Flora as our standard work; and upon conference with Professor Henslow I found that such had also been his intention in those works for elementary instruction in Botany, in which he also found it necessary to adopt an English nomenclature

But here the same difficulty occurred to both of us. The English substantive names in the British Flora are not strictly generic but, in most cases, trivial names given in popular language to one or more species or varieties of plants without reference to their botanical genera. And although in many instances an attempt has there been made, by extending or restricting the popular sense of these names or by the addition of one or more adjectives to produce a vague but systematic nomenclature; yet, as it is not relied on for use, it is not attempted to reduce it to the Linnean rules.

Thus we find:

One name applied to two or more very distant genera as Coralroot to Dentaria and Corallorhiza, Loosestrife to Lythrum and Lysimachia Nightshade to Circaea and Solanum, Winter green to Pyrola and Trientalis, Chickweed to Malachium Holosteum & Cerastium but not (as a generic name) to Stellaria which contains the common Chickweed

Two three or more names given to one genus as Crowfoot and Spearwort Spiraea Dropwort and Meadowsweet, Persicaria, Bistort, Knotgrass and Buckwheat

Substantive or adjective names or both consisting of two or more words giving such long winded names as Hyssop-leaved purple Loosestrife, Hedge bastard stone Parsley, Wormseed treacle Mustard, Sulphurwort water Dropwort, Bulbiferous great roundheaded Garlick, European chickweed Winter green, Lint leaved bastard Toadflax, and creeping pale blue Toadflax, one being a Thesium the other a Linaria — to the great confusion of substantives and adjectives, of names and of epithets, of trivial and scientific names as well as of botanical affinities

Names particularly indicative of one natural order or group made use of in the formation of the generic names of very different families thus Grass is applied to Cochlearia, Draba, ~~Lepidium~~ Galium, Trifolium Eriophorum and a number of others, Nettle to Urtica, Mint to Hesperis, Nettle to Lobelia, most of the Cyperaceae are called Rushes, whilst the Acorus is termed a Sedge etc

The generic name or names given at the head of the genus not always applied to all the species ~~it contains~~ included in it as in the case of ~~Rubus~~ Rubus caesius, Silene acaulis & inflata, Hypericum androsaemum etc

In instances similar to the above might be very much multiplied I have felt myself justified in concluding that there was no intention in the above work of framing a regular English nomenclature for practical use, an operation which yet remains to be performed. In making the attempt I have endeavoured to keep in view the following rules

For generic names;

1. To adopt established popular names wherever they can be readily applied to all the species included in the botanical genus and are not otherwise objectionable as: Oak, Willow, Gentian, Mint, Cabbage etc.

2. Where the popular names are inapplicable or objectionable to take the latin generic name as English. Many of these latin names are already familiar to all who have gardens as Clematis, Ranunculus, Anemone Geranium Poa etc, and the remainder are as easily learnt as any other ones we could devise, besides that for those who would go a step further in botany they are names which must be learned to refer to almost any botanical work. Where these latin names are long I have sometimes endeavoured to render them more easy by cutting off a syllable in the termination as Conydal, Astragal, Potentil, Myosure etc. It has been suggested to me that this anglicising of latin words might be carried much farther in imitation of the French, but it is not so much in the genius of our language and might lead to a disagreable affectedness.

The ~~generic~~ English names rejected as objectionable ~~for~~ genera

1 All those exclusively designating some species only of the genus, for it is not English to call an Apple a Pear or a Cherry a Plum. The Cloudberry is neither a Bramble nor a Raspberry, Bedstraw (properly ladies' Bedstraw) a name suggested probably by the appearance of downy covered with the golden flowers of Galium verum, is as inapplicable to Galium aparine, as is the name of Cleavers to G. verum. In some cases such as Crowfoot I have had some hesitation but as it is not very applicable either to our wild R. lingua & flammula or to the garden R. asiaticus I have preferred using in English as well as Latin the name of Ranunculus already in familiar use among gardeners.

2 All names consisting of two words, not only from the inconvenience of their length but as leading to the greatest ambiguity whether one of the words is specific or part of the generic name, more especially as in these cases the substantive part of the double name is that of some very different genus such as Bog Asphodel, Water Plantain, Sponge Laurel, Black Bryony etc

Exceptions to this rule are where the two words are so completely coalesced as not even to require the intervention of a hyphen such as the compound of weed, wort, berry, nut etc. Even where the principal word in the compound would by itself be ~~indicative~~ the name of a distinct genus, ~~the~~ it may not be objectionable if indicative of the order or tribe to which the genus ~~belongs~~ named by the compound word belongs such as Rocket cress and Winter cress in Cruciferae Woodruff in Rubiaceae Cranesbill in Geraniaceae etc. A further exception might be made in favor of a few words so fully engrafted in the language that the sense of the integral parts is in some measure lost sight of as in Water lily Bowthistle etc.

3. A few so-called English names to be found perhaps in some old herbals but unknown in common language - applied indeed to plants too rare or too insignificant to have acquired a trivial name. For where an unknown name must be learned, it is as well at once to learn the scientific one. Many rejected on this account are Cyphel, Madwort, Mudwort, Blinks etc

4. A small number of dirty or disgusting names. For although I do not see the necessity of calling attention to the indecent derivations of some of the generally adopted latin names of order botanists, ~~generally adopted in popular language~~ ~~by changing them~~ ~~names~~ on that account; it is a very different thing in settling a botanical language for common use to introduce the coarse terms of the middle ages into the more refined vernacular of the present day. Pedicularis suggests no idea but that of the plant so called, Lousewort can scarcely be used without recalling disagreable associations.

As to specific names the rule is that they should be English one-worded adjectives with however the following exceptions

1 Where the species has a well known popular name not too long nor too absurd, to take that name as specific for it gives the facility of speaking of the species in common language - by the single specific denomination when no reference to its botanical affinities is needed. Thus I would adopt in our scientific nomenclature the names of tutsan Hypericum, apple Pyrus, service Pyrus, rowan Pyrus etc which we would commonly call the tutsan the apple the service the rowan etc (not mountain ash which it would be very desirable to abolish if possible altogether) but I would not propose to take up the Go to bed at noon Salsify the Jackby the Hedge alliaria or the Fairmaid of February Snowdrop.

2 Where a simple English adjective is not sufficiently explicit a compound one must be retained in English as in Latin as large-flowered - large leaved which cannot be rendered by large alone. In some cases indeed the adjunct -leaved may be omitted Willow Spiraea and ivy Bromion may do as well as willow-leaved or ivy-leaved for the resemblance is derived from something

more than the leaves, but generally speaking I have found it necessary to retain the -leaved.

Where specific names already proposed are unobjectionable the rule of priority of course requires their adoption, but then the question arises, if the English ~~nam~~ specific names in the British Flora are at variance with the established latin ones to which does the rule of priority apply. Had the English nomenclature been regularly established the preference should certainly have been given to it in all cases, but here and there as it is, perhaps a little more latitude may be allowed where a closer approximation to the meaning of the latin one seems desirable.

Names adopted for Ranunculaceae

Clematis vitalba	Common Clematis	Caltha palustris	Marsh Caltha
Thalictrum alpinum	Alpine Thalictrum	Trollius Europaeus	Globe Trollius
minus	Lesser	Helleborus viridis	Green Hellebore
flavum	Yellow —	foetidus	Stinking —
Anemone pulsatilla	Pasque Anemone	Aquilegia vulgaris	Common Columbine
nemorosa	Wood —	Delphinium consolida	Field Larkspur
Adonis autumnalis	Corn Adonis	Aconitum Napellus	Common Aconite
Myosurus minimus	Common Myosurus	Actaea spicata	Common Baneberry
Ranunculus aquatilis	Water Ranunculus	Paeonia corallina	Coral Peony
lingua	Great —		
ophioglossifolius	Snaketongue —		
flammula	Spear —		
ficaria	Pilewort —		
auricomus	Wood —		
sceleratus	Celeryleaved —		
acris	Acrid —		
repens	Creeping —		
bulbosus	Bulbous —		
hirsutus	Hairy —		
arvensis	Corn —		

As to Natural Orders I had at first intended to call them the Ranunculus Family — the Barberry family etc as you do but as I have settled everything in conjunction with Sd. Hooker & Bentham & Bentham sticks much by his orders and Hooker rather likes them I have given in and adopted them. I think however of not sticking so much to puristism as he does, and would say, for instance Berberanthes instead of Berberidanthes

91 Victoria Street S.W. May 20/87

My dear Grey The above extract and illustration and the enclosed specimen page of my Popular British Flora are the best answer I can give to the main queries of your letter. I shall be glad to send you next week the whole names of the Brit. Fl. if you will adopt them where species are identical. We go to Paris on the 29th June stay there 3 or 4 weeks then make a tour in the West of France and return here in October soon after which I shall begin printing.

In a parcel Hooker is sending you I have put the 7 copies of the last sheets of N. Hortus, & 2 parts of Bentham's Miscellanies

I forgot to look yesterday at Rev. Abbott's Rubus Benthamianus. It is described & delineated in the Hort. Soc. Journal (8vo) and mentioned I think in Babington's Herbarium — as this being a good species I do not know — I hope not.

I shall be glad of any criticisms on the specimen page as to type arrangement etc as well as matter. My idea in giving the general station of a species as well as the British distribution was to show how small a portion of the area of the species the British localities form and consequently how little important it is that a plant found one year in Surrey should appear the next in Devon — and rather to enlarge than contract the idea of local botany. I admit about 1200 species of ferns Hook. have above 1500. Babington above 1700 but then many are not reductions of species but changes of growth plants which never were really British

Yours very sincerely

George Bentham

both appear to have the ~~depressions~~ endocarp forming a distinct pyrene as in Vanay, and the habit is quite Araliaceous.

I think I must reduce your Phytocrenia Vitiensis (which is in Australia) to Harlen the apparently chambered anthers are only so in outward appearance as you [illegible] in your description and there is a trace of the transverse constriction in M. Be[illegible] folia - the disk varies in the orders [illegible] 2 ovules

Begoniifolia and Vitiensis)

We have all I think been mistaken about Cyclocorynus Cav. I think his C. racemosa is not identical with your C. coffeoides at any rate is close to it - and with Cupia densiflora DC. Grisebach's Jamaican Hav. and your C. Harveyi forms a little group that must go into Cupia as I proposed for C. densiflora in the Hooker. Thwaites' Ceylon plant is perhaps specifically identical with C. densiflora - C. racemosa Cav. and C. Harveyi differ slightly but perhaps constantly and may be mentioned as species. - My reason [illegible] by W. & Arn. by Thwaites and by myself for S. Webera S. rambacina (which is in Australia) and others Davetta-like plants with terminal [illegible] may be kept as a genus but cannot retain Lavanille's name. I propose to take up the older one of Webera (which originally applied to S. Webera and which is not wanted even by the most multiplying of [illegible]

25, WILTON PLACE,
S.W.

March 8/66

My dear Gray

I sent you the two additional copies you asked for of Part II of Genera with the last part of Linnean Journal in consequence of your last letter to Hooker. I think we shall venture in the next box sent from Kew, to put in a few extra copies which we will only charge you when you have disposed of them.

I now write chiefly to ask you if you have anything to say about Australian Compositae. I am [illegible] Flora Australiensis. It has been very hard work. Eucalyptus alone took me full three months six good hours a day uninterrupted work and all Myrtaceae required so much boiling to get at their inside that they delayed me much - since that I have got on quicker. I have finished down to Compositae excepting Rubiaceae in the

nucleat of which I am now - and shall have only about 900 species altogether for the volume which I have promised shortly an active which one and so I shall have to include the whole of Compositae, provided they do not exceed 500 or 600 species. The great question [illegible] between Eurybia and Aster - and I trust you will not mind my applying to you when after all though I find generally I have to follow you yet I like always to judge for myself. F. Mueller in his last fragmenta acknowledges the identity of Eurybia and Olearia in which I believe he is right - Olearia being the oldest name, but also says there is no difference between them and Aster and therefore renames all the Eurybias as Asters, and for fear of losing the "F. Muell" if the [illegible] adopted also publishes them all as Olearias. I always thought there had been a constant difference in the bracts and flattened achenes - How does this look? Have you any other suggestions to make about Australian Compositae? I hope very much to be able to consolidate some of the monotypic or almost monotypic genera.

I have nearly 100 Australian Araliaceae and B.C.S. Araliaceae. Seemann has [illegible] much more at the outside than the inside of flowers - and yet I cannot conceive the principle of putting Aralia in Umbelliferae and Cornaceae and Hydrocotyle in Rubiaceae. In his new part of Flora Vitiensis he enters at length into the reasons he had already given for considering Hydrocotyle as Rubiaceae with the characteristic character of valvate petals and the only species in his Flora is R. Asiatica with very imbricate petals. The fact is he took his character from R. vulgaris [illegible] the other. There are two groups in Hydrocotyle Eudydrocotyle with valvate petals and Centella to which R. Asiatica belongs with imbricate petals. The annuals which Seemann proposes to remove to Drimeloria! have nearly all valvate petals. The fact is Hydrocotyle is a very good genus but with scarcely any characters - but the stipules, and must remain in [illegible].

I am glad you followed Planch. & Decaisne in putting the Genicaya into Aralia - leaving the name of Panax Linn. for his P. trifolium and [illegible] Nothopanax.

Seemann's distinction between Hedera Australiana & Hedera proper is all bosh except the pinnate foliage which cannot be a generic distinction - the genus remains [illegible] and there is no difference in the ovary.

I agree however with Seemann in transferring Astrotricha and Barfoldia to Araliaceae as

5 Crepidia with the partial exception
palaeocoma, including Pycnostoma Banks.

Apolobblongs must I think go back to Lepeira
where Brown had put it – I do not yet see my
way very clearly through Helebogen, but
have not nearly done them – I shall now shortly
be leaving town, my 3rd vol of H. Austr is in type
up to Compositae but as I cannot finish them
at present for want of a portion not yet
received from F. Mueller I must suspend the
printing till my return in September. We
are not going abroad – there disquieting rumors
are enough to deter anyone and I am printing
a new edition of my British Handbook – we
shall therefore pay our usual visits in
Shropshire & Herefordshire.

I sometimes mislaid your last account
before entering it into my book – I know you
have paid me for the Linn. Journ up to the
end of vol 9 – and that the last 2 copies of
Gen. Pl. (Part 22) are since the account but
I am not sure whether the 2 previous
additional parts I sent in consequence of your
letter of Jan 22 were or not included in the
previous account – I rather think not – Can
you tell me?

I hope to send you my address this week I have
not had time to review the American and
English transactions as I hope to do next
year – so that you will not find anything
worth noticing in that of the present year but
I like to send you all I print.

Kindest regards to Mrs Gray Ever yours
George Bentham

25, WILTON PLACE,
London S.W.
June 25 1866

My dear Gray

I received this morning your
of the 12th inst enclosing the letter
informing me of my election as Foreign
Honorary Member of the American
Academy of Arts and Sciences. Would you
be so good as to convey my best thanks to
the Academy for the honor they have
done me and which I assure you I
most fully appreciate.

Since I wrote I have been hard
at work at Australian Compositae – which
it is quite a relief to do after Mr Austrian
which required always so much
boiling to get at the ovaries. I have
quite made up my mind to keep up
Mearia (including Eurybia) as distinct from
Aster on a variety of characters (chiefly the achene)

none of them absolute but where one character is weak the others are strong. For Vittadinia I have followed your views – although certainly some of them are very near congeners. In Minuria I include Merogyne Elachothamnus and Keppiria (Kellerb.) forming altogether a tolerably distinct genus of 5 species. Brachycome was very troublesome. Including Brachystephium Haplocarpha Steirogloßa and Siphiocyamum (Steetz) it makes a readily distinguishable genus but the species (about 36) are often puzzling particularly as specimens have rarely ripe achenes. Haplocarpha includes Soleacyne. Olnuchea includes Spiropodium Kellerb. and Eupea L. Kellerb. Ethulopsis Kellerb. generally Epaltes and Spheromorphaea DC. go into Epaltes. Streptoglossa Steetz is Otoregeron. Pentatelpis Kellerb. and Wollastonia procumbens DC. belong to Wedelia. The other Wollastonias must I think go back to Wedelia. Rodontium L. Kellerb. and Glossogyne Cotula must I think include Strongylopsermum Less. and Oligogyne A. Koch. Gymnogyne Steetz and Leptinella and J. D. Hook. – Sclerolemum and Trineuron go into Abrotanella – Myriogyne must I think be kept up – the achenes are not compressed as in Cotula. To the Anthemideae I have devoted a good deal of time and attention. We know about 60 species which have been referred to 32 genera which I should propose to reduce to five which I think form well characterised groups but upon which I should be glad to have your opinion. 1. Myriocephaleae remarkable for the general involucre, the flat receptacle and reduced partial involucres – including Hyalolepis DC. Sauvrochlaena L. Kellerb., Elachopappus J. Kellerb. Antheidoronus A. Gray and Polycalymma Kellerb.

2. Anthemideae. In this and the following ones the general involucre if any consists of a few outer leafy bracts passing into leaves and a few inner scarious ones passing into the bracts or palea subtending the partial head – but not forming a distinct inv. of many rows as in Myriocephaleae. In Anthemideae the receptacle is undivided the partial involucres compared with 2 bracts and 2 to 6 flat ones inside. The pappus scaly or none – I would include in it Soliveria Labill. Cylindronus Benth. Pleuropappus L. Kellerb. Chrysocoryne Eucl. Skirkorhom DC. Cryptostemma Turcz. (Cephalonema phyllocephalum A. Gr.) Phyllocephalum Benth., Hyalochlamys A. Gr. Pogonolepis Steetz Eupatrichia Turcz. and Dethyroteria A. Gr. (Ganozygis Turcz.)

3 Gnaphalieae. Receptacle lobed or at any rate the partial heads having a raised axis with several outer bracts usually (though not always) persistent and several more deciduous and more scarious inner ones. Pappus as in Anthemideae paleaceous or none. To this I would refer Ophalonema Gymnocephalum A. Gr. Trichanthodium Bond. Cephalopappus L. Kellerb. Nematopus A. Gr. Coopolepis A. Gray Leptotriche Turcz.

4 Calocephaleae. Receptacle and inv. as in Gnaphalieae. Pappus of plumose setae including Pleuropappus A. Gr. Leucophyta R. Br. Pachystemon Steetz and Achyrocline A. Gray

never come – I should be exceedingly glad to have them soon.

I send you no more of Genera on sale at present for I hope to have the third part out in the spring – and then we shall have this first Polypetalous volume with general Addenda and Index put in boards and I shall send you a few copies in hopes of your disposing of them.

I was going to send to Mr Gray our best wishes for this festive season but I recollect all the festivities will be over before this arrives however we both wish you both every happiness and success during the ensuing year. Could not you come over to the Paris Exhibition with Mr Gray? – we hope to go there in June. – We are now quietly at home since the loss of my own sisters and of Mrs Bentham's sister we have no family gatherings except our summer visits to her brother.

Ever yours most sincerely

George Bentham

25, WILTON PLACE,
S.W.

Dec 30/86.

My dear Gray

I have desired a copy of the 3rd vol of my Flora Australiensis to be sent to Trübner's for you – I hope it went there yesterday. I am very anxious to see any critical remarks of yours upon it. This volume has taken me two years hard work it includes the whole of the Myrtaceae which were exceedingly tedious from having to boil the ovaries of such a number of specimens of every species – and also the whole of the Compositae in which I have ventured innovations which I know not what you will say to. It seems to have become of late a leading principle that wherever the organs of fructification – including often a ra. it and floral leaves – present the slightest differences there are always genera not species only having for species only the differences in the organs of vegetation a principle I cannot agree to. I have become more and more convinced that in order to distribute organised beings into the best groups and subgroups for studying their resemblances and differences properties and characters we must never from the highest to the lowest lose sight of the principles of the

so called natural as opposed to the artificial method, based always upon a combination of characters not upon single ones. Another great rule is that the more the grades of subdivision are multiplied the better — each group of each grade to include several but not too many of the grade next below, till you come to individual species. Owing however to our imperfect knowledge or appreciation of Nature, or owing to Nature's refusal to submit to rules, we cannot always subdivide large groups naturally and are then obliged to have recourse to single or artificial characters (i.e. artificial subgroups) — but single characters ought not to oblige us to make subgroups when not wanted. Then as to which of the grades should in our system of binomial nomenclature be fixed upon as genera seems to me a matter of convenience — convenience being that which most facilitates the arrangement of natural objects in our minds and memories for the sake of study. The genus above all, in my opinion, ought to be natural and where there are several grades of natural groups we ought to take the most natural of the grades, not necessarily nor generally the lowest natural one. Again experience shows us more and more that no one character has an a priori constant value — that which in one group may constantly form natural divisions may, in an adjoining group, be of none but specific value. Upon these principles I have been endeavouring to consolidate into real genera, i.e. groups of several species, the numerous monotypic or almost monotypic genera founded upon minute differences in the pappus etc. which to me are in many cases species only and which have so excessively complicated the study of compositae. In many cases I know well we cannot avoid monotypic genera but I urge ever upon them wherever I can, and I am very anxious for any of your criticisms on what I have done.

Koch's Nomenclator botanicus is out but I fear it will be the primo the succeeding polypetalous orders are mostly done and I am I believe past the middle of Umbelliferae. I shall have many changes to propose in your American ones. Lilium Lancifolium must go into Lepeirium. Thaspium cordatum seems to me to have all the generic characters of Zizia aurea & integerrima is much nearer to Pimpinella (Anthriscus) Thaspium trifoliatum is scarcely congener to T. barbinode and T. Walteri. Daucosma seems to me a third species of Bifora (which is merely heteroecious not numerous) and Chaerophyllum tem. is Walt. Cat. (not syl.) is I think a fourth. Edomia will I think go into one of the numerous sections of Carum. I shall be very much obliged by any thing to point in which may occur to you.

You mentioned in August that you had some documents and observations on the Cruciferae Entitled to send me — they have

Jan. 11/67

My dear Gray

I had just posted a letter to you when I received yours of the 10th Dec. the documents from the Smithsonian are just come to hand many thanks for them. In reply to your question – If your Chamelia Candricensis is more than 2-celled I should certainly put it into Guettardella – the three genera Chamelia Antirrhoea and Guettardella are very closely allied but the American Chamelias at least have I believe never more than 2 cells. You will see in my Flora that I have quite adopted your view of Guettardas whose characters I think are even more constant than you did – for the corolla of Simonius is certainly (I should say) not valvate

Yours very sincerely

George Bentham

and Linum lineare seems to me to go quite as well with the Manchurian (formerly Linum stellerianum and now Apinum) as with Linum catharticum

I am glad to see that you have set up the Mull. Arg. in Dl. Prod. Immediately on receiving the book I wrote to Dl. in remonstrance and got what I thought but a very lame defence for it.

Some time ago I communicated to the Secy of the Royal Society your observation on the propriety of receive parcels for their fellows and got a long answer on behalf of the Council explaining how the excessive abuse of the liberty they gave to foreign correspondents obliged them to decline to act any more as such agents but to put all distribution into the hands of the stevens – they are very ready to pay all charges on books etc sent for the Society

The clean sheets of Gen. M. as struck off will be sent you as before – there are now 5 sheets in type but only one gone to proof – you shall have it as soon as we get the clean proofs.

I quite agree with you that Remouns Newfoundland Calluna is as bad a species as his brick boy – he comes to conclusions in a desperate hurry with very little examination

Ever yours sincerely

George Bentham

I put into a box going from Kew a copy of Gen. M. parts 1 and 2 for you to inspect if you have an opportunity.

25, WILTON PLACE,
S.W.

Feby 11 1869

My dear Gray

Many thanks for your note of the 21 and the notes etc. it contains. In reply to your Aralaceous question you will have seen by the Australian flora that I have followed Lemann in substituting Heteropleurum for Aralia for Fatsia's character is good and ought to be recognised. – I think however that Planchon's decaisne's views of Aralia and Panax which you have followed (much more correct than Miquel's – and as to the order now that I have gone through Umbelliferae, although the endocarp is often

detached from the epocarp yet I have never found it thick and hardened so as to form pyrenes as in Araliaceae. Seemann's distinction putting Aralia into Umbelliferae and Hydrocotyle into Hederaceae seems to me even more unbearable than it did at first sight.

As to Umbelliferae I have just gone through the whole except two or three small American genera of which our specimens are not very good and shall settle them to my best on the revision when I shall reexamine several genera now that I have got all roughly into their places. I find myself quite obliged to give up the orthospermous campylospermous and coelospermous seed as primary divisions, the seed excavated in front may serve to separate the Choerophyllum set or the Conium and Cachrys set for instance as subtribes, and in other cases it may be a good generic character, but rarely more and in Bupleureum it is specific only. The vittae supposed to be on the seed in Crithmum Cachrys etc and in the pericarp in others is all bosh – I have always found the vallecular and commissural vittae within the pericarp – when the endocarp is excessively thin and closely adnate to the seed the vittae remain attached to it and detached from the epocarp. When the endocarp is so thin that the vittae show through it they are only in appearance but not really superficial.

As to Ammi and Apium they are closely allied – so are many other genera which yet must be artificially kept up and between those two the difference in the vittae is accompanied by a few others

however I have since been obliged to break off for we found that several of Bourgeau's and other plants which we relied upon for making up something toward the cost had been already disposed of separately. From Paris we went to Berlin for a week which we enjoyed much. The Botanical Garden there is not in very good order and the herbarium is transferred to rooms too small for it at the University. It is under the immediate charge of Garcke and Ascherson. We then spent five weeks at a beautiful little quiet watering place called Liebenstein at the foot of the Thuringerwald. Then going south we stayed a week with my old friend Martius at Eichstadt at the foot of the Bavarian Alps and returned slowly home via Stuttgart, Frankfurt and Brussels. The Botanists are very flourishing. We are all much pleased that he has accepted the Presidency of the British Association next year. We want something to give Botany and Natural Science a better social standing.

I trust Mr Gray is going on well. Remember us most kindly to her. I wish you would come more before we are too old to bring her over on a visit to this country.

Ever yours sincerely

George Bentham

Very much pleased with the new edition of your Manual. Hope you are working on a general Genera or Enumeration of the N. American flora.

— London

25, WILTON PLACE,
S.W.

Sept 26 1867

My dear Gray

On my return from a very pleasant three months tour in Germany with Mr Bentham I found the 3d part of our Genera out and I caused to be sent to you through Trübner & Co 18 copies (the number I believe you have had of Parts 1 and 2) and I also added 2 copies of the complete volume in hopes you may be able to dispose of them. The selling price is

Part 1	£ 1.1.0		15/9
Part 2	14.0		10/6
Part 3	15.0		11/3
Vol. 1 in cloth boards	£ 2.10.0		37/6

but we allow you the trade discount of 25 p.c. There will also be soon the subscription for the new volume of the American Society's Journal. When I hear from you how many of the copies sent you are able to dispose of I will send you the account accordingly.

While I was away Hooker received some notes on Umbelliferae etc you kindly sent — unfortunately too late as the whole

except the ridge was pressed off before I left. I dare to say you were right in saying I have laid too much stress on the vittæ but really I did not know what to do. Every character broke down completely – As to Marginal condition, I may also have been wrong but I had no idea it ever had winged fruits the only fruits I had ⬡ were this shape – the only instances I know of a species varying with ribs expanded into wings or remaining little prominent are in Selinum –. If I have time I shall write out a few notes on Umbelliferæ for the Linnean Society and then I can avail myself of your observations. I have also verified two or three doubtful genera in the Berlin Herbarium – I am sorry to see that Miquel has gone on publishing new (Japanese) genera of Umbelliferæ without having seen ripe fruit without which it is impossible to say whether the genus is new or not as his Leo of the Umbelliferæ has come out before our part my name of Kellopteris must of course give way in favor of which you mention also and which I should have adopted if I had been aware of it.

Great you have received the loose sheets forming your own copy complete – Dr Hooker always took charge of it.

Did you receive my address which I sent you by post before leaving in June? I am rather anxious to know whether I have committed an atrocity in speaking of Smithsonian &c these addresses are no joke. It is all very well to write one every now and then but for one so little used to general writing like myself an address every year is rather too much. I am now at 4th vol. of Australian Flora. Dr Hooker has begun Rubiaceæ for general. If I get my 4th vol out by the end of next summer I hope if I keep up my powers of working to get to Compositæ for General in the autumn. I have heard nothing of your criticisms on my Australian Compositæ which I am very desirous of to aid me in my general work. Early last year I read at the Linn. Soc. a long paper on Myrtaceæ but I have never had time to finish it which I now hope to do against Nov. so as to print it this winter.

Mr Bentham & myself spent a fortnight at Paris to see the Exhibition etc. From what I heard there I with Hooker entered into negotiations for the purchase of Geyer's Herbarium – which

25 Wellington Place
Nov 9 1867

My dear Gray

I ought to have written to you some days since but have had too much at home on my hand – We grieved much for Mr Gray's loss for which time alone can give consolation and trust that she has not overdone her strength – You ask about old Martius he looks aged – looks older than he is (73) but is very active and busy – he and his were very kind and friendly and we enjoyed ourselves much in the week we spent with him. – I am very much pleased at my address having met with your approbation but think you have made too much of it – it was intended more for you than for you for I cannot know enough about you not to fall into some mistake – I find I quite overlooked one of your counties the Essex Institute of Salem which (from what we have since received) appears to be active in the settlement of the country I mean our common acceptation of settling into order after war and turmoil.

Now as to Umbelliferae I agree both your criticisms – I admit that among the degenerate into wings

the common Ligusticums have the carpels (without the wings) with a ~~semi~~ semicircular transverse section a little flatter or a little leaner but not far from the semicircle – they often look flat because the lateral wings or ribs are more prominent than the others – and the vittae when visible are indefinite generally about 10 or 12 besides the commissural ones (Ligusticum is in some respects exceptional it is not enough attended to such as yet they do)

Selinum is like Ligusticum but in most species looks flatter because the lateral ribs or wings are broader and is often shorter – and the ribs always separate the vittae – these are often 2 vittae in the lateral vallecules but almost always only one large one in the dorsal vallecules

Coriorelinum seems to have just such a fruit as Ligusticum Levisticum (the Ancient Lecheri) – but the European and Ligusticum etc seem to me to have a longer fruit and indefinite vittae – the vittae are however I admit very uncertain but I can find no other ~~due~~ more positive to separate Carum from Bunium Selinum (Cauricum species) from Ligusticum Cnidadanum from Levisticum and if you wait for positive characters every genus of the order will breakdown.

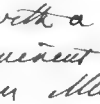
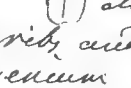
When you get quite ripe fruit of all your American species and work them all up I think you may find better distinctions and ascertain really how far the fruits of a species vary – If you have means it would be very important to grow them in your garden when you would be sure of ripe fruit – it is only from you that we can expect a really good arrangement of American Umbelliferae – I have worked hard at them and partly and am not much disposed to begin de novo – I am now thoroughly taken up with the 2d vol of Flora Centralis and am in the midst of correcting the most inconceivable gâchis De Candolle has made in Goodeniaceae – when this vol is done I must take to Compositae for years

Yours ever sincerely
George Bentham

If the species are so uncertain I cannot help them out of their difficulties.

compound ones — that is the Haplozygiae there is not a single good tribe and scarcely a good genus — all I can say is that after turning and twisting them about in every way I could I could not find any better ones. Then as to your N. American ones I was in peculiar difficulties they would not combine with the Mediterranean & Levant ones besides that there were so many of which I had not the fruit quite ripe, and though in many cases you can judge of the fruit especially of the vittae before it is ripe in many others you cannot tell the shape till the last moment. Almost all Umbelliferae have the ovary nearly terete at the time of flowering — in some it begins to take its shape very soon after fecundation in others not till very late. In some of the flattest of the eastern Peucedana it is almost terete or even laterally compressed till long after the albumen has begun to consolidate (as in Lindley's Apoidia). Some Seselineae appear to be dimerous till they are quite ripe, the thickening of the pericarp next to the commissure seems to be the last operation — and if a fruit is dried before it is ripe it is apt to shrink more there than in other parts. Still in most cases the shape of the transverse section of the fruit seems to be a more constant and more natural character than the vittae — a much more certain one than the petals which vary in shape according to station in inflorescence. One of the best genera is Bupleurum but its character and indeed the only constant one is the pericarp — which we can't take for other genera.

But as to particulars you say that is distinction good for between Conopodieae and Laserpitieae with Meum in the former and Conopodium in the latter — I say very little — yet take the typical Conopodia  with the fruit tapering at the top smooth with a closely adhering pericarp and scarcely prominent ribs and you have a very different fruit from Meum with its prominent ribs giving an angular shape to the transverse section of the carpels and rounded at the top — much more evidently constricted at the commissure than even in [illegible]. I think if you put the species of Conopodium together including Calaveria you will say they must be congeners and if they are united with any other it must be with the Bunian set of [illegible] but to go into all the details of argument would lead me much too far. Conopodium is I think Bunieae, but even into Bunipimella rather than into Conopsideae.

Next as to Grapnium. Enclosed are 3 carpels from Nuttall's specimen which I think have the true Seseliform fruit   a slip in the pen in the word meum. It ought to be vittae, no, meum [illegible] — for though they are [illegible] always more slender than in Selinums they are rarely absolutely slender in all species. There is I presume no character in species of the genus vittae or not vittae.

The European and Asiatic Selinums are numerous and although they have the aspect of Seseliseae I think they are always to be distinguished by the few vittae, vittae at least in the 2 dorsal vallecula and the more decidedly winged ribs — and all I have seen of Conioselinum fischeri belong to that category — at the same time here as elsewhere there is no absolute line.

I kept up Ligusticum because in Nuttall's specimen the fruit has a much more prominent pericarp than in any of your genera — almost like that of Pastinaca and the vittae are very obscure. Perhaps Ligusticum one is evidently a good genus — so are some of your western Peucedana which Bentham formerly put with Ferula.

I think Orthosciadium (metum) must remain in Orthosciadieae where there is a general tendency to roughness in the fruit though I thought that even in that genus the lateral ones

Nov 10 [1867]

I have received the sheet of Lithimania poeana with my address

I have examined the seeds you sent of Choerophyllum californicum Torr. and I do not see why they should not go with C. villosum Wall. and C. procumbens, Lam in both of which the ribs are slender

Conioselinum or Ligusticum scopulorum is nearer Ligusticum than anything else but differs from all I am acquainted with in the much greater development of the dorsal rib than the lateral or intermediate ones. Whether this is constant or not remains to be seen. The fruits I looked had no good seed. The vittae were much more external than usually in Ligusticums

My abstract notion of Ammineae is as in the first three of the above the section of each carpel a circle pentagon or hexagon - of Seselineae as in the last three a semicircle or if a pentagon the lateral cavity made up by the immersing thick lateral ribs as in most Oenantheae and I believe these distinctions hold good in the majority of species though in all large genera there are more or less abnormal species which intervene to breakdown the limits

As to campylospermous seeds there are all sorts of intermediates between all the above form No 1 passing gradually into the flat face - in many species

the transverse section will vary according as the seed has had time fully to ripen on the plant in favorable weather or whether it has been gathered (or suddenly dried by a special hot sun) before it has quite filled out but yet ripened enough to have perfected the embryo [illegible] In many cases the transverse section varies according to whether it is taken in the middle of the seed or toward the top or bottom. In others e.g. our Meum athamanticum it varies in different specimens (all with perfectly good seed) at least from n. 1 to n. 3 of the above diagrams. Bupleurum has some species with very compressed more seeds in others they are perfectly orthospermous. In the same genus there are species with numerous vittae, solitary vittae and none at all. Their inflorescence and involucres still more various, they are from good size trees to small annuals – but the drumheadous shaped fruit and the foliage and perhaps also the petals and disk (stylopodia) appear to be constant.

I have ascertained from typical specimens which I saw at Berlin and have since examined here that Ostericanthes Schrenk. (Fl. R. 903) = Ducatte prolifera. the rays are hairy but not glandular.

Fructipa C. Koch = Carum (Petroselinum segetum Koch).

Acutherospermum C. Koch. fruit unripe seems to be a Sesgetum

Heermochoria C. Koch = Pancicia Vis. which as observed p. 1000 I should refer to Pimpinella

I have not looked into Miquel's new Japanese genera – some are founded on unripe fruit! which is barbarous

a couple of years ago when he got over it as I hope he may do now. Mr. Doott has had also an attack of influenza. Sir W. Hooker as well and brisk as ever.

Yours ever sincerely
George Bentham

Podolobium scrachioides turns out to be an Astragalus with the umbellate flowers ~~also~~ but not the stamens of Hedysarum and Lotus – another species with the same inflorescence is Astragalus (sinicus is, I believe) from China which I have often seen in flower but not in fruit.

Pray let me have your Astragalus paper as soon as printed.

Could not you send us some of your good papers for the Linnean Society. Hooker gave us an excellent one the other day on the vegetation of the Cameroon mountains which will appear in the next part of our Journal.

25, WILTON PLACE,
S.W.

Nov 15/67

My dear Gray

As the best answer to your query I have got Hooker to make the enclose sketch of the specimen I kept of Phaca Crotalaria – You will see it has nothing to do with Astr. crotalaroides of Torrey – we have no Californian specimen at all like it. The leaves are quite glabrous the pod has no intrusion is much inflated but not membranous and the fine transverse veins are rather strongly marked.

We are very sorry to hear that Mrs Gray is again laid up but I sincerely trust your next will give better accounts. We are

going on very well I am hard at work but get on slowly – I have about 500 species done for my next vol of Flora Australiensis and am working out Leguminosae for Gen. Pl. at the same time – I have had much bother with European Genistae and am now at Galegeae – I shall soon be at Astragalus and am sincerely glad you are working up the American ones – I hope you will find a good generic character – I should hope Oxytropis might be kept up – although I am well aware the point of the keel is nothing in Indigofera and many others.

Cannot you be persuaded to give some resumé – some synopsis or even only a catalogue raisonné of N. American flora – No one can do it but you and there is no country that wants it done more

I wish you could as you hint come over and work up Compositae for Gen. Pl. – no one would do it so well as you and a visit to England would cost Mr Gray – The genera of Compositae are now far too numerous for use – quite bewildering – and must be a little consolidated and you might do a great deal towards it.

I saw Booth a few days ago – thin as he has been of late he is thinner than ever and has a bad cough but does not seem worse than he was

25, WILTON PLACE,
S.W.

Nov 19/67

My dear Gray

I have examined the three Umbelliferæ you have sent – Osmorhiza Hartwegii O. Kellogii x a 3d from Bolinas Kellog – the difficulty about putting them into Osmorhiza is the entire Carpophore which transfers them to Conium Indeed as far as the specimen goes the 3d plant from Bolinas looks mighty like (x smells like too) our own Conium maculatum which as the (?) seed usually like this – But not an introduced specimen of the European plant which is very likely to get out there as a weed.

