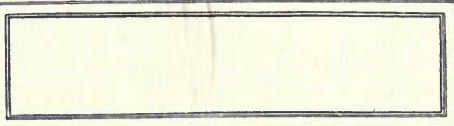


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VOLUME II

SCIENCE SERIES

NUMBER 2

THE
UNIVERSITY OF MISSOURI
STUDIES

EDITED BY

W. G. BROWN

Professor of Industrial Chemistry

THE FLORA OF BOULDER, COLORADO, AND
VICINITY

BY

FRANCIS POTTER DANIELS

*Professor of the Romance Languages, Wabash College
Formerly Assistant in the University of Missouri*



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II

FLORA OF BOULDER, COLORADO

THE
UNIVERSITY OF MISSOURI
STUDIES

EDITED BY

W. G. BROWN

Professor of Industrial Chemistry

THE FLORA OF BOULDER, COLORADO, AND
VICINITY

BY

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1911

TO
PROFESSOR T. D. A. COCKERELL
THIS STUDY IS RESPECTFULLY DEDICATED

PREFACE

During the summer of 1906 I was employed by the Department of Botany of the University of Missouri to collect plants in Colorado for the Herbarium of the University. I spent, therefore, a period of two months and a half in this work. I arrived at Boulder, Colorado, June eighteenth, and departed thence September third. All the collecting was done in Boulder County, and the greater part of it within a radius of five miles from the city of Boulder. I collected altogether about 1,036 species of flowering plants and ferns. The vernal plants, of course, had blossomed before my arrival, but except for these the flora of Boulder is fairly well shown in the collection.

In the list of plants here given there have been included all that are known to occur in Boulder County; but inasmuch as the boundary between Grand and Boulder Counties lies along the summits of the main range of mountains it is impossible often to tell in what county a given plant has been collected. Similarly Long's Peak lies partly in Larimer County and partly in Boulder County. In all cases in which plants have been cited from a mountain lying partly in Boulder County, these have been included in the list, unless a definite locality in the other county is given. Plants admitted to the list because of the citations given in Rydberg's *Flora of Colorado*

are ascribed to Rydberg; it is of course understood that this ascription does not imply that these plants were collected by Rydberg in the localities named, but merely that by examination of the plants or otherwise he is satisfied that they occur in those places. In the case of plants collected by myself I have added the collection number, so that these can be identified at any time. I may add that besides the set of Boulder plants in the Herbarium of the University of Missouri, there is a duplicate set in the Herbarium of the Michigan Agricultural College; there is also a set in my own possession. The Herbarium of the Missouri Botanical Garden has an incomplete set. As the numbers are the same for all plants of the same species, the identification of any of these plants can be made out from the number given in the list.

In the introduction I have sought to present what knowledge I have of the distribution of plants in Boulder County. I have tried to present them in their natural plant-societies. I saw, however, too little of the montane, subalpine, and the alpine floras to be able to give a comprehensive account of these, and it must be remembered that I did not see the vernal facies of any portion of the vegetation.

As to nomenclature I have followed, except where plainly deficient in the light of later investigation, that of Rydberg's *Flora of Colorado*. While I feel that in the case of both genera and species there has been an over-multiplication—as for instance the splitting up of such a natural group as the pines into several genera, yet at the time of the preparation of this *Flora* the only convenient guide was Rydberg's work.

It is to Professor T. D. A. Cockerell of the University of Colorado to whom I am most indebted for assistance in this work. Remote both from the vegetation itself and from an

adequate library, I could not have carried on the work at all without his cheerful coöperation. He has examined every page of the manuscript, and I owe much to his apt suggestions and kindly criticism. My thanks are also due to Professor Francis Ramaley for his kindness in examining the proof-sheets, and to Professor J. Henderson who has perused the article on the physiography. Both have given me notes of much value.

ERRATA

- Page 15, line 13, for *Chrysopogon*, read *Sorghastrum*.
- Page 18, line 3 from bottom of page, for *C. umbellata brevirostris*, read *C. umbellata brachyrhina*.
- Page 26, line 4, for *Cogswellia Grayi* read *Cogswellia orientalis*.
- Page 27, line 22, for *F. confinis*, read *F. Kingii*.
- Line 12 for *Agropyron Vaseyi*, read *Agropyron spicatum inerme*.
- Page 31, line 2 from bottom of page, for *Trisetum subspicatum*, read *Trisetum spicatum*.
- Page 33, line 14, same correction.
- Page 39, line 8 from bottom of page, for *Pseudocymopterus tenuifolius*, read *Pseudocymopterus multifidus*.
- Page 41, line 9, for *Trisetum subspicatum*, read *Trisetum spicatum*.
- Page 42, line 6 from bottom of page, for *Polemonium scopulinum*, read *Polemonium pulcherrimum*.

INTRODUCTION

I. PHYSIOGRAPHY

Boulder, Colorado, lies nestling close to the Rocky Mountains just north of the 40th parallel. There the foothills are strikingly beautiful and high, and only twenty miles away Arapahoe Peak, clasping to its bosom the best glacier of the southern Rockies, gleams whitely in full view, while twenty-four miles to the northwest towers jaggedly Long's Peak, 14,271 ft. high, the highest point in Boulder County, and one of the highest peaks of the Rocky Mountains. Away to the eastward the plain stretches unbrokenly, save for an occasional butte, till lost to vision. There is then room for a great diversity of vegetation, ranging from the semi-desert plants of the arid plains to the arctic plants that grow at the wasting edge of the perpetual snow.

The Continental Divide, which, due west of Boulder, touches its easternmost point in North America, is only from twenty to twenty-four miles away. It rises as a vast snow-covered wall of rock to an average height of from 11,000 to 12,000 feet; the highest points in the Divide in this region are Long's Peak, 14,271 ft., Mt. Audubon, 13,173 ft., Mt. Baldy, 11,470 ft., Arapahoe Peak, 13,520 ft., and James' Peak, 13,283 ft. Due west of Boulder Arapahoe Pass crosses the Divide at an altitude of 12,000 feet. It will be seen, therefore, that there is an almost impassable barrier between the vegetation of the Pacific slope and that of

the Atlantic. Since this barrier is almost everywhere above timberline, only a few Pacific species are found on the Atlantic side of the slope within the region about Boulder. Perhaps the most interesting exception is the occurrence of one of the orchids, *Piperia Unalascensis* (Spreng.) Rydb., a few individuals of which I found in the foot-hills near Boulder, and which is not known to occur elsewhere east of the mountains of Utah, it having its main range from Alaska to California.

All the streams of Boulder County flow ultimately into the South Fork of the Platte river, and thence into the Missouri and the Mississippi. Boulder creek, the chief stream of the region, and one of the headwaters of the Platte, is fed from the snows of the Divide, especially between Arapahoe and James' Peaks. Just over the other side of the Divide are some of the headwaters of Grand river, which flows into the Colorado, and thence into the Gulf of California.

All the main streams in Boulder County have their sources in the wasting snows of the Main Range. These have cut gorges, in most cases over a thousand feet deep, into the elevated plateau between the main range and the foot-hills proper, and by means of these deep valleys have transformed this plateau into what are now really mountain masses, having an average altitude of about 8,000 feet, the eastern and western slopes of which are long longitudinal valleys, and the northern and southern ones the precipitous gorges cut by the streams. Between Boulder and the Main Range there are about four of these mountain ridges, the first, or that of the foot-hills proper, rising to a height of from 7,000 to 8,600 feet, the others slightly lower, having an altitude of about 7,500 to 8,000 feet. Among these Sugarloaf Mountain stands out prominently as an isolated peak a thousand feet higher, it being a por-

phyry dike, and thus weathering more slowly than the granitic peaks. This whole elevated plateau, cut by streams into what now appear as definite mountain ridges, we shall call the foot-hills, although the foot-hills proper are the ridges of sandstone at the edge of this granite plateau. The flora, however, is the same, save for a few ferns and other rock-plants which are confined to certain kinds of rocks, some to the limestones, others to the sandstones, still others to the granite.