As to putting Eulophus into Osmorhiza there is certainly little

bendes foliage to separate them but if we do join them we cannot help reducing both to Sinyonium the latter has usually the seed ⌀ but it comes pretty nearly to that in some or ⌀ Chracacias

Do you wish the reply soon and this opportune without waiting to add gossip which I have just now no time to write

Ever yours
George Bentham

After 1st Jan they say postage is to be reduced by half which will make one hesitate less about writing short letters

for a few months — if it were only to see to what an establishment Kew has grown into under the Hookerships and how Mr Gray's herbarium which Hooker has bought to present to the Herbarium and which is arrived in London will I expect be a great catch for the Flora of Continental Europe" in which the Hookerian was perhaps comparatively deficient.

Enclosed are prints of Conioselinum Fischeri Hort.

Yours ever

George Bentham

25, WILTON PLACE,
S.W.

Jan 31/60

My dear Gray

I have two letters of yours Dec 5 & Jan 11 lying before me unanswered but in the first place I cannot say anything more about your Umbelliferae without going into the question much more than I can have time to do just at present and in the next place as I grow old I feel more and more lazy at letter-writing at all. I am just now rather wearied out with the never-ending species of these Australian genera — of all of which I have to dissect the ovaries of several specimens of each species — and in Epacrideae often under at least a ⅙ in. lens — for the 4th vol. I have already gone through Hydrocotyle 83 species Goodenia 69 Lobelia 50 Dampiera 34

Leucopogon (almost finished) written on
20 of 100 besides several off from 60 to 80
and until I see the end of this volume
I fear I cannot go back to Umbelliferae
I am therefore heartily glad that you
have bestowed time on your Rhododendron
once of which I had more insufficient
specimens than yet say, of any other
I had intended writing a detailed
commentary on the genera but I
fear I shall not have time – My
commentary on Myrtaceae or others
I bestowed so much time and which
I partly read and hoped to finish
immediately nearly two years ago I have
only written the last month been
[illegible] to read to prep and when I can do
the Umbelliferae I do not know – When
I do your notes will enable me to correct
several things. I can only now say that
I fear the carpophore characters are
no better than they should be the
carpophore itself being but the detached
marginal nerve of the carpellary leaf
is of very little intrinsic importance
that one ought [illegible] to expect it modification to have
any value at all – yet it certainly
appears to have come – like the
so called replum in the fruit of
Mimosa – and to a certain degree helps
to distinguish for instance Coprium from
Carum – but even there I see it is not
absolute

You talk of our coming over to see
you – you forget that we are verging
upon our 70 – and all idea of ever
crossing the Atlantic must be abandoned
but it would be a pleasure to see you
and Mrs Gray again and I do not see
why you should not both come over

Acton Scott
Church Stretton
July 23 1860

My dear Gray

Yours of the 29th June which reached Kew after I had left town was forwarded to me here where we have been on a visit to an old friend. It was a long time since I had heard from you direct but I had seen from time to time your letters to Hooker and was much pleased with the prospect of having you and Mrs Gray at Kew in the autumn – I only regret that you will not be here in time for the Norwich meeting – We shall shortly return to town for a few days on our way to Norwich where we shall stay the time of the meeting with Mrs Lindley (Lindley's widow) who is very comfortable

settled there.

With regard to Genera Plantarum I am afraid I sent you over too many copies - If you conveniently can it might perhaps be better to bring back with you any unsold ones and we would of course take them back.

I have given directions at the Linnean Rooms to retain till you come your copies of any number of the Journal that may be published - but we got through so many in the spring that I think there will probably be no more before your arrival.

You received I suppose a copy of my address I sent you - I doubted whether I should send it as scarcely worth the perusal - but as I had sent the previous one I thought this might as well go also. I get more and more puzzled every year how to make up these addresses.

Hooker will have given you all the botanical news stirring - I have been all the winter absorbed in the 4th vol of my Australian Flora which I am sorry to say is not finished yet - three sheets are however in type and a few weeks work on my return home in September will finish I hope the MSS. I purpose then if I retain my health to resume Compositae for Genera Plantarum

Ever yours most sincerely

George Bentham

25. WILTON PLACE.
S.W.

Feby 27/70

My dear Gray

In writing to you I have two objects in view – in the first place I do not like interrupting our friendly intercourse which has now gone on for so many years and we want to know a little about yourself and Mrs Gray – how the return to a North Lime in winter has agreed with her – at any rate I trust it has not been so trying a season as we have experienced here. How is it also with reports I hear of your wishing to give up your position at Cambridge. I sincerely hope that such is not the case – unless it be that you are making arrangements by which you can devote yourself more exclusively to science.

Another object I have – of less consequence but which has been the more immediate spur to my taking up

I am a little impeded also by a return of sciatica brought on by the bitter cold of the early part and middle of this month – and even now I find my daily visits to Kew almost too much for me. Mr Bentham I am happy to say has had a better winter than usual. The Hookers are very thriving and active Mr Hooker very busy with the translation of Decaisne & Le Maout's Traité Générale – and of Hooker's ~~Handbook~~ Student's British Flora is far advanced & will I think be a most useful work and most probably supersede all other British floras from Withering & Babington's and my own all of which have still a certain sale.

Ever my dear Gray

Yours most sincerely

George Bentham

the pen is to be the favour of a few memoranda to assist me in my annual task of an Anniversary Address which by constant repetition becomes more and more difficult instead of easier. Reviewing a few of the principal points which have made progress within the last two years there are two which appear especially important as connecting the present with the past the deep-sea dredgings showing the actual survivors of representatives of organisms elsewhere long since extinct and the investigation of the Arctic fossil flora showing ~~extinct~~ races there extinct but now represented in more temperate regions. In both these researches and especially in the former your countrymen have done much and you would much oblige me if you would give me some hints as to which are the most important papers published on the subject by Americans and how you would estimate their labours as compared to those of your own naturalists and of the Scandinavians - and any notes on anything of importance in Zoology or Botany published within these two years by Americans would be most thankfully received.

In the meantime I have been plodding on at Flora Australiensis. Chenopodeae Amaranthaceae Laurineae and especially Myoporineae were slow and tedious work. I am now getting on quicker at Proteaceae which have already been so well worked up. Have you ever observed in this order the very curious variations in what is generally called the stigma but which appears to be more frequently an apparatus for impeding the access of the pollen to the real stigma of the same flower? - I have begun printing but Reeve & Co (Mr Lovell) have quarrelled with the excellent printers they had and in new hands the printing seems to stick fast.

25. WILTON PLACE.
S.W.

May 24/70

My dear Gray

I have been so very much occupied of late that I find I have omitted to thank you for the promptitude with which you responded to my queries – and to beg you also to thank Prof Ferrell and M. Desquerny for their communications. I fear you will find I have profited very little from all this and not made the use of it I ought to have done but the fact is I am not strong enough to work as I used to do and have been so much pressed to finish up the 5th vol. of my Australian Flora that I have been obliged to give up the greater part of the address I had planned and have only put together a few notes in order to say something such as it is I will send you the

address which I shall be able to read this afternoon as soon as it is printed. The Flora Australiensis vol V is about ~~two thirds~~ printed and I hope to get it finished by the time I leave London in July and will take care to send you your copy. It brings me down to the end of Proteaceae only, the remaining "Monochlamydeae" must stand over to the eighth – but before I undertake that I hope to do the Compositae for Genera if health and strength allow. Bentham has finished his British Flora and is now at Repentheny for Brodrieny after which I hope he too will think of Genera Plantarum.

After a very trying winter – not from severe frost but from the sudden alternations from mild or hot days to bitter cold winds of long duration – we are getting better weather at last but very dry. The flowering of the fruit trees has been finer than I ever remember it but cattle food and in some places wheat has suffered for want of rain. Mr Bentham has been better than usual this winter. I have been plagued by a return of sciatica brought on one bitter cold February day but am now getting over it again. I trust Mr Gray is improving. I am not sure that she would have been benefitted by spending the winter in England so it has not been a generally healthy one.

I am glad to hear you are inventing your Cocoagenera – I am looking anxiously forward however to some hundreds of N. American Flora from you.

Yours very sincerely
George Bentham

Since my return I have been working hard at Compositae for years I have got through Scrophulariaceae and now — nearly done Lentibulariaceae the two easiest tribes in Scrophulariaceae I was much disposed to place in the first order the character you made such good use of in Lentibulariaceae the 5 angled or 10. ribbed achenes — the difficulty is in the first place as to a few cases where the secondary ribs are faint so as to make it uncertain to which set the plant would belong and in the next place as to Veronica itself which though in the great mass of species — all the American and the larger old world ones — has 10. ribbed achenes yet the section Tetrodea has them 5 angled and ~~generally~~ ~~peculiar~~ in some species comes as near to Gymandris (which has them 5 angled) as to Veronica I should therefore have been inclined to separate Tetrodea generically (including in it V. Wightiana and one or two near it with rather large head) but that in the first place it has a very decided Veronica facies and again amidst all the numerous

25, WILTON PLACE.
S.W.

Oct 10/70

My dear Gray

I have been long intending to write to you but find myself always very tardy in fulfilling epistolary intentions I have now to say that I have sent to Triebner for you the 5th vol. of my Flora Australiensis — It was published in August but I was then out of town and the horrible state of the Continent having interfered with the despatch of two or three copies I send there I somehow or other sent none out and it was only on despatching De Candolle's that I discovered I had forgotten yours Mr Bentham and myself had a very pleasant summer chiefly visiting friends but we also spent ten days at Penzance

with beautiful weather which we very much enjoyed and we returned to town this ~~dique~~ last month in great vigour I have as yet felt next to nothing of the rheumatism I suffered so much from last autumn and winter. When we left town early in July all was peace and prosperity and it seems impossible to realise the dreadful change that France has experienced. Although she has brought it on herself it is impossible with so much that I have seen in ~~that~~ country to love and to admire not to feel deeply for her and not to have her constantly in one's ~~inc~~ own thoughts and to look out eagerly for any gleam of hope that she may soon be extricated from her calamitous position but I much fear that nothing will ever cure her – rulers as well as the governed – of that unprincipled vanity with which she would meddle with and regulate her neighbours concerns without conceiving it possible that they should in return interfere with her – and in her present state of complete disorganization with the total absence of principle moral social or political in the dominant party it is very difficult to conceive any satisfactory settlement for years to come even after they may have got rid of the Germans Botany has of course collapsed like every thing else. Treina and his family came over here with what things they could carry away – articles of furniture etc they were obliged to leave to their fate at Bagny la Reine. Corson sent over his wife and daughter and her baby and they are here reduced to hearing of him only by rare balloon posts. Bourgeoisie and Decaisne ~~wh~~ were dwelling when Treina left we have not heard since. Schemper happened to be absent from Strasbourg when the war broke out and he got away with the Swiss party – but the whole thing is too distressing to dwell upon.

I know not what to make of Trichocoronis the style is not to my eye Eupatoriaceous and our specimens are only just in flower so that I cannot see the form of the achene nor the developed pappus

I suppose we must adopt Hemisteptia Ch. Dip. It is my Eupatorium? quinquenervum and Hoffa Ann. Phania in mipolia is a second species

It seems to me that Vernoniaceae have the anthers sagittate at the base with the auricles of adjoining anthers coherent to the end and although often quite acuminate usually mollipiferous to the end except in Adenoon Neurocarpaea and Centauropsis where they project into short tails - whilst in Carphobolus each auricle has a separate point or tail at the base the whole cylinder of anthers being 10-pointed instead of 5-pointed at the base. In Eupatoriaceae the anthers are obtuse or truncate at the base without auricles below the attachment of the filament

I find it rather difficult to hunt up all you have said in your scattered papers but hope I shall miss nothing for your observations are capital guides

Weber is hard at work at Rubiaceae and I hope we shall print in the Jrnl genera dismembered from Vernonia no one has ever separated Lepiroder and it might be acting too much against the unanimous effort of botanists to do so now. With two exceptions I keep Vernonia in the comprehensive sense adopted by Lessing and DC. with the addition of Gymnanthemum (Decaneuron sec DC) Webbia Dichetanus Rechium Monosis Lebrasia and a number of Natts and Ch. Dip's African genera. I separate Carphobolus (Vanillosmopsis DC. Monanthemum Griseb which is Eup. trifloreum Aubl and has generally if not always 3-flowered capitula) which has a peculiar habit and tacted anthers and Piptolepis Ch. Dip which has a peculiar habit and the very decided appendage of Centratherum - the latter genus I would include the old world Phyllocephala with Ch. Dip I would restrict Albertinia to Spanish original species and distribute DC's other species into Vanillosmopsis and Eremanthus I include Stroptopappus and Cyphocleta in Stilpnopappus and with Ch. Dip comprise Adenocyclus Odontotoma Dralenta and Pollalesta under Oligantha. Eremanthus would take in Chrysta Pycnocephalum Lachnanthes and Sphaeranthus. Piptocoma and Lychnocephalus go to Lychnophora and I would reject altogether from Vernonieae Trichospira Lagascea Synchoriadron (Secmarin?) Bojeria and the Lepbeae and Pectideae these are still two orders in Dowiger's order.

In Eupatoriaceae as far as I have gone (I have not yet done the European genera) besides the good subtribes distinction you pointed out in the achenes I would make a third subtribe Piqueriae with 5-angled achenes and epappendiculate anthers. This would include 1. Piqueria to which I would refer the true Phalacroea (not the Brazilian ones which are Alomia) 2 Phania (not Barbettonia which is an Ageratum) 3 Decachaeta (2 sp. both Mexican) the Brazilian ones belong to Ageratum) 4 Nothites as to N. backhouseiae including the Eupatorium piqueroides & N. Sidonia Mandoni Sch. Bip. etc excluding all the genera must therefore take Mayer's name of Apinis 5 which are Stoicos 5 Eymnocerons and 6 Adenostemma

Coelestina cannot I think be separated from Ageratum the two are closely connected by Grisebach's A. mutinum and some others

Should Carphephorus be really kept up distinct from Liatris? - there is certainly habit as well as the palea of the receptacle - but this habit (Pilloria) is perhaps more distinct in habit and the palea are of no avail in Ageratum (Coelestina) or in Eupatorium (Chromolaena) where they are variable and always deciduous not like the palea of Helianthus

Have you done anything with Lasianthaea Liatris Trichotomus? this near Eupatorium has with very deciduous pappus, occasionally 10 or 12 secondary ribs to the achene and a rather remarkable style

I cannot keep up the small genera separated by DC from Eupatorium (Chromolaena Campyloclinium Conoclinium Hebeclinium Dochinium Critonia) ~~Dumpt~~ any more than Dicyphonia and the Brazilian Bulbostylis which you have already united nor yet adopt what Sch. Bip proposes in some herbaria Brania for the Eubrevicate Heterotaxa for some of the subbrevicate Eupatis for the Brazilian species with strongly barbellate pappus and exposition for a very Ageratum-looking Brazilian species with the pappus of Eupatorium different as the extreme inclusions are they are too much connected by numerous intermediates to be available for more than series of species - and the more or less convex receptacle and minute hairs on some of them are but very vague characters of degree.

I should be most obliged to you for your opinion on any of these points and for any suggestions you may make

With kindest regards to Mrs Green, believe me

Ever yours sincerely

George Bentham

turn over

characters of the latter and most I suppose remain a matter of it.

Lectorea DC. is evidently a Chrysopsis have you seen it?

I divide the tribe of Asteroideae to these two series Heterochromeae and Homochromeae and to the subtribe Bacchareae with the anthers obtuse and entire at the base (except a very few sp. of Olearia and Olearia) and the style branches of the ♀ flowers tipped with an appendage (except in Bacchareae and a few other cases where the ♀ fl. are sterile), and I transfer all other Astroideae of DC. to a large tribe of Inuloideae (to include Gnaphalieae) with the anthers sagittate at the base with pointed or tailed auricles (except in a very few sp. of Olearia and Gnaphalon) and the style branches obtuse without appendages or only a mere papillose edge beyond the stigmatic lines and I divide these Inuloideae into the following subtribes with few exceptions to the following characters

1. Tarchonantheae. Capitula dioica. H. ♀ filiformes (Lorentzia Wedd. Hymenopholis Gardn. Gymnodendron Dcne. Brachylaena Cass. Tarchonanthus Linn)

2. Gnaphalieae. Capitula heterogama H. ♀ filiformes. Involucr. bract. scariae v. herbaceae. Receptac. epaleaceum. Styli fl. ♀ oramo subulati.

3. Relhaniaceae. Capitula heterogama (varia glomerata) H. ♀ filiformes. Involucr. bracteae pauciseriae. H. ♀ pauciseriales. Receptaculum subtenue v. in v. nullum. (Cylindrocline, Blepharispermum, Athroisma, Lasiopogon, Pterocaulon (B. amilla), Micromeria (Stylocline) Diaperia (Calyptocarpus, Relhaniopsis).

25, WILTON PLACE.
S.W.

Dec 26/70

My dear Gray

Since I wrote last I have received your kind reply with many thanks. I have not yet examined Bolanosa having left it with a few other apparently exceptional plants till I get the Heliantheae and Senecioideae into my head. I have been so immersed in Asteroideae that I have not had time to go back upon study of new. I had left behind I now proceed summarily to report progress hoping to suggest some remarks on your part. These Asteroideae are quite bewildering. There are no definite hard marks. Aster seems into Olearia etc on the one hand, into Erigeron on the other and thus again into Conyza and all other genera or nearly all of the Heterochromous series are in the same plight or are monotypic and it is nearly as bad with the Homochromous series; every character breaks down in one species or another – and it would do no good to unite all into one genus for then there would be the same difficulty about subgenera and sections. I have been obliged to draw arbitrary lines. I have kept up the Australasian Olearia

the fruitment S. American. Chiliotrichum and Diplostephium the Mexican Pentacrodon and Melanodendron and gone a little further than you have in reunite small genera with Aster. I have retained Pericocypsela with its bladdery aspect though with some hesitation – Diplopappus appears to me to be quite untenable and the sterility of the rayflowers in Galatella is not I think of sufficient constancy or importance to make a generic character. I hesitated much about Notioastrum which Weddell includes in Aster without doubt. It differs from most Asters in the 5-10. ribbed achenes but these occur also in such of your Callicastrums as belong to Heleastrum DC. and then Aster marginatus H.B.K. (a true Notioastrum but not I think the same as the more southern N. arendsii with which Weddell unites it) resembles too closely A. Pahlii with the simple (4-5) ribbed achenes to be generically removed from it. I should have liked in order better to separate Aster from Erigeron. I have kept up the S. African Felicias with their Erigeroid pappus but then the Agatheas show every gradation from Felicia to Agathea. Natalensis which is scarcely to be distinguished even as a variety from some forms of Felicia erigeroides. I have adopted pretty nearly your and Weddell's views of Erigeron and Conyza. As to Pilloadenia so nearly allied to Erigeron (Conyza) and Conyza I think it may well be distinguished [illegible]

large (long) achenes and Asteroid pappus but then it must include the S. American Microgyne and the African Erigeron or Conyza amorphoglossum and pericaea Boiss, a new Himalayan species and the Brazilian species Lebed. (Erigeron or Conyza affinis to which you properly refer your Aster angustifolius) – but Tetramolopium must (as you define it as a sect. of Pilloadenia) must I think be retained as a distinct genus close to Conyza. I have followed you as to smaller genera except that I think Dichaetophora must go into Bottonia. In the Eupatorea Leptocoma is identical with Rhynchopsamum Cass. In the homochromous series I perfectly agree with you in the restoration of a number of small genera to Aplopappus except that I think that Macronema belongs rather to Chrysopsis and I think that Ericameria must be kept up as much nearer to Linosyris than to Aplopappus (or rather Haplopappus) unless the three genera united which would be going too far. Linosyris (which I think must include Bigelovia) would indeed be a very natural group were it not for the L. cornuta Rafin. L. scoparia Boraetti and L. divaricata Schrank which have no dry a habit and the latter sometimes 2 or 3 legulae two or three Andine shrubs (Haplopappus hypoleucus Turcz. Baccharis pedicellata H.B.K. and another) with the habit of Digitostephium but referred by Clk. Bigl. to Linosyris have the

Micropus and Filago).

Gnaphalieæ
Helichrysea } not yet fully worked out
Angianthea
Athrixieæ

Inuleæ Receptaculum epaleaceum. H.O. ligulatæ v.o. Styli ramis apice rotundatis

Buphthalmeæ Recept. paleaceum Cæteræ Inuleæ.

The Inuleæ contain Codonocephalum Fenzl (Gymnaea Ch. Dip) Inula (to include Schizogyne DC. Inuloides Ch. Dip. etc.) Bojeria DC. (including Pegolettia lanceolata Baker) Grantia Dosf. (Rivalsea Cass.) Jasonia Cass. (many reduced from DC) Iphiona Cass. (Varthemia DC. and those Pegolettias forming Ch. Dip's Carphopappus) Allagopappus Ch. Dip Pentzia Webb Pegolettia Cass. (reduced to P. senegalensis P. mucronata and perhaps P. oxyodonta) Vicoa Cass (including Pentzia) Pulicaria Gaertn (including Strotonia Boiss Francoeuria Jasonia icula Platychaeta Boiss etc) Porphyrostemma gen. nov. Apostrox. Amblyocarpum and Carpesium

The Buphthalmeæ including the usual genera include Rhantherium and Anacyclus opposite I have the Chilean species and another from trop. Afr.

Asphanostephus Thespis and Grangea must I think be removed to Anthemideæ Hochstetteria to Mutisieæ next DC. Cowa

Now I should very much like to have your opinion as to these things and especially as to the bringing of the Jesuits into the same general tribe with Nuckeinear and Nubar.

It is a sad thing these matters only getting worse and worse in France and the end must be dreadful whether the French succumb or succeed the two nations are now so thoroughly exasperated against each other. Freaus had a bit the other day from Decaisne dated the 9th Dec when they had just heard of the recapture of Orleans by the Germans but breathing the most determined spirit. The Institute had set the example and the Jardin had followed it in exchanging the pen for the chassepot and betting always to the "regime de cheval" in full confidence that the tide would turn that they should expel the enemy and battery reviving upon them. No one dreams of peace and goodwill. What a horrible comment on the declamations and prophesying of the Peace Societies.

Ever yours very

George Grove

name of Lucilia form a subgenus of Gnaphalium or a distinct genus I am rather inclined for keeping them all under Gnaphalium although generally the more glutinous brownish involucre and niplorescence tends to a yellow rather than a corymb opens the separatrix but

G. (Euanophalium) uliginosum palustre indicum etc come very near in aspect to G. (Gamochaeta) purpureum

G. (Onaloptera) luteoalbum which cannot be kept as a genus has the involucre and habit of some Gamochaeta with the pappus of Euanophalium and I find the anther in some specimens glabrous in others almost as hairy as in Lucilia

Gray give me your opinion as to these matters.

Yours ever sincerely

George Bentham

110

25, WILTON PLACE.
S.W.

Jan 1 1877

My dear Gray

I wrote a few words supplementary to my last to ask your opinion about Gnaphalium You are aware of Wedd's character of the pappus which I find a better and more constant one than I did when I worked at H. Austral. – where I made a great mistake in attributing the pappus with series to G. indicum – a mistake owing to G purpureum & G indicum being so much mixed in Bot. Hooker. Antennaria restricted to the sect Catipes becomes then well distinguished from A. margaritacea which I think must go into Anaphalis – but I think Leontopodium must be kept up as being rather a regular division as Antennaria and with a very different habit – now there are two forms that as far as I can

see are only distinguished from Antennaria by their habit one is your sect or gen. under the other is Oligandra Less (with which Hymenopholis Gardn which I had put in a corony place in my last letter is doubtful) ~~both of~~ which appears to be doubtfully drawing in one genus one of them as therefore named by Lessing. Do you think we can make genera of these by habit or should not they rather be sections and should we include Leontopodium or not.

Then as to Gnaphalium Weddell's character neatly divides it into two
1. Eugnaphalium with the free separately deciduous pappus setae has various natural groups of which the three principal ones may be represented by your G. polycephalum with many allied ones from S. America Africa & Asia. 2 by G. luzonense (HAR) and others from S. America 3 by G. uliginosum G. luteoalbum G. indicum etc. G. luteoalbum connecting 1 and 3

and 2. Gamochaeta Wedd. nearer Lucilia Can. with the pappus connected at the base in a ring and falling off either entire or with several of the setae more or less retaining their connection but here we have all the following without scarcely even sectional characters to distinguish them

Gamochaeta with small capitula and glabrous or papillose achenia

Lucilia with the same capitula and achenes but more glomerate with more numerate characters

Metica with long capitula and glabrous or papillose achenia

Lucilia (Can) with long capitula and silky yellow achenes

The much Weddelian Lucilia with almost scarcely with broader solitary capitula and silky yellow achenes

Merope with ~~broader~~ the same habit and capitula but more spreading involucres and glabrous or papillose achenes

You have examined many of these do you find any good characters to separate Lucilia from Gamochaeta? and if not should the whole render the

As to Haplopappus linoyris and Ericameria there are no positive char. for as I can find to separate them from each other or from Pteronia Nardophyllum and Lepidospartum. – Haplopappus has generally broad more rotatory capitula whilst in linoyris and Ericameria they are narrow and corymbose or shortly paniculate ~~the one~~ homogamous in the one radiate in the other. The radiate linoyris is only an accidental aberration not common in the species and like the ray less varieties of Aster amellus does not invalidate the genus.

I have now been for weeks at Heliantheae in which a precious mess has been made by various writers and by me – more than by Sch. Bip. Although I cannot go with him in entirely neglecting the presence or absence of a style in the ray flowers I cannot make that a subtribual character but sometimes generic sometimes perhaps only sectional. Helianthus Coreopsis and Zinnia make up a little group of themselves remarkable for the persistent sepals or subsepals lamina of the ray flowers. Calopta and Leptocarpha are nearly allied to each other but Thamnodium Tabragia, Zaluzania (including Ferdinandea and Chilophyllum) and Gymnolomia (including Helomeris) are very near to one another but I cannot follow Sch. Bip. whose paper on Zaluzania in Flora I found out would unite them all under Zaluzania. Adenanest I think go into Sclerocarpus – indeed Gymnopsis uniseriatis Hook cannot be distinguished from Sclerocarpus Apreciana by slight specific differences

Isocarpha includes Dimontia

25 Wilton Place
London S.W.
Feb. 19/71

My dear Gray

To answer in the first place your two Salvia queries. The Salvia angustifolia Cav. varies much as to hairiness Cavanilles and Lindley's figures represent it as very hairy Jacquin's as glabrous. Our wild specimens which are numerous are most of them glabrous or the stems spreadd with a few hairs besides those at the nodes but some are nearly and others quite as hairy as represented by Cavanilles and Lindley so that I conclude them all to be one species common in the Mexicano-Texan region varying as to hairiness and also as to the leaves usually very narrow and entire but sometimes especially under cultivation a few becoming broader and toothed. We have no specimen of my S. leptophylla which I suspect is a variety of S. lanceolata – Wright is certainly S. angustifolia or S. reptans Jacq.

The garden plant of which fragments just received seems to be notwithstanding its shorter corollas a form of S. tubiflora Cav. which it agrees with in every other respect. We have certainly no nearer match for it.

As to Compositae I am very much obliged for your notes and should be very thankful for more — the worst is I have very little time to write any details for you to remark upon. I shall go over several Asteroids again and think that notwithstanding Harvey I must keep out the small shrubby & other Helianthoids & Agatheas from Aster as their pappus very much interferes with the generic character — the worst is there are intervening species but those we have every where. I am better satisfied with Inuloideae of which I made ten subtribes

* Fl. ♀ num adnat filiformes ~~[illegible]~~ v. rarius irregulares

1. Tarchonanthea. Capitula dioica. Inv. bracteae nunc ar. herbaceae (All S. Africa or Madagascar)

2. Plucheineae. Capitula androgyna. Inv. bracteae nunc v. herbaceae

3. Relaginea. Capitula androgyna fl. ♀ prevalentibus paleis receptaculi subtecti v. involuti. ~~Inv.~~

4. Gnaphalieae. Capitula androgyna fl. ♀ prevalentibus v. dioica receptaculo nudo. Inv. bracteae scariosae

5. Helichrysea. Capitula androgyna fl. ♀ prevalentibus v. homogama, non glomerata

6. Conyzanthea. Capitula homogama in glomerulos capituliformes aggregata

* Fl. ♀ num adnat bipilatae v. rarius irregulares (All old world)

7. Relhanieae. Capitula aggregata v. distincta. Folia paros v. torta supra nec subtus concava v. incana (All S. Africa)

8. Athrixieae. Capitula distincta. Folia normalia. Recept. nudum. Styli rami truncati

9. Eurieuleae. Capitula distincta. Folia normalia. Recept. nudum. Styli rami apice rotundati.

10. Ophthalmeae. Capitula distincta. Folia normalia. Recept. paleaceum. Styli rami apice rotundati v. truncati.

There are opposite accessory characters as contrast and always as every where else some exceptions to the supposed constant characters but upon the whole the genera do better than the Asteroideae

The following are the short characters for the Helianthoids

* Spurias. Achenii longitudinaliter v. c. angulati v. ∞. costati omnes Zerorlogica

Genera Cylindrochiton, Blepharipappus et Athroisma

** Genuinae. Achenii parvi costati. Herbae. Gnaphalodea

Evaxa. Fl. ♀ ∞. seriati receptaculi paleis imbricatis subtecti ☿ nudi v. serie unica paleorum circumdati. Pappus 0

Pentocarpha. Fl. ♀ multiseriati in receptaculi depresso-globosi paleis cymbiformibus arcte inclusi, ☿ nudi. Pappus 0.

Micropus. Fl. ♀ uni- v. pauci- seriati in receptaculi cylindrici v. elongati paleis cymbiformibus arcte inclusi, ☿ nudi v. paleis planis subtecti. Pappus 0 v. [illegible] e setis perpaucis fugacibus

Subgenera pleraque monotypica 1. Bombycilaena. Fl. ♀ uniseriales, saepe stipitati paleis non echinatis inclusi, ☿ nudi; 2. Acanthoseris. Fl. ♀ 1-seriales sessiles paleis echinato-lanatis inclusi ☿ cum paleis paucis saepius intermixti 3. Diplocymbium (Gnaphalium Neff Notes IV. 260. p. 460) Fl. ♀ 1-seriales paleis non echinatis inclusi ☿ paleis angustis subtecti. 4. Stylochaeta. Fl. ♀ ∞. seriales paleis non echinatis inclusi ☿ cum paleis paucis intermixti 5. Ainsliaeocarpha A. Gray. Chon. Diplocymbii sed paleae inter. uncinato-cuspidatae.

Scaperia. Flores ♀ ∞. seriati paleis concavis subtecti ☿ paleis involuti v. subtecti. Pappus 0

Microseris. Flores ♀ 1-2. seriati paleis concavis subtecti ☿ paleis involuti. Pappus coroniformis.

Hologa. Fl. ♀ ∞. seriati exteriores v. omnes paleis subtecti v. subinvoluti. ~~Pappus setosus~~ ☿ nudi. Pappus fl. ☿ v. omnium setosus

Hologa (Trichogyne). Fl. ♀ ∞. seriati paleis hyalinis subtecti ☿ [illegible] Pappus fl. ☿ setis plumosis, fl. ♀ 0.

but there there are Madiea and others which I have not yet begun upon — In all the above genera except a few such as Helianthus Bidens & Gelanthus I have had to cook up almost every species and to examine a great many specimens of one — fortunately cold water does to soften the flowers

Permit — I have taken two sheets of paper for one and must now conclude I have not patience to read over what I have said so you must allow for slips of the pen

Ever your sincerely

George Bentham

Dr Robson

I do not like the breaking up of Rudbeckia some species left in Rudbeckia seem to be nearer to Dracopis and others to Echinacea and Obelicoria than they are to each other. Echinacea heterophylla Don has not the receptacle of Echinacea and is very near Rudbeckia californica. Think the whole together make one very good natural genus dividing into 5 if not 6 sections.

Balsamorhiza, Wulffia, Silphium, Silphiranolia Ch. Dip. (Tithonia scaberrima Benth and T. calva Ch. Dip.) and Borrichia must I think remain unbroken

In Blainvillea I should include Rigozyne the true B. gayana & B. decumbens are perhaps not different from the typical B. rhombodea. The plants I thought were DC's species of that name when I did the Flora Nigr are very different and true Coronocarpus

Of Wedelia (including with some hesitation Wollastonia) I have examined nearly 60 species besides several of Hook. and Lex & others which belong to other genera

Coronocarpus (which is Wedelia with neutral ray flowers) comprises about 50 species African and American including Ophthalmoidea DC (except ch. Ophthalmoidea which is a Wedelia) and a considerable number of Gardner's Nigriceras. The scale at the base of the achene which Ch. Dip makes such a fuss about occurs in several sp. of Wedelia Lagascea and others

Ogiera (Regelia Ch. Dip.) only differs from Coronocarpus in the habit small heads with the rays wanting or very minute. Gymnogyne microcephala Gardn is nothing but the common Ogiera.

Heave Lipochaeta as you have settled it

Zexmenia with near 30 species differing from Wedelia & Blainvillea in the more or less winged achenes should I think include as a section Lasianthaea DC. under which I should enumerate amongst others your Verbesina monocephala, V. aurea DC. Tithonia ovata Rob.&Greenm etc.

Oyedoea with about 22 species is Zexmenia with neutral ray fl. It includes a few of Gardner and my Viguieras and one of Gardner's Verbesinas (the other is a Viguiera)

Wyethia and Tithonia remain untouched except that the latter must be limited to T. tagetiflora and T. tubiformis - unless Berlandier's 1265 be a third sp. & possibly Thurberi n. gen a fourth. (including Bigelia androme Harpalia)

Viguiera with between 50 & 60 sp. is but very little different in char. from Tithonia - From the Ceylon specimen supposed to be H.B.K's original species (determined by Griseb.) the common Texan one must be the same

To Helianthus besides your N. American herbaceous species I think we cannot help adding referring some half dozen Andine shrubby species

Of Perymenium we have I believe 10 sp. Mexican and Peruvian

To Melanthera I am much disposed to add the African Lipotriche with ♀ rays and the Brazilian Echinocephalum and Abyssinian Wiermuchnitia with neuter rays the whole make a little genus of about 8 species very natural and fairly characterised.

Encelia as I think you have pretty well shown makes a very good genus if it includes as sections Dorathia Geraea and Lasia.

Salmea Helianthella and Actinomeris must ~~either~~ all remain, as near to but distinct from Verbesina. I should divide the latter into four distinct sections Euverbesina Hamulum Platyptera and Ximenesia

Podachaenium Benth (Cosmophyllum Ch. Dip) must stand good as well as Gelanthus

All the above will I think go into a subtribe Verbesineae - the following into Coreopsideae

Guizotia (including Pelmizia) Lyredrella and Microlenae all little distinct genera have the invol. of Verbesineae with the achenes dorsally flattened of Coreopsideae

Coreopsis besides the genera you have referred to it must comprise Bretinaria which is not even sectionally distinct from Agarista

Dahlia which Ch. Dip unites with Coreopsis though akin to it is as good a genus as most others

I find but little to alter in Melampodium Common Bidens Glossogyne (all old world for G. Brasiliensis Gardn is an Isostigma) Isostigma Chrysanthellum Heteropappus Glossocardia

This is as far as I have gone except some genera about which I have not yet made up my mind and I have not formed yet any general scheme for the division of Heliantheae in which I now see at least five groups Melampodieae Verbesineae Coreopsideae Tagetineae and Heleniineae

species of Perityle), Perityle (only the original sp.) Oxypappus, Burrielia (only the 1 sp. with acute style narrow involucre, etc) Boeria (Dicholta Nutt. Burrielia DC. exporta) Obelinolepis Platyomeris Nutt., Hymenoxys (var. Gr.), Whitneya, Lasthenia (Hologymne Bartl.), Monolopia, — Riddellia (Pilostrophe) Hulsea, Chaenactis (Acarphea), Hymenopappus, Syntrichopappus, Bahia (including Monolopia bahiaefolia Benth and M. saxicola Nutt = B. arachnoidea Torr & Gray), Schkuhria (Ichthyopappus) Amauria, Villanova (Aragoa H.B.K. Chlamyspermum Lag.), Florestina, Palafoxia, Rigiopappus Perezia (Galinsogeopsis Sch. Bip.), Amblyopappus, Thymophylla Gen. nov. (Petranthus thymoides Gray), Micropsermum

3. Flaveriae. Involucri, eglandulosi bracteae 1-seriatae aequales additis saepe 1-2 exterioribus parvis. Achoenia angusta aequaliter 8-10-costata. Sartwellia, Flaveria (Brotera) Cadicus.

4. Tagetae. Involucri oleoso-glandulosi bracteae 1-seriatae aequales additis saepe nonnullis exterioribus parvis. Achoenia angusta v. crassiora v. striata. — Porophyllum, Adenophyllum, Nicolettia, Dyssodia (Clomenocoma, Comachinium) Syncephalanthus, Hymenatherum (Ariphyllaea), Thymophylla (Lorellia), Adenopappus, Tagetes, Chrysactinia, Aplopappus?? Oxytes (Eupatoreae DC.)

5. Eucheleniae. Involucri saepius lati bracteae 2-pauciseriatae parum inaequales Achoenia turbinata v. subobloonga sericeo-villosa. — Cephalophora (Gnaphalium Benth) Helenium (Leptopoda Nutt. Dugaldia Benth. Actinea H.B.K. Amblyolepis DC. Kennebecia DC.) Guillardia (Agassizia, Cercostylis) Actinella Nutt. (Picradenia Hook) Hymenoxys Cass. Also Trichostemum?

Hosinia (Phenozyme) must go into Anthemideae Callilepis DC. and Nabalonium have long fine tails to the anthers and must go into Eupatoreae

Anthemideae as far as I have gone should never have opposite entire leaves but there are two African species Eumorphia DC. and Mecomischus Gerlinii Cass. that have small opposite entire leaves that I know not what to do with — They are unlike anything else — I shall wait and see.

29 Wilton Place April 9
[1870]

My dear Gray

Many thanks for yours of 21 March —

We have not your Balsamorhiza Careyana in all there that we have the ligula have a slender tube and are articulate on the achene. I think the little group of Helianthus a natural one and can find no better than that of the lamina of the ray flower being sessile or with a tube no longer than broad and persistent on the ripe achene. In many others where the ligulae are barren the achene does not separate but that is only because it is abortive and does not ripen

As you wish me to go on reporting progress and as I have now got into the midst of Anthemideae I send you a sketch of the groups I have attempted for any critical remarks you may have to give.

In the first place the three great groups of Helianthoideae Heleniae and Anthemideae certainly do run woefully into each other, and no character that I can detect twixt them as you place it absolute — Generally speaking Helianthoideae have a paleaceous receptacle Heleniae a naked receptacle and Anthemideae a different involucre — with subordinate accessory more or less general characters too long to detail here. Anthemideae have perhaps never the opposite leaves so prevalent in the others and the pappus when present is usually different etc. etc.

I propose ranging the Helianthoideae and Heleniae as follows (subject to rectification on revision after having gone through the remaining tribes) the characters here given are abbreviations, except as neglected.

Helianthoideae

1 Lagascea Capitula 1-flora glomerata involucro proprio gamophyllo cylindraceo. — Lagascea

2. Milleriae. Capitula pauciflora floribus ♀ sterilibus stylo indivisio, receptaculo proclei ambitum nudo. — Heptanthus Pinillosia, Tetranthus (excl. sp. nonnulli Griseb. Cubensis), Elvira (Microcoelia, Dermocephalum), Lautanopsis, Milleria, Adenocaulon Riencourtia, Clibadium.

3. Melampodineae. Capitula ∞. flora floribus ☿ sterilibus stylo indiviso, receptaculo undique paleaceo. — Ichthyothere (Latreillia), Polymnia (Tregonopennum), Espeletia (Libanothamnus Cass), Philogloss, Melanopsma, Dicranocarpus, Guardiola, Baltimora, Lecocarpus, Melampodium (Unxia Linn. non aliorum), Acanthospermum, Schizoptera, Tuxa, Silphium, Chrysogonum (Moonia), Berlandiera, Lindheimera, Engelmannia, Carthenium, Dioloteca DC.?, Carthenina.

4. Ambrosieae. Capitula heterogama v. unisequalia floribus ☿ sterilibus stylo indiviso antheris nubliberis inflexo. appendiculatis, floribus ♀ apetalis. — Iva, Cyclachaena (including your Euphrosyne), Euphrosyne DC. Hymenoclea, Ambrosia, Franseria, Xanthium.

5. Petrobieae. Capitula unisequalia dioica floribus ♂ stylo sterili ♀ antheris carei donatis. — Petrobium, Podanthus, Artemma?

6. Zinnieae. Capitula radiata ligulis in achoenio perfecto reflexibus v. subreconditis persistentibus. — Tragoceros, Zinnia, Sanvitalia, Heliopsis, Agenippea. —

7. Verbesineae. Capitula heterogama v. homogama floribus ☿ fertilibus. Achoenia dorsi angulata subteretia v. a latere compressa aristis 2-3 rarius paleaceis coronata v. calva. — Monactis, Rumfordia, Siegesbeckia, Jaegeria (Hedlacella Kock), Sclerotella Wedd., Eubezdra (Oxypteriospermum), Eclipta, Lepto corpha, — Aspiniphyllum gen. nov. Zaluzeria (Verdiaunda, Chrysophania, Chiliophyllum), Sabazia, Eumorphia?? Eymeromonia (Helianeri - the so-called pappus is often so minute that I cannot find it though sometimes rather prominent) Sclerocarpus (Aldama, Colospermum, Dichotoma Ch. Dip.) Montanoa, — Trocarpha (Duranta), Rudbeckia (cum syn. separata) — Chromolepis, Balsamorhiza, Tetragonotheca (Kalco), Wulffia (Tilesia), Mirasolia Ch. Dip., Calesia — Borrichia, Pascalia, Epallage, Blainvillea (Oligogyne Eisenmannia Ch. Dip.) Wedelia (Wollastonia), Ogiera (Kegelia Ch. Dip.), Aspilia Thou. (Coronocarpus, Dipterothrix Wittgenia, Aromorthphium), Lipochaete, Zexmenia, Ogedrea (Serpea Lond.), — Wyethia, Tithonia, Viguiera (Leighia) Helianthus (Harpalium, Flourensia) — Bergnemnia,

Melanthera (Lipotriche Dr. Tregonothrix Ch. Dip. Bothrocaulon Echinocephalum Lond. Wormskioldia Ch. Dip.), — Encelia, Gerrea, Baratia, Lasia) Helianthella, Actinomeris, Verbesina, Podachenium (Cormophyllum C. Koch, Dicalymma Lem.) Spilanthes, Acanocephalus Griseb. Garcilassa Bepp.

8. Coreopsideae. ~~Capitula~~ Achoenia plus minus a dorso compressa, coetera Verbesinearum. — Guizotia (Verbesina Vis) Synedrella, Trichospira, Heterospermum, Glossocardia, Mecrolecane Ch. Dip. Coreocarpus (Acoma), Coreopsis (Agarista, Bristnaria, Epilepis, Electra, Bugiopappus, Leptosyne, Tuckermannia, Campylothea?), Dahlia, Cosmos, Bidens (Actinia), Narvalina?, Glossogyne, Isostigma, Chrysanthellum (Kentrohabera Ch. Dip. Adenospermum, Hook et Arn.)

9. Galinsogeae. Achoenia paleis rarius aristiformibus ∞ coronata. Coetera Verbesinearum v. Coreopsidearum. — Galinsoga (Vargesia), Calea (Amphicalea, Calycomorphe, Stenga, Alocinna, Allocarpus, Meyeria DC, Tetrachyra Schlecht.), Baldwinia (Actinospermum. Alveolae receptaculi primo juvenilis evanescentes evidenter pilosae pubescentes, flores monocyclici Chorisetia, Stephanopappus, Indaya (Isogalgina Philostephium), Drabantia

10. Eupatoreae. Capitula heterogama in glomerulum capituliformem radiatum monocratum aggregata. — Eupatoria

11. Madieae. Receptaculum praeter seriem paleacearum extra flores ☿ monocyclicorum interius constituentes nudum. — Wilkesia, Argyroxiphium, Madia (Madorella Madaria Amoscopus Madariopsis Amida Harpocarpus), Hemizonia (Hartmannia, Calycadenia), Lagophylla, Layia (Madaroglossa Callichroa, Callieglossa, Callichiqris, Oregusia), Achyrachaena.

Heleniaceae

1. Jaumeae. Involucri bractea latae ∞ serriatae exteriores gradatim breviores. Achoenia angusta v. s. angulata. — Cacomia Bigelovia, Jaumea (Coinogyne, Espejia, Chaetomeria Hook et Arn.) Venegasia, Hymenothrix?

2. Doricieae. Involucri bractea sub. v. serratae aequales additis rarius perpaucis exterioribus parvis. Achoenia angusta v. oblonga v. a latere compressa. — Laphamia (including your and Torrey

April 20 [1879]

I had intended sending you more notes and one or two queries but have had no time. My Carria paper was wanting for press & having been read two years ago and I had a few old synonyms to hunt up which I thought would take me a morning and has occupied ten days

Many thanks for your letter just received with the enclosure from Prof Verrill for which I beg to return my warm acknowledgments – I feel bewildered about my address which I have worked upon for some time but have done next to nothing as yet and now the time is drawing near

Hooker has been heard of on his way but not yet of his arrival He has two friends with him and I believe he has obtained the leave (which was doubtful) to go into the mountains

Ever yours sincerely

George Dentham

for – I long to begin gravitis but I fear we shall be deranged by the Rubiaceae – Hooker has worked hard at them of late and got them far advanced – but this Atlas Expedition will have thrown them into the background

With kindest regards to Mrs Gray Ever yours sincerely

George Bentham

25, WILTON PLACE.
London S.W.

June 11/71

My dear Gray –

Since I last wrote to you I have got through the remainder of Artemisieae and the Senecionideae – also the Calendulae which make a small tribe much more closely allied to Senecionideae than to Arctotideae. These also I have done and have begun upon Mutisiaceae skipping for the present the tribe Inuleae which I believe after all will be better placed between Arctotideae & Mutisiaceae than before Vernonieae as I have of late years thought of doing. but I cannot make up my mind till I have done them all. In the mean time I have been much delayed by my Addisp which I am sorry to say has proved a failure. I travel

out too comprehensive a plan and found I had not time to get up all the necessary information – and then I can no longer put my ideas into shape so readily as I used to do. The day drew near and I had not half finished and what I had done had to be remodelled – and still it wavered unsatisfactory but there was no remedy – such as it was I read it and sent it to press – the proofs have been very slow but I hope to have the copies in a few days when I will send you one with a duplicate which I should be much obliged to you to give in my name to Prof Newall.

You will have seen Hooker's letters in the Gardeners Chronicle. His Atlas exploration is a glorious feat but I long to see him safe back. Last ~~week~~ ten days ago we were expecting him for a telegram came from M'Clow passenger with Hooker & Dalton to his wife to say that he was at Gibraltar on the 20th having been up the Atlas – now it turns out that M'Clow came alone leaving Hooker & Dalton encamped in the lower region of the Atlas whence came the letter inserted in last Saturday's Gardeners Chronicle.

We were thinking of leaving town for a couple of months early in July but now I think it doubtful – my rheumatism came on again worse a fortnight back and both M'Dougall and myself have had bronchitis for some time past owing to the extraordinary continuance of cold N.E. wind – and though I believe we are now going on well I doubt whether we shall get away comfortably – Probably therefore I shall be able to go on steadily with my Compositae which I shall not be sorry

return to Canine – who also very correctly expounded the functions of the collateral or non-seeing hairs as he terms them of the style of the antheriferous flower. Lapeirs account of himself is also interesting his early desire to act up to his name – the rebuffs which from political causes he met with and which prevented his following the astronomical and engineering careers of his great predecessors and his final adoption of the judicial line in which he rose to the chief judge of one of the Metropolitan Courts and in which capacity he found time for his cynantherological pursuits.

Why is it that we see nothing yet of any continuation of Flora of N. America. It is more than ever wanted now that your notes of N. American plants are scattered over such a number of Transactions Proceedings Reports of Surveying Expeditions etc etc that it is quite a Herculean labour to hunt them out – and you must only attribute to this cause any omission you may find of references to them

Ever yours very

George Bentham

I sent you by post a corrected copy of my Cassia paper

25, WILTON PLACE.
S.W.

Dec 25/71

My dear Gray

It is a long while since I have written to you – but I have been steadily at work entailing so much writing that I get very lazy at correspondence. I have finished the Compositae and wrote them out for press all but a few doubtful and references that I have to fill up here and there – this I do at odd times as I am now at work again on Flora Australiensis – there are few N. American genera that I have had to take upon trust having no specimens, these are

Anisophyllum A. Gr.

Monoptilon Torr. et Gr.

the little genus published in the same paper

Oxoria Torr. et Gr.

Have you specimens to spare of either of them?

I am puzzled where to put Clappia, our

specimen is very imperfect.

I was much puzzled [illegible] details

account of Baccharis with the ♀ in the center and the ♂ in the circumference contrary to the absolutely universal rule in Compositae – on looking at the fragment in his herbarium I am convinced that it was mistaken – the heads appear to be nearly and perhaps sometimes quite unisexual but I can see no ♀ florets surrounded by ♂ ones – the plant is a Baccharis of Allegri transferred by Walpers to Conyza on account of the pappus. We have very good specimens of a Conyza which shows a good genus nearly allied to Baccharis. Nuttall's Heterogyne may be an Oligogyne but I cannot be certain as I cannot examine the anthers in the fragmentary specimen. His Solenotheca is a Lagenophora his Heterodonta a Coreopsis and his Pterodonta a Heterosperma – and this despite of his Curvician Aregunia [illegible]

The following is the statistical result of my compilation

	Genera described from Mexico & Texas	Doubtful or monotypic genera	Neo genera	Total	Estimat. of species	Generic Synonymy
Vernonieae	35	3	3	41	465	62
Eupatorieae	33	2		35	705	208
Asteroideae	80	7	1	88	1470	155
Inuloideae	124	6	8	138	2150	209
Helianthoideae	127	8	5	140	1055	211
Heliantheae	56	2	2	60	290	29
Anthemideae	40	1		41	650	99
Senecioideae	39	1	2	42	1350	24
Calendulaceae	8			8	115	15
Arctotideae	16			16	250	33
Cynaroideae	35	1		36	800	120
Mutisieae	46	1	2	49	450	94
Cichoraceae	55	1		56	720	159
Total	694	33	23	750	9570	1345

After having gone through the order I turned to Cassini's general papers in his Opuscules – I had a great prejudice against him on account of the confusion produced by his enormous multiplication of generic names and his difficult terminology – I was therefore surprised to find how good his views generally seemed to be on natural affinities his system was I think much spoiled by adopting w de Candolle's deviations from it and most of the changes I had proposed in the latter are little more than a

Nat on classification and value of characters the other day and that on geographical distribution I shall see next month.

Have you seen Greisebach's new book? full of details which he has been very long collecting — but I should have liked more of summary and an index as there is a great deal to read to get at his views. He treats only (as the title expresses) of geographical distribution as not veiled by climatological considerations not at all with reference to origin.

Yours ever sincerely
George Bentham

25, WILTON PLACE.
S.W.

Feb 14/72

My dear Gray

Many thanks for your obliging 20th Jan and its enclosures I was particularly glad to see the Dencephalleae for it interfered with all my notions putting it into Eupatoriaceae with its yellow flowers etc. — I refer it with the Tupelogineae to Senecionidae — I find the style branches flattish with stigmatic areas running very nearly to the end which is a very short rounded or obtuse triangle appendage — I admit no heterogamous capitula or yellow flowers in Vernonieae or Eupatoriaceae

I made a mistake about Chrisocoma we had it already

We had also lately received Glyptopleuricus but I was at a loss to find out where it was published

I was very glad to see Decaria

though it is very well drawn and figured

I find our specimen of Clappia though rather rotten is good enough to figure – I find the large leaves on the main stem at least 3 lobed (not pinnately 5 lobed and I see in Galeotti's single specimen a second species which I cannot refer to Clappia though with a very different foliage

the leaves pinnate with 5 ovate deltoidate segments – the ~~[illegible]~~ palea or flattened axis split to the middle into about 3 fine setae – but the same setiform involucrals on the receptacle etc I think cannot put the genus with the Legumes not to think of, the road of gloaed I am having both species figured for the Icones Tamaulipan

I find I have forgotten Cassia Covenii as I have also overlooked Dalzell's Cassia goensis which must go into C. Timorensis

Mr Cooper Hooker has got his Rubiaceae all copied out – they are far advanced – we begin printing I am in the meantime filling up blank working up unknown and forgotten genera etc which takes up a great deal of time – and I am also at Flora Australiensis – I have received on loan from Copson some genera from Lehmann's Argentinian herbarium which are very useful – I have cleared up a great many doubtful genera but still there are too many remaining uncertain I make out about 750 genera of Compositae (Senecio & Calareoea have each above half a hundred synonyms) and I think the good species must be very near 10,000. – at least 900 Senecios I have a long tiresome paper about them for the Linnean I read shortly the

I have just finished the Orchipeados with pendulous pollinia but am just now much interrupted by the printing of my Mimosea paper and have had to finish up a paper for the Belfast meeting and as I wish to go down West to the country to see Col Pardanow who is seriously ill I believe I shall be away, till the end of the month

Yours very sincerely

George Bentham

Tell me what you decide about Millichampia If you wish I will keep it up.

25, WILTON PLACE.
S.W.

Augt 10/72

My dear Gray

The little Orchipeado you send (Millichampia) is only separable from Oncidiaceae (in which I include Bremop as Brown did) by the very concave almost cucullate lobes of the corolla I should not like to make that a sufficient generic distinction when only observed in a single species and unaccompanied by other differences the inflorescence and small flowers as well as the shape of the corolla in other respects are those of the Cuban Ch. ovalifolium. Engelmann says the lobes are valvate the flowers sent are already open but it appears to me that the membranous ends of the lobes overlap as in Oncidiaceae where the lobes are

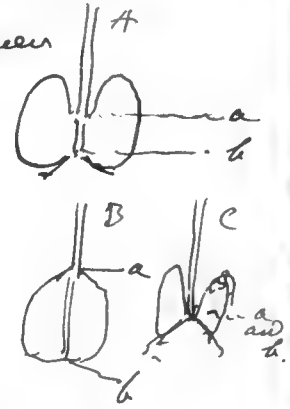
sometimes nearly valvate but never strictly so as in Metastelma – Brenop to my mind differs no more from Cynoctonum than Ker. Gawl. aphylla from O. Zeylanica or Vincetoxicum fruticulosum and V. (Cynoctonum) elegans from their twining hairy congeners

If you and Engelmann think Melinkampia ought to be kept up I have no objection but it goes rather against me unless other species with the same character are detected.

Secutera (Elliott's species) must go into Vincetoxicum (Orthonia)

It is indeed identical with Sprenbach's Amphistelma calmarum Vincetoxicum Amphistelma Orthonia and Cynoctonum run too much into each other to be generally separated

As to the so-called base of the style in Dictyanemus you are quite right in objecting to the term. I cannot now examine it but it appears to me that in Boraginea Labiatae Verbenaceae etc the carpels are in this position each one is divided into two ~~cells~~ (spurious) cells and in the two former orders (except Ehretiaceae) also two lobed but still the two lobes form but one carpel the style comes out a and the receptacle or gynobasis at b the intermediate portion being the septum or axis in which the ovary is attached by a broad base and lobed to the base I suppose the conical base must be called receptacle (or gynobasis) and there may be intermediates between A and B where it may be very difficult to say what is receptacle and what is axis. The same difficulty occurs in some Malvaceae Euphorbiaceae etc.



on the N. American Flora — a mere enumeration with references to the works where the species are published would be most useful even though unaccompanied by any characters — but a compilation such as Walpers copying diagnoses without attempt at modifying or improving would be still better — a critical Flora such as that you and Torrey began seems now hopeless during my life

Ever yours sincerely

George Bentham

25, WILTON PLACE.
S.W.

Oct. 22 1872

My dear Gray

I received this morning your Sequoia Address which interested me much as given in the Gardener's Chronicle and which I was therefore very glad now to have complete. I also received your letter enclosing Lemanpyx Byglossa and your new genus of Cichoraceae (of which I forget the name it being at Kew). The Lemanpyx is interesting as being an American representative of the typical Cichoraceae and indeed being so near to Cichorium itself that if it had been European one would be tempted to put it into that genus. I must beg you however not to send me any more new genera of Compositae just now for the ill of the whole is on the proceeds and the insertion of a genus

occasions great confusion in numbering and must unless deferred for Addenda the Cichoraceous genus does not matter for Lygodesmia is one of the very last in the order but Lencampyx will oblige me to change some two or three hundred numbers — and after this week during which I shall have the proof of all the Compositae General it will be too late to do that — I send off to you this morning the sixth sheet. Ten are in type completing Rubiaceae Valerianeae and Dipsaceae the first as well as Caprifoliaceae by Hooker the Valerianeae Dipsaceae Calycereae and Compositae by myself

I should like in my next year's Address to say something about the progress of physiological and anatomical botany which is so little attended to here in comparison to what it is on the Continent. Can you give me any hints about the most important papers recently published in Germany or elsewhere which I ought to read up? I find the task of a discourse to recur annually getting very heavy and the more so as after having made one or two which appeared to me to have been approved of I perceive that they have since fallen off and I feel that as I am growing older they must necessarily deteriorate besides inevitable repetition and yet the ascendency of the Society is in many respects agreeable as well as flattering so that I hesitate about giving it up. We shall I hope get into our new rooms next summer.

Is nothing doing towards bringing together what has been published in so very long a list of separate Reports etc

25, WILTON PLACE.
London S.W.
Oct 20/72

My dear Gray

Since I wrote to Friday I have examined your Chondrodephus and cannot make up my mind to keep it up as a genus distinct from Lygodesmia. In Scorzonera and others of the group to which Lygodesmia belongs there are frequently 5 or 10 of the setae of the pappus longer and thicker than the others and in one species of Lygodesmia – (the spinosus one) I find some of the setae thicker than others and often 2 united together some way up – similar unions of pappus setae have been observed in various genera and have several times made

use of so found genera which to my mind have proved always purely artificial and only serving to separate single species from natural genera — except perhaps in the case of Stachelina although there the character is somewhat variable. Chostodelphus is also so very much like Lagodonnea in all other respects that it would require more than a slight papery difference to reconcile me to its admission. Lencampyx came out just in time to insert it in the Compositae Generum to which it is type.

Yours ever sincerely
George Bentham

If Bryotacia we had a very good specimen given by Mettay to Sir W Hooker

the nature of a disk is very probable, but that the ordinary integument consists of two carpellary leaves is not I think proven. My own opinion is that it is not precisely homologous either to the carpellary leaves or to the ovular integuments of Angiospermae, that Gymnospermae and Angiospermae are not modifications one of the other but – if we must insist the derivative hypothesis – that either separate descendants from a common type in which the various organs were yet very little differentiated and that the differentiation has been so various in the different branches that the parts produced cannot always be strictly compared with each other either as to number or relative arrangement. Strasburger is an ardent disciple of Haeckel, and like Delpino gives full vent to imagination in the shaping out of genealogical trees. I do not believe that there is a tittle of evidence to show that Angiospermous dicotyledons are descended from Coniferae any more than that Compositae are descended from Lobeliaceae.

25, WILTON PLACE.
S.W.

Dec 9 1872

My dear Gray

In consequence of your note to Hooker I have sent you by post Vol. II part 8 of Hooker's Icones and will send the future parts regularly at 7/6 postage included since the 3d part of the 1st Vol. appeared. I have taken upon myself the whole charge of the work and am sorry to say it is a very heavy one which prevents our going on as regularly as I could wish. The plates of another part – chiefly Compositae and Rubiaceae are all ready but the descriptions are waiting till I get the corresponding portion of your General Enumerations out of the printing hands. I cannot induce them to proceed more rapidly than one sheet per week

so was the printing well still take a couple of months at least. I have sent to you all that have been as yet definitely struck off but there are always more sheets in type. I hope to send you two this week.

I regret Hooker's oversight about the fruit of Cynoglossum. I am afraid your acuteness will discover many such notwithstanding the time we have bestowed on the work. In Compositae especially where the characters are so vague and slight. I fear I may not always have been careful enough in verifying appearances. I have never forgot what Antoine Laurent Jussieu once said to me that one cannot expect to give good generic characters without working up all the species. And working up all the 10,000 species of Compositae would have been a herculean undertaking at 72. Fortunately Compositae are generally so easily softened in cold water and the internal structure of the ovary and fruit is so uniform that I have been able to examine many more species of the large genera within a given time than I could of almost any other order.

I have all but finished Dicotyledons for Flora Australiensis. I am now only working up the keys which I had delayed in hopes of receiving that part of the prodromus. But I now find that it will be many months before Bureau has got through them and I wants to begin printing. In doing Coniferae I have necessarily had to look at Miss Bunger's book which seems to be the result of very careful observation and is beautifully illustrated. I cannot go quite with him as to the homology of the integuments of the nucleus. That the cup of Lagenaria and

and if the limits of a genealogical tree
is to be made use of it must be very
differently understood. A question which
I may perhaps take up in my next
address.

I read your note on Euphorbiaceæ
at the Linnean last Thursday pray
send me [illegible] the
synopsis of genera as soon as convenient

Ever yours

George Bentham

25, WILTON PLACE.
S.W.

Jan 21 1873

My dear Gray

Many thanks for your last notes. Vol XII of Linnean Journal (Letters & American mosses) has been sent as you desired by post as it would be too long to wait for Geneva Nuttallian. I can very seldom get the printers to do more than a sheet a week and there are still six or seven sheets to print, and with the Index it will be full six weeks before the part is ready. Pray send me word by what channel the parcel is to be sent to you. You say I think that I may send you 12 copies. and I will

put up with them as you desire the Icones Plantarum for Torrey beginning with the new series (vol XI)

I yesterday posted for you two sheets of Gen. Pl. – to p. 304 – & if we have corrected to p. 600 the part will extend to beyond 1000 and there will be the bother of Addenda. We have received 2 new genera. Remya of Kirkbrand from the Sandwich Island a very distinct one which on account of some development of the upper stem in the legitate flower ~~[illegible]~~ he refers to Labiatiflorae but it is certainly not Monticaceae but allied to Grindelia though quite distinct. The other is an opposite leaved S. African plant near Ekebergia. M Brown and Bolus are continually sending us curiosities from S. Africa

I will attend to your directions about the address & bill for Torrey's novel

Yours very sincerely
George Bentham

I am working up Australian Orchids of which I think I shall have near 600

I have sent you clean sheets up as p. 352 – Proofs are corrected to p. 480 (in the middle of Centaurea) 2½ to 3 sheets more will finish. The correcting the proofs and checking the references is a great labour – I am also printing Flora Australiensis vol. VI and a long paper on Compositae read at the Linnean.

25, WILTON PLACE.
S.W.

Feb 7 12

My dear Gray

Yours of the 28th Jany reached me just as I am sending Addenda et Corrigenda to the printers. I have inserted the substitution of Bigelovia for Chrysothamnus. The part is there otherwise, gave me more trouble than any other and I have had to go over them several times twisting and turning them about without yet arranging them to my satisfaction. I had at first characterized Chrysothamnus under Linnaeus, but was puzzled with a Siberian species with ~~a white~~ the rays (when occasionally present) white and then studying what Schultz and other Germans have said about the European one I felt persuaded they were right

in referring it to a naylessi obtor (Galatella) so I struck out the Oldworld group and substituted Chrysothamnus for Linosyris, [illegible] the rest as I had already written it - and overlooked the priority of De Candolle's name.

2. Our specimens of Linosyris Bigelovii A. Gr have not the conspicuous centre of the receptacle figured in Pl. of Whipple. We have two good specimens one from Torrey the other gathered by Bigelow both sent by you. They are congeners but perhaps not conspecific for one has the achenes twice as long as the others with the same thickness. In both the apex of the peduncle bearing the involucral bracts is very long and when the bracts are off they have scars which might be taken for those of the achenes and the whole looks like a long or somewhat club shaped receptacle - but (as in Eupatorium, Pectinium &c) the flowers are only upon the extreme summit which is scarcely convex but in this L. Bigelovii seems slightly convex with the margin of the corolla slightly prominent here and there outside the flowers not in the centre so that either the receptacle figured in Pl. Whipple or those I examined must have been abnormal.

3 Xanthisma I kept up this genus as much on account of the receptacle as of the pappus though afterwards in drawing up the Compositae I forgot this character. I reduced Acamptopappus chiefly because you or Torrey have done so in Pacific Exped and we have no specimen.

4 Lepinzia looks more like the homochromous than the heterochromous Inuloids but seems out of place in either group - I have not hit upon any better affinity.

5 Hemiboea. The only specimens I have seen of this plant are Bourgeau's in which I found no pappus. Shimbreckia is I believe a different plant - I forget just now what I did with it.

Yours very truly, George Bentham

25, WILTON PLACE.
S.W.

March 14/73

My dear Gray

I have several letters to thank you for – the last came just as I was sending Addenda et Corrigenda proof for press and I put in two or three of the most important of your corrections that did not require much explanation – as to our having quoted Lamoalle instead of C. Wright there is nothing in our copy (without a title page) to show that C. Wright had anything to do with the names.

I am now only waiting for the proof of the Index which has been in the printers hands this fortnight – but all printers

seem to be just now particularly dilatory. I have a long explanatory paper on Compositae printing in the Linnean Journal which ought to have been out before this but it lags at the printers.

I have received for you from Kew (I believe for Cuban Hepaticae) £3.15.0 – against it you owe me 7/6 for Ec. Fl. XI. part 4, 7/6 for XII part 1 and 16/ for Linn. Journ. v. XII. total £1.11.0 – leaving £2.4.0 on account of the General Manuscripts which I shall send on soon as ready. We are printing also another part of Icones of which the plates have been all printed off these 6 months.

In these Icones and others where I have been figuring Compositae the great difficulty has been with minute details – not drawing merely I cannot get titles to be correct enough in outline tints and style – branches – he has even made a map of some diagrams I have had made for my paper in Linn. Journ. He draws for general effect beautifully but his analyses are never to be depended upon – we miss some of the German & French scientific draughtsmen. A good artist in England can get better paid than botanists can afford.

I sent you the day before yesterday a sheet of Gen. Fl. & p. 460. There are 5½ more sheets the whole of which are corrected but I have not yet the clean copies.

I am now very busy with Flora Australiensis vol. VI which I am printing the remaining dicotyledons forming half the volume are in the printers hands and the Orchideae – another quarter are nearly finished.

Yours very sincerely

George Bentham

25, WILTON PLACE.
S.W.

April 5/73

My dear Gray

I am really much grieved to hear of the death of your distinguished friend Dr Torrey. Although I have never had much correspondence with him I well recollect his visit here nearly 40 years ago when he spent a day with us in Queen Square Place and I have always fully appreciated his services to Botany and Natural Science in general both from his works and his patronage, and I know how you valued him as a friend.

I received ~~the~~ yesterday at the same time as your letter one from Messrs Backhouse and Tons enclosing £11 on your account. I hope to send you off the General Montarum early

next week It is a fortnight since I ~~have~~ ~~the~~ returned the Index etc for proof and yesterday the printer promised faithfully that we should have the copies on Monday – that means I suppose Wednesday

The sheet you have not received is certainly posted in due course and I do not know how to replace it – I have a duplicate revise but – not very clean.

I hoped to have sent you with the General my paper on Compositor printing in the Bibliographical Society's Journal but we have had great difficulty in getting printing work done with reasonable despatch and the printers have not yet got half through this paper of mine which will make a goodly double number – half full of twaddle you will say but I am getting old and old men will get prosy

I will write again as soon as I have sent off the General

Yours very sincerely

George Bentham

25, WILTON PLACE.
S.W.

April 10/73

My dear Gray

I sent off yesterday to Liverpool to be shipped by a Boston steamer a small box addressed to you containing our new part of Genera Plantarum which we have at last got from the printers. There was nothing from Kew to add as the progress of consolidation of the herbaria has been delayed of late by other matters which have taken up Oliver's time. In consequence also of Dr Torr.'s death I did not of course send the copy Plantarum he had ordered waiting for further directions. However, the 2d part of vol XII (11 new genera) was to have been out but owing to a blunder of the lithographic

greater it will be still some days before it is ready and I will send your copy by post. You will kindly tell me whether Columbia college takes the copy of the new series I have ordered

I have ventured to send 18 copies of the Genera. You say at least 12 I find you took 18 of Part III besides 2 complete which makes 20 but I will only charge you with them in your account as I hear that you have disposed of them. The publishing price is 24/ we sell them at Rew for ready money with the ordinary discounts that is at 20/- but as you take more than a dozen for disposal we charge you the trade price at 18/ in selling them you will of course have to add to the 20/ the expenses of freight etc.

I was very glad to hear you had received the mining stars ... the remainder of your copy was sent by post last week.

I am now very busy at Flora Australiensis about half the volume is in the printers hands and another quarter just ready for him. I then hope to go to Brachiopoda & Hemiptera

Yours ever sincerely

George Bentham

by Wrachtrupp & found that I could not venture upon any observation without a more searching investigation than I had time for – I cannot write these things off hand and each address has taken up a good deal more of my time than I had intended to give up to it. I am now seriously contemplating giving up the Chair of the Linnean and hope that some good Zoologist may take to it – We are about to move into our new rooms in Burlington House which will in some respects be more commodious and at any rate larger and handsomer. I am much put out also by Mr Bentham's state of health which quite debars me from my usual summer work.

Ever yours sincerely

George Bentham

25, WILTON PLACE.
S.W.

July 23/73

My dear Gray

Many thanks for your letter of the 9th inst which I received this morning with the enclosed Calandrinia Richardsii which I return herewith and hope it will arrive safe – I overlooked it in doing the Flora – relying perhaps too much for the American Eqpt. Equal Australian [illegible] on the set you gave me at Portsea – I endeavour to look up all described Australian plants but now and then I find I have forgotten one. This Calandrinia is very near C. Calyptrata but remarkable for its thick perennial root whilst C. calyptrata is annual I have duly recorded it in my interleaved copy.

I shall be very glad to supply

the publishers of the American Naturalist with copies of Gen. Pl. which they may require on your recommendation charging them the trade price and whatever I have to pay here for freight. – They would not take the box I sent you with the 60 copies without my paying the freight which was 12/6 – I am always puzzled how to send small parcels to you – I have now sending the bones of Mastodon for Columbia College and two copies of my paper on Coniferae which I would wish you to give to Mr Eaton and to any one else you think ought to have it. I hope soon to have also the 6th vol of Flora Australiensis. It is all in the greatest hand and all within three sheets in type – besides the index which always takes some time printing. It includes all the Monocotyledons with superior ovary.

I should be very sorry you should leave your present abode – though you might [illegible] yet you are now the greatest centre of American botanists and you are not old enough to give it up.

I received last night yours of the 4th ult I am flattered by your compliments about my [illegible] – the more so as it has not taken here – It will however very probably be my last I am now just 73 and I feel I can no longer do what I did – and have now to work out the subjects I am able to deal with that I feel that if I went on I should degenerate into the twaddle of age.

I had intended to have said more about Van Tieghem – but on looking a little into some of his papers I did not like his absolute conclusions about axes and appendages and finding that some of his observations as well as his deductions were disputed by Trécul and

and. but refund
sent Dr A

25, WILTON PLACE.
S.W.

Aug 20/77

My dear Gray

Recd yesterday yours of the —
I quite agree with you that I was wrong
in leaving Coulter's 290 in Bottonia
where I found it in the herbarium
the specimens were very imperfect
no lower opposite leaves to suggest
its not being interrupted etc. — and I think
no doubt you will find many other
improperly placed imperfectly known
specimens — I get sometimes a little
bewildered in the complexity of forms
with such very unsatisfactory characters
as those of Compositae — and I never
forget what old Antoine-Laurent Jussieu
observed to me when he was old and I
was young — that you can never settle
genera satisfactorily without working

of all the species - which I cannot find
must do for 1000 Compositae.

I have results small parcel of
which the Methonion Aspect
addressed upon desire to the
Herbarium [illegible]
containing the Flora addressed to
the Columbia College New York
and two copies of my paper on
Compositae for the Botany and
— which you kindly
accepted

I need your account on the other
side and enclose the Columbia
[illegible]

Then with the Schedule the amount
I owe, both of Gray which I pay
and I am therefore
much obliged to you.

Yours very truly
George Bentham

Dr A. Gray in account with G. Bentham

1871 Dec	Icones Plantarum	7.4	7.6	1873 Feb 7	Rec from the Kew Herbarium	—	3.15.0
1872 Dec	"	11.1	7.6	April	from Buckhouse & Cox		11
1873 Jan	Linnean Journal	XII.	16.0				
April	Genera Plantarum 11.1 & copies	—	16.4.0				
	Icones Plantarum	11.2	7.6				
Aug	Columbia College acc		2.17.0		Balance		6.4.6
		£	20 19.6			£	20.19.6

Paid. Oct. 6. by order on
Lindl Rice & Co

£ 6.4.6

A.G.

25, WILTON PLACE.
S.W.

Sept 24/73

My dear Gray

Just received your of the 9th and send a few lines in haste to explain the item of Linnean Journal XII. 1873 16/ It was in consequence of your letter dated Dec 30 1872 in which you say

"I find that I want another copy of Journal Linnean Soc. vol 12 (Lindens Illus. Orchid Ames) either let Reeve send it by post or retain it to read with" [Gen Pl. vol.]

that the volume was sent by post in January last as soon as I received your letter – and with the postage it amounted to the 16/ which I paid to Reeve

I have had nothing to do with any

subsequent parts which if not by you have been under arrangements made by you with Rippier – I found myself obliged to give up taking any part in the direction of the Journal

Yours very sincerely
George Bentham

25, WILTON PLACE.
S.W.

Oct 8/73

My dear Gray

I sent for you to Wesley last week (addressed Herbarium Harvard University) a copy of the new volume of my Flora Australiensis

When I received yours of the 9th Sept I answered immediately about the 18/ for vol. XII of the Linnean Journal - but now I find there are other points I do not answer - I shall be very glad to receive what is due to you from Reeve & Co and pay any matters out of it besides what you owe me or remit the balance to you in any way you may direct

I think I understood Rippin that

You paid for the four copies of vol XIII which is now complete — the first 2d of vol XIV is printing. Do you stop the copy that Torrey had or only Sullivant — and if Torrey's is still to be sent I suppose it must be to "Columbia College New York" but it will not be sent unless you give instructions.

In reply to the enclosure from Wright I must say that the authority of the names of new species ought to have been more clearly expressed in the title page or to each name — as it is most people will take them as Hooker did — to be Cavanilles, he being given as the author of the catalogue and there being no intimation of the descriptions or decriptions or names being Wright's.

My Lysiloma (Acacia Sonorae Rothomensis) is the true Mimosa latisiliqua Linn to which Chattanooga correctly referred Angel's specimens from Rio West Florida and I correct Lysiloma latisiliqua

Many thanks for the sheets you sent — the latter ones we had already the Leguminosae ones came just in time. Our copy still wants

pp. 41-48
177-200
209-216

Are complete copies on sale anywhere?

The following are corrections to some of Griseb's Mimoseae

— Mimosa digitotricha Wright = M. inerm Mart (Schrankia bracycarpa Benth. olim)
— Acacia tamarindifolia Griseb. from W Tex = Mimosa polyancistra Benth.
— Acacia stenocarpa Griseb. = Dichrostachys nutans Benth.
— Lemonea formosa Griseb = Lysiloma latisiliqua Benth
— Calliandra hygrophila } = Pithecolobium hygrophilum Benth.
— Pithecolobium calliandrifolium }
— Calliandra revoluta Griseb = Pithecolobium obovale S. Wr. (Inga obovalis A. Rich!)

Lysiloma Macrokiana Griseb. H. Brit. W. Ind is nothing but Calliandra portoricensis

Yours very truly
[illegible]

25, WILTON PLACE.
S.W.

Nov 10/73

My dear Gray

I have to thank you for various letters – for the completion of Lamvallis Catalogue – for your cheque on Reeve & Co which I believe I acknowledged immediately but cannot recollect I have been very very of late the Linnean Society have just moved into their new rooms in Burlington House and the Royal Academy began pulling our old rooms to pieces before we could get the workmen out of the new ones all was confusion the Secretary out of town the Librarian an excellent accountant etc but very slow and a good deal of the direction fell upon me –

The [illegible] copies of the Linnean

Journal Botany will be duly sent by post according to your direction

Now that our Library has expanded into the new shelves we have better means of seeing the deficiencies but there are any means of procuring for the Society the Zoological and Botanical portions of the several Reports of the Boundary and other Surveying Expeditions and especially such as Irene Watson's Botany of the Zoological Tour and Torrey's Botany of the Emory & Whipple expeditions etc – any of them that are not in the Smithsonian publications or in we have

I was much pleased with what you said of Principal Dawson's article in the Nation – He was made much of here and I went to hear him at the Royal Society but was much disappointed

I am very busy with Mimoseae which I have nearly finished and shall then go to Gen. Pl. – I have found great difficulties in the Genera of Mimoseae in a character which I had overlooked as it was said to be variable in the same genus and I had then few means of testing it – the presence & absence of albumen which appears to be constant in genera if limited as I proposed – the supposed Acacias with albumen prove to be Mimosas or Leucoeas which have it whilst I do not find it in any true Acacia I have examined

Yours very sincerely

George Bentham

and we are now rejoicing in the "transference" of his Chief Commissioner. We do not know yet who succeeds Lyttton but believe it will be one who has shown himself a warm approver of Kew.