The main range of mountains as well as the high plateau at its base is composed of granite, granite-porphry, and granite-gneiss, gray or reddish in color. Dikes are frequent, either of pegmatite or of felsitic porphyry. When the uplift or uplifts occurred, which made the Rocky Mountains, the sedimentary rocks resting upon the basement of granite, were tilted until they stood nearly on end. The jagged crags of the foot-hills proper are, then, the ends of these sedimentary layers. Thus it happens, too, that the oldest beds lie next the granite, while the younger underlie the plains.

The oldest and lowest, that is, the one lying directly upon, or rather against the granite, is a layer of quartzite 550 feet thick, and of Algonkin age. This, however, is absent in front of Boulder and occurs in but two places in the county.

The next, and of Pennsylvanian (Carboniferous) age, is the red Fountain sandstone, 500 to 1,500 feet thick. In the immediate vicinity of Boulder it lies directly upon the granite. On the east slope of Green Mountain it hangs in five triangular blocks of about 500 feet in thickness at an angle of about 52° . These, called the Flat-irons, are each about 1,000 feet high and about 1,500 feet wide; the third Flat-iron, however, rises to an altitude of nearly 8,000 feet, or about 2,000 feet above the mesa. At

Boulder Cañon the red sandstone walls are vertical. These perpendicular sandstone crags are the most striking feature of the scenery of the foot-hills.

Lying next to the Fountain sandstone, and also of Pennsylvanian age, is the creamy Lyons sandstone, which is quarried in large amounts. It has a maximum thickness of almost 300 feet.

Next in order, and still of Pennsylvanian age, is the Lykins formation, about 800 feet thick and consisting of sandstones, sandy shales, and a little limestone. It is easily weathered and is consequently thickly covered with waste.

The Morrison formation occurs next, and consists of sandstone, clays, and limestone, and is a little less than 600 feet thick. It is of Jurassic age.

Then come various Cretaceous beds, the first of which, the "Dakota," is a firm sandstone of about 350 feet in thickness. Its resistance to weathering causes the characteristic hogback of the foot-hills, consisting of one, two, or even three distinct combs, or crags.

Then follow in succession the Benton shales, 500 feet thick; the Niobrara shales and limestones, 400 feet thick; the Pierre shales, 5,000 feet thick; the Fox Hills shales, 1,300 feet thick; and the Laramie beds, which are coal-bearing and about 115 feet thick. Lastly are the Quaternary deposits of alluvium and terrace gravels. The various shales have weathered and eroded rapidly and underlie the plain, while the more resistant beds next the granite persist as crags, while the high mesas at the base of the foot-hills are shale outliers left by stream-erosion and are really stream terraces.

The soil of the region, outside of the alluvium and terrace gravels, is granitic in the mountains, while in the foot-hills it is apt to be brick-red from the detritus of the red

sandstones. The soft Lykins formation yields a very red soil. The Jurassic and Cretaceous rocks have layers of sand and clay.

II. CLIMATE AND RAINFALL*

The climate of Boulder, however enjoyable it may be to human beings, can hardly be said to be highly favorable to plant-life. At least this is true of the foot-hills, the mesas, and the plains. The Main Range, however, is well watered, but here the high elevation and the low temperature repress plant-life. The montane and subalpine slopes have a dense vegetation, and yet even here the shallow soil and the rapid run-off of the water cause portions of them to have the aspect of deserts. A subalpine meadow has an opulent luxuriance; an adjoining slope may be gray with sage brush. In part the apparent thinness of vegetation in the mountains may be due to the superabundance of naked rock. In many portions of the Rockies the greater part of the surface has no soil whatever, and only a cranny-and-crevice vegetation is possible. The Rocky Mountains are new; their rocks are sharp and jagged; even lichens are rare on their surfaces. About Eldora and Arapahoe Peak, however, the rocks are beautifully rounded by glacial action.

In the summer of 1906 there were rains almost daily, many of them soaking rains, but their distribution was uneven and capricious. In general the rainfall decreases as the distance from the snowy range increases. The alpine and subalpine

*For the climatology of the region, consult the article by Professor Ramaley on the Climatology of the Mesas near Boulder, Univ. of Colo. Studies, 6, 19-35, also, the paper by Ramaley and Robbins on Redrock lake near Ward, Univ. of Colo. Studies, 6, 138-147.

regions receive most; the foot-hills less; the mesas receive some from every shower; the plains for five or six miles get a portion of the larger showers; but beyond that for several hundred miles good rains are very few. The summer of 1906 was exceptional,* for even the plains about Boulder seemed to receive more water than do many parts of the eastern United States in midsummer. When I left Boulder the third of September, the native vegetation for five or six miles out on the plain was as green as a prevailingly gray vegetation well can be; there was no sign of drouth, while when I reached Missouri and Iowa, the pastures were parched.

In fact what I shall remember most about Colorado is its exuberance of water. It courses down all the mountain cañons, roaring and bubbling and dashing into foam. Springs are frequent and of a pureness and coolness that make them perfect. On the plains everywhere that one goes, a ditch full to the brim runs beside one. From the top of Green Mountain a hundred lakes may be seen gleaming on the plain. It is plainly a land of abundant rain and water.

And yet why this feverish haste to irrigate the fields, why these ditches, these sluices, these storage-reservoirs? Why is land with a water-right worth several hundred dollars an acre, and land without one but five dollars? And why, to ask a still deeper question, why does nearly every kind of native plant have some means of conserving water, or some contrivance for preventing too rapid transpiration? Why do desert plants meet one at every hand: cacti, yuccae, sages, and xerophytic grasses? No, this region cannot be a land of abundant rain and water, in spite of the fact that I have never

*In 1906 the greatest rainfall was recorded (26.17 inches), while 1901 was the driest year (13.67 inches).

seen so much anywhere else, nor anywhere else have had such drenchings to the skin. It is a semi-arid land, parched and thirsty. And the farmer, whom I saw flooding his land the morning after an all night's pouring rain, knew from long experience that there could not be too much water. The rapid drainage, the light dry air, the fierce light of the high elevation, the hot sun, the soil unfitted for the retention of water, all these things parch and wither our cultural plants, for while the native vegetation has organs for storing water and for diminishing transpiration, the cultivated plants have none of these. Nevertheless for the native vegetation in 1906 there was ample water-supply; it grew with an almost incredible luxuriance, so much so that I found the measurements given in the manuals were often valueless for my purpose, as many of my plants were taller and larger than the books say that they grow. I was told that after the first of July there would be no botanizing as everything on the plains and foot-hills would dry up; but I remained till September first and the plants did not dry up, and I was able to collect over a thousand species in about two months and a half.

The following table, which I use by the kind permission of Professor Ramaley, will furnish the data requisite to an understanding of the temperature and rainfall of the region. The data holds true only for the city of Boulder.

TABLE

COMPILED BY DR. FRANCIS RAMALEY

Summary of data on temperature and rainfall at Boulder, Colorado, for eleven years, ending August, 1908.

MONTH	Normal mean temp., degrees	Warmest mean on record.		Coldest mean on record.		Normal mean rainfall.	Greatest rainfall on record.		Least rainfall on record.	
		Year	Degs	Year	Degs		Year	Inc's	Year	Inc's
January....	34.1	1906	39.0	1905	29.3	0.4	1899	0.87	1903	0.08
February.	32.9	1907	42.8	1899	18.0	0.66	1903	1.52	1908	0.09
March.....	39.4	1907	48.1	1906	30.2	1.6	1899	2.79	1908	0.23
April.....	47.7	1908	52.5	1900	45.6	3.58	1900	9.18	1908	1.71
May.....	56.4	1898	60.5	1907	51.0	3.02	1904	5.35	1899	0.55
June.....	64.6	1902	66.8	1907	62.1	1.53	1897	3.71	1908	0.29
July.....	70.1	1901	75.3	1906	67.2	1.72	1906	3.81	1901	0.46
August.....	71.0	1898	73.2	1906	68.0	1.3	1897	3.3	1900&1905	0.22
September.....	64.0	1897	66.8	1900	61.5	1.55	1902	2.7	1901	0.10
October.....	53.0	1900	57.2	1905	48.5	1.47	1903	3.43	1900	0.13
November.....	43.0	1904	48.3	1898	38.1	0.59	1906	1.87	1899&1901	0.00
December.....	37.0	1906	41.0	1898	29.0	0.68	1902	0.54	1905&1906	0.00
Annual.....	51.0					18.0				

Highest recorded temperature is 97 degrees, July 15, 1902.