Yours very sincerely
George Bentham

25, WILTON PLACE.
S.W.

May 10/73

My dear Gray

I have been for some time engaged in the Mimoseae for the Flora Brasiliensis which I have pretty well worked up to Mimosa and I find I have such an accumulation of notes and corrections to my synopsis now twenty years old that I am disposed to give a general revision in the light of my recent papers and for fear of forgetting some of your species could you get me a list made out of all your unpublished species with reference to where they are published? You would do me a service. I have reduced several of my species of Mimosa itself and yet I have now 275 of what I believe to

be good species — Now that more fruits are known the distinction between Habbaria and Ornerea quite breaks down and I have a different sequence of series — M. fragrans and M. borealis for instance cannot be separated into distinct sections the valve are not always articulate in the one nor always indurated in the other and M. malacophylla is sometimes a [illegible] sometimes [illegible] and M. [illegible] is sometimes a generous but not an absolute one — All my South American [illegible] except S. leptocorpa (which is P. hamata H.B.K.) belong to the true Mimoras — P. brachycarpa becomes M. inuica Mart and includes what we have as M. diplotricha of Wright's Cuban Plants — By the bye is that name published — the only copy we have of of Cavalli's list is in loose sheets and unfortunately the sheet in which are the Mimoreae is wanting Where can the book or paper be procured? If you could procure it for us [illegible] feel very much obliged

Griseback's W. Indian and Cuban Mimoreae are very badly — or rather very carelessly done In his desire to knock up my stamens [illegible] he says that Jacquin is wrong in figuring numerous stamens in Acacia tamarindifolia several specimens so named of Griseback's his have more than 50 stamens and the only decandrous one so named by him is a true Mimosa from the Cuban collection cultivated in the Botanic Garden. His Lepidoma Mascheana is nothing but a ~~Calliandra~~ Calliandra portoricensis in which the margin of the pod has been torn away accidentally from the thin edge and there are several other hasty conclusions which are to be regretted as they take much from the high value I had originally been disposed to attach to his labours.

As soon as I can get these Mimoreae off my hands I hope to get to Gen. M. again Hooker has just returned from a trip to Auvergne with renewed vigour

25, WILTON PLACE.
S.W.

Dec 14/73

My dear Gray

I owe you answers to two or three notes - but I have little heart for letter-writing where not necessary.

Thanks for all comparative notes - I will go with other criticisms & receive for consideration when I come to Addenda and Corrigenda for the 2d volume - if I live so long.

At the next Linnean Council (15th Jan.) I have set down for consideration a proposal to send to the Herbarium Library Botanic Garden Harvard University copies of the Botanical papers of our Transactions - we can make a few up separately as we send the Zoological to the Museum of Comparative Zoology.

I am far advanced in my Revision of Mimoseae having just about got through Acacia (all before it now); I find I was mistaken in ~~reference~~ considering the Mexican and Texan A. Coulteri in one species – I had the Mexican one in flower and Wright's in fruit only and the foliage being nearly the same I thought they were both one species. I have now from various source flower and fruiting specimens of both and find the two very different in both respects. I call the Texan one A. Emoryana.

Saunders' Refugium is unfortunately at a standstill owing to his failure in business which we all so deeply deplore. Probably however some arrangements will be made to complete the work in 3 volumes. I do not think that any part have appeared since what you have.

I have received the returned copy of Gen. Pl. part 1 and will credit you for it in the next account – I must however observe that it has come back so stained on the edges as to be quite unsaleable as new.

A new part of Icones will be sent to you in a few days.

Yours very sincerely
George Bentham

Kind remembrances to Mrs Gray and a happy Xmas to you all.

25, WILTON PLACE.
S.W.

Jany 22/74

My dear Gray

I have been this morning to Van Voorst and have got for you Laundon's Repertorium Vol. IV part 3 and Vol V parts 1 & 2 all that has been published since what you have – and they promised to send them by today's post – at 6/9^d each post & 2/6 postage on the three makes £1. 2. 9 – which goes to your credit

Yours very sincerely
George Bentham

They are addressed
Herbarium Library
Botanic Garden
Cambridge Mass.

25, WILTON PLACE.
S.W.

Feb 8/74

My dear Gray

The Linnean Council at their meeting on Thursday last resolved that the Botanical papers of their transactions since they have been separately obtainable and the Botanical portion of the Journal should be presented to the Herbarium Library Botanic Garden Cambridge U.S. I am now particularly [illegible] that this was ordered as at the evening meeting of the Society even[illegible] occurred which obliges me immediately to send in my resignation as President

Pray let me know the sum in pounds shillings and pence [illegible]

to pay for the 4 vols. recently sent you have procured for the society that I may credit your account with it and remit to you the balance due to you.

I have just finished my revision of the Mimosea — whether I can now give it in to the Linnean Society or not I do not know. I have sent the Brazilian Mimosea (20 genera 455 sp.) to Eichler for perusal. The total number of Mimosea I reckon at 29 genera and about 1270 species so that deducting the 290 the Linnean Venezuela Brazil includes a most a few more species of this suborder I am now at Genera Plantarum

Yours very sincerely
George Bentham

Dr Asa Gray, F.M.L.S.
To the Linnean Society.

1874.

Febr 13th	Journal of the Linnean Society Botany, Vol. 14 (incl of Nos. 73–80) 3 copies @ 9/- each	1 7 -
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Received for The Linnean Society
Febr 13th 1874 James West.

and probably Delphea filiger & worry
a Delphea — this bears the precisely the
relation to the longcalyx form that the
~~Delp~~ 2-florous Delphea Clermontioides
Laud. does to Clermontia grandiflora
figured in the same work. both the
latter differ from C parviflora in the
ovary 1-celled with ~~ovals~~ 
parietal placenta and ovary
all over the inner face as
figured by Gaudichaud Voy Bonite and as
I have verified in specimens. I have found
no such placentation in any other of the
group and have not means of ascertaining
it in Hillebrand's 1-florous species.
Possibly this might give a better character
for Clermontia than the calyx and so C.
parviflora might yet be made [illegible] but I
cannot venture to do so with the insufficient
data our specimens give. Can you help me?
I do not mean with specimens but with
your own observation.

Yours very sincerely

George Bentham

25, WILTON PLACE.
London S.W.
Feb 14 1874

My Dear Gray

Received yours of the 16th & 24th Jan.
Your account now stands thus

Vol. 1 part 1 Jen. Bot. returned	—	15.9
Books for Linnean Soc.		5.0.0
		£ 5.15.9
Icones Plantarum XII. 3	— 7.6	
Saunders Refugium IV. 3 and V. 1, 2	4.2.9	
Trans. Linn. Soc	— 1.9.9	3.0.0
Remains due to you	—	£ 2.15.9

which I will remit to you in any way you may wish.

Mr Keppel seems an unfortunate mistake in directing the copy of 2 parts vol XIV Linnean Journal intended for Columbia College &c

Dr Sullivan – If this cannot be set right on your side of the water I will have another copy sent to Columbia College – Pray let me know. Kep, it seems to have got a little bewildered in the bustle of moving. I have however no longer anything to do with Linnean longing affairs

The misprints you mention in your paper are as of the consequences of the deficiency in our editing staff which it was my object to remedy in the proposal that I have given an opportunity of creating the disturbance which has driven me from the Chair. I must observe however that your MS sometimes requires a little more distinctness in technical names. In your present correction for instance you have written Gordonieæ and Goodenieæ so much alike that I can scarcely tell which is which

I hope you will publish your Compositæ notes as I may not live to the end of the present volume of Genera

I have been looking through the Sandwich Island Lobeliaceæ and adopted the genera as you last limited them but they are very shady in some respects – especially as Delissea and Clermontia. Hillebrand has a Clermontia with 1-flowered peduncles and calyx a little more than half as long as the corolla and according to him a variety with the calyx short calyx teeth of

I write all this in case you may have any observations to send.

The Linnean storm has I hope blown off and as they have an excellent president to succeed me — Mr Allman who has consented to come forward in May — all will go on as before the only result of my resigning in this way will be open to say seeing that I shall be spared the time and trouble I should have had to bestow on the twenty anniversary address — I pend that matter have been quite enough both for my peace of mind.

Yours very sincerely

George Bentham

25, WILTON PLACE.
S.W.

March 11/74

My dear Gray

I have just finished the Campanulaceous group for the genera — three tribes Lobelieae Cyphieae and Campanuleae — the Cyphieae consisting of Cyphocarpus Nemacladus and Cyphia — I cannot see the homology of the ring of hairs on the style of Lobelia and the indusium of goodenoviae — the latter a peculiar development of the tissue corresponding if anything to the thickened cuticle of the stigmas of Co[illegible] — the [illegible] of the style in Lobelia appears to me to be precisely the same as the "collecting hairs" of [illegible] and [illegible] they are in many species of Cyphocoryne and [illegible] spread over the whole outside of

the Phyteuma tribe as in Campanulaceae. I would maintain Goodenoviae as a distinct order — Sphenoclea is not as good a Campanulaceae as any with the dehiscence of Lithophila and the inflorescence of Phyteuma circinata.

I cannot go with you quite with the close affinity of Downingia and Gramuncolotheca — I already pointed out in Flora Australiensis that the Australian Lobelia Downingia is a very distinct genus allied in some respects to the Hypsela and Rhizocephalum in the Japanese to Cyphocoryne. The Chilean Downingia has the ovarium sometimes 2-locular and so has sometimes the placentation as before — Downingia lives in Mt. Gardner but the disjunction is so very thin & slender that it soon disappears — the 3 valves are owing to the 5 repeats — the upper would split into 5 were it not that the placenta hold two back together and therefore there is necessarily one (3-2) narrow valve without a placenta and two broad ones with the

Chilian species appears to split only very hardly and only on one side

I cannot distinguish Dymicodon quite really from Specularia nor Dymicodon from Campanula. Several New Campanulas have dimorphic pollen. Campylocera is I think nothing but Specularia falcata introduced in the United States as it is in the Canary Islands etc.

Porterella of which Hooker has capital specimens besides the one just received from you, must I think go into Lonicera as also Lobelia Cunningham Mott. Gal from Mexico which is a Lonicera with the free ovary of Lobelia Xalapensis

Wedneys Bratias are Hypsela, his Bratia repens (Hypsela nemorosa, Bratia nemorosa, nemorosa HK BK) is not Lonicera but appears into Lonicera as it the latter has the split corolla of Lobelia whilst in Hypsela the tube is closed

I have at present

Lobelieae	—	22 genera
Cyphieae	—	3
Campanuleae		28
total		53 Campanulaceae

25, WILTON PLACE.
S.W.

April 3/74

My dear Gray

I have now done the Jasmineae including Oleineae ~~Jasmineae~~ O. but there are two or three points I should like to have your opinion upon

I have four tribes

1 Jasmineae Jasminum Menodora and Nyctanthes

2 Syringeae. Schrebera Forsythia and Syringa

3 Fraxineae Fraxinus and Forsteranea

4 Oleineae

a corolla imbricata

Forsteriea Chionanthus and Chionanthus

b corolla tubata liber

Linociera (including Fraxinus and [illegible]) ~~and~~ Notelea and Noronhea

*** Corolla imbricate valvate

Olea Ligustrum and Myxopyrum

The true Olea are constantly valvate and therefore O. maurithiana must be left up for O. americana O. fragrans O. equifolium O. marginata O. sandwicensis and two other Caledonian species

Chionanthus must be limited I think to C. virginica C. retusa from China and I believe an unpublished species from China

For C. mandora and Forestiera I adopt your views

Linociera is the great difficulty L. ligustrina, L. latifolia and L. malabarica (Olea linociroides Wight) have a woody endocarp and fleshy albumen.

L. compacta — L. glomerata Pohl and L. mandroccana Kth. as well as all the old world species of which the fruit is known except L. malabarica have a membranous endocarp no albumen and fleshy cotyledons

Yet I cannot well make two genera first because L. latifolia and L. compacta for instance are so much alike as to be difficult to distinguish in flower — indeed Griseb. Cuban L. compacta is L. latifolia although we have also the true L. compacta from Cuba

In Olea are at least a dozen species of which the fruit is unknown

Nyctanthes Griseb appears to me to be a true Linociera — it has no fruit

I am not quite certain of the restoration of Chionanthus virginica the lobes are so narrow and so laid open — but I see no signs of the twisting or of the margins as in Linociera. And the Chinese C. retusa which has the lobes like those of C. virginica has them certainly imbricate as in Forsythia

Dimorphanthes etc

Picconia goes into Globulaea
Pteroderma into Olea
Visiania into Ligustrum

Salvadoraceae are certainly very close upon Jasmineae and might be made a fifth tribe but we think it best to keep it as a small order

to Nîmes through a most picturesque country with Cevallic roads visited Montpellier and Cette stayed a few days near Antibes & near Menton visiting St. [illegible], of Thurstan of Hanbury – stayed a week at Florence where was a large congregation of botanists with very indifferent local organisation – three days at Venice and home by the Brenner Munich & Paris direct –

Ever yours

George Bentham

25, WILTON PLACE.
S.W.

May 20/74

My dear Gray

On my return with the Hooker from our excursion to Florence I find yours of April 17 for which many thanks

I am disposed to agree with you that the joint ordinal name should be Oleaceæ instead of Jasmineæ –

I do not say that Forestiera has "corolla imbricata" – at least I have not said so in my Compositæ generum but put it into a subdivision of "corolla imbricata v. 0" – Its general affinity is with that subdivision and I believe that if petals were developed they would be imbricate – the petals being wanting it is only general affinity that can place Forestiera in the imbricate

division and the apetalous Olea in the valvate division

As between Ormanthus and Olea I think you will always find the distinction strongly pronounced

As between Linociera and Chionanthus it is less so but in Linociera I better with a [illegible] albumen & find the petals very concave or undepressed or [illegible] narrow whilst in Chionanthus (Cuvier views a [illegible] 2 Chinese ones) they are flat with thin margins but whether they really overlap or not I cannot tell our specimens the rest [illegible] no young seeds and stones to go to set, we know

Friedrich compounded L. compacta and L. latifolia which are much alike in flower (though distinguishable) one with the other w[illegible] albumen. I forget now which is which

I am now think in Apocynaceae – Have you among the Fiji plants the Carrutheria Seem. which I have little doubt is made up of flowering specimens (which we have very good) of a plant of the Echitoideae usually known (after authors with the fruit (which we have as figured but detached) of Orthepeda – if you have Carrutheria with its proper fruit pray let me know what that is

Urceola Roxb. is certainly made up of the flower of a very distinct genus with Echitoidean anthers and fruit (which we have from Malacca) and of the fruit of Orthepeda

Orthepeda includes three or four supposed African & Asiatic genera and its remarkable fruit – like some large globular laberinthomontanus has often attracted the notice of collectors

I have had a very pleasant month trip with Mr Hooker from Paris – we by the new railroad from Clermont

I think the authors give an excellent
premium character in Apocynaceae in which
I propose to tribes

Carissieae. Antherae a stigmate liberae loculis
basi ultra partem polliniferam non productae
Ovarium integrum

Plumerieae Antherae a stigmate liberae loculis
basi ultra partem polliniferam non productae
Ovarii carpella distincta v. rarius ubiconnata
et solubilia

Echitideae Antherae medio stigmate adhaerentes
loculis basi ultra partem polliniferam
productis. Ovarii carpella distincta v. rarius
ubiconnata saltem in fructu maturo solubilia.

In the first two the corolla lobes are usually
but not always sinistrorsum obtegentes in
Echitideae usually but not always dextrorsum
obtegentes. In both the lobes are usually but
not always twisted in the direction opposed
to that in which they overlap.

In the first two the seeds are almost always
without coma in Echitideae almost always
with a coma the exceptions are Holarrhena
with the authors of Plumerieae and Malouetia
with the authors of Echitideae

The passage from Echi[illegible] to Asclepiadeae
is but little more marked than that from
[illegible] to Plumerieae

In a day or two I go onto Asclepiadeae
I have ever since of
George Bentham

Lennoaceae belong to a group that Hooker is
working up. Mr Lindsay's views seem to me very
plausible

25, WILTON PLACE.
S.W.

June 30/74

My dear Gray

I have two letters of yours to
acknowledge

First about Brobanche and Melipora
I cannot give any opinion of my own till
I come to work them up [illegible] what you say
looks very plausible – such a character as a
dot seen in the vernation of stamens
is [illegible] when coinciding with good [illegible] is
of no, [illegible] greater weight than any
thing relating to tracts which I believe
are seldom if ever of importance in
a [illegible] Compositae they are called to higher
functions such as replacing placental
envelopes – and we now begin to find that
geography in aid of generic character
when cautiously used, is often of value and
has been too much neglected.

Many thanks about Geranthe that
set me right in a matter I much doubted

I shall be obliged to suppress Lisociera but still the three strap[illegible] species of C. virginica and the two Cuban species will make a section [illegible]

I have finished Apocyneae except a few doubtful specimens I have still to work up you have of course but little to do with them in North America. The Echites differing little referred by A. DC to Forsteronia has none of the characters of that genus except the slenderness of the follicle which is next to nothing, but seems to go very faint into Secondatia. Haplophyton and Cycladenia stand as well marked monotypic genera the Mexican-Texan Cheiroctonia are three members of that genus (or subgenus) I am inclined to adopt [illegible] Mueller. Arg's S. American genera which are well worked up [illegible] new genera and species in V. Henschi genus Ol. Novo are many of them bad

Apocynum appears to me to have the [illegible] of the ovary half immersed in the fleshy disk lining the short broad tube of the calyx and the ovary is then partially superior and still more so in Echnocarpus including Cleganorma Dor and [illegible] Arg. [illegible] in [illegible] and in Epigynum Wight, Lepiniopsis Mueller. Arg. Pray look at Apocynum with this view

Tabernaemontana has an older name Trachelospermum Lemaire.

Among Wright's Cuban plants Anechites Poiret is a well marked genus of which E. [illegible] much like true ripe fruits a [illegible] varied follicle in our specimen shows the seed winged at each end as it ought to be [illegible] not comose as described on tradition

Echites cinerea A. Rich from Cuba is Haplophytum cimicifugum

Echites circinalis Griseb. M. Brit. W. Ind. as is the St Vincent plant is Holarrhena antidysenterica from the Botanical Garden

— Mauwolfia? strempeliodes Griseb. has follicles and forms a new genus (Strempeliopsis) allied in some respects to Amsonia

I have no observation to make on Amsonia,

25, WILTON PLACE.
S.W.

July 29/74

My dear Gray

Received yours of the 16th. I shall feel much obliged by any generic observations on Boraginea and on any other gamopetalous order. I hope to go on reading till I get this 2d part of vol. 2 in the printers hand.

I have just had an opportunity of myself also examining a living specimen of Apocynum. This seminipetion occurs in a few genera of Apocynea and as far as I have gone in one genus of Asclepiadea (Stheroandra)

Trachelospermum was Lemaire's name for Linnéi's Rhynchospermum jasminoides as distinguished from A. dichotomum. I mentioned the matter in conversation to Masters and

I am thinking of attending the Belfast meeting next month but that will not keep me long from my work

Yours ever sincerely
George Bentham

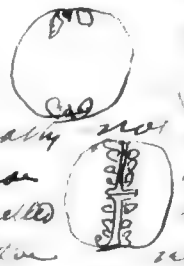
he blundered it into the Gardener's Chronicle without adverting to the A. jasminoides not being DC's Rhynchospermum

I have now done Periploca and Cleanthe and got far ahead in Asclepiadeae verae with pendulous pollinia. Decaisne is generally so exact that it is a pleasure to work after him but he stuffs too much to the corona and makes unnatural genera. The corona is remarkably constant in species but in many genera varies very much from species to species. Asclepias and its allies are very unnaturally grouped – and I cannot make them much better. Asclepias itself is the best marked but it must include two African species (besides the ubiquitously introduced A. curassavica). Asclepiadeae has nothing whatever so far as I can see to distinguish it from Gomphocarpus. I see in Gomphocarpus Schizoglossum (including Lagoranthus and Stipedoglossum) and Xysmalobium but there are several species in each much more like corresponding species in the two other than the other species of its own genus. The corona in Gomphocarpus shows wonderful diversities in different species but indicates no natural groups. Decaisne is I think quite right in uniting Cuiberia with the American Cacrostemma but I think there are quite characters enough to separate them from the Old World leafless Cacrostemmas for which I retain the name uniting the American ones under Philibertia – the typical Philibertia is nearer to the Old World Oxystelma than to Cacrostemma. I have nothing to change in Eustelma or Podostigma. The Indian Raphistemma is very closely allied to the former.

meeting in the centre [illegible] down
[illegible] placentae
[illegible] and this remain attached
to the ends of the valves in
dehiscing

(Gentiana lacustris Halenia etc)

In the third tribe Swertieae the placentae
exceedingly thin or often scarcely discernible
line the walls of the cavity or
each side of the suture [illegible] in
a single row on each side of the
suture [illegible] this is usually not prominent and
even in those Halenieae where the
ovary is 1 puncture & called
attached to the sides of the [illegible] the ovules are
the [illegible] not or
all this passes into the
placentation of Obolaria and Bartonia
in which the four placentae are [illegible] not
[illegible] and cover almost the whole inner
surface



The fourth tribe Menyanthea
have nearly the placentation of Swertieae
but the pairs of placentae are more consolidated
and [illegible] the dehiscence the [illegible]
usually bursting irregularly owing to short
valves or not at all.

Now Hesperochiron will do for
[illegible] of these the placentation is neither
extra marginal marginal nor intramarginal
[illegible] capsular valves) but the capsule
is loculicidally revolved with the placentae

25, WILTON PLACE.
S.W.

Nov 1/74

My dear Gray

I return you your Acerates I
cannot unite the genus with Asclepias unless
you throw in the whole of Gomphocarpus. If you
make the genera purely geographical without a
character you must do the same with Asclepias
Marsdenia Metaplexis etc which have species
in the old and the new world and if you do so
what would you do with Asclepias curassavica
for instance. There is a tropical African Asclepias
which has been hitherto recorded as a Gomphocarpus
(and unfortunately so named in Speke & Grant's
Nile though corrected in the text) but also has
been named Asclepias, with a very prominent
horn in the usual corona scales and indeed
closely allied to A. curassavica in habit colour
etc. only specifically different in the few large
flowers & minor points. There is also a few
Asclepias amongst Schlechter's Lagarenthi the
presence or absence of an inner horn scale or
appendage to the corona scales which separates
Asclepias from Gomphocarpus Schizoporeum from
Xysmalobium Cynanchum from Vincetoxicum
(including Cynoctonum) is a bad character and
forms unnatural combinations but I at least

cannot find a better one the world. Here very large series of species and when two large genera are separated by a sharp & constant character in the great majority of species I am not for uniting them on accounts of one or two ambiguous species without very good collateral reasons. As far as our present knowledge goes the American species of Asclepias and Gomphocarpus (Acerates) would form a natural genus — natural as compared to American Asclepiadeae — but in Africa it is very different — some have the characters and habit of the American Asclepias, some have the habit but not the horns (the latter seed & fruitions resemble more Cynanchum in habit than it does many of its congeners) and many have a distinct habit. The whole series of Asclepias & Cycnoloboeum run into each other and in differences in the corona form very unnatural groups but better ones certainly cannot be found without a long and careful study of every species and perhaps not even then. I should therefore under present circumstances keep our Gomphocarpus and when there is a reduction in a speculation within the Acerates series I would put the species into that genus — here it is most at home in other respects.

I observe in the enclosed an inner or upper series of small corneal scales between the Acerates nectaries and alternating with them as I have occasionally found in a few species of Metastelma and some other genera. I had not observed them in the Asclepias group but may have overlooked them as I have found them elsewhere of no generic consequence and after examining two or three sp. of American Asclepias and Acerates I thought it useless to go through them all.

I have now done Loganiaceae, Gentianeae, Polemoniaceae and almost finished Hydrophylleae and want your advice about Hesperochiron. I have carefully examined flowers & fruit of both species H. californicus and Phlox pumila and cannot make up my mind to bring them into Gentianeae. I divide that order into 4 tribes chiefly according to the placentation discarding the connective and persistence of the style as absolutely impracticable in Gentianeae, which are all old world. The ovary is completely 1-celled with placenta centrae left free (the two units or separate) by the decurrence of the capsule in the great mass of Chironieae

the margins of the carpellary leaves more or less intruding in the cell and sometimes

in the centre of the calyx a state of things unknown in Gentianeae — Griseb. says that the placentas are along the angles of the carpels in the Chilbean is I think all bosh — I find nothing of the kind

But ought not Hesperochiron to go into Hydrophylleae? — besides the capsule the corolla & habit is totally unlike any Gentianeae. Do look into it and give me your opinion

The three genera of Menyanthea are scarcely distinct but may be maintained if M. crenata is kept in Menyanthes and Villarsia restricted to the S. African and Australian species

In Polemonieae you have saved me a world of trouble. In Hydrophylleae I follow you in reducing Eutoca to Phacelia — of course Whitlavia & Microgenetes must go to it — as well as Cosmanthus though I cannot help thinking that two genera might have been kept. You however know best having examined more species than I have

Nemophila of course goes into Eucrenis

Indeed your Eparoflora is I believe identical with the original M-Lutea

I see you keep up Coroattius - which may be done chiefly on the remarkable habit.

Vigandia is another genus which connects Hydrotaceae with Hydrophyllum the placentas in several of the flowers I have examined do not quite meet in the centre

I believe in a former letter I told you of my three tribes of Lorganiaceae Selemieae Eulorganieae & Loeselneae the Eulorganieae divided into 3 subtribes Spigelieae, Buddleieae Lagoseae Galiieae and Wrightieae

I am now going into Boragineae

Ever yours

George Bentham

25, WILTON PLACE.
S.W.

Nov 10/74

My dear Gray

What do you say to the following arrangement of Hydrophyllaceæ

1 Hydrophylleæ characterised by the peculiar placentation – Styles 2 fid

1 Hydrophyllum & Nemophila and Ellisia as you have characterised them

2 Phacelieæ Capsule valvae medio placentiferae (v. semiseptiferae placentas amplectentibus). Styles 2. fidus v. indivisus

4 Phacelia (including Eutoca Cosmanthus Whitlavia and Microgenetes)

5 Cosmanthus

6 Hesperochiron

7 Tricardia

8 Romanzovia

9 Emmenanthe (including Mettetia)

10 Draperia

11 Codon

3 Pamieæ Capsule of Phacelieæ Style 2

12 Nyandra 13 Eucrypta and Nama

[illegible] Gray E. T. letter appears to be [illegible] with [illegible] Emmenanthe parviflora

4 Hydrolea Capsule valve, inequivalves, placenta
septo adnatas liberantes. Stigma 2

15. Hydrolea [illegible]

I am not quite sure about Draperia for we have no ripe capsules but they quite decided it appeared to me that the placentae were ready to part so as to remain attached with the semiseptum to the valves as in Nama

In Wigandia & Eriodyction I have several times found them not quite meeting in the centre

Cordia Ehretia etc which I have just done do not much concern your present Flora Miers has much multiplied genera and still more species and I cannot agree with him in dividing orthotropous ovules to Patagonula and Auxemma in both I find the ovules attached near the base of a column but laterally as in Cordia Auxemma indeed very well figured by Allemão as a Cordia only differs from the "illegitimate" in the enormous enlargement of the calyx.

I am now going to Coldenia etc.

I cannot answer your just get about Lavatera & Withering in but well look into it in a day or two as I have all Boraginea & Convolvulaceae to do before I come to Lorenza which may be too late for you

Send me your opinion about the above arrangement of Hydrophyllum

Yours very sincerely

George Bentham

25, WILTON PLACE.
S.W.

Nov. 14 [illegible]

My dear Gray

I do not know whether you will receive by this post from other sources the sad news of Hooker's bereavement – Mrs Hooker died suddenly yesterday afternoon. I was over there in the morning and went up to the drawing room to consult Mrs Hooker about some of my family matters when she was in her usual health and spirits and as usual most kind and friendly and this morning coming out to Kew I very nearly on the bridge by the sad intelligence. I found poor Hooker sadly cut up he was in town on business at the time Harriet was with her mother and the poor girl is exceedingly affected

I feel the loss very much. I had been a great deal with Mrs Horner this year – at Howick and at Belfast and I believe she never had a happier twelvemonth than this last one – gratified with her husband's position, pleased with her family and friends – ever at work and with fewer anxieties and better health than usual – she had but a few moments uneasiness at the last before she became senseless – it is supposed a heart attack so that she has been spared the long lingering illness she dreaded for her old age but she is a terrible loss to husband and family. I will write again soon

Ever your sincerely

George Denman

rarely Lithospermeae with the flat or small areola on a flat receptacle.

Anchusaeae comprehend Cynoglossum Borago Asperugo Anchusa Lycopsis Nonnea

Lithospermeae have first Pulmonaria and Alkanna so with are always Anchusaeae Mertensia Eritrichium Myosotis Moretia (Moretia) with ebracteate racemes Antiphytum Macromeria Onosmodium Lithospermum Arnebia Macrotomia Lobostemon Echium Echiochilon and Cerinthe with bracteate racemes

Before I go further a word about gynobasis I am much puzzled about what to call it – It is the same when quite flat as in Echium or style like axis Eritrichium (Krynitzkia) as you well observe that it is not strictly a gynobasis,

I take it that the prolongation of the summit of the pedicel or floral receptacle above the floral whorls so as to raise the carpels is called gynobasis when it is fleshy and vertically so as to become a

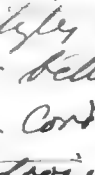
25, WILTON PLACE.
S.W.

Dec 7, '74

My dear Gray

Yours of 26th Nov with proof of notes on Boraginaceae reached this morning was very welcome & have now so far advanced in Order as to have made up my mind as to the general arrangement except Cynoglossum & a few small or lead genera which have still

I have distributed Cordiea Ehretiaceae Heliotropiaceae & Boragineae – the three former with terminal style the latter with the style basal or between prominent lobes of the ovary – Cordiea characterised as usual Heliotropiaceae by the stigma although it is not quite constant In Tournefortia rosmarinea and a few others the style is any way and at the end – in



like this sometimes apparently terminal or nearly allied

species there is a very small ring which is more conspicuous in another passing into the normal one of T. & y. are —

I keep Coldenia and Heliotropium large and comprehensive as you have done but I think Rhabdomorpha or Schleidenia makes a good section distinct from Euheliotropium — but as I have not work up all the species I am not positive about section — I cannot keep up Piptoclaina as a genus — H. sepicum & H. Europaeum can never be put into separate genera — my section Platygyne for H. curassavicum is not a good one several other species have nearly or quite that stigma — annular as in the Schleidenia genus but the central apiculus very little prominent so as to give the whole stigma a pileiform or almost umbrella shape — I do not keep up Heliophytum — but think I must retain Cochranea for the nutlets are perfectly consolidated in pairs into two celled pyrenes or carpels

An approach to the Heliotropoid stigma is in several Lithospermum the two globular stigmas separated by the bifid end of the style sometimes more as long as the stigmas now is very short or quite disappeared

Now as to Borago — the genera run into each other so pretty that we may have ~~three~~ four sections Echinospermum and its allies with a conical or columnar receptacle which perhaps may associate with Cynoglossum etc which I have not sufficiently looked at

then shaggy genera like Rochelia perhaps associate with the conical or protruding receptacle with ventrally attached nutlets as in Echinospermum but the areola concave and bordered as in Cynoglossum

then Cynoglossum with the nutlets with a concave and bordered areola but borne on a flat receptacle

prominent border in section the border is an outgrowth on the inner of ripening fruit is a hard ring 2 which has separated centrifugally from a corresponding prominent ring on the receptacle and within this one when the nut is fully ripe and shelly there is a concavity both in the nut and in the part that has remained persistent on the receptacle. Moreover attached to the concavity usually of the nut sometimes of the receptacle there is a shrivelled white substance usually called a strophiola or carunculus, but what is nothing of the kind whether a strophiola means a dilatation of the funicle or a production of the testa of the seed round the funicle looking at the nuts before they are ripe the cavity between the nut and the receptacle does not exist it is only as the ~~seed coat hardens~~ this outer ring in which one the seed's hardens that the inner substance gradually dries up and forms this unmeaning appendage which I do not well know what to call.

The real funicle in most Boraginae is filiform and passes through a very small hole in the bottom of the hardened shell of the nutlet on the side next the stipe. I have sometimes traced it almost to the base of the stipe. In many Lithospermeae the little hole is very conspicuous you mention it in Eritrichium Lithospermum.

Eritrichium is I think properly excluded in your sketch to include Krynitzkia. I must exclude however DC's sections Brachybotrys and Endogonia — Decaisne's Brachybotrys are true Mertensias DC's small flowered species & his Endogonia make a genus between Mertensia and Myosotis. The nutlets are either [illegible] or [illegible] or something of the kind either lying almost on a point or usually stipitate on a flat or nearly flat receptacle and smooth and shining or pubescent usually angular. The genus are I believe all either East Asiatic or Japanese. I must take Turczaninow's name Endogonia only I recognise it in some other publication genus not yet identified.

You said if Torrey (Not Wilkes 1848) & Gray's [illegible] is Myosotis [illegible]

the answer is certainly not — but it appears to be the same as Coulter's n. 500 endemic of Mellatlán just coming into flower, named by him Allygorella tuta. Scowler's plant M. mucronata Hook & Arn. is quite different. It is larger, the terminal cyme on a long peduncle, rather dense, with several bracteoles (2 or 3) starting from the same point; the flower larger with a broad limb and the nuts considerably mucronate.

Are you aware that the original ~~Amicrocal~~ Amicodia lycopioides is not the Lithospermum lycopioides Lehm in Hook & Arn. as per Scowler — the latter differs from the rest of the genus in the flower being all yellow or accompanied by leafy bracts and the corolla lobes are narrow and almost indeplicate. It has, however, the true Amicodia calyx.

I cannot identify the Mexican Antipterum — it Lithospermum. I have already examined and (I believe with Reddell) put it into Eretrochiton. The Australian ones are quite distinct. Inflorescence all the leaves opposite, bracteate, minute flowers and nuts (stipitate on a flat receptacle) nearly of Moritzia (Moritzia).

stipes to the pistil or pistils, did when it is dilated horizontally beyond the carpels or more or less enclosing them. Now the part in question in Borages is neither but is composed of the receptacle closely cohered with the persistent base of the pistil in the flower we have usually  the two lobes of each pair belonging to one carpel must of course be connected with each other and with the stipes and therefore we up, a well homogenous mass must consist partly of the base of the carpels, but we cannot say how much is carpel how much is receptacle for there is no line of separation. On consulting with Hooker we think it best when speaking of the ovary to call in support Dick which it chiefly consists of (for we cannot adopt a theoretical terminology) — and when in fruit as the whole persistent part becomes clearly distinct from the nutlets (avowedly portions only of the fruit) we call it receptacle.

There is another difficulty in terminology in the so called perforate nuts (that is those in which the areola of attachment is concave and surrounded by a

Dear — as soon as you can the proofs of what you present on the gamopetalae and any observations you make. as I am preparing on as hard as I can work.

If you can manage to keep Eulava distinct from Thaelia and not separate naturally allied genera transcribe them with a view. I should be ready to adopt the distinction but Cremanthus Thellavia etc cannot be natural; kept up.

I have been today 8th at Gymnogrammeae. I see Nindera must include Litthia I must keep up Paraceraceae except one or two genera I think Poirier is wrong in taking from Litthia Gymnogrammeae remains large and includes several that have been wrongly put into Echinosporeae. I think I shall keep up Onychoideae as limited by Poirier but have not yet examined it

Ever yours, George Bentham

25, WILTON PLACE.
S.W.

July 29

My dear Gray

Just received your note the enclosed is the best I can do about the Californian Bottonid (Dichelostemon)

I do not object to reducing Oxyhantochaeta to Pentachaeta I was half tempted to do it myself

I have had misgivings about the Pentachaeta gracilis but unfortunately could not reexamine it at the last revision the specimen was [illegible] back to Drapels

Yours very sincerely
George Bentham

Bentham's letter in reply to Dr. Gray's suggestion that Pentachaeta gracilis Benth. (1872) was identical with Oxyhaphus scaber Benth. (1844)

11

Prof A. Gray to G. Bentham

Genera Plantarum vol 1 — 1.17.6

Hook. Icones Plantarum XI part 4 7

£ 2.4.6

Recd — George Bentham

Oh, arborescens Linn. out of which Miller made two species of Brachistus (without having seen the specimen or the plate) is a true Physalis Linnaeus ~~described from Miller~~ took it up from Miller and Miller's very good figure shows genuine leaves solitary petiole the true corolla and vesicular angular fruiting calyx of Physalis – and nothing to do with Brachistus. Miller describing a tall thick almost woody stem of 10.12 feet gave rise to the name arborescens as has been given to many herbs which simulate trees – It must be a very luxuriant perhaps distinct species of Physalis but a certain congener.

Capsicum Barosma and Brachistus are three genera with the fruiting calyx unchanged very near each other but distinguishable.

Many thanks for your excellent eloge of Hooker which was well deserved.

Yours very sincerely

George Bentham

I put Wheldon as a tribe of Convolvulaceae – Gravenhorstia is a very distinct genus – there are several ovary to each (2) cells or ovules, the fruit is drupaceous with usually 1 bony nutlet

25, WILTON PLACE.
S.W.

Sept 15/75

My dear Gray

I have several notes to thank you for and especially for the proofs from Proceedings which I make full use of.

I cannot identify your two Antirrhinums with any of our specimens. I should rarely think them congeners with the Brazilian ones which have strictly opposite leaves and the nutlets are attached by a small almost stipitate areola at the inner basal angle to a flat receptacle.

The small perforation through which passes the filiform funiculus is common to a great many of the hard nutted Boragineae.

I have done Convolvulaceae. Hydrolea and Ledera go into Hydroleaceae I think without doubt and are indeed nearer to some of Brown's Hydrophyllaceae

Yours truly

than are the great tropical ones — some

of the African ones certainly approach Bonamia in habit but I think they all have the true Convolvulus corolla the broad short lobes or angles connected by deeply pleated intervals whereas in Bonamia (which I have in bud only) the corolla lobes are quite distinct, deeply cleft but having outreds to the margin without any folded connecting — having thus the corolla of Ipomoeae in Lycostylis & Decaloba (although larger) not that of Convolvulus Evolvulus Breweria etc. so that I think Bonamia must remain a monotypic Madagascar genus (said to be an erect tall shrub) and Stictocardia Seddera and Breweria merge in Ipomoea

I have begun upon Solanum & think that your Chamesaracha must stand as a distinct genus nearer to Physalis than to Saracha — the latter has always an enlarged very spreading fruiting calyx leaving the whole fruit very exposed and a deeply lobed corolla Athenaea (which includes Saracha vicosa coloured figured by Don and probably Athenaea (Carnarp) has a deeply lobed corolla and the fruiting calyx enclosing the berry — membranous and much enlarged often vesicular but not angular — Saracha are all West & S American extending from Bolivia to Mexico — Athenaeas are tropical Brazil & Bolivia to Mexico or at least Central America — Your Chamesaracha is limited to your species. S. acutifolia which is founded on a poor fragment with a few buds and one open flower the flowers all simple rotate not "connected & pleated" and to my mind it is a genuine Physalis the specimen too imperfect to match with certainty and perhaps an undescribed narrow leaved species with a rather large corolla

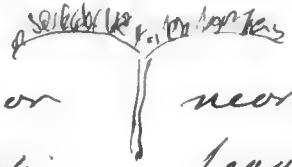
25, WILTON PLACE.
S.W.

Jany 16/75

My dear Gray

Since I wrote I have seen a tracing of the Hitchcock drawing of Antiphytum Mexicanum which looked so Heliotropium like that I went over carefully a number of unnamed Heliotropia and there I found Oersander's 2217 type of Antiph, this Heliotropoides which I have examined and see nothing to separate it from Lithospermum sect Rhytispermum Greene under identical with Lithospermum Amplexicaule Martens et Gal. Our specimen or rather specimens have only one pair of opposite leaves, under a separation

all the rest are alternate. The rude drawing of A. Mexicanum is different the bifurcate cyme is pedunculate and the leaves are rather broader



some opposite or nearly so others alternate. I cannot identify it with any specimen we have. I must keep up Antephytum for the two Brazilian species and add the Mexican one as a doubtful one. but A. heliotropioides must go into Anthoperanum

Yours sincerely
George Bentham

the Society and always at a word from me gave up any peculiar ideas he may have had – now he is a good deal less wrong matter

Brookeinera Berendtia Hemichroma and Lemocarpus form a little group in Chelonieæ with Loculicidal or bacca fruit – Brookeinera coming near Chelone Petraneme is also loculicidal but comes nearer Pentstemon

I do not know what to do with Griseback's Synapsis from Cuba We have not a flower to spare per examination on our specimen.

Yours very sincerely

George Bentham

25, WILTON PLACE.
S.W.

Wed 1/1/75

My dear Gray

Since I last wrote I have seen the original specimens of Thyspalis arborescens – Horeton's from Campeachy and Miller's specimen. It is a true Thyspalis though differing from the rest of the genus in the apparently woody stem and the pedicels fluctered instead of solitary. Miller's specimen shows the common Thyspalis flowering calyx and corolla and the fruiting calyx he figures is normal

I do not agree with you in keeping up Tonella as distinct from Collinsia I have opened several ovaries and always found 2 or 3 ovules in each cell except once when there were only 3 in the ovary altogether – Geyer's specimens and some of Gouldings referred in Torr & Gr to Collinsia tenella (Tonella) have rather larger flowers otherwise like Tonella and

in habit and foliage of Collinsia parviflora — the latter often requires only one or two seeds in each cell and the middle lobe of the lower lip of the corolla is not near so complicate as in the typical Collinsias

Your Phrenbrechtia is a fine genus but cannot go into Chelonea — with Lemophytum and Heteranthera, two very different genera you will see in mind it has all the leaves alternate with the Scrophularineae corolla and stamens — the two latter cannot go with Calceolarieae into Calceolaria — they do not fit even into any tribes of Scrophularineae so I think I must make a little group of the three genera connecting Scroph. with Bign.

I do not know where to put Chionophila the original specimen is very small and in bud only and the only flower I could examine was imperfect and did not show the bearded palate — the good specimens you have supplied fully characterize the flower but we have no fruit. You say you have seeds and can therefore say what it is — Can it belong to the Gratiotieae which in other respects it comes near to than to any others.

Is not Lacunaria Kellogg a true Selaginella — the S. linearis has a wide range along the coast and the small floral leaves are sometimes almost terminal — and if Kellogg is at all right about the dehiscence this must be a second species not very far from the typical one — It cannot well be a Selaginella

Very sorry to hear by your last that you have been unwell. We can ill afford to have you laid up even one at a time — Pray let us know that you are better

I forwarded your note to Rippit who writes to me that he has complied with your wishes — I go but little now to the Linnean Society and seldom see Rippit. He is a great stickler a trifle and always required Reaney in order but thoroughly well meaning and devoted heart and

fruit is rather a dry berry than a capsule yet it does not open in valves and the embryo figured must be taken from an unripe seed when the embryo is still short as in many Solanaceae where it is cylindrical or spiral when fully grown — What have you done with Streptis 156 an unripe specimen & his fruit only.

Solanum luteiflorum Dun is a Chamocarpa very near coronopus but perhaps distinct

Nicandra physaloides Gaertn. Dot Enoy Lycium 155 and Dioscorea Pedata Lodg. 156 are surely both the same and from our very bad corollas show a Nicandra — not at all a species of which I have 3 or 4 all southern

I think Leucophyllum must come into Myoporineae

I wait your criticism — and expression about Orycites.

I embark now upon Scrophulariaceae

Yours very sincerely

Geo. Bentham

25, WILTON PLACE.
S.W.

Feb 7

My dear Gray

I have now done Solanaceae & find they must include Salpiglossideae as I strongly inclined to from the fers I made of trebes partly natural partly from artificial but I cannot do better.

1 Solanoideae Corollae aestivatio plicata v. valvata. Bacca. Embryo subperiphericus valde curvus v. spiralis.

2 Atropeae Corollae lobi imbricati non plicati. Bacca et Embryo Solanoideae

3 Hyoscyameae. Corollae aestivatio plicata v. imbricata. Capsula circumscissa (excepta Datura). Embryo Solanoideae

4 Cestreae. Corolla (tubo saepius elongato) lobi induplicato-valvati, v. rarius imbricati non plicati. Bacca v. capsula. Embryo rectus v. arcuatus curvus, cotyledonibus saepius radicula longiores latioribus.

Solpiglossidae corolla limbus sæpius plicatus simulque subtilissime plus minus imbricatus. Stamina 4 didynama ~~cum~~ quinto minore sæpe effecto v. deficiente

The link between the 4th and 5th is Nicotiana on the one side and Petunia on the other

I think I wrote in my last that I must keep up your Chamisaracha as a genus intermediate as it were between Physalis and Saracha and the Nanatipolen Miers is probably a true Physalis

Your Nothocestrum is I think a good genus connecting Withania with Acnistus

Saracha vesicaria is an Athenaea

Withania is restricted to the Old world Hypnoticum Dunaleia and Withania proper

Your distinction of Tabacum and Nicotiana is very good but I think the genus Nicotiana must include besides the Polydicli, the Laccanthus which is not so different as I thought at first and Lehmannia all if you like it as sections but making together a very good genus

Petunia and Nierembergia go of course into Solpiglossidae. Keep up Bouchetia for the B. erecta which is your plant and appears identical with Nierembergia anomala Miers and N. stolonifera Sendtn. Bouchetia procumbens N. is in every respect a true Nierembergia the same as Galeotti n. 1450 and Bourgeau n. 60 but B. erecta has the corolla and stamens of Petunia with the stigma of Nierembergia. N. linifolia Miers is a genuine Leptoglossis – strike this out Nierembergia is a very readily distinguished and natural genus. N. anomala Dun is compounded of Miers' plant with the Petunia parviflora.

What is Bryctes C. Watt. which we have not. It seems to me to be called to Wright's Plants 1582 (not quoted in Boissier's Egypt. and so it must be nearly allied to Lycium and Dyssodia (the true Thymophylla) the

each with reversed of Pallas's label all Unalaska or islands between Kamtchatka and America – not from Kamtchatka itself – and though Pallas I believe never was there still I have no doubt the locality is right and the plant really Willdenow as Pedicularis under and the name very probably different. It is a true Pedicularis with the rafflesiacean x flowers of P. Menziesii but the anthers glabrous it has a woody rhizome or candex and is not fruticent. The leaves are something like those of Chelone nemorosa there is an empty capsule but no seeds you must admit it in your Flora

Brachystemon Berendtia Hemichroeus x Leucocarpus form a small group of Chelones with Lonicerias or rendcheria pretty Scrophularia ciliata Lonicera but with a different habit

I shall have to bother still two or three odds and ends of Scrophulariaceae to write to you about

Ever yours
George Bentham

25, WILTON PLACE.
S.W.

March 25 / 75

My dear Gray

Many thanks for all the trouble you have taken & send me so much information by your of the 11th just received – glad to hear you are getting all right again – the weather has cut up our friends very severely We much regret Sir C. Lyell as we were on intimate terms with the family and though almost blind he had recovered a great deal from the loss of Lady Lyell and his conversation was most agreeable – we are also very intimate with Mr Lyell sister of Lady Lyell & wife of Sir Charles's brother who died a few days before him – We are now very anxious about Daniel Hanbury treasurer of the Linnean Society whose

excellent work on pharmaceutical plants
very lately published and whom we all
like and esteem very much was [illegible]
[illegible] very [illegible]

I have just done Scrophulariaceae
and cannot arrange them quite to
my satisfaction I think I must
have first a series of Pseudorobanchaceae
with Scrophulariaceae extraction
the upper lip outside and leaves
always alternate – with 3 or 4
small tribes 1 Heteranthera
2 Gratiolaceae & Leucophyllum 3
Optozimeae and 4 Verbaceae
then Scroph proper
Calceolaricae
Hemimeridae
Antirrhineae
Chelone &c
Manulea
Gratiolaceae among which Limosellaceae
form a subtribe consisting of Hydranthemum
Microcarpaea Bryodes Eucopa Reptidium
Glossostigma Amphianthus & Limosella
then Rhinanthaceae three tribes
1 Digitalis with subtribes Rothrophieae
Digitalis proper and Veronicaceae
2 ~~Gratiolaceae~~ Gerardieae with
subtribes Euphrasieae Hypobancheae
Orobanchaceae and Gerardieae proper
3 Euphraseae
I follow you in Castilleja Gerardia etc
Schwalbea is interesting from its
close connection with Lyphonostegia &
Lequereuxia which must go into
Lyphonostegia looks so exactly like
Schwalbea americana that you must
look closely at the calyx lobes and capsule
to distinguish it
I have seen the original specimens
of Rhytidomus proteanus Lamk. there
are two sheets with 2 specimens on

for his trip – but death has played rad havoc with our scientific friends – We much regret Gustav Thuret who has just died suddenly – poor Hanbury is a very great loss.

Now as to Brobanchea with a former letter of yours before me the genera are all very closely connected but such as they are I admit it.

Reuter putting Brobanchea (Tournefort) with Cistanche into Phelipæa "Boreau" (thus Tournefort's species was most reprehensible but I think that the Armenian cocciniea and Caucasian Biebersteinii must stand alone and the for your American one you must keep Mitchell's name Aphyllon.

Pudlicher made a blunder about Tournefort's plant calling it Ambletum instead of Phelipæa – Tournefort's Ambletum is Lathræa squamaria with the curious corruption (as he explains) of Ohnblatt (without leaves) into Ambletum which he says ought to be Ohnblatum!

25, WILTON PLACE.
S.W.

May 22/15

My dear Gray

Just as I am sitting down to write to you about Brobanchea which I have just finished your letter of 7 & 11 comes to hand which I shall in the first place answer

Calliandra hirsuta This was in the first place a specimen I received from you as from the Cambridge Botanic Garden from New Mexican seed and which thought was C. tweedii was with perhaps some mistake as to the origin – till on having up from Oxford some of Pavon's specimens I found it was identical with Don's Inga hirsuta from "New Spain" which seemed to confirm their being such a species in that country so I adopted it – subject to further enquiry. In Pavon's plants I do not in general find any confusion between those marked "N. Esp" or "Mexico

España" which I believe are mostly Mexican plants – those "del Perú" of his own gathering and Guayaquil or Theagaquil chiefly Tafalla's besides C. Tweedii does not grow in this part of South America.

Lequeremia is a genus of Boraginea from the Levant – Armenia I believe and goes into Lithospermeae though at first sight exactly like Echiochilon and really all but congener.

We have begun printing four sheets are in type – you shall have a copy as they are definitively printed off.

The following is the sequence as far as done in type or at the printing

LXXXIX	Stylidieae	4 genera
XC	Goodenovieae	12
XCI	Campanulaceae	59
XCII	Vaccinieae	26
XCIII	Ericaceae	52
XCIV	Monotropeae	9
XCV	Lennoaceae	3
XCVI	Epacrideae	26
XCVII	Diapensiaceae	6 genera
XCVIII	Plumbagineae	8
XCIX	Primulaceae	21
C	Myrsineae	23
CI	Sapotaceae	24
CII	Ebenaceae	6
CIII	Styracaceae	7
CIV	Oleineae	18
CV	Salvadoraceae	3

Copied for press but not yet sent to Hooker the number of genera is not yet absolute

CVI	Apocyneae	102
CVII	Asclepiadeae	160
CVIII	Loganiaceae	30
CIX	Gentianeae	40
CX	Polemoniaceae	8
CXI	Hydrophylleae	15
65 CXII	Boragineae	63
65 CXIII	Convolvulaceae	27
CXIV	Solaneae	67
66 CXV	Scrophularineae	153
CXVI	Orobanchaceae	11

and I am now at Gesneraceae testudinaria are done but come neither later

Hooker has just returned all the letters

May 22 1945

My genera are

Alectra Lour.

Pedicularis Tourn. I do not find the calyx quite as described but have not sufficient material.

Thelypera Benth. in Bot. Mem. Bot. (not H. Alt.)

Orobanthus sect. Stylotheca Endl.

Christisonia Gardn.

Alectorolophus Wight. Two of Wight's Christisonias go I think into Lamphellen belonging to Scrophularineae (Hydrobanchen)

Cistanche Lichtenstein Hoffm.

Thelypera Benth. H. Alt.

Aphyllon Mitch.

Orobanthus Euanoplon Endl. and

Lower sect. Notothaphyllon. – as you have rightly put them

Orobanche

Boulardia F. Schultz (Ceratocalyx Cos.)

Orobanche and Trionychon.

Lathraea Linn.

Clandestina Mart.

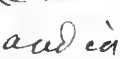
Conopholis Wallr.

Dorchnia Rea C. A. Mey.

Epiphegus Nutt.

The characters are very shady – the calyx & corolla give perhaps the best the 4 equidistant placentas – or approximate or connate in pairs run into one another

Orobanche and Lathraea are very distinct as to European species but in some of the Asiatic species those of the two genera are so nearly alike that the one is sent for the other by Karelin & Kiriloff and others

The lobing of the stigma is often very obscure and gives a very shady character. Still in Orobanche the lobes are generally lateral and in most other genera anterior and posterior that is the stigma is generally  with a bending to a depressed transverse line  which gives the anterior & posterior lobing and to an anterior and posterior contraction  which gives the lateral lobes but often both are very obscure or irregular. I find it sometimes very convex sometimes quite hollow and infundibuliform varying a little according to age.

May thanks for your paper on Hydrophyllaceæ just come and for the abstract of my Belfast report

Yours very sincerely

George Bentham

25, WILTON PLACE.
S.W.

July 9/75

My dear Gray

I write a few lines to thank you for your last letter – I shall examine your new Boraginea (weights like an Erlotrichium) & your notes on Scrophularineae when I come to work in some other memoranda before sending my MS to the printers which will not be for some weeks yet as they only get through about a sheet a week & the Apocynea & Asclepiadeae they have now in hand will fill five or six sheets – You will therefore have time for – and I will be much obliged if you to send me the existing characters you offer for the unitled genera Mimulus

Dr refer Verticella Miltes to Salay with which it can have nothing to do – May it not be Hydrophyllum appendiculatum?

I have just done Generaceae including Gyrandraceae and am now just attacking Begoniaceae

I have had a melancholy interruption going down into Herefordshire to the funeral of my wife's brother in law Mr Cudamore – – our Herefordshire connections are now quite broken up

Yours very sincerely

George Bentham

Did I tell you that Sterchymenia grew in Solerophylax Miers? – poor Miers has I am afraid made rather a mess of the Lecythideae one new genus is made out of a single accidentally injured ~~corolla & stamens~~ flower which was found in the panicle of the specimen to which it really belonged

25, WILTON PLACE.
London S.W.

July 11 / 75

My dear Gray

In hunting up doubtfuls Cytisus andreae, came upon a unni Cytisus hera (Dijon 707 which appears to me precisely to agree with your copy in Lobelii and must I suppose take precedence – If you object pray let me know immediately

Just began Begonias on the outside I find that Vireau and Miers between them cutting away out Begonia ulmifolia, which I can't stand B. corrodata uncini and sequinoctialis are put into three different genera upon characters which appear to me partly public partly imaginary

and at most specific – so far I have gone I think that Aegnoria after many deletions must remain in very genus – but I foresee much work

I have sent you 5 sheets of general & hope to have a more to send next week. Proofs are now in Aposymeon

Yours very truly
George Santayana

Oliver is away on his holiday and will be back in a fortnight or three weeks

25, WILTON PLACE.
S.W.

July 26/75

My dear Gray

Just received yours of the 15th. The Compositæ from Guadeloupe island is to my mind unmistakably Osteroidea homochroma. The style is precisely that of several Bigelovias and Baldwias. The plant is indeed very near the latter genus – I find generally 1 or 2 ♀ ligulate flowers in each head – the leaves at least right wonderfully like some European Inulas but the anthers & style are quite different.

I shall look at the Boraginaceous genera when I finally revise the order – not perhaps some two or three weeks hence

I am now at Bignoniaceae and have met with another good job of yours which his Tecoma tetubora of which he ingenuously describes the inflated calyx as enclosing a woody fruit is identical with his Cordia longirostris. We have not his ~~Bignonia mentula~~ Catalpa purpurea – our N. 3037 of Wright is evidently his ~~T.~~ Tecoma bibracteolata ~~but here may be a clerical mistake~~ a very distinct species ~~or may have come to the conclusion that his T. bibracteolata is the same as T. mentula – &c. (and if this be my right) and unfortunately enrolled them in my MS.~~

I cannot agree with Mr Bureau in the expansive division of Bignonia into genera founded mostly on the examination of one species with a queer other – but as a Bignonia large divisible probably into a few good sections when the fruits become better known – I think Tecoma and Tabebuia too distinct in habit to be united but I cannot break up Tecoma (Enterocoma Griseb.) into a number of monotypic genera – but I have still some work before I have done with it

Yours ever truly

George Bentham

not that of the tribe Boragea I therefore suppress Mocino's subjectives and keep the name up for the Brantian genus which have a very peculiar habit. The leaves are not all opposite in Mocino's figures

Chiis is much better than Griebach's in the species he thoroughly has examined but he has to my mind very little notion of what a genus should be - He has made a sad mess of his Angeumeae about being published in Transactions. For His Angeumeae is a good genus though only technically distinct from Cordia (in which it has just been well figured at Rio Janeiro) but the other genera are pure Cordias allied to C. Sebestena - and as to his characters of the order Angeumeae distinguished by erect atropous (his name for orthotropous) ovules that is all fudge - In Cordia we alternate in laterals with a superior micropyle varying from D to D and vice versa but never really basal and atropous is a bad word meaning fixed and immutable tropous it is Greek is derived from τρέφω to turn but it is botanically used in the sense of direction orthotropous in a straight direction anatropous in a

25, WILTON PLACE.
London S.W.
Aug 21/75

My dear Grey

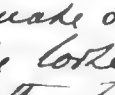
Just received your of the 6th & 11th Macphaat for the Minutes note which are in good time. As to your other notes - We both determined on keeping up Vaccinieae after much hesitation but moreover it most acceptable to botanists in general

As to corollate versus contorted I had thought with you the former the better term and had adopted it throughout - Gray in where the petals usually overlap in one direction and twist with the opposite direction (sometimes however overlapping and twisting in the same direction) but Hooker strongly objected and upon looking into A. Jussieu & other French botanists finding that they give corollate in genera and differences seem lost in and altered corollate to contorted so that we have lobi ~~dextrorsum~~ contorti dextrorsum obtegentes sinistrorsum tortis etc. I have sent you sheets to the middle of

Oleaceae I expected to have sent you two more this week but the clean sheets are not come. I hope to send three next week. We print regularly one sheet a week & cannot get the printers to do more. Apocynaceae and Asclepiadeae are all in type – the proofs just received goes into Loganiaceae. Gentianeae, Hydrophyllaceae & Boraginaceae are in the printers and this morning I sent them Convolvulaceae. Your Harpagonella and Lithodoxa are two curious genera.

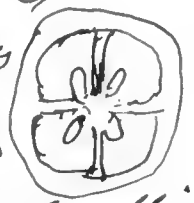
I have got through Generaceae, Bignoniaceae and Pedaliaceae and have begun upon Acanthaceae – Pedaliaceae have been marked groups which I am surprised Decaisne did not make out – whatever unusual in him he looked at the outside not the inside of the fruits.

Martynia & Ibicella and Proboscidea is not easily a genus have the ovary

Corolla and 

are the ovary, the ovary ones

Durium Sterodiscus and Harpagophytum have it 2 locular 

Nogrea Bramantonia Ceratotheca Sesamum and Josephinia have the cells spirocoidly divided into two cocelli 

I find generaceae Bignoniaceae and Pedaliaceae separated by positive characters without ambiguous genera which – Solanaceae & Scrophulariaceae and Orobanchaceae run into one another with a merely arbitrary line of demarcation.

I had not at first recognized Coretherion as a Batrachytrium Helicotropoides but on carefully comparing it with Netladeria bad specimens find you are right – but I think it an undoubted Entoriechium and on comparing the drawings of Morenia flexuosa & M. mexicanus with various specimens I can only match it with a Mexican Helicotropium the inferiorness is certainly

reversed direction amphitropous in an ambiguous or betwixt and between direction amphitropous a u-turned direction so that atropous would mean in no direction at all. I believe the invention of this term rests with Lindley who was no Greek scholar.

If you have any Sh. or Ranunculus or Verbenaceae I shall be glad to have them as soon as possible

Yours very sincerely

George Bentham

3. Stachideae – with a peculiar capsule (Betandieae including Brendonia, Blepharis, Acedalaea, Thus and Blechum)

4. Trichanthereae (Ruellia or Amphiglyx, Acanthopsis Trichanthera and Mavavanica or Dicheacanthus)

5. Strobilanthereae – well distinguished from Eremitieae by the insertion of the stamens (Hemigraphis including most of Ruellia, Menoichoinum Strobilanthes and Richmondia)

I am now making seven or eight genera which Nees made out of Barleria

Having done Geneseanae Dicranacanthus I shall when I have got through Acanthaceae have got through the difficulties of my task – for Verbenaceae & Labiatae will be very easy.

I sent you a few days since some sheets down to Allorsenia p. 772 [illegible] more or less including Loganiaceae Gentianaceae Solanaceae & Hydrophyllaceae & Boraginaceae are begun upon.

Yours very sincerely
George Bentham

I have omitted with Dicranacanthus flowers are two or three small lobed E. Indian species – and perhaps C. crenatus – but of this I am not sure.

25, WILTON PLACE.
S.W.
London
Sept 12/75

My dear Gray

As I am now sending Polanacea to the printers I have had to make up my mind as to Brazils of which I return your specimen enclosed. It appears to me to be nearly allied both to Chamaecrista and to Cassia quadrilocularis but if the fruiting calyx does not enlarge any more than in this specimen it cannot be united with the latter whilst the corolla appears to be very different from that of the former so I leave it for the present as a distinct genus with the characters chiefly taken from P. de Candolle

I am now in the third of

Acanthaceae, the arrangement of which is much facilitated by Mr. Anderson's labours – He seems to have had very good ideas of genera and species though his characters are too superficial to be of much use and not rarely erroneous. That is taken from one or two species and not checked on the introduction of others into the same genus. I should go even beyond him in the amalgamation of Nees's genera supposed to be founded on differences in the form of the corolla etc – I include in Ruellia (Dipteracanthus of Nees) not only Neuvedia and Asthenomeria which Nees himself united (though more different than some that he separated) but also Cryptacanthus Ophthalmacanthus Stephanophysum Septoracanthus Hemiracanthus Corodogyphum Arthrosiphum some of which Anderson was half disposed to keep up – but they are mainly founded on the form of the corolla which varies from species to species. As yet however I have only gone through the Thunbergieae the Nelsonieae and the Ruellieae amongst which the North American genera are very plain sailing. I subdivide them rather differently from Anderson Nelsonieae (Elytraria Nelsonia & Dicliptera) have not the contorted estivation of Ruellieae and very different seeds – Cardanthera (Adenorma Nees non Br.) goes into Hygrophila notwithstanding the almost want of [illegible] Ruellieae include

Hygrophilae (Cardanthera Hygrophila Nomaphila and doubtfully Dilkentania)

2 Euruellieae (Calophanes Ruellia Eremacanthus and Chamacanthus – Dicliptera and Wilfeldia)

25, WILTON PLACE.
S.W.

Sept 27/75

My dear Gray

In reply to yours recd this morning

Immediately after Brobanchaceæ I must put Lentibularieæ and Columelliaceæ – not that they have any bearings there but that their interrupt the series less there than any where else – I feel more convinced than ever that Lentibularieæ belong to the Didynamous ~~and~~ bicapellary series and are not unicapellary as Dietrich believes nor allied to Orobanchaceæ – though not very close to Scrophulariaceæ and as to Columellia it is certainly 2-lobed and 2-androus and is I think nearer to Gesneriaceæ than to Lagetrogyne but it is very anomalous

P.S. Ulicinad is the Trabajos of the Orontian scientific expedition

Most of Convolvulaceæ are in type Solanaceæ in the printers hand and Scrophulariaceæ go to him tomorrow or next day

If you have anything to say about Gymnandra pray let me know at once. It connects Selagineæ with Gesneriaceæ if I am not mistaken but I must examine it again

This part of Genera Pl. will have to comprise about 1650 genera above 700 already in type

Ever yours
G Bentham

We have therefore

CXVII Lentibularieae

CXVIII Columelliaceae

CXIX Gesneraceae

CXX Bignoniaceae

CXXI Pedalineae

CXXII Acanthaceae

Between Acanthaceae and Verbenaceae must come Myoporineae Selagineae and Globularieae but as I have gone through them I cannot say whether I should make two or three Orders of them. They are out of place on account of their pendulous ovules and superior radicle – yet they are undoubtedly near Verbenaceae.

Then there come Hillbaceae which I have not examined yet but from what is said of them I conjecture they must go into Verbenaceae next Newcastlia

If so the most probable sequence will be

CXXIII Myoporineae

CXXIV Selagineae Globularieae

CXXV Verbenaceae

CXXVI Labiatae

CXXVII Plantagineae which will close the list

I have just corrected proofs of Boraginaceae and have been obliged to say something of Meisn' Ancusaceae which I much regret he has published (he is getting too old for it all round) and I have a great regard for him and only lament the worse that he should now committed himself by making two genera out of Cordia so nearly allied to C. Sebestena and by giving as a copy of Humboldt's figure of Cacellium so grossly altered a representation. The Ancusaceae clearly has so remarkable a fruiting calyx that I had characterised it as a genus myself and have adopted the name but it is in other respects a true Cordia and exceedingly well figured as such

5 Eremitium Corolla 2-labiata labio postico interiore integro v brevior 2-fida v bifida in quoque loculo 2 capsula rarius 1 in stipitem contracta

1 Stamina 4

Lepidagathis Asteloniria Geissomeria

** Stamina 2 antheris 1-locularibus

Asnotheinum Ruellia Brachystephanus Stenkiria

Hypocanthes Hemitonia

*** Stamina 2 antherarum loculo altero alterum rarius

Coelotheylax Dicerocaria Justicia Schwabea

Rhinacanthus (Sebolium?) Ruellia Sclerochiton

Dianthera Beloperone

**** Stamina 2 antheris loculis aequalibus parallelis

Hemionitis Graptophyllum Cylindrokera

Thyrsacanthus Fittonia

6 Dichiseracon Bracteae 2 flores 1-3 valvatim involucrantes

Dichiptera Tetramerium Sericostoma

Ditas and probably Peristrophe.

I have pulled characters out that are of no monotypic genera might work out but I seem gone the above

Leptostachya goes into Dianthera

Justicia where Asperosiphonia

25, WILTON PLACE.
S.W.

Oct 17/75

My dear Gray

I have just got through Acanthaceae having a great pile of undetermined specimens to be examined including some new African genera

I follow in most respects Anderson's arrangement his genera are generally well defined and circumscribed but his characters are worthless for they do not agree with any the genera he puts under his groups Mytoria are

1 Thunbergieae. Thunbergia & Mendoncia

2 Nelsonieae. Corollae labium posticum exterius. Semina ∞ subglobosa ventre puncto hilo abque retinaculis affixa. Flores in quoque alterum v sparsi. (Scrophulariineis affines) Mytoria Nelsonia Ebermaiera & Ophiorrhiziphyllum

3 Ruellieae Corollae lobi contorti minimum obtegentes. Semina plano-compressa funiculis in retinaculum accretis v. (in Cardanthera) post anthesin brevissimis conicis v. evanidis

1 Hygrophileae Corolla 2-labiata. Cardanthera (Acanthaceae non Dn.) Hygrophila Nomaphila and perhaps Brillantaisia

2. Euruellieae Corollae lobi 5 plani. Filamenta bini per paren lateralia connata. Capsula vix compressa

Calophanes Ruellia Echinacanthus Chorocanthus Dicliptera calyx

3 Petalidieae. Corolla et stamina Euruellearum. Capsula septo parallele plano compressa

Petalidium Martaloxis Dedalacanthus Lankesterea Blechum

4 Trichanthereae (ab Euruellieis imprimis antheris et inflorescentia distinctae)

Sclerocalyx Trichanthera Bravaisia Sanchezia

5 Strobilanthereae Corolla, corpula Euruellearum. Filamenta omnia basi partis approximata saepissime basi transverse v. membrana brevi connexa

Sect 6-7 Afrocanae v. Asiaticae

4 Acanthineae. Corolla 1-labiata

Blepharis, Acanthopsis, Acanthus, Sclerochiton

5 Justicieae Corollae lobi varie imbricati non contorti semper

1 Barleriae Corolla lobi 5 plani patentes varie imbricati antico saepe interiore stamina 4

Barleria, Crabbea, Neuracanthus Asystasia v. Asteriola Lophostachys Crossandra

2 Monsieae Corollae lobi 5 plani patentes 2 partes interiores antico extimo stamina 4

Mirbelia Chamaeranthemum Hemandrieae Ceriacanthus

3 Franthemeae Corollae lobi 5 plani patentes 2 partes interiores antico extimo stamina 2

Franthemum Codonacanthus Gymnacanthus Graphacanthus

4 Andrographideae Corolla 2-labiata antico postico intecto v. brevissimo 2-pedo interiore. Ovula in quoque loculo 3-∞ Capsula oblique a basi compressa (ovula in ceteris Justiciis in quoque loculo 2)

* Semina non compressa - Andrographis Graphanthus

** Semina normalia. Gymnostachyum Rhogacanthus Diotacanthus

for any observations. I was much bothered with the American Justicioid genera which run very much into one another and are not very natural though not quite so bad as some of Nees; he has often the same species under different names in two genera (His Chaetenjiea from South America is a common Strobilanthes from Ceylon the label to the specimen he described from and on which he wrote the name as marked Ceylon in J. Chaetenjie) and many other similar facts could be picked out.

Cyrtanthera must include Sericographis all the original Schauerian ~~the typical~~ Jacobinia Siegera & many others.

The three lines of hairs attributed to Sericographis are of no value lines or ridges of hairs longitudinal or transversal about the insertion of the hairs sometimes on reflexed protuberances (concave outside) occur in a great many species of various genera varying much in shape and extent and not present in all Nees' Sericographis. The projecting membranes or costae inside the upper lip are more or less prominent in several Cyrtanthera but not

in all and I can make nothing of the characters until every species shall have been carefully examined

The species with the lower anthers calcarate go in my opinion either into Gentiana or into Belopetrone the two distinguished chiefly by the form of the corolla

Gentiana has the cells usually short not calcarate and the upper one at least usually oblique the connective usually broad. In Chironthera the cells are longer and more parallel and equal.

I should put the small flowered Lagan Chamerias into Gentiana

the Lagan Dregia into Adenacanthus

the Geobinia californica certainly into Belopetrone

I have not yet placed Lipochaeta not having yet examined the stamens It must merely include Gentiana lutiflora from the Cape and probably some out Swertheans

I believe that most if not all the other N. American Acanthaceae will remain undisturbed - Dipteracanthus being of course included in Ruellia - indeed the N. American species must be considered as the typical Ruellia of Linnaeus.

Polanisia are all in type and Prophularaceae begun upon. Can you any thing to say about Gymnandra I leave it in Selaginea but it is not comfortable there

Yours very sincerely

George Bentham

The mail leaves Pegau Schweizer
go into Drawtheria not into Fustica as
I believe I wrote by mistake the other
day

S A

Oct 19/75

FOREIGN POST CARD

FOR COUNTRIES INCLUDED IN THE POSTAL UNION.

THE ADDRESS ONLY TO BE WRITTEN ON THIS SIDE

To Asa Gray
Botanic Garden
Cambridge Mass.
United States

25, WILTON PLACE.
S.W.

Nov 2, '75

My dear Gray

I fear I cannot help you at present with your Acanthoniinthus I do not find that we received it from you in your last parcel and from the flower you send I should say it matches very odd Calamintha and a little coarse Gardoquia if it cannot go into Glechon (of which it has not the calyx) I suppose you must raise it to a genus – I know however the Prolegomena to go through before I attempt Labiatae – Scrophularineae are half pricked – two sheets I send you

today come down to Colaneas — Generalissimo went to the inventors last week and Orchidaceous go in a few days — the commencement [illegible] be the day on my back — fortunately I can still keep steadily to hard work.

All difficulties are now hope removed which stood in the way of the new herbarium building & Kew opposite the working plans are now being prepared and a rain commencement of the work is expected before the end of the financial year next spring — we have quite outgrown the King of Hanover's house convenient as it has been

There is a fine Acanthaceous plant of Gheisbrecht's apparently a new genus with an involucre like Sanchezia but very different corolla of which you sent us a specimen but which I am obliged to leave unpublished for want of examinable materials — I cannot direct the flower without utterly spoiling the specimen

Ever yours

George Bentham

we shall however content ourselves with genera of Gamopetalae since published and the correction of important errors not having time or space for minor details. We shall want however to refer to your Californian labours and I hope that you will let us have what you have printed early in January that we may quote page etc. for all Gamopetalae we shall not meddle with vol 1.

I will examine the chelepiad you send and report — it does not look at all Gonolobous

Yours very truly

George Bentham

25, WILTON PLACE.
S.W.

Nov 27/75

My dear Gray

Just received yours of the 15th and I have also one or two previous ones of yours unanswered but I have been overwhelmed with Beanthaven and am in danger of the printers treading on my heels so that I have time for nothing.

As to Aiendia I have admitted pointed out its close affinity to Erythrea but I scarcely think it necessary to unite it with that genus as Englmann proposes — but that is matter of taste and in a work like Gen. Pl. I am unwilling to go against special monographists unless I see strong reasons for disagreeing with them. I return you Englmann's notes as you desire.

In revising Convolvulaceae I found it necessary to keep up Calystegia not so much for the traits which occur in a few species,

and others but on account of the filiform stigmata at least as different from those of Convolvulus as they are in Jacquemontia - the two genera closely connecting Convolvulus with Ipomoea and passing into both - but it will never do nowadays to unite large genera on account of a few intermediate species for this would oblige us to reunite the whole series from Rivea to Polymeria

As to Acanthaceae they were almost enough to drive me distracted - I sent them however at last to the printers the day before yesterday - 120 genera including species several which I have had to take upon trust though I have examined a very large proportion of them - I have been obliged to omit some evidently new for want of satisfactory specimens - amongst others Sheerbrechtia n. 762 (of which I return you the flower you kindly sent). We have a good specimen from you but which cannot be cut up without spoiling it - It has evidently the flower & stamens of Jacobinia (Cyrtanthera) with the inflorescence of some (but not all) species of Manchenia (Ruellia) - I do not like therefore to make a genus upon it without seeing specimens in bud and in further advanced stage - more especially as the inflorescence is very variable in Sanchezia and in one species at least is reduced to ordinary bracts.

Correg. Nelsandrum with which you associate Beloperone is a true Nelsandrum in habit and character - Beloperone I must keep up as distinct

The genus which includes Cyrtanthera Sericographis etc must take the name of Jacobinia as being a year older than the others

Libonia floribunda is identical with Sericographis pauciflora

I sent you off this morning three sheets down to n. 948 in the middle of Scrophulariaceae

I have just done Myoporineae and Selagineae which are not comfortably associated with Verbenaceae the superior micropyle and radicle is an essential distinction which approximates them to Scrophularineae

Selago differs scarcely more from Manulea than Lobelia from Euphrasia

I now go to Verbenaceae where the way is already much cleared before me and Labiatae will be little more than a revision now! I must make up Addenda et Corrigenda

25, WILTON PLACE.
S.W.

Jan 8 1876

My dear Gray,

We have a plant from your Chilean Gheinbrecht n. 157 marked Pencriostemma Chilense A Gr. It is a third species of my Orthoriphen not Catopsira which I am disposed to refer to the read of a genus. I cannot find out whether you have ever published your Pencriostemma If you have I must adopt that name of course – if never published I should have taken my mind of Catopsira but I cannot recollect how I compared it – I think there was some misprint about it for as it is it is nonsense – You will observe that the stamens are declinate on the anterior corolla lobe as in Pennionden

not ascending between the two
posterior lobes as in Agnogadus.

I write now in a hurry as there will be just time to get your answer
where if at all you have published it before the printer is at Labiatus
& I now in Acanthaceae and Verbenaceae are in his hands.
I have two sheets to send you
tomorrow

With every good wish for happy
new year to yourself and Mrs Gray
Ever yours
George Bentham

of the American Journal in which you refer to Baillon's Chinese Gymnocladus (misprinted Gymnocladus) – it is a well known Gleditschia as we ascertained at Kew last year when Baillon's paper came out – not wretty from Kew I cannot tell the specimen came

Yours ever sincerely
George Bentham

25, WILTON PLACE.
S.W.
March 15/76

My dear Gray

It is some time since I have written to you but I have been entirely absorbed in Genera Plantarum and it has been too late to ask you usefully any questions. I now expect the last proof today or tomorrow so that I shall be able this week to send the Index to press. As that comprises nearly 6400 names it will I suppose take a full fortnight to print still I hope to have the part out before the middle of April. It will be a thick and expensive part – rather above 47 sheets (part 1 had 35 sheets) so that we shall be obliged to put rather a high price upon it and I should like to

know what I am to do about the copies for America. Hitherto you have taken 10 copies at trade price but you intimated to me that it would be no longer convenient to you to do so yourself but you asked me to let an American publisher have them on the same conditions – I do not care to open a credit account with any more publishers than the two (Reeve & Co and Williams & Norgate) in whose hands it works and especially it does not well suit me to open an account with any one in the city out of England. I do not of course ask you to take again the trouble you have had on former occasions and the only way I see is for the Americans to order their copies in the ordinary way through one of the two publishing firms here or if any one chooses to take the 10 copies from me sent pagine ready money I would be happy to give them at the trade discount – the selling price of the part will probably be 30/ but for ready money I give single copies according to the now usual custom at 2° in the shilling discount (which would be 25/) or to any one taking at once twelve or more copies at the trade discount of 25 p° (or nearly 22/6) the sale hitherto has nearly but not quite covered our original outlay without any return for interest.