Lowest recorded temperature is -20 degrees, January 8, 1902, and again February 20, 1905.

Greatest rainfall recorded, 26.17 inches, 1906.

Smallest rainfall recorded, 13.67 inches, 1901.

III ZONES OF VEGETATION*

There are six great zones of vegetation about Boulder, which, proceeding from east to west, are: A. The Zone of

*These zones of vegetation are practically those of Robbins (Climatology and Vegetation in Colorado, Bot. Gaz., 49, 256-280), who recognized (1) plains, (2) eastern lower foothills and mesas, (3) eastern upper foothills, 6,000 to 8,000 feet, (4) montane zone, (5) subalpine zone, (6) alpine zone. Professor Ramaley, however, would unite the mesas and foothills into one zone (Univ. of Colo. Studies, 5, 50-51).

the Plains, **CAMPESTRES**; B. The Zone of the Mesas, **MENSALES**; C. The Zone of the Foot-hills and Mountain Plateau, **SUBMONTANAE**; fourth, The Zone of the Lower Mountain Slopes, **MONTANAE**; fifth, The Zone of the Subalpine Mountain Slopes, **SUBALPESTRES**; sixth, The Zone of the Alpine Summits, **ALPESTRES**. Of these the Plains Flora, the Foot-hill Flora, the Montane Flora, the Subalpine Flora, and the Alpine Flora are primary, while that of the Mesas is a transition from the Flora of the Plains to the Flora of the Foot-hills. The Alpine corresponds to the Arctic Circumpolar vegetation, the Subalpine to the Hudsonian, the Montane to the Canadian, the Foot-hill and the Mesa to the Upper Transition, and that of the Plains to the Lower Transition with some Upper Sonoran forms.

A. CAMPESTRES

The plains are not so arid about Boulder as they are farther east. In fact after riding for hundreds of miles through a desert of dried up grass, it is with a feeling of inutterable joy that one sees this narrow ribbon of green from six to twelve miles wide at the foot of the mountains. This greenness and freshness is due mainly to two causes: First, this strip receives more rain than does the rest of the Great Plains. The clouds do not quite rain out before reaching the plains. These rains are, however, capricious. The clouds are narrow. The southern part of Boulder may receive a thorough drenching, the northern part may not have a drop. One Sunday there was a cloud-burst in Sunshine Cañon, farms and bridges were washed away; from three to five feet of water came dashing through the main street of Boulder, while it scarcely sprinkled where I was a half mile to the south. The second cause is the abundant irrigation.

The Plains Flora falls into five main societies: The Aquatic (**Aquatiles**); The Palustrous (**Palustres**); The Riparian (**Ripariae**); The Prairie Meadow, the plains flora proper, (**Campanales**); and the Alkali Flat (**Alkalinae**).

a. **Aquatiles.** The Aquatic Flora is found in lakes and streams. It consists of submerged or floating aquatics—pondweeds, duckweeds, water-milfoils, hornworts, water starworts, besides various algae. It is seen best in Owen's lake and Boulder lake, which while about twenty feet deep, are very brackish. The slower streams also have aquatic plants, as do likewise the aqueous nuclei of swamps and swales. The following is a list of typical species:

Potamogeton lonchites	L. minor
P. heterophyllus	Ceratophyllum demersum
P. foliosus	Callitriche palustris
P. pectinatus	C. bifida
P. Spirillus	Myriophyllum spicatum
Zanichellia palustris	Limosella aquatica
Lemna gibba	

All the above species occur in the eastern United States.

b. **Palustres.** The Palustrous, or Swamp Flora is found in bogs, in swales, along ditches, and about the miry margins of ponds and lakes and streams. It consists of rushes, bulrushes, sedges, swamp grasses, sweet flags, cat-tails, stick-tights, swamp asters, water peppers, and various other plants. I have included here the whole subaquatic flora, since the formation is so slight that it is best treated as a whole without separation into amphibious, limose, paludose, and uliginose societies. The following are characteristic species:

Equisetum arvense	Typha latifolia
E. laevigatum	Alisma Plantago

<i>Sagittaria arifolia</i>	<i>R. salicifolius</i>
<i>Homalocenchrus oryzoides</i>	<i>Persicaria lapathifolia</i>
<i>Phalaris arundinacea</i>	<i>P. emersa.</i>
<i>Muhlenbergia racemosa</i>	<i>P. punctata</i>
<i>Alopecurus aristulatus</i>	<i>Crucocallis Chamissoi</i>
<i>Spartina cynosuroides</i>	<i>Ranunculus sceleratus</i>
<i>Poa triflora</i>	<i>eremogenes</i>
<i>Panicularia nervata</i>	<i>R. Macounii</i>
<i>P. Americana</i>	<i>Halerpestes Cymbalaria</i>
<i>P. borealis</i>	<i>Nasturtium</i>
<i>Cyperus inflexus</i>	<i>Nasturtium-aquaticum</i>
<i>Scirpus Americanus</i>	<i>Radicula calycina</i>
<i>S. lacustris</i>	<i>R. hispida</i>
<i>S. atrovirens pallidus</i>	<i>Hypericum majus</i>
<i>Eleocharis palustris</i>	<i>Lythrum alatum</i>
<i>E. glaucescens</i>	<i>Epilobium adenocaulon</i>
<i>E. acicularis</i>	<i>Cicuta occidentalis</i>
<i>E. acuminata</i>	<i>Berula erecta</i>
<i>Carex vulpinoidea</i>	<i>Verbena hastata</i>
<i>C. stipata</i>	<i>Phyla cuneifolia</i>
<i>C. stricta</i>	<i>Teucrium occidentale</i>
<i>C. lanuginosa</i>	<i>Scutellaria galericulata</i>
<i>Acorus Calamus</i>	<i>Prunella vulgaris</i>
<i>Heteranthera limosa</i>	<i>Stachys scopulorum</i>
<i>Juncus Balticus montanus</i>	<i>Lycopus lucidus</i>
<i>J. longistylis</i>	<i>L. Americanus</i>
<i>J. nodosus</i>	<i>Mentha spicata</i>
<i>J. Torreyi</i>	<i>M. Penardi</i>
<i>J. marginatus</i>	<i>Mimulus Geyeri</i>
<i>Iris Missouriensis</i>	<i>M. floribundus</i>
<i>Rumex occidentalis</i>	<i>Gratiola Virginiana</i> ?

Lobelia syphilitica	A. Osterhoutii
Ludoviciana	Bidens vulgata
Iva xanthifolia	B. glaucescens
I. axillaris	Helenium montanum
Ambrosia trifida	Lactuca pulchella
Xanthium commune	L. spicata
Aster caerulescens	

It will be noted that all but a very few of the above species are common palustrous species of the eastern United States.

c. **Ripariae.** The Riparian Flora occurs along the banks of streams. It consists of trees, shrubs, and herbs. There are no trees nor shrubs proper on the Great Plains, except those that grow along the streams. Here occur various cottonwoods, box-elders, and willows. The herbs are partly marsh herbs and partly plants from the plains, especially grasses. The following are typical riparian species:

Equisetum laevigatum	Betula fontinalis (only near the foot-hills)
Eatonia robusta	Urtica gracilis
Agropyron riparium	Cardamine vallicola
Elymus Canadensis	Rulac Negundo
E. robustus	R. Texanum
Populus Sargentii	Vitis vulpina
P. acuminata	Pesedera vitacea
P. angustifolia	Solidago Pitcheri
Salix amygdalioides	S. Canadensis
S. exigua	
S. luteosericea	

d. **Campanales.** The Prairie Flora is that which is proper to the greater part of the plains region. In aspect it is a vast meadow, above which now and then a yucca rises with

its bayonet-like leaves and its large cluster of flowers. But this aspect changes according to the season of the year, nor is it uniform at any season. As various plants come into bloom, so is it tinged red or purple, white or yellow; here it is an upland meadow of broom-grasses with purplish leaves; there it is dark green with meadow-grasses; yonder it is white and hoar with sages. In early summer it is red, or purple, or blue with loco-weeds, beard-tongues, and thistles, yellow with golden asters, orange with cone-flowers and gaillardias, or white with Mexican poppies. In midsummer the psoraleas are numerous; here and there are large clumps of lupines; the tall porcupine grasses abound, and sunflowers rear their heads of gold. In late summer it is yellow with gumweeds of all kinds, with golden-rods and rabbit-brushes, or purple with blazing-stars and turkey-foot grasses. In autumn the gray sages put forth their inconspicuous flowers, the late composites ripen their achenes and whiten the landscape with their pappus. But the chief plants of this formation are those not seen—the little buffalo and mesquite grasses only a few inches high, but forming the turf of these vast plains. There are no shrubs proper in this flora. At most there are a few undershrubs and suffrutescent plants, such as roses, yuccas, and the like. It should be added that the vegetation of the moister portions of the plains differs, especially in aspect and also somewhat in species, from that of the drier portions; but while it is possible to distinguish these two elements of the flora in the extreme cases of moistness and dryness, yet in the greater part of the area the two vegetations mingle inextricably. I shall, however, arrange the plants typical of the Great Plains into two classes, **Humidae** and **Aridae**, although the two classes occur quite commonly together:

i. **Humidae.**

<i>Andropogon furcatus</i>	<i>Sophia intermedia</i>
<i>Panicum virgatum</i>	<i>Potentilla Hippiana</i>
<i>Agrostis alba</i>	<i>Drymocallis arguta</i>
<i>A. asperifolia</i>	<i>Rosa pratincola</i>
<i>Bouteloua oligostachya</i>	<i>Lupinus decumbens</i>
<i>Bulbilis dactyloides</i>	<i>L. decumbens argentatus</i>
<i>Koeleria cristata</i>	<i>Astragalus goniatus</i>
<i>Poa pratensis</i>	<i>Homalobus Salidae</i>
<i>P. triflora</i>	<i>Aragallus Lambertii</i>
<i>P. interior</i>	<i>A. patens</i>
<i>P. pseudopratensis</i>	<i>Psoralea tenuiflora</i>
<i>Festuca elatior</i>	<i>P. argophylla</i>
<i>Bromus marginatus latior</i>	<i>Petalostemon oligophyllus</i>
<i>B. Pumpellianus</i>	<i>P. purpureus</i>
<i>Agropyron pseudorepens</i>	<i>P. pubescens</i>
<i>A. occidentale</i>	<i>Poinsettia dentata</i>
<i>Hordeum jubatum</i>	<i>Malvastrum dissectum</i>
<i>Elymus Macounii</i>	<i>Oenothera strigosa</i>
<i>Carex marcida</i>	<i>Anogra rhizomata</i>
<i>C. scoparia</i>	<i>A. coronopifolia</i>
<i>C. athrostachya</i>	<i>Gaura parviflora</i>
<i>C. pratensis</i>	<i>G. coccinea</i>
<i>C. festucacea</i>	<i>G. glabra</i>
<i>Juncus interior</i>	<i>Asclepias speciosa</i>
<i>J. Arizonicus</i>	<i>Lithospermum canescens</i>
<i>J. confusus</i>	<i>Onosmodium occidentale</i>
<i>J. Dudleyi</i>	<i>Verbena bracteosa</i>
<i>Sisyrinchium angustifolium</i>	<i>V. ambrosifolia</i>
<i>Argemone intermedia</i>	<i>Salvia lanceolata</i>
<i>A. hispida</i>	<i>Physalis lanceolata</i>

<i>P. Virginiana</i>	<i>E. flagellaris</i>
<i>Androcera rostrata</i>	<i>Ratibida columnaris</i>
<i>Pentstemon unilateralis</i>	<i>Helianthus lenticularis</i>
<i>Gerardia Besseyana</i>	<i>H. grosseserratus</i>
<i>Grindelia serrulata</i>	<i>Gaillardia aristata</i>
<i>G. perennis</i>	<i>Artemisia gnaphalodes</i>
<i>Oligoneuron canescens</i>	<i>Cirsium megapcephalum</i>
<i>Aster commutatus</i>	<i>C. ochrocentrum</i>
<i>Erigeron divergens</i>	<i>Agoseris glauca</i>

ii. *Aridae.*

<i>Schizachyrium scoparium</i>	<i>P. confusa</i>
<i>Andropogon chrysocomus</i>	<i>Festuca octoflora</i>
<i>Chrysopogon nutans</i>	<i>Agropyron molle</i>
<i>Aristida fasciculata</i>	<i>Hordeum pusillum</i>
<i>A. longiseta</i>	<i>Sitanion longifolium</i>
<i>Stipa comata</i>	<i>S. brevifolium</i>
<i>S. viridula</i>	<i>Elymus brachystachys</i>
<i>S. Nelsonii</i>	<i>Carex Douglasii</i>
<i>Muhlenbergia cuspidata</i>	<i>C. siccata</i>
<i>Sporobolus airoides</i>	<i>C. straminea</i>
<i>S. cryptandrus</i>	<i>Yucca glauca</i>
<i>S. heterolepis</i>	<i>Eriogonum effusum</i>
<i>S. asperifolius</i>	<i>Paronychia Jamesii</i>
<i>Agrostis hiemalis</i>	<i>Allionia linearis</i>
<i>Merathrepta spicata</i>	<i>Delphinium Penardii</i>
<i>Bouteloua hirsuta</i>	<i>Stanleya glauca</i>
<i>B. oligostachya</i>	<i>Xylophacos Shortianus</i>
<i>Munroa squarrosa</i>	<i>Amorpha nana</i>
<i>Eragrostis pectinacea</i>	<i>Psoralea tenuiflora</i>
<i>Poa crocata</i>	<i>Linum Lewisii</i>
<i>P. juncifolia</i>	

<i>Chamaesyce Fendleri</i>	<i>Gutierrezia longifolia</i>
<i>C. serpyllifolia</i>	<i>G. scoparia</i>
<i>Tithymalus Arkansanus</i>	<i>Chrysopsis villosa</i>
<i>Acerates viridiflora</i>	<i>C. hispida</i>
<i>A. angustifolia</i>	<i>Chrysothamnus pulcherrimus</i>
<i>Asclepias pumila</i>	<i>Sideranthus annuus</i>
<i>Evolvulus Nuttallianus</i>	<i>S. spinulosus</i>
<i>Lappula occidentalis</i>	<i>Solidago glaberrima</i>
<i>L. cupulata</i>	<i>S. nana</i>
<i>Cryptanthe crassisepala</i>	<i>Townsendia exscapa</i>
<i>Lithospermum breviflorum</i>	<i>Aster exiguus</i>
<i>Monarda pectinata</i>	<i>A. crassulus</i>
<i>Hedeoma hispida</i>	<i>A. polycephalus</i>
<i>Physalis rotundata</i>	<i>Erigeron ramosus</i>
<i>Quincula lobata</i>	<i>Wyomingia cana</i>
<i>Pentstemon secundiflorus</i>	<i>Helianthus petiolaris</i>
<i>P. gracilis</i>	<i>H. pumilus</i>
<i>P. humilis</i>	<i>Thelesperma gracile</i>
<i>Orthocarpus luteus</i>	<i>Boebera papposa</i>
<i>Plantago Purshii</i>	<i>Artemisia dracunculoides</i>
<i>Ambrosia psilostachya</i>	<i>A. Brittonii</i>
<i>Gaertneria tomentosa</i>	<i>Senecio Riddellii</i>
<i>Kuhnia Hitchcockii</i>	<i>S. multicapitatus</i>
<i>K. glutinosa</i>	<i>S. spartioides</i>
<i>Laciniaria punctata</i>	<i>Cirsium undulatum</i>

e. **Alkalinae.** The best examples of the Flora of the Alkali Flats occur in the vicinity of Owen's lake and Boulder lake, where large tracts are white as snow with alkali. The plants are mainly succulent chenopods, but a few other plants also occur. The following species are characteristic:

<i>Distichlis stricta</i>	<i>Polygonum buxiforme</i>
<i>Puccinellia airoides</i>	<i>Chenopodium rubrum</i>

Monolepis Nuttalliana	Iva axillaris
Atriplex carnosa	Chrysothamnus graveolens
A. argentea	C. pulcherrimus
Dondia depressa	Solidago gilvocanescens
Sophora sericea	

B. MENSALES*

The Flora of the Mesas is a transitional flora; the mesas have most of the plants of the plains and in addition many of the plants of the foot-hills. There are, however, a considerable number of species, which are peculiar to the mesas. These mesas are flat tablelands rising abruptly a hundred feet or so above the plains in successive terraces. The altitude of the plains in Boulder County is from 5,000 to 5,500 feet. The lowest mesa, at an altitude of about 5,600 feet, has the flora of the plains, but at the next mesa, at an altitude of 5,700 feet, the flora begins to change, and from then on to the foot of the crags, 6,000 feet, the plains plants gradually tend to disappear and the foot-hill flora to come in. The highest mesas are so filled with waste from landslips from the crags, that they may be said to be an integral part of the foot-hills. And so, too, the streams have made deep cañons through the mesas, the flora of which is not so very unlike that of the cañons of the foot-hills. West of Marshall there is a high bog on the mesa, but as its plants differ in no wise from the bog plants of the plains, it will be dismissed with this notice.