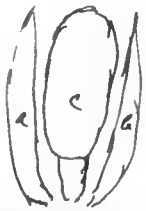
I am now fairly in the new volume of Flora Australiensis – the Rubiaceae & Cinchonaceae are a great acquisition to the Leguminosae but I shall have a rough job with Rutaceae, Geraniaceae & Malvaceae

I was in morning a new numbers

25, WILTON PLACE.
London S.W.
May 5/76

My dear Gray

Have you ever examined Xyris if so tell me what you think of the floral envelops they are generally described as 6 three outer ones of which 2 lateral navicular and persistent a and b quite membranous the third (c) ~~one~~ very broad thinner scarious or almost petaliche convolute so as completely to enclose the 3 inner petaloid ones and very deciduous. Now it appears to me that a and b united at the base of the perianth tube and persistent are bracteoles and that c alone attached with the inner



more retentive ones in the apex of the tube is the sole representative of the outer perianth of Monocots

I had great difficulty in finding the embryo of Xyris which nobody has figured except Goetzen who is quite wrong. I found it at last with Oliver's help (as indeed it has been described in the generic characters) as lenticular under the small point at the apex of the seed – applied to not enclosed in the albumen.

I hoped to have had the copies of Genera by this time as I understood it has been some days in the binder's hands but no doubt shall be able to send your boy off in a very few days

Yours very truly
George Bentham

I have been much puzzled with the Boraginic tribes of Lithospermeae – Eucarieae and have been obliged to arrange them with special reference to the Australian genera – Baker has been a great help to me – but he has not done the so-called Xeroldea and the Australian Melaleucaceae and not much else your Mimeseae one

25, WILTON PLACE.
London S.W.

May 23/76

My dear Gray

Enclosed is the bill of lading for the box of Genera Plantarum I give on the other side the invoices you need be in no hurry about paying before you have realized the box contains the 10 copies vol. II part 2. 2 copies 2 vols complete and in compliance with the last part of your letter 2 extra copies of the 2 vols to be paid for only when you may have disposed of them

I sent the other day the part of Icones completing the volume and Lalo sent it to the Columbian

Please send part – 18 copies as
[illegible]

Yours very truly
[illegible]
George Neilles

18 Copies genera Plantarum vol II part 2 at 24/- 21..12..0
(Publishing price 32/- = £20..16..0)

2 Copies vol I & II complete at £3..19..6 7..19..0
(Publishing price £5..6..6 = £10..12..0)

freights insurance etc — 1..13..6

£31..4..6

2 copies on approval — £7..19..0

25, WILTON PLACE.
S.W.

July 19/76

My dear Gray

I have to thank you for yours of the 9th inst with the enclosed bill for £2 2 0 I have just taken to the post the copy you ordered of Vol II - parts addressed to W Thurber the postage was only 1d/p (not 2/6) so that I am in your debt 1/5

Enclosed I have two or three specimens of Cactus brasiliensis Bois a plant exceedingly like our Pt. Luminium to look at

I have now almost got through

the 70 odd Destiamure of H. Central which have given me no small trouble and shall in a few days go to pay a few visits in the country before taking my Appearance

I regret not having stood to consolute instead of contore but I gave away to Hooker and Oliver

Yours very sincerely
George Bentham

25, WILTON PLACE.
London, S.W.

July 27/91

My dear Gray

I have just received your note with the second bill of Exchange and desiring me to send by post a copy of Gen 17. v. 11. post 2 unfortunately I cannot comply with the latter request for with the lightest wrapper I can put on it it outweighs the 2 oz to which the post is limited – I am leaving town for two or three weeks but I leave the pa. with the Rees people to forward to you if they should be reading anything else – if not I want your further instructions

I received yesterday the exposition

volume and write immediately to Mr Whitney to acknowledge it. I have been looking over it and am very much pleased with it. It's a comfort to see a systematic work upon which one can place so thorough a reliance as to the scientific matter so very well got up as well as to method and form as to typographical execution &c. I only hope it will be generally taken as a model Flora. I could see with the paper were not quite so thick and heavy – but that is the case with most of our American scientific books.

Yours very sincerely

George Bentham

Rpt to

Olivier tells me you wrote during my absence for vol 2 complete for Bolander and he put it up with the vol 2 part 2 you asked for herewith — I have now therefore submitted for it part 2 only so that we have two copies of vol 2 part 2 — awaiting Dr Goodwin who has not yet presented himself or any other opportunity

25, WILTON PLACE.
London S.W.
Sept 17/76

My dear Gray

On my return to town I find a letter from Mr Bolander of San Francisco which I do not quite understand he says "By a misunderstanding our friend Dr Gray ordered for me the whole of vol. 2. I desire to state that I received long ago part 1 of vol 2 send me therefore only part 2 of vol 2" You have never I think asked for a copy of the whole of vol 2 without vol 1 — so perhaps it was for Mr Bolander you asked for the additional copy of vol 1 part 2 now awaiting the opportunity of sending to you if so it will be all right — at any rate I cannot act upon Mr Bolander's letter

without hearing from you.

I attended Dr Hooker's wedding at Hereford from Whitfield where I was on a visit to Mr Clive and I afterwards spent the Association week at Glasgow with Dr & Mrs Hooker at his niece's Mrs Campbell's so as to make acquaintance with the new Mrs Hooker – I cannot forget the former one but the present one seems very amiable and anxious to pay attention to her husband's friends and Hooker looks quite happy so that I trust all will go well. – I have now resumed work at Kew with Australian Gyperaceae – and as soon as I have got through them I shall commence working as with the Gramineae I shan be much afield by your Monaro – I spent ten days with him in Somersetshire where he is very comfortably settled near Taunton – and went through all his Australian Gramineae – He has now undertaken and commenced working up a general monographic enumeration of Gramineae for De Candolle's new work De Candolle himself has got the Euphorbiaceae just ready for press and his son Casimir has almost finished Meliaceae Masters is doing Rutaceae for the same work and some other monographs are I believe in progress.

Many thanks for your nice Darwinian volume – it is very convenient for reference without having to hunt up so many different publications to get hold of your views

Yours very sincerely

George Bentham

(over)

25, WILTON PLACE.
S.W.

Oct 19/76

My dear Gray

Rec'd your letter yesterday evening – you are right about Haplophyllum besides Wright's specimens we have good ones of the typical broadleaved form Mexico Andrieux n. 280 a rather more pubescent form from Cuba (Echites cinerea to Sagra) and one quite like Wright's Guatemala Berroville n. 973 but I could only examine a single rather old flower and mistook the pollen-iferous part of the anthers for the empty appendages which they ought to have had if the plant had been correctly placed with Echitideae – It certainly goes to Numerieae near Holarrhena with much of the Amsonia habit

As to Echites deflorens we have plenty of good specimens both in flower and fruit and it is certainly very near both to Secondatia and Macrosiphonia without quite the character of either – the shape of the seed

and the corea are different from those of Trachelospermum and more those of Secondatia. The shape of the corolla nearer to Secondatia than to Trachelospermum. The two genera are evidently allied to each other but if pressed I cannot but think that E. difforme comes nearer to Secondatia than to Trachelospermum.

As to Gen. Pl. ~~the~~ Part II will weigh exactly 2 lb without a wrapper so that to send it by post rather than decide it is two and might take off the lining board of the cover and then it would admit of a wrapper which I think would be better – but is not there some other way of sending it cheaper by post?

Yours very sincerely

George Bentham

25, WILTON PLACE.
S.W.

Nov 6/76

My dear Gray,

Your Florida Acanthacea is to me an undoubted Dianthera the anthers (diverging cells) with their broad connective are  characteristic altho' the cells are more nearly equal than usually in that genus. In Jacobinia (Cerieographis) the cells are parallel with a narrow connective and in Uniguanthus with scarcely any connective at all. Besides that the shape of the corolla is quite different from that of Amerocanthus. I cannot match your plant specifically with any of your specimens of this. But it comes nearest to Ruellia Chelonopsis which I expect to Dianthera.

Yours ever
George Bentham

on Thursday, went off very well. He is in excellent health and spirits.

Yours very sincerely
George Deuchar

25, WILTON PLACE.
S.W.

Decr 3/76

My dear Gray

In consequence of your direction in the post card addressed to J Hooker I sent off yesterday by post the two copies of Gen. Pl. v. 2 part 2 which had been so long waiting for an opportunity — taking off the cover from one side to bring them within the 2 lbs allowed by the Post Office regulations. I pray let me know whether they reach you safely.

You say that you will owe me for one of these copies — from whom am I to ask for payment of the other? When you sent me the £40.6.0 in Aug. it was for the contents of the box I sent you and for an additional copy of vol II, part 1 to be sent by post which I duly sent you

but I have never had payment for either of the two copies of vol 11. part 2 which I now send – I have only in hand 1 of 4 which you overpaid for the former purpose. You know I give you the Genera at the trade price because you take more than 12 copies I therefore charge you for 11 part 2 by post £1.4.0 and 1/- postage. If I have to send payment from some one else I must charge full price £1.12.0 besides the 1/- postage – If paid ready money I make the usual deduction of 2d in the shilling making £1.6.0 but if I have to apply for payment at 6 a month I always exact as all booksellers do full price.

I very gladly continue to you the trade discount and at the same time feel very much obliged to you for the trouble you take – We are still very much out of pocket: the expenses on the last part amounted to all but £300.

I am now over head and ears in Cyperaceae for H. Austria. Of Cyperus alone there are above 500 Australian species and the greater number of them widely spread tropical species which require a great deal of comparison and critical examining. Boeckeler's work is a help but is unfortunately limited to the Berlin herbarium and too technical – long descriptions of specimens without contrasted characters. His synonymy is however generally good his generic distinctions not always natural. Anosporum for instance a conglomeration of different genera of Cyperus and Scirpus.

I see you reunite no. 1 Eleocharis and Fimbristylis as well as Isolepis with Scirpus. I do not think that Isolepis can be retained but what do you now think of Eleocharis and Fimbristylis?

Spoken of Cloyne 1 County Anniversary

25, WILTON PLACE.
London S.W.
Sat 7/[illegible]

My dear Gray

I have to thank you for your P.O. Order which I received yesterday – I observe however that it is for £2.11.4 which overpays me by 2/ which I owe you and have at your disposal

I observe by my letter that I omitted to tell you that this part had cost us £300 – It was £640 – However I have got a good deal of it back and hope in time to get the rest – but the bookbinders are very slow in their payments.

I hope you are getting on with

in North American Flora as you have passed Angiospermae and this we shall soon have a part out. Though as far as I am concerned I see little prospect of my ever having to make use of it. My great hope is now that my working powers may hold together long enough to finish the Flora. The Polleniae Cyperaceae take me much longer than I expect. So many species are Cosmopolitan and difficult to define. As to the tribal genera I think I shall quite follow you here up. Heleocharis includes Isolepis in Scirpus and transfers Oncostylis to Fimbristylis from which Abildgaardia cannot be separated – the genera become a little more natural though still very artificial.

Jean Miquel is steadily at work at a general Enumeration of Gramineae for De Candolle's new work – they will be most useful for his materials are most extensive and his views of species very good – the synonymy of many species is quite awful.

Yours ever sincerely
George Bentham

25, WILTON PLACE.
S.W.

Jany 26/77

My dear Gray

Many thanks for your order for 5 copies Gen. N. They are being put up in a box with a parcel of plants for you from Kew & will be sent off today or tomorrow. I will send the invoice of the books as soon as I learn the amount of the charge to be paid at Liverpool.

I enclose a couple of flowers of Melinia Candolleana (Brackenridge Hall).

Yours very sincerely

George Bentham

25, WILTON PLACE.
S.W.

London
Feb 8/77

My dear Gray

Enclosed is bill of lading for the box sent off with the 5 copies Gen. Pl. vol I & II and a couple of parcels of plants from Kew – I send also the account – You need be in no hurry about sending the amount till you have cashed it from the several purchasers

Yours very sincerely

George Bentham

25, WILTON PLACE.
London S.W.
March 5/92

My dear Gray

I thank thank you for your letter of the 20th with the enclosed cheque in payment for the 5 copies Gen. Pl. which came safe to hand this morning

I note the £1/6 mentioned as your having over paid me on a former acct I find on settling the Liverpool acct for shipping your boy there is about that amount additional so if you please we will consider our accounts as now balanced

We have been making arrangements for a more regular continuance of Hooker's Icones – It was always impossible

to keep Petch to time. Now we have got a young person (Miss Coveretts) who seems to be doing the plates very well under Oliver's supervision which is important for the analyses in which Petch was sometimes rather weak. The last five parts have been solely in my charge at a cost to me of between £25 and £30 each part, but as I now hope to get them published on fixed days twice a year, and rather cheaper I hope the work may not cost me so much. I have provided however for at least two more volumes. The first part, vol XIII will I hope appear in the Society. I suppose I may send it you by post at the same rate as before — address I to send it to the Columbia College New York?

I am getting rid of Australian lycopods & have done about 300 sp. and have at least 50 more to do

Yours very sincerely

George Bentham

25, WILTON PLACE.
S.W.

May 7/77

My dear Gray

784 Engl.

Your enclosed plant is evidently a Lachnostoma and as far as I can tell without having seen the type) is the Chthamalia mammularia Don

As to what Spruce's L. 230 is we have unfortunately no record. It no longer stands amongst unnetaim Convolvulaceae and I do not recollect it — If we had a tracing of it we might find it out —

Observe the aclepiad has no membrane on the anther lips the angles of the stigma project between them and the pollen masses are turned inwards (a little downwards) which are the characteristics of Gonolobeae and the corona is attached no doubt to the gynostegium tissue of the corolla which puts it into Lachnostoma

Yours truly George Bentham

[illegible] does not come out till June!

synopsis of species in the wide sense of the term — of their respective ranges in Europe — the forms they assume in the different parts of the region of the areas in which they multiply and vary and combine with others and of those in which they remain more or less and comparatively rare — a general comparison of the different partial floras — the Western the Mediterranean the south-eastern the alpine etc, and many other particulars far more important in instructing us in the natural history of vegetable life than the minute description of hairs and prickles or the forms of leaves to which some local botanists now give so much value and which induce others to look down upon systematists with utter contempt.

In extra-European floras there is also still much to be done of true scientific value. The Indian Flora is I hope —

25, WILTON PLACE.
S.W.

London
Nov 19/77

My dear Gray

I ought to have written to you immediately on Hooker's return to acknowledge the receipt of the £ 8.3.6 which he duly remitted to me from you — but I have been so completely absorbed in the Flora Australiensis now coming to a close that I have written no letters for some time. This work has been the labour of the last fifteen years and at times I have felt that at my age the chances were that I should leave it unfinished — and now that the greater

part of the seventh and last volume is printed off. I feel quite nervous about getting it finished. I have still only a few of the genera of ferns to go through and then I am very much affected by Baker. With this volume and the 1st I may be out by Christmas.

Hooker returned much benefitted by his trip and he speaks much of the very great advantage he derived from your unwearied exertions in facilitating his seeing everything that could be useful and agreeable to him. I was very glad to hear that Mr Gray bore so well the fatigues of the expedition showing that he must be still in the enjoyment of that vigour of body and mind which he so really deserves and made such good use of. It is also very gratifying to learn that you are really advancing in the great work the completion of which is so much wanted in Flora of North America.

The Community of Botanists has had a very loss within the last twelve month and in Systematic Botany there are very few rising to replace them and yet notwithstanding the disfavour thrown upon the study of the science there is still much to be done. We want much a really comprehensive Flora of Europe — not a detailed description of minutiae distinguishing 300 species of Rubus fruticosus or 100 of Dianthus deltoides but a general

fairly progressing. The tropical African flora has some chance of being completed before the first volume has become quite obsolete through the large additions almost daily made to the materials available. The Cape flora is however at a complete stand still. For the North American flora we rely upon you. The West Indian Grisebach is rewriting on a more comprehensive plan than Grisebach. The Central American is being prepared for M. Calvin's work but I do not as yet understand in what shape it will appear. The magnificent Brazilian flora is too cumbersome and too unequal in its parts to be really useful to the general botanist as would be a small synopsis by one or two authors. Our much lamented friend Weddell's Chloris Andina remains unfinished and we want much a general flora of Pacific South America. The

French talk of a series of their Colonial Floras — Cayenne, New Caledonia Madagascar etc in imitation of the Colonial Floras planned by Sir William Hooker — but they talk about and begin a great deal and finish but little.

The printing of the first volume of De Candolle's Monographs is I understand far advanced containing amongst others De Candolle's Melaleuca, Cainito, De Candolle's Melaleuca, Mortens, Rutaceae etc. Munro is steadily at work at Gramineae for the same publication but will have nothing ready for the first volume. Several other monographs are in hand for subsequent volumes. I wish some botanist with a clear methodical mind would undertake the Lycopodiaceae. Baker is I believe to be depended upon for accuracy but his long descriptions are uncondensed and limited to species in the Kew herbarium and therefore of little use to the general botanist.

Are there any hopes of your coming over on a visit here with Mr Gray? I am getting very old and it would be a great comfort to me to shake hands again with you both before I die.

Yours ever sincerely,

George Bentham

25, WILTON PLACE.
London S.W.
April 20/78

My dear Gray

On my return from a short visit to Toulouse – where I was called by the death of my great-niece's mother – I am going to send you the 7th & last vol of my Flora Australiensis; which I wish had at length been published out & could it was beyond the 2 ℔ weight and therefore could not go by post and it is scarcely worth sending separately – I believe I sent you the other volumes – if not I shall be happy to send you the whole seven if you will tell me how I shall send them

I have done Laurencia thyrsifera

Proteaceae and some time I remain in Euphorbiaceae and am now immersed in Euphorbiaceae (among) Laurineae there was a single small specimen of Coulter's which I could not for want of sufficient material to warrant (even only) determine the genus of. Hooker says he worked up the Californian Laurineae!

Nees made a terrible mess of the order completely ignoring some excellent genera of the older Jussieu and Lamarck. Tetranthera Reg. must for instance give way to Litsea Lam. so well described from the same species in the Encyclopédie and afterwards extended by Jussieu in a paper in the Annales du Museum which Nees never alludes to and probably never saw.

The Hookers all going on well. Hooker is now a grandfather. Harriet Dyer having a daughter.

Yours ever sincerely

George Bentham

25, WILTON PLACE.
S.W.

May 20/78

My dear Gray

Just received yours of the 2d which I hasten to answer on account of the Californian Laurel. The polygamous certainly not diœcious flowers and the stamens of the 2d order turned outwards do not agree with Letsea (Tetranthera) whilst the involucres take it out of Oreotea (Oreodaphne) Perhaps Nuttall's genus Dryinophyllum should be adopted for it but I leave you to settle whether to make it a distinct genus closely connecting two main tribes of Laurineæ or leave it as an anomalous Tetranthera

We have not Nuttall's Lyon which somehow we had overlooked so we had no record of Dryinophyllum and it is not in the Prodromus Oliver has taken steps to procure the book

I have been looking at the Mexican & other North American Ptrantheras but they all appear to have all the stamens turned inwards and to be diœcious by abortion and Dr Hooker thinks would stand alone

The doubtful Mexican Laurinea I mentioned (perhaps by mistake I said Coulter's) in Gregg's n. 314 sent by you in fruit only the fruit appears to be really laurineous but the foliage unlike any species I know. Have you named it?

Not to finishing Genera Plantarum I cannot expect to live through the Orchideæ — very thankful if we finish the Dicotyledons before I go

Yours very sincerely
George Bentham

Congratulate you on your new Flora which however has not yet come to hand but will no doubt immediately

25, WILTON PLACE.
S.W.

May 21/78

My Dear Gray

On my return home from Kew yesterday I found your synoptical Flora for which I thank you much. It appears to me to be highly satisfactory and was much wanted. I trust you will go on actively so that the next part may be available for our Genera.

I have been looking more into the question of the Californian laurel and examining the other N. American species of Litsea (Tetranthera). I found an old memorandum of mine that in the Mexican Litsea glaucescens HBK. (= glaucescens Spreng) the stamens of the 3d series are turned outwards and it is probably

on the strength of this memorandum that Mesiner describes them so – I cannot now find that to be the case in any of our Mexican specimens and I think that the memorandum in question was founded on a Californian specimen and accidentally transposed in Bot. Mag. (where Mesiner worked upon) to the Mexican specimen. The Mexican L. glaucescens (L. Cervantesii) like L. gemiculata from N. America have the true Lilioid character: diœcious with all the anthers turned inward. The flowers of the Californian plant are generally hermaphrodite though often sterile – the ovary apparently perfect in flower though never ripens.

I should propose therefore the keeping up Nuttall's dry[illegible] with his specific name (which stands the giving a new name) but we have not Nuttall's Lyloa nor is it at the Linnean Society – Pieper is ordering it for Nuttall meanwhile would you kindly give me the reference to the page where Nuttall characterises the genus and tell me whether his character is correct.

Yours very sincerely

George Bentham

25, WILTON PLACE.
S.W.

June 19/70

My dear Gray

Since I wrote to you we have purchased Nuttall's Sylva of Rees which puzzles me more what to do about the Californian species. He has it twice over first as Umbellularia Nees which he has not seen, but is very fairly characterized next as Oreomyrrhis Gr. in which he apparently says that the anthers are all introrse and that there is no involucre thus destroying the peculiar character of the genus. This species however represents the involucre we have mentioned for the genus which

I think we must adopt) take either Umbellularia Nees although Nees only proposed it as a section not as a genus or Dorinyptellum Nutt who gave it a false character retaining Umbellularia at the same time as a genus. Which would it be? I rather think Umbellularia more according to rule

Yours very truly

George Bentham

I gave your copy of Fl. Australiensis VII to Oliver he has made up a small box there has been some hitch and delay as to sending it off but I believe it is now gone to Liverpool

25, WILTON PLACE.
S.W.

London
June 29, 70

My dear Gray

When your note ordering a copy of Gen N. came the other day your boy from Bus after various mishaps was just closed and on the point of being sent off to Liverpool I had it opened to receive and repacked with the Gen N. and got it at last sent off the next day as I believe Oliver will have advised you the amount due ready money would be as per enclosed acct £4.0.4 but as I allow you trade discount to make up for your agency trouble all you will have to remit

me will be £4.0.0

I find Euphorbiaceae give me more trouble than I expected from their having been so carefully worked up by Mueller and by Baillon but their views differ so widely as to the importance of characters and limits and arrangements of genera that I have to look much more into details than I should have done could I have followed implicitly the one or the other. Baillon's affinities are the most natural. He began by splitting too much and in his last work has amalgamated a great deal too much. Mueller has laid down to himself certain rules as to the paramount importance of some particular set characters and makes them absolutely override habit and all other characters. His sections of Croton are for instance in my mind absurd.

Yours very sincerely

George Bentham

25, WILTON PLACE.
London S.W.
July 31/70

My dear Gray

Many thanks for your kind note of the 10th and the enclosed bill for £4 0 0 in payment of the copy of Gen. Pl.

I did not overlook your wish that some notice should be taken in Nature of your important synoptical flora – I do not feel quite up to doing it myself now that I am no longer in the way of critical notices so I mentioned it to Hooker who you will see has I think done

et justice — I do hope you are going on actively with that important work

With every wish that you and Mr Fry may have enjoyed your holiday believe me

Ever yours

George Bentham

25, WILTON PLACE.
S.W.

London
Oct 1/70

My dear Gray

I have to thank you for your Lecture on forest distribution which I am much pleased with. It is a very lucid exposition of the theory. You have so well worked out of the origin and history of North American forest vegetation. We want much a similar clue to the distribution of tropical trees but unfortunately have very much fewer data to go upon than is the case with the northern ancient and modern trees.

Much obliged for your flattering article on my Australian Flora – it has not been noticed as far as I know in any

Friends in Somersetshire and should have liked to have had the advantage of seeing more of them. I met them for a few minutes on the platform at Taunton and hoped to have travelled with them as far as Bristol but the compartments into which they got was full and I was obliged to take another and had no time even to take leave of them – They had left when I returned to town.

Yours very sincerely
George Bentham

European journals - I forgot to insert in the Preface as I intended that the total number of species described is 8168 in 1400 genera. Mueller thinks he has about 500 species already to add - I wish I could have fulfilled my original plan of a supplement and revised of the Geographical distribution etc but I have just passed my 78th birthday and am obliged to devote what little time I may still have before me to Genera Plantarum. I have not quite done yet with Euphorbiaceae which have proved a tougher job than I thought - I make 6 tribes Euphorbieae Stenolobieae Buxeae Phyllantheae Galeeae and Crotoneae - Phyllantheae with the outer stamens when isomerous opposite the sepals and cells of the ovary 2-ovulate Crotoneae with the outer stamens when isomerous alternate with the sepals and cells of the ovary 1-ovulate - the Galeeae a few genera only with the stamens of Phyllantheae and the ovary of Crotoneae

Bertiderma Stipora etc included in Phyllantheae

Can you let me have female flowers (not yet grown into fruits) of Simmondsia - I do not understand how the genus can have been put into Buxeae but our specimens are either males in flower or females in fruit.

I had great pleasure in meeting Mr James the other day at Dr

25, WILTON PLACE.
S.W.

Oct 29/78

My dear Gray

Many thanks for the Commiphora flower which was quite satisfactory and shows that after all Commiphora is rightly placed in Burseae where as in Stenotoba the special characters overrule the general one of the 1. or 2. ~~celled~~ ovular vary. cells — but Burseae is the nearest tribe of Euphorbiaceae not a distinct order

The Kokeis are just returned from Paris where they have been for the last weeks ceremonies

Yours very sincerely
George Bentham

25, WILTON PLACE.
London S.W.

Nov 19/70

My dear Gray

I have just got Bentham's Urticeae proper in which I have had very little to alter from Weddell's work. Though I have carefully examined flowers and fruit throughout I am puzzled however about Hesperocnide does it really sting and if it does is that to remove it from near Boehmeria to place it next to Urtica? Pray let me know what you think.

I think that Dirtemon must come next to Boehmeria – it has often 3 stamens and always the rudimentary ovary which the monandrous genera never have –

I think also that Allemorcotis is best as a section of Porzotica

I would also put Lemonnia filamentosa into Parietaria leaving Lemonnia as Gaudichaud intended for the very dissimilar L. arborea.

I think therefore that Weddell's genera are all good – though the whole tribe is very nearly allied.

Yours very sincerely

George Bentham

but these changes are now most needlessly made on the slightest pretext entirely overlooking that every new name given to an old plant is in so far an additional impediment not an aid to its study. I have entered into a few details on some points of Nomenclature in a paper on Euphorbiaceæ printed for the Linnean Journal of which I ought to have had my separate copies last week but suppose Christmas is blocking the way but I will send you a copy by post as soon as they come in

Terminology again or the names of organs is a mere element in the language of Phytography not a science in itself and clearness definiteness and facility for use are here the objects to be attained where practicable, but the organs of plants are in many instances subject to such complicated variations that we can give only very general and comprehensive ~~general~~ substantive names suiting them to special purposes by the addition

25, WILTON PLACE.
London S.W.

Dec 23/70

My dear Gray

I thank you most heartily for your friendly letter received this morning and most cordially wish you and Mrs Gray a happy new year and many many more of them sincerely hoping that before another comes round you may both be enabled to cross the Atlantic and I may once more have the pleasure of shaking hands with you

Thank you about Hesperocnide Weddell's work is so good that I follow him implicitly where I see no good reason for departing from his views, Bureau is not so much to be depended on in Moreæ — I do not mean for accuracy — but for generic views — he is apt to put species into wrong genera and to multiply genera upon trifling characters — and on the other hand sometimes to amalgamate

species too much. Nitrocarpeæ have given me a great deal of trouble. Of a large portion of the species on which genera have been made only one sex is known — and this very may be a very imperfect one described twice.

With regard to Nomenclature, Terminology, Taxonomy and Phytography it appears to me that there has been of late years a growing tendency to treat them as the end not as the means of study. The end of Botany is the study of the history, development, physiology, structure, affinities and natural products of plants. Taxonomy and Phytography place on record the results of these studies as a basis for future investigation and their excellence depends in the case of Taxonomy on a due appreciation of affinities in that of Phytography in a great measure on style including brevity and arrangement of details. Nomenclature and Terminology however, which some now regard as so important a branch of botany are after all but a subordinate branch of Phytography of which the value is as it were purely mechanical. Every plant or group of plants must have a name and ought to have but one name. In the case of higher groups a single worded name suffices (substantive for genera adjective for orders &c) in the lower groups species etc Linnæus's admirable system has established the two-worded name a substantive & adjective combined, and the sole object of the science if it may be so called of Nomenclature is to give these names such certainty and permanency as may render them most efficient in facilitating the study of the plants. The framing new names for new plants requires therefore strict observance of definite rules but great forbearance is as necessary in the changing of established names. The priority of a name is the first requisite its appropriateness comes next. The progress of science does indeed require too frequently some change in old names

from the examination of recent prints, it would be a great convenience if one common name could be agreed upon for the ~~appenda~~ external appendages about the hilum and funiculi known under the various names of arillus, false arillus, strophiole, carunculus etc according to their ascertained or supposed origin. As this origin can often not be ascertained without careful organogenetic researches which when once made fail are able to verify by repeated observations it has given rise to much controversy as to which of the names is applicable in particular occasions and as it is necessary to speak of these appendages for description purposes one is at a loss what name to give them without begging the question which one has no means of deciding.

Besides my paper on Euphorbiaceae I hoped to have sent you by this time the new part of Bot. Ic. which is at the binders & ought to have been here last week.

I say nothing at present as to taxonomy and the general form of Phytography. I have on so many occasions published my ideas on the subject but if anything occurs to me I will write again – all that I say is subject of course to your own views which I always deem approved.

Yours very sincerely
George Bentham

of an adjective or periphrase. The numerous attempts to give special substantive names to minor modifications of organs exemplified in a limited number of plants have only resulted in overloading our text books with names either ignored in practical phytography or if made use of entail upon the reader the additional trouble of turning to his text books to know what they mean. Names of organs are defined or limited upon two principles depending 1st upon their apparent form and structure 2d upon their origin and position with relation to other organs. The most useful are those which are comprehensive in both respects but this is not always the case, and though the first condition can generally be practically verified the second is sometimes more or less theoretical. Nothing can be more useful in phytography than the several names bud-scales (at the base of the year's branch) leaves (fully developed and readily bearing leafbuds or branches in their axils) bracts (reduced leaves subtending the branches of the inflorescence or the flowers of simple inflorescences) and bracteoles

subtending individual flowers in compound inflorescences) whenever (as is usual) there are clearly distinguishable but the scaly and fully developed form do not always coincide with position we have leaf, scale and scaly leaves, floral leaves and leaflike bracts etc which we must thus distinguish adhering to the general though sometimes too indefinite terminology Scales leaves bracts & bracteoles

In fruits the differences between the theoretical and practical definitions has produced a great and to my mind unclear redundancy of names. The fruit often changes so very much in its growth from the ovary that its original structure is often very difficult to trace from its examination when ripe and yet it is essential to describe and speak of it in that state: the ~~differences~~ forms it assumes are so strikingly different from each other that it is a great assistance in phytography to have distinct substantive names for the principal ones. The capsule the follicle the berry the drupe the utricle the nut etc and a few others are the most useful of these names and should be defined strictly according to their consistence dehiscence etc independently of their origin. Sometimes also names dependent on origin are useful as being well established and leading to simplify descriptions such as the legume of Leguminosae or the silique or silicle of Cruciferae - and the legume may be more or less follicular or drupaceous or utricular or achenioid still it retains the character of the order which can be verified in the ripe state but it helps nothing to lucidity and accuracy of description to call the fruit of a Dryonia or of a Momordica a Pepo or that of a Hawthorn a Pome and accordingly we only find these names in text books or in pedantic descriptions which require the use of a special glossary to comprehend them Still less does it advance science to give distinct substantive names to the inferior or superior berry - to the 1- or more-celled or pyrened drupe etc: we never give different substantive names to the correspondingly different ovaries and yet it is in the ovary state that these differences require the closest attention on the part of the scientific observer There is great difficulty in the terminology of some parts of the seed especially differences depending in many cases on origin which cannot always be safely determined determinable in the ripe state

25, WILTON PLACE.
London S.W.
Feby 16/79

My dear Gray

I received a few days since your card about Baker's having received Neder's Tovaria for Smilacina – I certainly objected but as only producing useless confusion – but Baker has his own views which he likes to follow without consulting. In this case Neder though probably a misprint he describes as S. racemosa serrulata with 6 stamens yet clearly indicates the species referred to his genus and his name might have been adopted had not the genus acquired the name of Smilacina and Desr and Baudin that of Tovaria by prescription and universal adoption – and if ever I have occasion to treat of the genus I shall set aside Neder

to Smilacina. I do not however at present see much chance of my ever getting to Monocotyledons. Our present part of Genera (Monochlamydeae & Gymnospermae) is now far advanced but there is still much to do. Hooker since he has given up the presidency & the Royal Society has been wonderfully steady at the work & has so much to do with Chenopodiaceae. I have already been a full fortnight at Loranthus. I have however since the Euphorbiaceae finished Urticeae (including Cannabineae etc.) and Santalaceae having previously done Myoporineae, Lauraceae, Thymelaeae, Proteaceae and various small orders. The Amentaceae Order are not touched yet. Hooker will do the Gymnosperms but they will not take him long altogether. We shall be two or three months before we begin printing. I hope before that you will kindly send me any corrections that may occur to you in Euphorbiaceae which was my principal object in reading out every copy of my "Note" in order that I might take advantage of any criticisms or fault finding before entering for years.

I trust you are progressing with your Exotic Flora.

Yours very sincerely
George Bentham

Santalum is not the only Santalaceous genus with slightly unbroken perianth lobes. It is also in Sclerogyron a very distinct genus to my mind from Grabaria of which the typical Pabreocarpa is a true congener.

you gave out that the four foliaceous appendages of the fruit in both the Japanese & the American species are bracts (or rather I should say a pair of leaves) is further confirmed by comparison. Our female specimens both from N. Amer. and Japan are all in fruit and I have only been able to examine one female flower and that one far advanced. In it the 4 petiols of the terminal bracts formed very prominent ribs on the tube of the fruit becomes nearly equally 8-ribbed. These petiols and the venation of the lamina seem to me to indicate the 4 uppermost pairs of leaves placed immediately under the flower with their petiols adnate to it. Otherwise sepals would be very anomalous.

Next in Manodea and especially Oxyria where the stem leaves are alternately scattered a two of the uppermost are crowded close under the fruit and one or two of them often adnate to its base which is some approach to the adnate floral leaves of Buckleya.

Pray consider all this and let me know your revised opinion. Miers has made a shocking mess in calling the bracts of Oxyria a calyx and the disk lobes of Cervantesia petals – they are exactly like those of Santalum & both Cervantesia and Santalum have the ovary in the bud almost or entirely free though as the lower part enlarges it becomes at length almost or entirely inferior. Miers places the ~~pols~~ stamens of Cervantesia upon the disk instead of behind it and has not found out that

25 Sussex Place
London S.W.
Feb. 24/79

My dear Gray

Received yesterday yours of the 10th about Darbya and Buckleya.

I finished Santalaceae about three weeks ago having carefully examined all the genera and as a result I find the tuft of hairs at the base of the perianth lobes behind the anthers a very general character throughout the order but to a certain degree variable and of no generic value for where it is wanting it is generally in some species only of a genus and in other genera it in some species is connected with the anther in others is very small and short. The disk being the entire part of many perianths affords generally good characters here as in Thymelaeaceae the anther characters are also pretty constant and sometimes inflorescence etc. I make three tribes 1 Theineae with the perianth tube more or less produced between the ovary & the lobes without any prominent disk (Quinchamalium Arjona Theium Thesidium and Osyridicarpus) 2 Osyrideae lobes of the perianth divided to the disk (which sometimes does and sometimes is not produced beyond the ovary) divided into two groups * Anthers all parallel opening longitudinally (15 genera to which I shall precisely revert) and ** Anthers all divergent or terminal distinct or confluent (Henslowia, Leptomeria

Choretrum Leptomeria (Myzodendron) Osyrithobolum
Ovary free with an erect ovule – very near Santalum
(Arthrotolus Exocarpus and Kanpereia)

The 13 genera enumerated under the first group of Osyrideae are separated by characters of little importance often more by habit inflorescence or coloring than by floral characters and might be much amalgamated or further divided upon very poor grounds they are

+ Disk produced between the stamens into scaleliks distinct lobes. Opposite genera

Ceroanthera and Codina from Andes or extratropical South America are remarkable for the adnate perianth-tube showing especially after growing the prominent somewhat fleshy parts of which it is composed

Myrsularia Decaisne Inflorescence terminal female solitary. Fruits large ~~lobe~~ alternate N. America and Himalaya (Sphaerocarya Wall but not Celastrus)

Anacyris Griseb (Osyris sp. Lisb) from South Africa Hermaphrodite with peculiar axillary spines etc

Comandra. Hermaphrodite with alternate leaves two distinct sections 1. Eucomandra Umbels in the upper axils or terminal 3-5 flowered. Placenta linear. Fr. ovoid not very succulent crowned by the perianth lobes – N. Amer. and Europe 2. Haplocomandra Peduncles slender axillary 1-3 flowered Placenta rather thick Fruit globose. very succulent not crowned Pl. linéira N. Amer

Santalum Hermaphrodite Lobes mostly opposite the in little loose panicles. Placenta with a long point Indo-Australian region and Pacific islands

†† Disk with an entire or sinuate margin or produced into distinct scaleliks lobes

a. Fl. mostly hermaphrodite

Fusanus (Br. not Mart.) 2 Australian and 1 N. Zealand species forming 2 sections Colpoon (Berg. Fusanus Mart.) from S. Africa including Rhoicarpus. Manodon from Magellan all with a broad concave disk and Myrodeia from Chile with a flat disk

b. Fl. dioecious

Buckleya N. Amer. and Japan with a concave or broadly campanulate disk. Osyris with a flat disk two very distinct sections one European the other African and Asiatic and Osyrisperma a peculiar Australian genus

According to this plan (judging from a mere specimen in my herbarium which you identified as Darleya) Darleya can only come next to Buckleya if not in it.

Now as to Buckleya you think it may not be Santalaceous 1st on account of the slightly imbricate perianth segments but they are much more distinctly so in one species of Celastrus a tropical Indian genus which is certainly Santalaceous

2d on account of the supposed double perianth of the female flowers but I think that the opinion

what he calls the peculiar squamellæ in the inside of the perianth-lobes after flowering are nothing but the persistent base of the filaments. If before excluding genera from Cantalaceæ he had examined the typical Cantalum and Thesium he would have come to very different conclusions. The Cape Thesia are particularly instructive from the great diversity in their inflorescence perianths etc. But poor Miers is old and past good work — I hope somebody will stop me before I get to that.

Baillon has just circulated another disgusting attack upon Decaisne — there may be faults on both sides in the dispute but Baillon is most disgusting in his mode of attack. I wrote to him last year to remonstrate strongly against his proceedings and urging him to give them up and only got a violently expressed answer with the greatest abuse of Decaisne.

I have for the last three weeks been occupied in Loranthus which I keep entire but divide into 20 sections besides a few subsections. I shall tomorrow proceed to Rhododendron which I see Eichler divides into two or three.

I am quite tired of this long cold weather now returned with us these two days in full force.

Yours very sincerely George Bentham

mentioned. In some of our specimens of P. corrata the spikes have most of them lost their involucre.

I keep up Zippelia as a distinct genus. I also follow Dr. D. in keeping up Nothaelia but do not place in that genus the African Peperomia Knobleheveana which Dr. D. has judged of from the plate and not from the description. It must be a true Peperomia very closely allied if not a variety of the common P. pellucida.

Saururus form a distinct tribe of Piperaceae of which the Brazilian genus Lactoris Phil. is an anomalous genus — but I cannot follow Baillon in putting Chloranthaceae Platanus and Ceratophyllum into Piperaceae. He might as well have lumped together as Dicotyledons without any perianth.

Yours very sincerely

George Bentham

25, WILTON PLACE.
London S.W.

March 21/79

My dear Gray

When I last wrote I was just attacking Thoradendron which Eichler has very well worked out and I have adopted his Dendrophthora for a number of species chiefly but not entirely West Indian (for there are two or three from central America and Columbia) which have the peculiar inflorescence of Thoradendron but somewhat simplified and the author of Arceuthobium

Thoradendron juniperinum Engelm. must go into Arceuthobium notwithstanding its numerous female perianths the number of parts of the perianth throughout Loranthaceae is of little consequence and there is no mistaking the inflorescence of Arceuthobium although the absence of male flowers prevent the ascertaining its essential character

In general Eichler's working up of Loranthaceae is very good. I cannot say as much of Casimir De Candolle's Piperaceae which I have just gone through. There is much carelessness. For example two allegedly new Peperomias figured in Hooker's Icones t. 327 and 332 were only marked in the herbarium n. sp. and Cas. DC. did not take the very little trouble to identify them but published both under different names from the very specimens figured. P. galeotiana Hook is P. mexicana Alleg. and P. lanipoda Hook is P. Eraxmia Cas. DC. Piper Dominicanum Cas. DC. n. 600 is P. stylosum Alleg. n. 420 and P. Dominicanum β is the widely different P. muricatum Alleg. DC. n. 419 – and I have come across many other such ~~cases~~ instances of carelessness. He attended chiefly to the anatomical structure of the stems and venation of the leaves.

As far as your Flora is concerned I

Also a Peperomia in Flora

admit two genera Saururus and Houttuynia. Saururopsis Cumingii is identical with Saururus Loureiri and Saururopsis Chinensis is only a very slight variety from Amoy with rather narrower leaves. The so-called opposite hypogynal scales are abortive or injured stamens which happened to be on the flowers examined by Hieronymus but only very rare in Porter's specimens.

I cannot keep up Anemiopsis as a genus distinct from Houttuynia though a very distinct species. Gray tell me what is Anemiopsis Rolandri Cas. DC. Prodromus XXXVII 337. We have no specimen from Rolander and in carefully going through Cas. DC's long diagnosis I can find nothing that does not apply to the common Californian species.

Gymnotheca Decne must be a Houttuynia – perhaps the common one or at any rate a nearly allied species either without any or accidentally deprived of the

25, WILTON PLACE.
S.W.

London
April 21/79

My dear Gray

As I have pretty well finished the orders I undertook for the new part of Gen. Pl. and Hooker has still the Balanophoreæ and Gymnospermeæ to do I have taken in hand the Polygoneæ which he had intended to work up. In the Eriogoneæ I must pretty well follow you and S Watson but write now to ask you whether you really concur in merging Centrostegia in Chorizanthe for it appears to me to spoil the character as well as the name of the latter genus in which the involucre is constantly and perfectly uniflorous and unless you insist on the consolidation I should like to keep Centrostegia distinct. Pray answer as soon as convenient as we hope now to begin printing.

Next is Hottentotia published? It appears to me to go with Nemacaulis and Eucrosia

into a little group of Eriogonum without any gamophyllous involucre but detached bracts perhaps connected with a part of lateral bracteoles or stipules such as form the 3-fed bracts under the forks of the inflorescence of Eriogonum or all passing into leaves. In Hollisteria the bracts on both sides as well as the perianth are densely woolly in Nemacaulis the bracts on the inner side densely woolly outside glabrous and the perianth glabrous in Xanthisma the bracts or floral leaves and perianth have only a few woolly hairs on the margins or inner surface

I was rejoicing in the weight for the book post in the postal union being extended from 2 to 4 lbs when I came upon a clause which renders it nugatory for the United States. To go by post the book must be 20 years old or under a dollar value. This would entirely preclude the sending by post a part of our Genera or even of the Icones — I should be glad to know if it be so really

Yours very truly
George Bentham

25, WILTON PLACE.
S.W.

April 27/79

My dear Gray

Many thanks for yours of the 16th just received. I dare say Englmann may be quite right about Rhododendron juniperinum though it destroys the peculiarly natural character of the genus.

I write now to say that in progressing through Polygoneæ I have been struck with the close affinity of Koenigia & Persicaria – each pedicel has a bract which in Koenigia is everything and hyaline and only slightly enlarges after flowering whilst in Persicaria especially in the northern larger species it acquires a great development and is often tinged like

the stemless I should be disposed to make a tribe between Eriogoneae and Polygoneae proper –

Eriogoneae with a gamophyllous involucrum

Eriogonum
Oxytheca
Centrostegia
Chorizanthe

and

Koenigieae with a separate bract under each flower

Hollisteria
Nemacaulis
Lastarriaea
Pterostegia
Koenigia

Polygoneae proper have no bract under each pedicel

I have not yet worked out all the genera but do not like Meisner's tribes – I think there are subtribes perhaps not easy to characterize – at any rate Rheum Oxyria Rumex and Emex form a distinct group the form of the embryo – straight or curved – lateral with the accumbent or incumbent curve constant in some genera appears to be variable in others

Pray let me know what you think about Koenigieae

Yours very sincerely

George Bentham

Stigmas capitate & embryo when curved accumbently so in Eriogoneae and Koenigieae

Stigmas dilated or fringed and embryo when curved incumbently so in Rheum and allies

Stigmas capitate and embryo variable in Polygonum and allies.

The large climbing Asiatic Polygonums not yet examined

bracts are various but they always appear to me to be loosely convolute enclosing the pedicel or pedicels. I should say that the mouth of a tubular or campanulate involucre distinguishes Rochejieve from Ericogonum the inflorescence separates them from the other tribes and the other characters are secondary

Why do we always write ochrea - knowing the classical latin word ocrea (a legging) I wished to see what ochrea could be derived from. There is no such latin word. indeed ch itself is not latin except when rendering the Greek χ and in Greek all derivations and compounds beginning with ochr mean yellow or pale - from where we have ochre ochraceous etc It is clear that Willdenow who first used ochrea in botany meant the latin word ocrea but in the carelessness of the period he spelt it with the h, and he has since been blindly followed by almost all botanists. I looked through a number of text books that profess to give the etymologies of botanical terms without finding any explanation of ochrea till at last I found in Duchartre that he gives

25, WILTON PLACE.
S.W.

May 29/79

My dear Gray

Some specimens being sent me by Engelmann have proved to me that he was right about Rhododendron periclymenoides. At first not finding any examinable males and not agreeing with him about the transverse anemic dehiscence of Arcanthobium I wrote to him still combating his views, but I have now succeeded in finding on his specimens male flowers just ready to open and I find that the plant is a true Rhododendron though very different in aspect from the rest of the genus and I have written to him acknowledging my mistake.

As to Polygonaceae I have been going over them again and am still inclined to limit the Eriogoneae to those with a

true involucre. Eriogonum Chorizanthe and the two or three intermediate genera. These have no ocrea and the petioles though dilated at the base do not go all round the stem.

Then I must say I think that Antovirea Nemacaulis Dedeckera Oxytheca and Koenigia form a group intermediate between Eriogoneae and Eupolygoneae. They have no true ocrea though the petioles are dilated and amplexicaul and when (as in most cases) the leaves are opposite or whorled the petioles are united in a ring or sheath. They have not the involucre of Eriogoneae but their inflorescence is very different from that of Polygoneae. The flowers each subtended by a distinct open bract are in a terminal flat head surrounded often by 3 (or more?) floral leaves, or these heads are in the forks of the flowering branches or are lateral or apparently axillary only by the non development of one fork whilst in Polygoneae the flowers are in ~~axillary~~ clusters in the axils of the stem leaves or the upper ones ~~degenerate~~ ramify more or less into a terminal spike or all limited to a terminal spike – sometimes the flowering branches so short as to leave the cluster or spike sessile in a cluster of leaves at the nodes but still very different from the head of Koenigieae.

The ocrea is a secondary character nearly but perhaps not quite constant in Polygoneae Persicarieae Coccoloboeae and Triplaridieae more or less evanescent or rudimentary in Koenigieae wholly absent in Eriogoneae (I include the whole of Polygonaceae in these six tribes).

In Polygoneae etc generally the flowers are 2 or more together but sometimes solitary in a loose more or less ~~open~~ ~~like~~ scarious bract often within a scarious subtending bract but these bracts appear variable. In P. aviculare there certainly is a loose bract enclosing the pedicel within the subtending one, whilst in the next Sect P. bistorta the flowers seem to be covered within the bract in others the

the derivation from the classical Latin and accordingly spells it ocrea though in another part of the same text book as also in the index he inadvertently writes orbrea. I think under these circumstances we are bound to revert to the correct classical spelling.

I have got from Hooker the copy of Nyctagineae Ulmaceae and Amaranthaceae revised for press and am only waiting for his last revision of Chenopodiaceae and Phytolaccaceae to put the copy into the printers hands – the remaining orders are all revised for press except Polygonaceae and Gymnospermae which however can easily be got ready whilst the previous orders are printing. I am getting very anxious to have them in print before my powers wear out.

We have had a nasty cold dreary winter and spring but I do not think that people are really much the worse for it.

Yours very sincerely

George Bentham

Many thanks for the photography

sheets of your text book. I am much pleased with them. Your text book have the great advantage of being practical as well as theoretical. which there is too general a wish now to teach botany almost exclusively in a theoretical point of view

In several of the Chicken Chorgum-
Thus there are as evidently three sexes
as in any Polygamous

[illegible]
sheating. — S.W.

All well. No news,

Twenty [illegible]

some Eriogoneae and in some true Polygoneae the ocreae pass into dentiae stipules — they are also alternate but you will observe the flowers are not strictly speaking axillary but between the axillary branch and the larger branch — that is in the fork of a dichotomous stem in the whole group. I will take care to state your views & where they differ from mine

In a paper of yours "read Feb 20 1837" you have very well pointed out the relationship of Ceratophyllum to Caboombe and Nelumbium have you ever followed it up? I see you do not allude to it in your Manual or Flora anywhere else. Carnel Nuov. Giorn. Bot. Ital. VIII. 20 from an examination of living specimens says that the terminal horn is not the style as is generally supposed but that the true stigmatic style is a slight protuberance at its base — I cannot verify this on dried specimens and it is not in flower yet. I have no doubt he may be right but if so I cannot agree with him that what we call the perianth in the female is not homologous to the male perianth but an involucre and that the

25, WILTON PLACE.
S.W.

June 4 /79

My dear Gray

Many thanks for your of the 19th May I have spent the morning over the plants you mention and am very sorry to say I cannot be convinced by your arguments although I have always so great a reliance on the correctness of your views that I bring forward my own in opposition with the greatest reluctance

I still think that Lactoria Nemacaulis and Hollisteria — and Sterostigia and Koenigia form or if you like it two groups intermediate between Eriogoneae and Polygoneae differing from the former in the want of the involucre from the latter in

inflorescence and in the reduced or absent ocrea.

The whole of Polygoneæ are so uniform in essential floral and carpological characters that one is obliged to class them chiefly upon habit inflorescence foliage and outward modifications of the fruit all secondary characters, and in such secondary characters the above genera form the connection between Eriogoneæ and Polygoneæ

The involucre of Eriogoneæ is constant and to my eye has no equ representative in other groups of Polygoneæ

You say the three leaves forming the involucre of Chorizanthe rigida correspond to the three outer empty bracts of the whorls in Lastarriea I cannot agree that the arrangement of the bracts in Lastarriea is sufficient to trace the specimens are so very brittle but by boiling I get them to show rather better - within the whorl of stem leaves I find the lowest flower sessile within one of the leaves of the whorl and the others within distinct narrow bracts, of which some appear to be without flowers but I cannot trace three to each flower nor any three as forming one whorl whilst in Oregida the involucre is quite like that of other Chorizanthes except that the bracts are separate to rather below the middle and are only 3 the usual smaller intermediate ones quite wanting.

Then you say that of the involucre of E. angulosum and you have just Nemacaulis - begging your pardon I think that is rather a Baillonian saying "take away the essential characters of a genus and you have something else" I find no representative of the involucre of Eriogoneæ in any other tribe of Polygoneæ I cannot admit as such the three outer empty bract of Nemacaulis for they are on the main stem and not axillary as is the involucre of Eriogoneæ and corresponding to the leaf and scales of Kellolia

The leaves of Kellolia you send are as you say bipinnatifid so are they often in

of some specimens

horn belongs to the true perianth. If he is right as to the style then the terminal as well as the basal horns are mere tubercular excrescences of the pericarp as occurs in many plants.

Yours very sincerely

George Bentham

stratum of the scale is all a mass – the seed lies loose (attached only by the base) within the cell as in all other Juniperes – but in the male flower there is a marked difference. In the other sections there is always a single male flower (apetalous in Bryophyllum, terminal in Sabina) consisting of a single staminal column but in Juniperus there are several male flowers (staminal columns) each subtended by a distinct bract and collected at first into a globular head but spreading when fully out. Bertrand & Rotsch characterise these as Amentum compositum. Parlatore refers to them without reading them for he merely says amenta masculi globosi. I could quote many more instances of great carelessness in Parlatore's Coniferae of the Prodromus but this is enough to show that I must go through all the details for myself and should be very glad to know if so careful an observer as Engelmann has published anything by which I might check my own observations.

Yours very truly
George Bentham

25, WILTON PLACE.
S.W.

London
June 15/79

My dear Sir,

I have now taken to Gymnospermea and want to know whether Engelmann who I understand has been studying Coniferae has published anything of importance about them. I thought that after the labours of A. Richard Endlicher Parlatore Brongniart and so many others I should have only the trouble of compiling but the very first genera have given me much more trouble for I take nothing for granted and find Parlatore's work exceedingly careless. In Gnetaceae (which I have done) neither he nor

Tulasne — nor apparently any one else have taken any notice of Griffith's paper in the Linnean Transactions — and he alone seems to have carefully traced the developments of the flowers of Cycadeæ from the observation of the living plants. Brongn's Recherches observations are also useful. And in the strict genus of true Coniferæ & taking Juniperus (Linn) Pallatore full of errors. Passing over the long exploded idea that the staminiferous column of the male flower is an anectarium and the antheriferous bracts — we cannot have traced the development of the galbulus (that is we can retain that name for the envelopes of the tribe of Cupressineæ) when he gives of a long tenta of the seed

when in studying Richard's Coniferæ or the fruits themselves he might have seen that the true seed fructifications of Richard is free within the bony nucule of Richard but which we may well call a pyrene formed from the impregnations of the scales of the galbulus. Again in the J. drupaceus Labill. which Endlicher proposed as a section under the name of Oxycedrus and Chloine Rothly as a genus under the name of Arceuthos Pallatore reduces it to the section Oxycedrus without paying the slightest attention to its distinctive characters. In the galbulus the difference ~~[illegible]~~ between the two Juniperocarpa consists chiefly in the very thick woody testa of the pyrenes closely combined into a [illegible] endocarp (treating the galbulus as a drupe) instead of their becoming exposed pyrenes as in J. communis the consolidation of the testa with the inner

to some manuscript name. I gave they distinguish Brenela Mosses from Callitriche Vent when Mitchel merely proposed the substitution of Brenela for Callitriche because the latter name the longest to near rendering to Calytrey Labill.

I presume I shall this summer be chiefly taken up with the proofs which is a long business having to check all the references. After that I doubt much whether I shall feel up to undertaking anything else. However I feel that it is something to have gone through between a complete Genera & Lauraceum & Cycloxoarum

Yours very sincerely
George Bentham

25, WILTON PLACE.
London S.W.
June 22/79

My dear Gray

I received on Monday your new ~~text~~ book and am very much pleased with it. I have not had time to read much of it for I have been very busy looking over for proof Cupressineae, Taxineae but have glanced through it and think it must become more than ever the standard text book from the thorough way in which you have gone into all parts of the subject — It had a narrow escape from being lost in the post the paper enveloping it was so thin and came all in rags — fortunately just enough remained for the postman to read the 25 Wilton Place. I hope no other copies were in the same predicament.

I have put into the printers hands the Nyctaginaceae Amaranthaceae and Chenopodiaceae for Genera Plantarum and the whole of the past (Monochlamydeae and Gymnospermae) is ready for printing excepting a little looking over of what each other has done and a few Balanophoreae and Cordaceae to finish so that we shall now I hope steadily print a sheet a week which is as much as the printers will undertake

I am very much obliged to Engelmann for the trouble he has taken in correcting my mistake about Arecanthobrium

I received yesterday a very interesting letter pointing out among other things where the bursting of the ripe fruit is recorded - observations scattered in various places which I did not hit upon. I have never seen the fresh plant and moreover specimens they say are very numerous have no ripe fruits.

I have just come across another curious mistake of Bartlatore's owing to the practice of copying synonyms without investigating them He gives Calletroia Vent. Nov. Gen. p. 10 t. 9 f. Australis and Calletroia quadrivalvis Vent. Nov. Gen. p. 10 when there is nothing of the kind in Ventenat's Nova Genera He then establishes Calletroia specially on an Australian plant and gives no specific name He moreover takes the generic name from the specially characteristic of the Australian portion of the genus the terminal arrangement of the calyx deriving it not very classically from καλλος and τρεω It is true that L. C. Richard refers the W. Australian Hibiscus articulatus Lind to Calletroia quadrivalvis Cat. but that is still a mistake or only refers

You may pay the above amount to Cooke who will give it me when I return

With kindest remembrances to all I am Ever yours sincerely

George Bentham

25, WILTON PLACE.
S.W.

London
July 25 79

My dear Gray

I wrote ere now to you some few about a portmanteau containing among other things the copy of Gen. Pl. you last ordered — the Hook. Icones for the Boston Horticult Society and the last part for Jussieu the Columbia College New York and the Boston Hort Soc. — Also a spare copy I had of the Memoirs of the Fl Brasil. which may serve as a complement to my paper on Memoirs of which I sent you at the time a separate copy.

You are now I suppose with Hooker at the Colorado. I hope the Railway

I hope may not have interfered with your
enjoying Hooker his trip. I have been
wishing my younger days I should have
gone with him. But now I never
crossed the Atlantic. I have been leading a
monotonous life for last twelve years
steadily working day after day at the
Flora Australiensis. He expects to
give me seven months without interruption
and now I can see more than
fever at the Gramineae which will
still take me two more months. I am
now going however for a fortnight's
holiday down to General Allen's in
Somersetshire. In the mean time my
seventh and last volume is printing.

I was very glad to see that you and
Dupont adopted my views at the Stockholm
of grasses. It appears to me to simplify
them very much. I can't say more
but I find that others have preceded me
though I don't quite understand why.

You ask me to let you have the
Icones as low as possible. The selling
price is £1 the part. We give it for
ready money at £1 but as you take
so much of Gen. Pl. etc. I think I must
let you have it at the trade price at
£1 the part — or if sent by post £1 4

Your account will stand thus

Icones Plantarum vol 1 & 2 —	3.. 10.. 0
Hooker's Icones for 1 vol Part for only 1 & 2 new vol. 8 parts —	2.. 8.. 0
Dupont's 3 copies —	10.. 0
	£7 " 4 " 6

and if you like to pay now for the Dup't 3 copies by post which I would send to Cor to Mr. Columbia College and to the Dr. to Off Bot at Gk — 19 £1 8 " 3 " 6

Received from A Gray
Oct 5 77
W J Hooker

Montys Court
Taunton
Augt 11/79

My dear Gray

Enclosed is a sketch of my views as to Coniferæ which I thought you might like to see before reading them or to Dr Engelmann - any observations on them would oblige me. I had intended writing a paper for the Linnean Society but have not time at present and must be content with the article in Genera Plantarum. I have kept no copy of the enclosed but if there is anything in any part of it which you or Dr Engelmann would like to put into any of your periodicals you are very welcome

The printing goes on slowly I have but just had the proof of the 5th sheet and received clean proofs of the two first

sheets which I send you by book post

I am here on a visit to my old and excellent friend General Munro who to our very great regret is but poorly and I fear from confirmed diabetes. He is however steadily at work at his Gramineae and I sincerely hope he may still be able to publish more of the result of his labours. I return to town on the 19th inst and may very likely not leave it again this season which I cannot call summer. You will have heard from Hooker of the devastation of the glass houses at Kew by the hailstorm of the 2d inst

Yours very sincerely

George Bentham.

25 Melton Place
Aug 21/79

My dear Gray

After much further consideration I think that in the Abietineæ the character derived from the male flower is so constant that we must keep Abies & Picea distinct we would then have

Antheraeum connectivum in appendicem squamiformem productum

1 Pinus
2 Cedrus
3 Picea Link. (Abies Don)

Antheraeum connectivum in appendiculatum vix supra loculos prominens fere gleadniforme

4 Abies Link. (Picea Don including Tsuga and Pseudotsuga)
5 Larix

I want much any observations you may have to make on Coniferæ

Yours truly George Bentham

Sept 16/79

My dear Gray

Many thanks for your and Engelmann's letters which have made me reconsider carefully the points upon which you differ from me. With the great respect I have for the general accuracy of your views yet I cannot quite give up my own ~~views~~ without a struggle and therefore I must trouble you again with a few observations which before I send I shall show to Hooker who is about returning from a month's holiday in Scotland.

First as to the term 'lamina ovulifera' which you object to. I admit that it may be rather cumbersome but I am unable to devise a better one. My great object was to use one which should not be expressive of a theoretical homology where that homology is uncertain. The peculiar organ in question exists in the female flower throughout the order, ~~it is therefore necessary~~ and therefore must have the same name in all the genera, it is far too diversified in outward form and appearance to give it a name derived from that appearance, its theoretical homology too much disputed to justify any designation founded upon the settlement of that question and I consequently endeavoured to select a perfectly neutral name. You propose squama carpellaris or carpel-scale to which you say there can be no objection. Unfortunately I fear I must object to both words. In descriptive botany squama or scale is a very convenient and useful term entirely derived from outward appearance (a vague resemblance to the scale of a fish; (as are also such terms as gland, wing etc. all founded on outward appearance) This squama may be indumental (in a lepidote indumentum) or foliar (in the case of a prophyllum or of a bract) or appendicular, when terminating a connective) or a compound organ, in the scales of the cones of Cupressineae). I think therefore that it is a very good term ~~for the~~ as popularly used for the scales of the cones of such Coniferæ as form cones whether their scales be simple or compound but inapplicable to what I have called lamina ovulifera which only constitutes a part of the scale or is independent of it. Then the word carpellary is entirely theoretical. I cannot

admit
that we "know that it is composed of two leaves of an axillary branch".
That view has been broached by some organogenists and absolutely denied by others, and I have been unable to see anything to confirm it. At the time of flowering it is sometimes a scarcely prominent ring perfectly entire and uniform all round, more frequently more developed on the outside than on the side next the axis of the amentum, often a flat regular or oblique disk or already forming a scale larger than the subtending bract very rarely showing a tendency to a prominent lobe on each side and then perhaps owing to outward pressure. That it is axillary and the development of a secondary axis I readily admit, but I think that those who contend that it is foliar or perianthial or discal or carpellary have all more or less of ground for their contention, as all these are in the first instance developments of or excrescences from an axis. In the present case the organ in question is not sufficiently developed to have assumed the form or to perform the functions of either a leaf or a perianth or a pistil and there is nothing to prove what it would be if it were further developed. Its close contiguity to the ovule might justify Brown's supposition that it may be an imperfect open ovary but on the other hand there is nothing to show that it may not be a mere disk or expansion of the torus. I think the latter the more probable but still am not prepared to deny the other and therefore have sought a neutral term.

With regard to the arrangement of the tribes I am sorry that that which I propose should interfere with old traditions which I am always desirous of respecting, but in this case I cannot but think that they may be improved upon. Coniferæ have been classed chiefly with respect to their fruits without reference to their flowers, and in the order the female organs change much in their form and relative position in passing from the flower to the fruit, and whenever that is the case I have always regarded the character derived from them in the former state of much more importance than the subsequent transformations. Take the three genera Cephalotaxus Torreya and Podocarpus which have been placed in one group on account of the assumed drupaceous fruit common to all three, but the flower and subsequent growth of the fruit is very different. In Cephalotaxus it is a naked seed with a drupaceous testa, the ovuliferous lamina (originally free from the 2 erect ovules) has remained unenlarged and united with the subtending bract. In Torreya the ovuliferous lamina at first a mere ring at the base of the erect ovule has grown up with it and over it at first an adnate ring and at last forming the greater part of the exocarp. In Podocarpus the reversed ovule is as in Abietineæ partly embedded in and continuous with the dilated apex of the ovuliferous lamina, which grows with the seed and forms its outer coating or exocarp, so much so as to have induced some botanists to consider the ovule and lamina as an anatropous ovule alone. I have therefore endeavoured to draw characters more from the ovule than from the relative subsequent development of the ovuliferous lamina and subtending bract. In all orders where the ovules are solitary or few and definite I have found the difference between the inferior and the superior micropyle and radicle of great importance. It is that which distinguishes the two great tribes of Moniniaceæ which some regard as orders - it separates Balanops from Euphorbiaceæ, Platanus from Urticineæ. And though I believe that the same character may in different cases have a very different value, yet here I cannot but think that the reversed and erect ovule are as in Moniniaceæ of primary importance in the division of the Order and Taxeæ appear to me as near to Taxodineæ and Podocarpeæ to Araucarieæ, as Taxeæ to Podocarpeæ as Taxodineæ to Araucarieæ. That the ovule of Sequoia and of Dacrydium should be sometimes at first nearly horizontal is I think no objection as the tendency of the ovule is very soon and very decidedly downward in the one and upward in the other and all distinctive characters however important are liable to show occasional less decided cases.

as to the staminal column of the male flower, though I believe it to consist mainly if not entirely of the united filaments. I will readily admit that it may or may not enclose and be consolidated with a central axis - it is the same in several Euphorbiaceæ for instance with indefinite stamens united in a central solid column - in one genus you can find no evidence of a central axis - in an allied genus you see a rudimentary ovary at the top of the column above the last stamens, and yet every one considers the column as consisting chiefly of the monadelphous filaments.

As to the fruit of Juniperus I have traced it in two species from the flower through various stages to the fruit. In the flower the scales (consisting of the consolidated ovuliferous lamina and bract) are slightly open exposing the normal erect ovule, but close over them immediately after fecundation consolidated into a fleshy mass leaving a small cell round each ovule. ~~when~~ As the fruit ripens the inner layer of the scales hardens into a distinct pericarp round each seed or in J. drupacea into one thick wooden mass in the whole fruit with 1 2 or more cells. The seed remains ~~quite free~~ in the cell quite free from its walls attached by the base only and being so completely enclosed the testa remains thin. Generally in Coniferæ the more exposed the seed is the more its integument appears to harden or thicken, thinnest in Juniperus and Taxeæ where it is permanently enclosed, thick and drupaceous in Cephalotaxus or very hard in Dacrydium where it is quite exposed.

I fear Dr Engelmann may not agree in all these views, they are however the result of much study and observation, yet if he can convince me that I am wrong as he did in the case of the Thuradendron juniperinum I shall be ready to recant as upon that occasion.

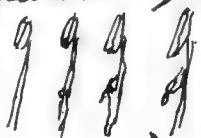
You will have received my sheets of the new part of our Genera I now send the seventh. The Monochlamydeous Orders have many of them so little connection with each other or even in many cases with any

25, WILTON PLACE.
S.W.

My dear Gray

Oct 85

Just received yours of the 11th
I cannot agree to putting Coulter
603 (Berginia verrgata Hers.
about which I wrote to you yesterday)
with Stenandrium - the habit
corolla and capsule quite different
— unilocular and bilocular anthers
often distinguish genera otherwise
nearly allied — as Hypoestes and
Dicrotrophe — and often connect
genera otherwise very distinct
In Chiothylax - a natural genus - there
is a gradual passage
from the one to the
other — In other cases it is a good
generic but not a subtribal character
In Berginia as far as I can judge,



from dried specimens the 2 upper corolla lobes though deeply divided are erect and much shorter than the spreading lower lip showing the 2-labiate corolla of Justicieae which is in Stenandrium the corolla lobes are all spreading as in Chaetacanthus. The shape of the capsule is rather unusual in Acanthaceae

Yours very truly
George Bentham

the price till all is in type.

The price of vols 1 and 2 is

	Publishing price	Ready money	Trade
vol I	50/	42/	£0.38/
vol II.	56 —	46 —	42 —
	£5.6.0	£4.8.0	£4

I charge you for single copies ready money price but when you take a dozen or more at once I charge you trade price but add the expenses at Liverpool and the bag – so that ~~you~~ you had better charge the purchasers with the ready money price – and many thanks for the trouble you take

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I cannot use the word squama for the lamina ovulifera for the squama of the strobilus is in Cupressineae and Araucarieae a combination of the lamina ovulifera and the bract – in Abietineae it is the lamina ovulifera alone the bract being free – in Taxeae & Podocarpeae there is no true strobilus. ~~&~~

Yours very sincerely
George Bentham

25, WILTON PLACE.
S.W.
Oct 27/79

My dear Gray

Thanks for the perusal of Engelmann's letter which I return. I wrote to him about ten days ago to say that I had discovered my error as to juniper & that I adopted his arrangement of Abietineae – My object in originally applying to him was to prevent my falling into gross error – and at any rate I should not have perverted about Juniperus as I had marked it for further examination and should then have discovered that I was at first wrong.

As to lamina ovulifera I must stick to some term that does not fix any homology – for after all there may be no real homology. I do not believe that Gymnosperms are degenerate Angiosperms

or that Angiosperms are a further development of Gymnosperms — both are probably derived from an original more simple stock — In both ~~may~~ (we here the flowers are unisexual) may be observed a secondary axis in the axil of the bract with a terminal female organ — one or more ovules — round or under them the axis (pedicel or torus) is usually more or less thickened developing in ~~opposite~~ clay or less or more of floral envelops and stamens and within them a pistil — and often between the floral envelops and the pistil there is a thickening of the axis scarcely forming a distinct organ or set of organs which we call a disk. In Gymnosperms this secondary ~~organ~~ axis is usually thickened and fleshy under the ovule but to my knowledge never in a Coniferous developed into distinct organs capable of performing the functions of or assuming the form of floral envelops or of a pistil and certainly never showing any signs of being the remains of any such organs having become rudimentary by disuse — I cannot therefore give this axis a name which should imply homology with either perianth or ovary the nearest homology is with that uncertain organ we call a disk but that is not clear enough to give it that name.

In Gnetaceae there is a development which may well be compared to a perianth. In Cycadaceae the whole development is again different — we have there a close resemblance between the male and female and perhaps a further remove from Angiosperms

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When I send you the copies of Vol III. Part 1. you tell me you promise to dispose of it will add a copy for yourself in sheets ~~or you~~ desire.

The part will I hope be out about Christmas but the printing is very heavy with so much small type and I have great difficulty in getting more than a sheet a week from the printers and there are still ten or a dozen sheets to print — all is in the printers hands — The part will be all appearance be of the size of vol II. part 1. of which the price is 25/ — with readymoney discount 20/ trade price 18/ but I cannot quite see

me to do it but I really cannot go into it just now – I am so full of work. I cannot write off a review at once! I must have time to study and think over a subject – each of my Presidential addresses was the work of about three months and I am now getting very old as well as out of the way of that sort of work – though I retain my health better than I ought to expect on entering my eightieth year

Ever yours sincerely
George Bentham

25 Wilton Place
London SW
Nov 1/79

My dear Gray

I feel much obliged to Dr Engelmann for his last communication enclosed in yours of the 18th Oct. It has saved me from what I must now see was a blot in my arrangement of Coniferæ and places Sequoia and Athrotaxis in a much better situation among Taxodieæ. I had not examined them young enough. I now see that in both genera the ovules are essentially erect but only become more or less reversed as they grow into seed. Pray when you write to him thank Engelmann for me – I am getting lazy for writing more letters than I can help and am now absorbed in Orchidaceæ – that is to say three or four days in the week for the other three or two are entirely taken up with revising and checking the references of the proofs of Gen Pl. – In Orchidaceæ I wish

I had some one to whom I could apply as I did to Engelmann about Cuscuta — but there is no one now who knows much about Orchids except Reichenbach — he knows them thoroughly and has a splendid collection of them — but I cannot call in his assistance with his crabbed temper without risking a quarrel which I should much regret. I do not agree with some of his indications of generic union and separation and he generally does not commit himself to any generic characters — his labors are chiefly species especially horticultural species. We have Lindley's Orchid nervarium and notes which are most valuable but he unfortunately often took his generic characters from a single examination of a single species — and that sometimes of an abnormal one as for instance his generic character of Masdevallia is taken from his M. ferentata which is a Pleurothallis.

With regard to one of your N. American ones there is a curious jumble Microstylis is scarcely generically distinct from Malaxis paludosa now regarded as the typical Malaxis and probably Nuttall established his genus under the idea that Liparis was the typical Malaxis — the M. paludosa and Microstylis have not the operculate anther supposed to be characteristic of Malaxideae but are quite exceptional in their anther as beautifully described by Darwin. I mention this to you because I would like you to examine Nuttall's Microstylis in a fresh state. Reichenbach made a curious mistake in ordering Oberonia to Malaxis from which it differs more even than Liparis in habit as well as character.

We are all much pleased with your new textbook and if we have not yet reviewed it it is really for want of time. Hooker is overwhelmed with work and only

25, WILTON PLACE.
London S.W.

Decr 14/79

My dear Gray

I regretting of the Genera Plantarum is now so far advanced that I feel confident that the new part (Vol. III Part 1. Monochlamydeæ and Gymnospermæ) will be out in the first fortnight of January. The part will be not quite so thick as vol. II. part 1 but there is so much of heavy printing in small type that the price will be the same. selling price 24/ ready money price 20/ and if you take more than 12 copies I shall only charge you the trade price 18/ but with the addition

in blending the necessarily modified generic characters so that a number of Lindley's amalgamated genera contain species which have not the generic character and as to Reichenbach when he widely separates two such nearly allied genera as Cattleya and Laelia to put the one into Epidendrum and the other into Bletia I am at a loss to conceive what his idea of the genera is. Hooker is taking to the Palms which he will do well but has little time to devote to them. Most other Monocotyledons have been well enough worked up to give little trouble – I know a good deal about Cyperaceæ – and I sincerely hope that Bentham will have worked up a large portion at least of Gramineæ before we come to them – but I feel that I must leave them and look forward to your

Yours very sincerely
George Bentham

of the charges to and at Liverpool which will bring them I suppose pretty nearly to the ready money price. I shall be glad therefore now to know how many copies you will take. The work has at last slightly overpaid the outlay and the stock of the 1st part of vol 1 is reduced very low but as is the case with all works published in numerous parts or volumes the later parts have not sold near so much as the first — purchasers of the first die or disappear and their copies get into the hands of persons who do not care to go on — and new purchasers buy the first as well as the last so that we shall have a heavy stock of the latter on hand. We shall have however as much of the whole as the public is likely to require. The Monocotyledons if I live to see them through the press will close the 3d vol and the whole work — but there is very heavy work both for Worker and for myself. I am quite bewildered with the Orchideae and had no idea that the genera were in such confusion. Both Lindley and Reichenbach began by establishing an enormous number of monotypic genera and ended by lumping a number together without

25, WILTON PLACE.
S.W.

Dec 25/79

My dear Gray

Your letter was on my table when I came in from Kew yesterday and I hasten to thank you for all your kind wishes and return you our best wishes to yourself and Mr Gray that you may enjoy health and prosperity throughout the new year. As to the main purport of your letter I can only answer positively on Saturday as Kew is closed for the holiday today and tomorrow but upon reading over your character of the genus it struck me at once that the tubular perianth bearing the stamenodia and especially the structure of the seed threw the plant at once far away both from Hydrocharideæ and Naiadeæ and then I need not enter into the most point of how you [illegible] too

Orders are to be distanced from each other. It strikes me that your plant must be a Pontederacea very near Heteranthera — but I will look into it on Saturday

Now Saturday — Your plant must be very close upon Heteranthera (Leptanthes Mich.) graminea & therefore return you the specimen for reconsideration as you must be well acquainted with the H. graminea and perhaps did not recognise it in an imperfect specimen

Yours very truly
George Bentham

25, WILTON PLACE.
London S.W.
Jany 7 1880

My dear Gray

I have to thank you for your two bills for £3.18.6 and £4.0.0 and the two copies of Gen. Pl. Iaw II will be duly sent with the new part. I am much obliged by this prompt payment but another time I had rather that you should not send off the money till you have received the books for fear of mishaps or misunderstandings if as they say "anything should happen" to me

The copy of the new part for yourself and the one for Mr Rudkin will be sent as you desire only folded – the complete volumes in boards are scarcely pared – not at all at the top and on the side only just to remove the rough edge

Most people approve of our reading the part cut as they use them in parts often without any intention of binding them and we find that in binding the margin is not perceptibly reduced - not more than it would be if the edges were left rough when they wear out much more by use. - and as to the new part it will be a very long perhaps indefinite time before it gets a part 2 to bind with it. The Monocotyledons will be slow work I have now been four months at Orchideae (much taken up it is true by correcting proofs) and have not I think got one third through - the Vandeae are in a dreadful state of confusion.