Six plant-societies are to be found upon the mesas: a. The meadow (**Pratenses**), which differs little from the plains meadow, although certain mountain species, such as the Mari-

*For a detailed account of the vegetation of the mesas, see the papers by Dodds, Ramaley, and Robbins, Univ. of Colo. Studies, 6, 11-49.

posa lily, the painted cups, and the wool-joints are present. b. The cactus mesa (**Spinosa**). c. The Yucca mesa (**Ensiformes**). d. The wooded mesa (**Sylvestres**). e. The brush mesa (**Arbustales**). f. The mesa cañon (**Vallicolae**).

a. **Pratenses**. The flora of the mesa meadow is composed of an admixture of plants both from the plains and the foot-hills. Typical plants are:

<i>Sorghastrum nutans</i>	<i>Calochortus Gunnisonii</i>
<i>Stipa comata</i>	<i>Comandra pallida</i>
<i>S. viridula</i>	<i>Eriogonum alatum</i>
<i>Bouteloua hirsuta</i>	<i>E. flavum</i>
<i>B. oligostachya</i>	<i>E. umbellatum</i>
<i>Atheropogon curtispendus</i>	<i>Polygonum Douglasii</i>
<i>Koeleria cristata</i>	<i>Silene antirrhina</i>
<i>Poa triflora</i>	<i>Lychnis Drummondii</i>
<i>P. interior</i>	<i>Delphinium Penardii</i>
<i>P. pseudopratensis</i>	<i>D. camporum</i>
<i>P. juncifolia</i>	<i>D. Nelsonii</i>
<i>P. confusa</i>	<i>Anemone cylindrica</i>
<i>Festuca octoflora</i>	<i>Pulsatilla hirsutissima</i>
<i>Agropyron tenerum</i>	<i>Argemone intermedia</i>
<i>A. pseudorepens</i>	<i>Potentilla effusa</i>
<i>Elymus brachystachys</i>	<i>Drymocallis fissa</i>
<i>E. villiflorus</i>	<i>Lupinus Plattensis</i>
<i>Carex marcida</i>	<i>L. decumbens</i>
<i>C. pratensis</i>	<i>Geoprumnon succulentum</i>
<i>C. straminea</i>	<i>Astragalus nitidus</i>
<i>C. straminiformis</i>	<i>A. goniatus</i>
<i>C. Pennsylvanica vespertina</i>	<i>Tium Drummondii</i>
<i>C. umbellata brevirostris</i>	<i>Aragallus Lambertii</i>
<i>Tradescantia Universitatis</i>	<i>A. sericeus</i>
<i>Yucca glauca</i>	<i>Psoralea tenuiflora</i>

<i>P. argophylla</i>	<i>P. gracilis</i>
<i>Geranium Fremontii</i>	<i>P. humilis</i>
<i>Linum Lewisii</i>	<i>Castilleja linariaefolia</i>
<i>Tithymalus phlorus</i>	<i>Campanula petiolata</i>
<i>Nuttallia multiflora</i>	<i>Gutierrezia longifolia</i>
<i>N. stricta</i>	<i>G. scoparia</i>
<i>Epilobium paniculatum</i>	<i>Chrysopsis resinolens</i>
<i>Gayophytum intermedium</i>	<i>Solidago pallida</i>
<i>Meriolix serrulata</i>	<i>Townsendia grandiflora</i>
<i>Gaura parviflora</i>	<i>Rudbeckia flava</i>
<i>Gilia candida</i>	<i>Ratibida columnaris</i>
<i>G. pinnatifida</i>	<i>Helianthus subrhomboideus</i>
<i>G. sinuata</i>	<i>Gaillardia aristata</i>
<i>Collomia linearis</i>	<i>Artemisia dracunculoides</i>
<i>Phacelia heterophylla</i>	<i>A. Forwoodii</i>
<i>Oreocarya virgata</i>	<i>A. frigida</i>
<i>Mertensia linearis</i>	<i>A. Brittonii</i>
<i>M. lanceolata</i>	<i>Senecio Plattensis</i>
<i>Pentstemon unilateralis</i>	<i>S. Nelsonii</i>
<i>P. secundiflorus</i>	<i>S. Fendleri</i>

b. **Spinosaes.** The vegetation of the cactus mesa consists of a few species of cacti, of the prickly *Ceanothus Fendleri*, and a few other xerophytic plants and undershrubs. The principal cacti are:

<i>Echinocereus viridiflorus</i>	<i>O. polyacantha</i>
<i>Opuntia mesacantha</i>	<i>O. fragilis</i>
<i>O. rhodantha</i>	<i>O. Greenei</i>

c. **Ensiformes.** The best example of the *Yucca* mesa occurs near the entrance of Bear Cañon. There the ground is practically denuded, and only sparse clumps of *Yuccas* and

bunch-grasses occupy the ground. The two species of importance are *Yucca glauca* and *Eriocoma cuspidata*.

d. **Sylvestres.** A good example of the wooded mesa lies immediately back of the Chautauqua grounds. There the bull pine has descended from the foot-hills and taken possession of the mesa. Besides the bull pine, *Pinus scopulorum*, the low juniper, *Juniperus Sibirica*, is of rare occurrence. Of herbs the most noteworthy is *Arnica pedunculata*, which is frequent under the pines. I found also only there *Centunculus minimus*, perhaps the only known station of this plant in Colorado, since it is not included in Rydberg's Flora of Colorado. It is growing with *Linaria Canadensis*, which is likewise an eastern plant.

e. **Arbustales.** The brush mesa assumes various forms. Ordinarily some one species is in control. Occasionally it consists of various haws, as at the entrance of Gregory Cañon, or of a thicket of juneberries, wax-currants, and skunk-bushes. South of Bluebell Cañon is a mesa covered with the peculiar mountain mahogany. Wild cherries and plums are frequent, and the hackberry occasional in these shrubby thickets. The principal species are:

<i>Celtis reticulata</i>	<i>C. erythropoda</i>
<i>Ribes pumilum</i>	<i>Prunus Americana</i>
<i>R. longifolium</i>	<i>P. melanocarpa</i>
<i>Oreobatus deliciosus</i>	<i>Toxicodendron Rydbergii</i>
<i>Batidaea laetissima</i>	<i>Schmaltzia trilobata</i>
<i>Cercocarpus parvifolium</i>	<i>Ceanothus Fendleri</i>
<i>Rosa Sayi</i>	<i>C. mollissimus</i>
<i>Amelanchier oreophila</i>	<i>C. subsericeus</i>
<i>Crataegus occidentalis</i>	<i>Symphoricarpos occidentalis</i>
<i>C. Coloradensis</i>	

Of herbs the vetches and vetchlings are the most important:

Vicia sparsifolia	V. producta
V. dissitifolia	Lathyrus leucanthus
V. oregana	

f. **Vallicolae.** The mesa cañon has a bewildering diversity of floral elements, now consisting of thickets of haws with extremely vicious thorns, wild briars, the long-beaked hazel, and dwarf maples, now with a fontinal vegetation strikingly like our own Carolinian. One little gulch at the base of Flagstaff Hill has a vegetation composed quite wholly of eastern plants. Here occur *Phragmites Phragmites*, *Sanicula Marilandica*, *Steironema ciliatum*, *Veronica Americana*, *Eupatorium maculatum*, and a form of *Apios Apios*, the last of which was not known to occur west of eastern Kansas previous to this collection. Since the streams have cut deeply into the surface, the cañon of the mesa resembles greatly the cañon of the foot-hills. There are riparian, rupestrine, clivose, and fontinal elements compressed within the space of a few feet. Mountain forms follow these streams often for some distance into the plain. And yet the facies of the flora is distinctly eastern. Here are haws, hazels, maples, grapes, wild cherries, willows, cottonwoods, dogwoods, nine-barks. The herbs, too, have an eastern look—sweet cicelies, false Solomon's seals, water-leafs, fragile ferns, avens, bog-orchids. It is true that a closer examination reveals the fact that many of these plants belong to species which are strictly western, yet the fact remains that there is little in the vegetation that impresses as strange, one who is familiar only with the eastern flora, while all about him in plain, mesa, foot-hill, and mountain are utterly unfamiliar types of vegetation. So in this narrow

zone of gulches and cañons is alone to be found the exact analogue of the Carolinian flora. The following are the important species:

Filix fragilis	Oreobatus deliciosus
Phragmites Phragmites	Potentilla Pennsylvanica
Carex festiva	strigosa
Allium Nuttallii	Geum scopulorum
A. Geyeri	Rosa Sayi
A. reticulatum	Amelanchier oreophila
Vagnera stellata	Crataegus Coloradensis
Nemexia lasioneuron	C. occidentalis
Limnorchis viridiflora	C. erythropoda
L. laxiflora	C. Doddsii
Corallorrhiza Corallorrhiza	C. Coloradoides
Populus Sargentii	Prunus Americana
P. acuminata	P. Pennsylvanica
P. angustifolia	P. melanocarpa
Corylus rostrata	Thermopsis divaricarpa
Parietaria Pennsylvanica	Amorpha fruticosa
P. obtusa	Vicia oregana
Humulus lupulus Neo-	V. producta
Mexicanus	Apios Apios Boulderensis
Cerastium occidentale	Geranium Parryi
Ranunculus abortivus	Toxicodendron Rydbergii
Thalictrum purpurascens	Acer glabrum
Sedum stenopetalum	Rulac Negundo
Heuchera parvifolia	R. Texanum
Ribes pumilum	Vitis vulpina
R. longifolium	Pesedera vitacea
Opulaster intermedius	Calceolaria linearis
O. Ramaleyi	Circaea alpina

<i>Aralia nudicaulis</i>	<i>Mertensia lanceolata</i>
<i>Svida stolonifera</i>	<i>Dracocephalum parviflorum</i>
<i>Sanicula Marilandica</i>	<i>Mimulus Hallii</i>
<i>Osmorrhiza longistylis</i>	<i>Veronica Americana</i>
<i>O. obtusa</i>	<i>Galium Vaillantii</i>
<i>Ligusticum Porteri</i>	<i>G. boreale</i>
<i>Heracleum lanatum</i>	<i>G. flaviflorum</i>
<i>Steironema ciliatum</i>	<i>Viburnum Lentago</i>
<i>Collomia linearis</i>	<i>Ambrosia trifida</i>
<i>Hydrophyllum Fendleri</i>	<i>Eupatorium maculatum</i>
<i>Macrocalyx Nyctelea</i>	

C. SUBMONTANAE

The Foot-hill Flora covers not only the true foot-hills of the sandstone crags, but also the lower part of the mountain plateau. The flora is rich but monotonous. In most places the vegetation is thin; it is mainly a forest, but the trees are strewn but sparsely over the steep slopes. The amount of naked rock is very great. The altitude ranges from 5,800 to 8,600 feet. Some of the main streams, such as Boulder creek, have cut down to about 5,500 feet. Directly west of Boulder, and lying between Boulder and Gregory Cañons, is Flagstaff Hill with an altitude of about 6,500 feet. Southwest of Boulder is Green Mountain, lying between Gregory and Bear Cañons and having an altitude of 8,100 feet. South of Green Mountain is Bear Mountain, which attains a height of 8,600 feet, and is the loftiest peak in the first range of foot-hills in the vicinity of Boulder.

The Foot-hill Flora merges rather abruptly into that of the mesas at the foot of the crags, and melts insensibly into the Subalpine Flora as it approaches the Main Range. It reaches its maximum development between an altitude of 6,500 and

7,000 feet. Below 6,500 feet there occur still many species belonging to the Great Plains; above 7,000 feet there is a rapid thinning out of species, and subalpine species become occasional, although it is not rare for such species in cold situations to go down to the 6,000 foot level. Yet at the summit of Green Mountain (8,100 feet) I found the flora still consisting in the main of the genuine foot-hill species. The Foot-hill Flora may be gathered into four main societies: a. The wooded slope (**Sylvestres**). b. The foot-hill meadow (**Pratenses**). c. The foot-hill cañon (**Vallicolae**). d. The crevice and cranny vegetation of the rocks (**Rimosae**).

a. **Sylvestres**.* The wooded slope society consists quite purely of bull pine and Douglas spruce, with now and then a few trees of other species of pine, and spruce, and fir. The trees stand usually at wide intervals, oftenest in rows, where some fault in the rock enables them to get a secure foothold. Occasionally on the north slopes, which are moister than any other, the trees stand in such close formation that it is almost impossible to make one's way through them. Ordinarily it is the Douglas spruce that behaves in this way, since the bull pine prefers a more open formation. Often two rather dis-

*Young (Bot. Gaz. 44. 321-352) finds the following forest associations about Boulder: 1. *Populus occidentalis*—*Salix fluviatilis*, riparian upon the plains, but extending somewhat up the cañons. 2. *Populus angustifolia*—*Salix Nuttallii*, riparian in the foothills. 3. *Pinus scopu lorum*, *sylvan* on the dry slopes of the foothills. 4. *Pinus Murrayana*, *sylvan* on the dry mountain sides. 5. *Apinus flexilis*, dry mountain slopes up to timber line. 6. *Pseudotsuga*—*Picea Engelmanni*, lower cañons (submontane and montane). 7. *Picea Engelmanni*—*Abies lasiocarpa*, upper cañons (high montane and subalpine to timber line). 8. Aspen society, throughout (north slopes at low altitudes, all slopes higher altitudes).

tinct forms of forest are discernible, the one of bull pine, the other of Douglas spruce; at other times the two are mixed. The Douglas spruce is at its best in moist ravines, and ascends to timber-line on the mountains, while the bull pine seldom gets above 9,000 feet. The following are characteristic species:

<i>Botrychium Virginianum</i>	<i>Atragene occidentalis</i>
<i>Pteridium aquilinum</i>	<i>Ranunculus abortivus</i>
<i>pubescens</i>	<i>R. micrantha</i>
<i>Pinus scopulorum</i>	<i>Cyrtorrhyncha ranunculina</i>
<i>P. Murrayana</i> (rare)	<i>Odostemon repens</i>
<i>Apinus flexilis</i> (rare)	<i>Erysimum Cockerellianum</i>
<i>Picea Parryana</i>	<i>Bosseckia parviflora</i>
<i>Pseudotsuga mucronata</i>	<i>Oreobatus deliciosus</i>
<i>Oryzopsis micrantha</i>	<i>Batidaea laetissima</i>
<i>Muhlenbergia gracilis</i>	<i>Potentilla Hippiana</i>
<i>Melica bella</i>	<i>Amelanchier oreophila</i>
<i>Carex Deweyana</i>	<i>Sorbus scopulina</i> (rare)
<i>Toxicoscordion falcatum</i>	<i>Thermopsis divaricarpa</i>
<i>Vagnera racemosa</i>	<i>T. pinetorum</i>
<i>V. amplexicaulis</i>	<i>Tium alpinum</i>
<i>Piperia Unalaschensis</i>	<i>Homalobus tenella</i>
<i>Peramium ophioides</i>	<i>H. decumbens</i>
<i>Populus tremuloides</i>	<i>Lathyrus leucanthus</i>
<i>Betula papyrifera</i>	<i>Xanthoxalis stricta</i>
<i>Andrewsii</i>	<i>Ceanothus velutinus</i>
<i>Chenopodium Fremontii</i>	<i>Viola vallicola</i>
<i>Blitum capitatum</i>	<i>V. Canadensis Rydbergii</i>
<i>Actaea arguta</i>	<i>Lepargyrea Canadensis</i>
<i>A. arguta eburnea</i>	<i>Chamaenerion angustifolium</i>
<i>Aquilegia coerulea</i> (rare)	<i>Harbouria trachypleura</i>
<i>Anemone globosa</i>	

<i>Aletes obovata</i>	<i>Campanula petiolata</i>
<i>A. acaulis</i>	<i>Specularia perfoliata</i>
<i>Ligusticum Porteri</i>	<i>Laciniaria ligulistylis</i>
<i>Cogswellia Grayi</i>	<i>Oreochrysum Parryi</i>
<i>Pterospora Andromedea</i>	<i>Solidago oreophila</i>
<i>Chimaphila umbellata</i>	<i>S. viscidula</i>
<i>Pyrola secunda</i>	<i>S. radulina</i>
<i>P. uliginosa</i>	<i>S. trinervata</i>
<i>Arctostaphylos Uva-ursi</i>	<i>Eucephalus glaucus</i>
<i>Frasera stenosepala</i>	<i>Aster polycephalus</i>
<i>Apocynum scopulorum</i>	<i>A. laevis</i>
<i>Phlox depressa</i>	<i>A. Porteri</i>
<i>Lappula floribunda</i>	<i>Machaeranthera Bigelovii</i>
<i>L. angustata</i>	<i>M. aspera</i>
<i>Scutellaria Brittoni</i>	<i>Erigeron salicinus</i>
<i>Dracocephalum parviflorum</i>	<i>E. macranthus</i>
<i>Prunella vulgaris</i>	<i>Antennaria oxyphylla</i>
<i>Monarda menthaefolia</i>	<i>Anaphalis subalpina</i>
<i>M. mollis</i>	<i>Gnaphalium Wrightii</i>
<i>Scrophularia occidentalis</i>	<i>Rudbeckia flava</i>
<i>Pentstemon oreophilus</i>	<i>Achillaea lanulosa</i>
<i>P. alpinus</i>	<i>Arnica cordifolia</i>
<i>P. humilis</i>	<i>Senecio salicinus</i>
<i>Castilleja linariaefolia</i>	<i>S. Nelsonii</i>
<i>C. cognata</i>	<i>S. Fendleri</i>
<i>C. integra</i>	<i>Cirsium Americanum</i>
<i>C. confusa</i>	<i>C. erosum</i>
<i>Galium boreale</i>	<i>Crepis petiolata</i>
<i>G. triflorum</i>	<i>C. angustata</i>
<i>Sambucus microbotrys</i>	<i>Hieracium albiflorum</i>
<i>Linnaea Americana</i>	<i>H. Fendleri</i>
<i>Symphoricarpos occidentalis</i>	<i>Agoseris rostrata</i>

b. **Pratenses.** The foot-hill meadow is not very unlike the mesa meadow; the species are in part the same, but there is no sharp line between the flora of the foot-hill forest and the foot-hill meadow, on account of the openness of the former. Only where the forest is dense enough to have a truly sylvan floor, are the light-loving plants absent. The foot-hill meadow society includes various grasses and certain herbs, such as painted-cups, fleabanes, Mariposa lilies, anemones, gaillardias, and the like. The following are the characteristic grasses and sedges:

Stipa comata	B. Pumpellianus
S. viridula	Agropyron Vaseyi
S. Nelsonii	A. Richardsoni
S. Scribneri	A. violaceum
Calamagrostis purpurascens	A. pseudorepens
Koeleria cristata	Elymus ambiguus
Poa platyphylla	E. strigosus
P. crocata	E. villiflorus
P. longiligula	Carex marcida
P. longipedunculata	C. Douglasii
Festuca brachyphylla	C. festiva
F. confinis	C. petasata
Bromus lanatipes	C. pratensis
B. Richardsonii	C. siccata

c. **Vallicolae.** The foot-hill cañon society consists of dense thickets of hazel, dwarf birch, willows, dogwoods, alders, and the like. About springs and along small rills is found a brief fontinal vegetation, the most delicate of all the plant-groups—mosses, liverworts, ferns, tway-blades, adder's-mouths, twisted-stalks, mountain lilies, shooting stars, cresses, sedges, and bog-orchids. The foot-hill cañon flora differs from

the mesa cañon principally in the absence of the chaparral element, the haws and wild plums being absent. Most of the remaining shrubs and arborescent plants are identical—the dwarf maple, the birch, the dogwood, the beaked hazel, the wild cherries, and the cottonwoods. The following are the chief species:

<i>Equisetum laevigatum</i>	<i>Populus Sargentii</i>
<i>Cinna latifolia</i>	<i>P. angustifolia</i>
<i>Avena striata</i>	<i>Salix caudata</i>
<i>Eatonia Pennsylvanica</i>	<i>S. perrostrata</i>
<i>Poa triflora</i>	<i>S. Bebbiana</i>
<i>Panicularia nervata</i>	<i>Betula fontinalis</i>
<i>P. Holmii</i>	<i>Alnus tenuifolia</i>
<i>Carex tenella</i>	<i>Corylus rostrata</i>
<i>C. Hoodii</i>	<i>Crunocallis Chamissoi</i>
<i>C. festiva</i>	<i>Clematis ligusticifolia</i>
<i>C. aurea</i>	<i>Ranunculus reptans</i>
<i>Juncus Balticus montanus</i>	<i>R. abortivus</i>
<i>Juncoides parviflorum</i>	<i>Thalictrum Fendleri</i>
<i>Allium Geyeri</i>	<i>Thlaspi Nuttallii</i>
<i>A. reticulatum</i>	<i>T. Coloradense</i>
<i>Lilium Philadelphicum</i>	<i>Draba streptocarpa</i>
<i>montanum</i>	<i>Ribes Purpusi</i>
<i>Vagnera stellata</i>	<i>Opulaster intermedius</i>
<i>Streptopus amplexifolius</i>	<i>O. Ramaleyi</i>
<i>Disporum majus</i>	<i>O. glabratus</i>
<i>Limnorchis viridiflora</i>	<i>O. monogynus</i>
<i>L. laxiflora</i>	<i>Rubus triflorus</i>
<i>Ibidium Romanzoffianum</i>	<i>Fragaria bracteata</i>
<i>strictum</i>	<i>Geum strictum</i>
<i>Ophrys borealis</i>	<i>G. Oregonense</i>
<i>Acroanthes monophylla</i>	<i>Rosa Macounii</i>

R. Fendleri	Mertensia punctata
R. aciculata	M. viridula
R. Maximiliani	M. lanceolata
Prunus Pennsylvanica	Collinsia tenella
P. melanocarpa	Mimulus floribundus
Geranium Richardsonii	Veronica Americana
Acer glabrum	Distegia involucrata
Epilobium adenocaulon	Adoxa Moschatellina
Circaea alpina	Solidago Pitcheri
Aralia nudicaulis	S. polyphylla
Svida stolonifera	Gymnolomia multiflora
Heracleum lanatum	Rudbeckia laciniata
Angelica ampla	Bahia dissecta
Dodecatheon radicans	Senecio hydrophyllus
D. sinuatum	S. perplexus
Amarella scopulorum	

d. **Rimosae.** The crevice and cranny vegetation of the rocks consists of lichens, rupestrine ferns, alum roots, orpines, selaginellas, and many shrubs, such as the Jamesia, the wax-currant, juneberries, flowering raspberries, salmonberries, roses, and gooseberries. The Rocky Mountain red cedar stands often in grotesquely gnarled and twisted forms at the verges of the crags. It may be remarked that this flora is of prime importance, since so large a portion of the region consists of naked rock. In fact the foot-hill flora in general is more or less rupestrine in character. There is gathered here only the strictly rock-loving vegetation. These are typical species:

Polypodium hesperium	W. oregana
Dryopteris Filix-mas	Filix fragilis
Woodsia scopulina	Cryptogramma acrostichoides