I am much disappointed at part of the volume not being out yet I had hoped to have got it all printed before Christmas but all my urging the printers proved in vain and then came Christmas holidays. Now the whole is in type except the index which goes to the printers tomorrow as I have kept it worked up on the revises as sent to proof. - There are five sheets in type (since the one last sent to you) of which I have not yet the clean proofs, but expect them tomorrow

very truly yours
George Bentham

25, WILTON PLACE.
London S.W.
Jany 12/00

My dear Grey

I hasten to acknowledge the receipt of yours of 29 ult with the bill for £4.0.0 for the third copy you have ordered of Sec. 87 vol 1, 2. With many thanks for your kind attentions

Yours affectionately
George Deakin

25, WILTON PLACE.
S.W.

London
Jany 26/00

My dear Gray

I wrote a line to acknowledge with thanks yours of the 12th rec'd this morning with your card of the 13th and the draft for £6.0.0

The four copies of the 2 vols are done up and directed to their owners & will be paid and will be sent off with the 27 of vol III. Just I as soon as ever I get them & this day return for proof the last proof of Index title etc so that now there is only the printing off and the binding which I may or

as much as I can

Yours ever sincerely

George Bentham

25, WILTON PLACE.
S.W.

Feb 9 1880

My dear Gray

Your post card just rec'd has come in time though it ought to have been too late I was to have had the copies of vol III part 1 on Saturday but they are not come in yet and I get nothing by bothering the printer & binder. The moment I get the copies I will send off your thirty. Many thanks for your kind zeal

I have been very much cut up by Gen'l Mauro's death Intimately I have been with him for above thirty years I have ever since his return

from the West Indies spent my summer vacation with him in Somersetshire. This last summer there certainly were signs that it might be the last but as he improved in strength in the autumn and passed over the severe weather of December without suffering from it I thought he might fairly have a few years more of tolerable comfort – at the last he faded rapidly for two or three days and slumbered away at last in perfect peace and quiet. An excellent man in every respect most honorable in all his ideas he was most particularly friendly to me – and his great monograph of Gramineae remains unfinished – his materials will come to Kew but who can work them up

I will write again in reading off the Genera

Ever yours sincerely

George Bentham

The box contains

4 Copies Gen. Ot. vol. I & II. — paid for (£17.12)

1 copy Gen. Ot. vol. II — — — — £ 2.6.0

30 copies Gen Ot. vol. III. part 1 viz: 29 stitched in covers and 1 for Mr Rudkin in sheets folded } at 18/ — 27.0.0

1 copy vol. III. part 1 in sheets folded for yourself not charged

The sheets completing the copy sent by post

Shipping agents charges carriage to Liverpool and expences then including insurance 15.6

£ 30.1.6

Recd your bill — 3.6.0

Remains due £ 26.15.6

Add — for 3 cases to be sent by canal 3.0.0

Received March 26th 1882 £ 29.15.6

25, WILTON PLACE.
S.W.

Feby 19/80

My dear Gray

Enclosed is the bill of lading for the box of Genera Plantarum and your account from which I have deducted the £3..6..0 received in your letter this morning. Many thanks again for all the trouble you have taken

What you say of the possibility of your and Mrs Gray coming over this year is very tantalizing I should so much like to shake you both by the hand once more before I die

Yours ever affectionately
George Bentham

25, WILTON PLACE.
London S.W.
April 7/00

My dear Gray

I have to acknowledge the receipt of yours of 26 March with the enclosed bill for £ 29.15.6 and to repeat to you my most cordial thanks for your successful efforts in disposing of so many copies of the Genera for us

In your letter of March 10 you desired me to send by post three more copies of Vol III. Part. 1. in your account you include two only I trust you received the three safe If your order was a mistake of

three instead of two pray keep the additional copy by you and if you should dispose of it only send me the money when you have some opportunity.

I work steadily my hours a day at Bickleigh but I am afraid it will be long before we can begin printing again. Hooker is making progress with the Psalms

Yours very sincerely

George Bentham

25, WILTON PLACE.
London S.W.

May 6 1880

My dear Gray

I have had one or two little notes from you through Hooker which however called for no answer and you will probably have heard from him of our going down to Montys Court to see to the sending off General Munro's herbarium etc It was a melancholy task to me especially as I had now during four summers regularly spent three or four weeks with him at Montys Court and I had long enjoyed his intimate friendship

tropicas – few of them within your special districts and none that I have specially to observe upon except the Bletia aphylla which to my mind has none of the character of Bletia but is really very near Corallorhiza and for which I must adopt Raffinesques generic name Hexalectris. I think ~~that~~ the relative position of the pollen masses a character of more importance than their absolute number – 2 or 4 or 6 or 8 – except that in Vandeae there are never 8. A large number of Lindley's Reichenbach's and others monotypic or small genera have been or must be reduced and on the other hand no less than four small sections of Epidendrum have not the generic character and must be reunited to the rest of genera – otherwise Lindley's genera are usually more natural than Reichenbach's

Yours very sincerely
George Bentham

Growing very old and impatient to see you and Mrs Gray

We found Mrs Munro bearing up very well but she has much to go through with the sad state of her hopelessly imbecile daughter and the very uncertain career of her eldest son – who could not pass the medical examination for the military career to which he had been brought up and has now no other one to enter upon He is a very amiable well conducted youth and everything that could be wished towards his mother – but he certainly is not bright

General Munro had left some portions of his Gramineae – Digitaria Panicum etc that he was actually at work upon in some confusion and the different borrowed collections rather mixed up – I have moreover gone through these genera and think I have rightly distinguished the different herbaria by their paper labels etc with which I am pretty well acquainted and amongst the ten or twelve sets to be returned there are three that are sent first to you your own herbarium the Gramineae of Mother Expedition and Vasey's Gramineae marked to be wholly or partially returned and as those to be kept were not distinguished we have returned all. I trust they will be found all right

I continue working at Brehedeau six hours a day and am now revising them with operculate authors – mostly

is indefatigable but he is rather getting into a style of work which is rather bibliographical than botanical. His index to the 1st edition of Linnaeus Species just received is to my mind of no use whatever — this Eucalyptus work is however really good and important.

With kindest remembrances to Mrs Gray believe me

Ever yours most sincerely

George Bentham

25, WILTON PLACE.
London S.W.

May 28/00

My dear Gray

I received last night your of the 16th and this morning I sent off from Kew the Gen. Pl. vol I. II. and III parts by post registered to Mr J. D. Ward. I was obliged however to send vol II. in the two separate parts as the whole volume in cloth boards weighs just over the 4 lbs allowed by post — the £5.10.0 you sent just covers the little cost and expences. Our best thanks for your active agency

the work keeps up a steady though slow sale on the Continent and though we shall not make our fortunes by it yet we shall be repaid our expenses and a little over — It has cost us much labour but appears generally to give satisfaction and you have been a most kind friend to it

De Candolle is looking forward with great pleasure to your promised visit to Geneva — It is just fifty years ago that he was over here for some time assisting in Wallich's distribution and I was a great deal of him and we had pleasant visits together to old Lambert in Hertfordshire and elsewhere. His new work on Phytographie has just reached us there is a great deal that is good in it but it will might perhaps have been put into fewer words — Bunge however have more influence as it is — as yet in such matters we have nothing so good as your last textbook — De Candolle's indication of the herbaria etc where the collections of travellers and authors are deposited is useful — Mueller of Melbourne

you could send me flower (bud) dried without crushing them – At any rate I should be sorry to put the plant into Orchis from which it differs so widely in other respects whilst it resembles so closely the H. ottonia with which you have associated it in your Monograph – differing chiefly in the colour of the flower and as regards the anther cells much as H. bifolia differs from H. chlorantha – both of them are nearer allied to the H. spathulata from the Himalayas which Reichenbach for reasons similar to yours I suppose (to which I cannot agree) puts into Orchis

I think that Dactylorhiza with its enormous helmet-shaped rostellum must be retained but for a Cape species only D. speciosa & D. foliosa the stigmatic processes are so much one generically they differ so very much in species & therefore very closely allied and though constant perhaps in each species yet so gradually from one to another that I for one can make no use of them for generic distinction

Yours very sincerely
George Bentham

25, WILTON PLACE.
London S.W.
June 19/00

My dear Gray

Very glad to hear of your having taken the decided step of engaging a berth for England in September I hope I may retain till then my present health I doubt however if I shall even then have got over my Brobdignagian troubles I now write to ask upon what grounds you put Habenaria rotundifolia into Orchis It is very difficult to ascertain from dried specimens the precise forms of the top of the column in the smaller flowered Orchideae but on a careful examination of a bud and of an open flower of H. rotundifolia I can find no trace of the deep prominentally raised pouch into which the 2 caudicle glands of Orchis are immersed nor is it represented in Sir W. Hooker's original analysis very

imperfectly copied in the Fl. Boreali-American. I have been for two or three weeks working at Habenaria and tried much to separate the principal genera which have been proposed but finding the characters upon which they have been established to vary so much from species to species that I have been obliged to revert to the views of your manual and reunite the whole into one genus of which we have in the Kew Herbarium about 340 species including Gymnadenia, Platanthera, Piperia, Habenaria Rich. Leucorchis E. H. Kelly or Beckia Bartl. Peruleria Lindl. Deroemia Reichb. Perisylax, Bl. or Peristylus Reich. Coeloglossum Hartm. Coeloglossum Lindl. (different from Hartman), Pecilabrella Lindl. Centrochelus Schau. Platanthera Rich. & Lindl. and Disorhynchium Schauer.

In all Ophrydeae I take the caudicle to be a true caudicle, a portion of the pollen, but the gland to which it attaches itself is I think as in other Orchideae the product of the back or the upper surface of the rostellum. In all Ophrydeae the anther cells are closely adnate to the clinandrium, the real connective being so closely consolidated with the clinandrium as not to be distinguishable from it. In Habenaria the apex of the anther-cell (inferior in consequence of the reversed position of the anther) is sometimes very short and adnate to the end of the rostellum, taken lobe, very short or scarcely prominent in others the apices are much prolonged and though when open often quite free yet I believe they are always in the early bud closely applied to or almost adnate to corresponding taken lobes of the rostellum. These lobes of the rostellum are often channelled sometimes almost closed over the apex of the anther-cell and occasionally slightly turned up at the end but never as far as I can see forming the distinct single pouch of Orchis & Serapias or the two pouches of Ophrys. This slight turn up has been the occasion of the dispute whether Platanthera, Peruleria, Hemipilia, Glossaryes and other single species of Habenaria have or have not the pouches of Ophrys. What I want to know from you is whether you have examined H. rotundifolia in a fresh state and whether

precise relation to the rostellum, which seems to vary so much from species to species that it makes it very difficult to derive from them any definite generic characters. The whole subject requires a great deal more accurate observation of living specimens in early bud in the rapid bud and in the expanded flower.

I have not examined your Orchis papilionacea, but will do so — my characters of Orchis are derived from European ones.

I hope you will kindly examine such as you can get fresh specimens of so as to be prepared to discuss them when we meet and if you could procure dried specimens not squeezed flat they would assist me in comprehending your views.

Ever yours sincerely

George Bentham

25, WILTON PLACE.
London S.W.

July 13/80

My dear Gray

Just received yours of the 1st and I now write to explain my meaning about the reversion of the Anthercells in Ophrydeae.

In the great mass of Orchideae the slit of the anther cells faces the rostellum

and the pollen-masses when produced (at a candle as in Calanthe most Ercas some species etc. tape upwards (away from the base of the anthers) and the gland (which I believe is a production of the extremity of the rostellum) is at that upper one whilst in Ophrydeae the anther cells when supposed produced have their backs

to the rostellum and the caudicles with the gland at their extremity are at the lower end of the anther cell.

The true caudicle is I believe always a portion of the pollen and in those cases where I have been able to observe it is (as already shown by various observers) not connected with the so called gland till the opening of the anther cell admits of the connection. The anther cell however often opens in the bud long before the flower expands

In the Orchideae the anther case the clinandrium and the rostellum are so closely combined that one cannot tell where each begins they form one body as it were to which the two anther cells (often very prominent) are closely adnate by their backs and when these anther cells are much overtopped by the rostellum the extremities of the two valves are not always distinguishable from the lobes of the rostellum and I have often got quite puzzled between the slightly turned up margins of the rostellum lobes and the more nearly of Habenaria pouches of the Serapeadae (Orchis Serapias & Ophrys) as observed in the dried specimens - but on other grounds it goes very much against the grain in my mind to call the O. rotundifolia an Orchis and not a Habenaria

The gland or glands of Epipogon gyrosa form or line the middle lobe of the rostellum If the ends of the anther cells are short and contiguous the caudicle detach the gland at right angles - if they are lengthened out on the lateral lobes beyond the central lobe the caudicles become attached obliquely or laterally to the glands - but very often the gland changes its angle immediately on the liberation of the pollen mass and the form and length of the ends of the ~~pollen~~ anther cell and its

the gland may be detached from the anther & be sometimes

25, WILTON PLACE.
London S.W.

August 11/86

My dear Gray,

I suppose this letter will just reach you before you start and anticipating the great pleasure of shortly seeing you & Mr Gray I have little to say except that that pleasure will be still further increased by the prospect of seeing also Mr. & Mrs Alphonse de Candolle who are coming over here to meet you next month.

I have just finished Orchidae and am now at Cyperaceae after

which I hath laid up reserved
whilst Hoarders have at work
at Salem

Dear Friend

George Bentham

25, WILTON PLACE.
London S.W.

May 10/01

My dear Sir

Your long-spurred Orchid from Florida Curtis n. 101 is Dendrophylax Lindenii (Aerantheus Lindenii Reichb. f. in Walp. ann. VI. 902.

The other Orchid sent separately is a Cyrtopodium (Cyrtopera) very near C. Woodfordii but the flowers are smaller the mentum scarcely prominent the lateral lobes of the labellum more spreading etc.

Yours very truly

George Neuthan

J. Watson Esq

25, WILTON PLACE.
S.W.

July 29/81

My dear W Gray

Many thanks for your kind note of sympathy. I hope to be out of bed and resume my work on Thursday when I shall try and see you.

Yours very sincerely
George Bentham

I have just corrected the last proof of my "Notes on Gramineæ" about 120 pages. As soon as I get my separate copies I will send you one but I fear the printers will not have them ready this week - and then Christmas holidays will put it off for a fortnight perhaps.

With kindest remembrances to Mrs Gray believe me

Ever yours

George Bentham

25 Wilton Place
London SW
Dec 18/91

My dear Gray

I am very glad to hear of your and Mrs Gray's safe return home and trust you are now comfortably settled down to work and all the better for your trip to the old world.

Much obliged for the trouble you took about the General Plantarum for Mr Coulter. He sent me a P.O. order for the amount and I posted and registered the work the same day. I trust it will safely reach him.

I have been having the plant you transported from Otelec to Chodsey a peg for the roses. It is certainly as you say a true Helleborus but are not

the male flowers with 1-seriate (4 not 10) stamens sufficient to keep Hebertia distinct from Chorizia? more especially as we have not yet the ripe fruit of the latter. Besides this species and Tulasnea we have a new one from Paraguay with the foliage more like that of the Texan one than to Tulasnea but with a remarkable fine point at the end of each leaflet.

I have been for several weeks close at work at Erideae which have given me more trouble than I expected after Baker's monograph for I cannot concur in his tribes founded chiefly on the bulbous or non-bulbous stems or rhizomes and the degree of union of the filaments which appear to me very unnatural in their results inflorescence and the relation of the styles and stigmas to the stamens appear to me to be much better primary characters

the latter however are difficult to observe in dried specimens (specially to Baker who rarely if ever soaks a flower to examine it)

You have not many in North America but amongst them I am obliged unwillingly to suppress Herbertia. The previously published Alophia Drummondiana is identical with Herbertia Drummondiana Herb. and the genus Alophia would now comprise the Texan species the extra-tropical South American typical Herbertia (the Montevideo plant perhaps distinct from the Chilian one) and two Brazilian species. Platt's Alophias and his Herbertia umbellata have nothing to do with either. Herbert had already acknowledged that his Trifurcia was identical with Herbertia.

I should refer Chlamydostylis Baker (including Calydorea ~~Baker~~ punctata Baker of which he did not examine the style) and Eustylis as sections to Nemastylis

fragrans which Bojer expressly says is introduced into the Mascarene Island though now so abundant there – we have authentic specimens of the plant originally described by Vahl from Paris gardens quite identical with Bojer's from the Island

I am afraid I cannot keep up Dasylirion as distinct from Nolina – the typical species of both are indeed very different in habit as well as in character but every distinctive character breaks down in one species or another – among the few species there are four or five very different forms of fruit – Any observations from Mr Watson will be thankfully received

I keep up Nothocordum (divided by Baker between Milla and Allium) though certainly it is very near Allium Besides the American species it includes one from China (Nothocordum neriniflorum Herb) which Regel cannot have seen or he never would have referred it to the Allium Chinense or Thunbergii it appears to have a very limited range in North China

Yours very sincerely
George Bentham

25 Wilton Place
London SW
April 7/82

My dear Gray

I see by your notes on my paper on Gramineae that you are startled at and I suppose do not quite approve of some of my combinations I should be much obliged if you or any of your botanical friends would communicate to me any criticisms which may occur to you as soon as convenient in order that I may consider them when I come to revise my MS for press this summer I have had some useful observations from Hackel of Mr Bolleu

and from Boissier and I may have to modify my views in some respects at least for instance I may have to put Polygonum back into Eugrostis — and perhaps change the position of Isachne — but for a practical work like the Genera Plantarum I too to get tangible characters as well as natural groups which do not always go together

We have not yet began printing Hooker has been doing a good deal of work as well as myself but I have been rather thrown back by a troublesome cough — of which I hope now to have got rid — and Leguminosae take me longer than I expected — I cannot concur in Bakers tribes — With regard to your American genera I can go much more readily with S. Watson — I should have been almost tempted to keep up Fritelia as distinct from Brodiaea but have retained it as a section — it certainly includes most if not all the Chilean species placed by Baker in Milla

Brodiaea

Leucocoryne is confined to very few species only differing from the S. African Calliphea in the root but L. Ixioides Baker goes where Gay had put it into Tristagma with Stemmatium Stelligeri (Stephanotheca Baker) Watson is quite right in restricting Milla to Cavanilles species Bakers Milla is a sad mess — his Milla Borbonica is the common Nothoscordum

25 Hillmorton Road
London S.W.
April 11/92

My dear Gray

Many thanks for your communication which I found on Saturday when I came in from Brussels in time to send off the receipt to Mr Vivian by that post – next day was Sunday and yesterday bank holiday so that it is only today that I could send the copy of Gen. M. to Wesley for the Smithsonian Institution as you directed.

thanks for your and Mr Gray's kind enquiries. I have got rid of my cough but not of my years which gradually weaken me – I cannot say that I have nearly worked up the Acacieae though I see my way pretty well through them but the work of detail is very tiresome for to say the truth I cannot trust to Baker for any minutiae which require close examination – I believe he never looks a flower or uses a mounted lens – but his labours do save me a great deal of trouble

As to Lilies I have certainly no intention of extending the work so as to include them – they have been too much specialised – and indeed Pteridologists have now quite done away with all our notions of genera which they regard as quite secondary to species.

Hooker has been working steadily at the apocarpous Orders and we have so far advanced that I am thinking in a few days of taking to the revision of Orchideae so as to begin printing – for it will take at least eight months to print the part

Yours very sincerely
George Bentham

although generally speaking I have found the analyses in that work so very correct.

I have no respected of Odontoglossum if you have any to spare you would much oblige me by sending it forthwith

I have not looked again into Molina & allies but shall when doing Cordylines which is certainly not far off.

Orchideae are nearly all in type and Scitamineae are in the printer hand Bromeliaceae & Haemodoraceae follow next week

25 Wilton Place
London S.W.
June 30/92

My dear Gray

I have two letters of yours left long unanswered but since I began printing I have been so entirely occupied with revising for press and correcting proofs etc that I have had no time for anything else and even have got on so slowly with the Liliaceae that I am afraid the printer will overtake me. The Order has given me much more trouble than I expected but I am beginning to see my way through it — and though I cannot answer you fully nor give you as yet any synopsis or list of genera I must say a few words in order that you may make any observations

S. Watson keeps up Hesperantheae as

distinct from Anthericum — I do not think I can do so. Anthericum includes Phalangium with much foliaceous and Trachyandra with nakedness. Watson says Hesperanthes differs in having the perianth twisted after flowering — If the mass usually twisted like Crocus and Iridaceae — it certainly is not so in our specimens & if it is so twisted in genuine Ixioids like to see it and I include Hesperanthes in Trachyandra the name Hesperanthes is also taken up in Iridaceae

Baker's sections Bulbinella and Chrysobactron make a good genus Bulbinella differing from Anthericum in anthers oversyte. Baker's Eremostachyon (as to those species which have his character) belongs to Caesia

Odontostomum Torr to my mind belongs clearly to Conanthera and I make Conanthera and Ophiopogonoides distinct

tribes of Haemodoraceae taking them out of Liliaceae leaves the order without any inferior or semiinferior ovaries and the embryo in all Liliaceae I have examined is always completely enclosed in the albumen as in Iridaceae & Amaryllidaceae whilst in Haemodoraceae as in Pontederiaceae & Bromeliaceae it is in a marginal cavity or in a channel more or less penetrating into the albumen but the radicular end at the margin or protruding from it

I exclude Velloziaceae from Haemodoraceae & put them in Amaryllidaceae next to Agaveae. They have none of the habit of Haemodoraceae the seed is only known in Barbacenia purpurea where a careful examination shows it to be quite that of Amaryllidaceae — the figure of the seed in Lemaout & Decaisne is not accurate

Kew July 26/02

My dear Gray

Your letter and the seed of Odontoglossum have come at the right time and seem to confirm my views that the genus belongs to Conanthereae which I regard as a tribe rather of Haemodoraceae than of Liliaceae. In each of the tribes of Haemodoraceae there are few in Bromeliaceae genera with the ovary inferior half inferior or free in all the embryo is not entirely enclosed in the albumen as in Liliaceae etc but is either marginal or more or less intruded with the thick radicular end more or less distinctly protruded, and in making a vertical section of one of the seeds you send I find it like this much as I have never seen in hundreds of seeds of Liliaceae that I have dissected

I have not done the Veratreae yet but now on receiving your letter I took into the seed of Chamelirium Fremontii or Zygadenus glaucus which I find like this

The Orchideae are now all printed off except the last sheet Scitamineae and Bromeliaceae are all in type Haemodoraceae will be in this week proof Iridea and Amaryllideae are in the printers hand.

about 150 or 160 genera of Liliaceae are done but there are still some 20 or 30 (very) ones to examine and I cannot get quite made up my mind as to grouping them — and the clavis or Conspectus Generum is very difficult to draw up

In the printed off portion there will be two or three corrigenda as to geographical distribution

Thanks for the faded flowers of Hesperanthes — I cannot consider them as spirally twisted the twist is very slight and rare — and almost accidental

I made a great mistake in M. Andrea in placing Myzantes in the spirally twisted genera — In first copying out my rough notes the word non was accidentally omitted and the error was not detected till after publication

Yours very sincerely
George Bentham

I have been staying the last fortnight at Hooker's whilst workmen are in my home — which I return on Monday — while here I have been able to work at least eight hours a day in the herbarium

coordinate and apocarpous orders often which there will only be Ranunculus etc which are already well worked up and Cyperaceae and Gramineae which are all written out for press only requiring a little revision in consequence of the observations of Haeckel and others so that now I hope there will be no interruption to the sheet per week – the 19th sheet is now in type which I think will make up about half the part.

With kindest remembrances to Mrs Gray Ever yours sincerely

George Bentham

25, WILTON PLACE.
London S.W.

My dear Gray Augt 26/82

I have been long intending to write to you and give you as you requested a sketch of the arrangement I proposed for Lichenes but the printer has been so close upon my heels that I have had no time for anything though I have for months past worked steadily eight hours a day either at Kew or at home – Last month I was for three weeks at the Hookers whilst workmen were in my house – but though that was very pleasant it was not exactly a holiday for I could be in the herbarium every day from 9 to 5 – the Lichenes are now at last all at the printers – 107 genera – and it was not till the very last that I could make up my mind as to their arrangement – I found the character so varied that all seemed for a long time to be quite a chaos – and it was not till I had gone through the whole that I could see any

definite groups – and it was only after I had got them fairly written out and recompared the generic with the tribal characters and tested and rearranged the groups that I could bring the whole into anything like order. I have now twenty tribes (besides a few subtribes) arranged in three series, tolerably satisfactory to my mind – how they will be to yours may be doubtful ... it would no doubt have been better if I could have discussed some of them with you but there was no time for that. It is very important to get the Genera finished by Xmas as my getting over the winter must be very uncertain – In my first series there is neither bulb, nor radical leaves at the base of the flowering stem, introrse authers the fruit is always a berry (except in Hemerocallis) – the seed rather variable – it includes Smilacineae Asparagineae Convallarieae Aspidistreae etc – the second has either a bulb or crowded leaves at the base of the flowering stem (or at the apex of the woody caudex), introrse authers the fruit usually loculicidal – rarely fleshy and indehiscent or very rarely a true berry, the embryo long in a fleshy albumen and includes Hemerocallieae Aloineae Cordylineae Asphodeleae (with half a dozen subtribes) Ichnanthieae Allieae Scilleae and Tulipeae – the third series has a variable habit (no woody caudex) – either extrorse authers or septicidal capsule or both – rarely a berry, the embryo usually very small in a hard albumen. It includes Colchiceae ~~Anthericeae~~ Uvularieae Melanthieae Veratreae – (as far as I recollect – for I have no copy by me) – I had intended giving you some details – but I could not keep the copy back and you will very soon have it in proofs

I duly received your two postcards yesterday

The Hooker's are at Southampton – they are very well and flourishing – John Ball is just returned from his trip to Bern and gone off again with Mr Ball to Italy – I have now a few little orders to do which Salisbury are printing – then come Hooker's Palms

Rio Janeiro was really from Sierra Leone and was the type of my Eriocaulon radians which by a misprint in the Niger Flora stands as radicans. I had included in it the widely spread W. African species which I or Miss Koernicke may be right in distinguishing specifically and the third species is M. glutinosum Kœn from Madagascar which I think includes M. Rutenbergianum Kœn.

Paepalanthus is a dreadful poly-morphic genus above 200 species with some natural sections which I have not yet mastered – sometimes scarcely distinguishable from Eriocaulon (in two species with the unilocular anthers of Philodice!) and sometimes with a totally different habit – but I believe I must adopt Koernicke's generic distinction.

Hooker's Palms are in the printer's hands but we shall scarcely get the part out by X mas

Yours very sincerely

George Bentham

25, WILTON PLACE.
S.W.

London
Oct 14/82

My dear Gray

I have been much pleased with your obituary notice of Darwin which I received yesterday – I envy you the facility with which you get up these and other critical notices and the soundness of the views you express.

Have you seen De Candolle's new work on the origin of cultivated plants which has just come to hand? It shows a great deal of research and the results clearly and methodically put – a talent in which the French so far surpass the Germans and I think

De Candolle goes far in settling some of the much disputed points as to the origin of some of the oldest cultivation, and in showing that others cannot now and most likely never will be settled — there are a few omissions such as Rhubarb and Acacia farnesiana but in general his work seems very complete

I am at this moment at Eriocaulon for Gen. Pl. the genera appear to have good characters but are very unnatural species put side by side of Eriocaulon Lachnocaulon and Dopalanthus can only be distinguished by carpel analysis Koernicke's work is in general good but I do not admit all his species I think you have but two Lachnocaulons not four L. digynum is I think nothing but starved specimens of L. Michauxii in which I find the female flowers imperfect by abortion ~~at Eriocaulon~~ and in his character of L. Beyrichianum I see nothing to separate it from the common one but I have seen no specimen. In Eriocaulon I think L. septangulare should include his L. floridulum founded on specimens so named in Purdie's herbarium but very different from the Dopalanthus floridulus as pointed out by Koernicke. E. texanum seems a good species — so is Lachnocaulon glabrum. Have any of your American botanists been working at Eriocaulon?

Ionina is a very distinct genus of one or two species — so is Chionanthemum of three African or Mascarene species — the Ch. Bancottianum figured by Koernicke as from the char. of which have been properly corrected in a manuscript of his which I brought with the Indian specimens

the whole way to Kew about three days in the week – I am also obliged for the present to give up dining out and have had but a dull Christmas time of it alone at home. A couple of days frost in the first half of December seemed to promise a severe winter though about London (unlike the north) it was not enough to allow any skating and about a fortnight ago it suddenly gave way to warm very wet weather which has continued ever since

The Hookers have been spending Xmas at the Hodgsons in Gloucestershire but return to Kew tomorrow. I will mention to him what you say about Mirabilis and Geographus

I have had some useful correspondence with Hackel of Pilotten on Gramineae at which he has been working very carefully

25, WILTON PLACE.
London S.W.
Jany 1/83

My dear Gray

I was just taking up the pen to write to you to express my anxiety to hear something of you and Mrs Gray after so long a silence when your kind and most friendly letter of the 17th Decr reached me as a most welcome New Year's greeting I had heard of your accident but I very soon also heard that you were getting the better of it without any serious consequence and I had the pleasure of seeing your handwriting in the direction of one or two brochures – and only a few days ago of your interesting account of the enormous

increase of the known flora of N. America.
I do hope that we may now see
material progress in your great flora

One thing prevented my writing
sooner was my anxiety not to interrupt
the preparation of the Genera Plantarum
You will have observed by the sheets sent
to you that the printing has been steadily
going on since May at the rate of one
sheet per week – I cannot persuade the
printers to go on more rapidly – and after
the first proofs the process of revising
and printing off is rather a slow one.
The Gyperaceae are now almost all in
type and the Gramineae were sent to the
printers a fortnight ago so that we begin
to see the end. We add a few of the most
important addenda et corrigenda to the
volume – We are urged to prepare a
Supplement to the whole work but that is
more than I can undertake as to my part
I believe that nearly 300 new genera have
been proposed as belonging to the first two
volumes and some Orders will require
much re-working for which I do not feel
at all disposed. I have no reason to
complain of my health considering that
I am in my 83d year but I have lost much
within the last twelve month – a shortness
of breath has grown much upon me and
since this winter has set in I find the
walk over New bridge from the station
too much for me and I only drive down

and has been doing the Andropogoneæ for the great Flora Brasiliensis which I trust will be a great improvement on the other tribes so poorly worked up by Doell. – but I cannot enter into Hackel's fanciful speculations on the successive evolution of different groups of Festuceæ species. On the whole I admit that many good objections may be made to several approximations and severances I have made in the generic arrangement of Gramineæ – but I have been unable to improve it without giving rise to at least equally serious objections

With my warmest wishes that you and Mr Gray may enjoy a happy New Year in health strength and activity

believe me – always
Yours most affectionately
George Bentham

25 Wilton Place
London S.W.
Feb 1/83

My dear Gray

The printing Genera Plantarum is now so far advanced that I can see that the volume (III) will be within a very few pages more or less of the same bulk as vol II. I shall therefore fix it at the same price as per enclosed memorandum. I sell single copies here at cash price or if twelve or more copies are taken at one I give them at trade price – in your case there will be a small extra charge for expences to Liverpool and there as I suppose the best way to send them to you will be as before in a box from Liverpool – I have great difficulty in hurrying on the printers who only give me one sheet per week and the

Index is always very long preventing both, confidently hope to get the part out by the end of March so that I would be obliged to you now to let me know what number of copies you take for your friends. There are now six sheets in type of which I have corrected the proofs but have not yet had the revises or clean copies – and there will be about four more besides the index which will fill two more – all is written out for press and only waits the printer. I am very thankful for having been able to do them much for my shortness of breath gains much upon me and interferes much with my working powers.

Yours very sincerely

George Beddome

	Subscription price	Publishing price	Sub price	Subscription
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Vol. III. Part II	£1.12.0	£1.6.0	£1.4.0	
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The – vols complete	£8.2.0	£6.15.4	£6.1.6	

Expences to Aberdeen and Kew – extra

25, WILTON PLACE.
London S.W.

April 9/89

My dear Gray

Your memorandum of the number of copies you kindly take of the new part of Genera Plantarum was given to me at Kew today — I had hoped the part would have been ready before this but Easter Holiday intervened and I scarcely think I shall have it till next week — the last proof lately was returned for press on the 21st March

Many thanks for your activity in procuring orders for it and for your good wishes in regard to myself — &c

for holiday I am forced to take it for
I am no longer fit for work. My
shortness of breath has gained so much
upon me that I have been good for
nothing all the winter and am now
losing my strength. Fortunately I
shall leave no great work begun
and unfinished.

Ever yours sincerely

George Bentham

25 Wilton Place
London SW
April 25/03

My dear Gray

Oliver sent off from Kew your box of Genera Plantarum on Friday last 20th inst and I posted from thence on Saturday the 20th copy which came from the binders too late to go in the box. A bitter cold N.E. wind has prevented my going this week to Kew but I hear from Oliver that the Liverpool Agents Messrs Henry Diaper & Co were to ship the box per Atlas steamer to Boston to sail today 25th and that the Liverpool charges with freight would be charged forward on you. I therefore enclose your account - a few shillings extra expences despatching from Kew are too trifling to add on - therefore the £56. 9. 6 will be all you will have to send me - a notable contribution towards the cost of the work which has been very heavy. I know again to thank you for all the trouble you

have taken in the matter – It is a very great satisfaction to me to have lived to see the final winding up of this work which I little expected to do even when I began the Orchidea some three or four years ago – and which never would have been the case if I had not worked steadily without any holiday interruption the last two summers – for since I examined the last plants (about October last) I have been gradually though slowly breaking down and am now unfit for any continuous work, although still retaining my sight and hearing etc. unimpaired

Ever yours most sincerely

George Bentham

but it appears that for that Lindley relied entirely upon others & his observations upon details of this kind have since proved to be so little to be depended upon. I feel now quite satisfied that Burmannianum should in the series of Monocotyledons be removed from the vicinity of Orchideae and placed next to Taccaceae of not united with them in one Order.

Yours very sincerely and affectionately

George Bentham

25, WILTON PLACE.
S.W.

London
May 27 1883

My dear Gray

Your most welcome letter of the 16th inst reached me last night enclosing draft for £62.13.3 for the General Plantarum sent you including £5.8.11 for Sir Joseph Hooker which I have sent to him. I did not expect you to send the money till you had actually the books in your possession and had collected at least the principal part of the proceeds at the same time this very prompt payment is most acceptable for the

charges paid on this last part have been unusually heavy. Again therefore I have more cordially to thank you for the assistance you have so kindly given us throughout.

For the last two or three months I have been getting very thin and weak with but very little appetite and have now been obliged to give up all thoughts of any further botanical work.

A new part of the Annales or Journal of the Buitenzorg Botanic Garden (published at Leyden) has just come to hand in which is a paper of Treub's in which he shows that in two species at least of Burmannia what has of late been generally considered as an albuminous apparently homogeneous embryo is in fact an albumen enclosing a minute one- or two-celled embryo. I wish this had been sooner made known as if Treub's observations are correct it would remove Burmanniaceae from the vicinity of Orchideae with which they have otherwise but very little affinity and place them next to Iacca with which I had formerly associated them until lately persuaded me that the seed was similar to that of Orchideae

25, WILTON PLACE.
S.W.

London
June 5/83

My dear Mr Gray

Your very friendly letter which reached me yesterday is a great pleasure to me. Now that my botanical career has come to an end I am very glad to see that there are still a few old friends who do not forget me. I wish indeed it were possible for me to come over to see you and Dr Gray and your surroundings. I always had a great desire to cross the Atlantic and was once very near doing so but family ties have always kept me at home till old age has crept in and put an end to all projects of distant travel

and now even a visit to the country in England is beyond my powers I still now and then drive down for a few hours to Ken but do nothing there any more than at home

The Hookers seem very flourishing and are always exceedingly kind and friendly to me – his speech on Monday on receiving the Geographical medal seems to have been exceedingly well received He is a little worn as usual but appears to be in excellent health

Judge Lindley (my old friend Matt) tells me that Lord Coleridge who is going over to North America is very desirous of an introduction to Dr Gray I unfortunately am not personally acquainted with Lord C. but a man of his reputation both publicly and privately has I think no need of a personal introduction – though I suppose he will have provided himself with one

You refer to Herefordshire and Pontrilas – your kind visit there will always remain one of the most pleasing recollections of our sojourn in the west – Whether we now ever meet again or not I shall ever remain so long as I live

Yours sincerely attached

George Bentham

25, WILTON PLACE.
S.W.

London
Sept 12/03

My dear Gray

It is long since we have heard from you. Some weeks ago Hooker told me you had been ill but had got well and I am now rather anxious to learn that you are well and at work at your flowers. As for me I am much better than I ever expected to be six weeks ago but am still quite unable to do anything in botany or go to Kew where I was only once in June and never since. The most I can do is to take a drive in the parks when it is fine — I cannot walk a hundred yards to I have only to pore over a book or the newspapers till my eyes are tired and

than at doing nothing — which as you know I have never been used to — at this dead season for London the few friends I still have are all away

I trust you have been satisfactorily repaid for all the Genera Lanterna you took — When the balances of our publication & Hedrumman accounts are paid (next Christmas) our outlay will be repaid with a little over and the sale I hope will go on though slowly

Hoping to hear from you soon and with kindest remembrances to Mr Grey believe me ever yours most sincerely

George Bentham

25, WILTON PLACE.
London S.W.

Oct 11/83

My dear Gray

Much pleased to receive your of the 28 Sept with such cheerful accounts of your health and of the progress of your great work and other matters. I have so far recovered that I have no position illness to complain of – but am now stationary very weak in the legs – unable to move from home except for a carriage drive in the park – and now that cold weather is coming on the only change I can look forward to are Kew ones. I have not been to Kew since early in June and am quite unable to do any botanical work.

You ask about the exact price of Genera Plantarum – for the three volumes

complete cloth boards the ready money
cash price is £ 6.15.0 (publishing price £8.2.0)
Postage registered
would be } 3.8

Total £ 6.19.0 and on receipt of
a sight bill on a London banker I would
immediately send off the work as above
supposing the state of my health allows me
to see to it — but I must say that my
health is henceforward so precarious that I
can scarcely recommend to any one to trust to
this mode of procuring the work as there
might be some delay if I had to refer it to
the Kew authorities to send it off — I think it
would be better now to get it through the
booksellers

We have been much grieved at the
death of Donald Heer a most amiable man
besides his great merits as the first fossil
botanist

All seem to be well and flourishing
at Kew

Ever yours sincerely

George Bentham