<i>Cheilanthes Féei</i>	<i>Edwinia Americana</i>
<i>C. Fendleri</i>	<i>Ribes Purpusi</i>
<i>Asplenium Trichomanes</i>	<i>R. pumilum</i>
<i>A. Andrewsii</i>	<i>Oreobatus deliciosus</i>
<i>Belvisia septentrionalis</i>	<i>Rosa melina</i>
<i>Selaginella Underwoodii</i>	<i>Amelanchier oreophila</i>
<i>Sabina scopulorum</i>	<i>Xylophacos Parryi</i>
<i>Parietaria Pennsylvanica</i>	<i>Androsace puberulenta</i>
<i>Talinum parviflorum</i>	<i>A. pinetorum</i>
<i>Physaria didymocarpa</i>	<i>Coleosanthus minor</i>
<i>P. floribunda</i>	<i>C. albicaulis</i>
<i>Sedum stenopetalum</i>	<i>Chrysopsis caudata</i>
<i>Heuchera bracteata</i>	<i>Senecio Nelsonii</i>
<i>Micranthes rhomboidea</i>	<i>S. longipetiolatus</i>

D. MONTANAE

The Montane Flora begins at about the 8,000 foot level, though, as we have seen, on the isolated peaks of the first range of foot-hills the Foot-hill Flora still largely persists even to the summits, or some 600 feet higher. The Montane Flora extends upward to the approximate altitude of 10,000 feet. It is for the most part a forest of lodgepole pine. The zone includes the slopes of the main range below 10,000 feet, and also the higher portions of the adjacent mountain plateau. Some of its characteristic species, indeed, tend to spread throughout the mountain plateau, and in cold valleys may even go as low as 6,000 feet. The montane as also the subalpine slopes have abundant rainfall, showers occurring nearly every afternoon. At least this was true of the summer of 1906. The ground is often boggy and springy, and cold with snow water. On north and east slopes the snow remains in the higher and deeper valleys till midsummer;

hence the flowering season is short. In a period of about six weeks, from the middle of July to the first of September, the main part of the vegetation in these cool valleys is brought to perfection. Species, which on the mesas had bloomed before my arrival on the eighteenth of June, I found just in blossom at Eldora on the mountainsides August thirty-first.

I saw too little of the Montane Flora, since I spent only six days in collections, where it occurs, to be able to separate it definitely into plant-societies. But the chief types as I saw it at Ward, Eldora, and Glacier lake, will be briefly described. In the Montane Subzone there are, perhaps, six tolerably distinct types of vegetation-association: a. The montane forest (**Sylvales**). b. The montane bog (**Paludosae**). c. The montane lake (**Lacustres**). d. The arid brush slope (**Arbustales**). e. The montane meadow (**Pratenses**). f. The montane stream (**Amnicolae**).

a. **Sylvales**. The montane sylvia consists of a close forest of lodgepole pine interspersed with some bull pine and Rocky Mountain white pine, as well as with the various spruces and firs. The spruces and firs occur principally in the valleys, while on the barren ridges, the pines assume a scrub-like form. On these ridges occur many peculiar species of dwarf herbs—golden rods, asters, fleabanes, cat's-feet, actinellas, groundsels. A few of the more characteristic species of the montane sylvia are the following:

<i>Pinus scopulorum</i>	<i>Pseudotsuga mucronata</i>
<i>P. Murrayana</i>	<i>Abies lasiocarpa</i>
<i>Pinus flexilis</i>	<i>Calamagrostis purpurascens</i>
<i>Picea Engelmanni</i>	<i>Trisetum subspicatum</i>
<i>P. Parryana</i>	<i>Avena striata</i>

<i>Poa longipedunculata</i>	<i>Symphoricarpos oreophilus</i>
<i>Agropyron Arizonicum</i>	<i>Chrysopsis Bakeri</i>
<i>A. andinum</i>	<i>Oreochrysum Parryi</i>
<i>A. violaceum</i>	<i>Solidago decumbens</i>
<i>Carex Geyeri</i>	<i>S. oreophila</i>
<i>Cytherea bulbosa</i>	<i>Eucephalus Engelmannii</i>
<i>Populus tremuloides</i>	<i>Aster Underwoodii</i>
<i>Aquilegia coerulea</i>	<i>A. Porteri</i>
<i>Delphinium occidentale</i>	<i>A. Andrewsii</i>
<i>Erysimum Cockerellianum</i>	<i>Erigeron multifidus</i>
<i>Draba streptocarpa</i>	<i>E. trifidus</i>
<i>D. aurea</i>	<i>E. glandulosus</i>
<i>Ribes lentum</i>	<i>E. superbus</i>
<i>Potentilla concinna</i>	<i>E. macranthus</i>
<i>Fragaria glauca</i>	<i>E. speciosus</i>
<i>Thermopsis divaricarpa</i>	<i>E. subtrinervis</i>
<i>Tium alpinum</i>	<i>E. eximius</i>
<i>Atelophragma elegans</i>	<i>Antennaria concinna</i>
<i>Aragallus deflexus</i>	<i>A. parvifolia</i>
<i>Conioselinum scopulorum</i>	<i>A. aprica</i>
<i>Eutoca sericea</i>	<i>Anaphalis subalpina</i>
<i>Pentstemon oreophilus</i>	<i>Tetranuris lanigera</i>
<i>P. alpinus</i>	<i>Artemisia silvicola</i>
<i>Castilleja integra</i>	<i>Senecio pudicus</i>
<i>C. confusa</i>	<i>S. lanatifolius</i>
<i>C. lauta</i>	<i>S. ambrosioides</i>
<i>C. lancifolia</i>	<i>Cirsium Coloradense</i>
<i>C. sulphurea</i>	<i>Hieracium albiflorum</i>
<i>Pedicularis racemosa</i>	<i>Agoseris Leontodon</i>
<i>P. Grayi</i>	<i>A. humilis</i>

b. **Paludosae.** The montane bog is characterized by the presence of the quaking aspen and other Hudsonian plants.

The aspen, however, is not confined to the bogs, but forms groves in slight depressions throughout the mountains, and occurs on Green Mountain not much, if any, above 6,000 feet. The aspen occurs in the drier portions of the bogs along with other uliginose plants. The bog vegetation is very rich in species. A fine specimen of the montane bog is found just west of Eldora at an elevation of 8,600 feet. The following are characteristic species :

Muhlenbergia simplex	Betula glandulosa
M. filiformis	Rumex densiflorus
Phleum alpinum	Polygonum confertiflorum
Cinna latifolia	Alsine longifolia
Trisetum montanum	Aconitum Columbianum
T. subspicatum	A. insigne
Merathrepta intermedia	A. ochroleucum
Poa reflexa	Ranunculus cardiophyllus
P. Vaseyana	R. inamoenus
Carex canescens	R. micropetalus
C. occidentalis	R. pedatifidus
C. ebenea	Pectianthia pentandra
C. Goodenovii	Micranthes arguta
C. utriculata	Parnassia fimbriata
Juncus Saximontanus	Dasiphora fruticosa
Juncoides parviflorum	Sidalcea candida
Limnorchis stricta	Viola palustris
L. borealis	V. pallens
Ibidium strictum	Epilobium adenocaulon
Populus tremuloides	E. rubescens
Salix Scouleriana	E. anagallidifolium
S. brachycarpa	Oxypolis Fendleri
S. glaucops	Dodecatheon philoscia
S. chlorophylla	Anthopogon barbellatus

Amarella plebeja	E. jucundus
Pleurogyne fontana	Gnaphalium palustre
Allocarya scopulorum	Artemisia biennis
Mimulus puberulus	Senecio triangularis
Veronica Wormskjoldii	S. admirabilis
Elephantella Groenlandica	S. cymbalarioides
Erigeron minor	Crepis denticulata
E. lonchophyllus	

c. **Lacustres.*** The montane lacustrine and marginal vegetation I saw only at Glacier lake. Besides some aquatic grasses, notably *Deschampsia caespitosa*, there occur the floating bur-reed, *Sparganium angustifolium*, the white water-crowfoot, *Batrachium flaccidum*, and the aquatic mudwort, *Limosella aquatica*. The yellow pond-lily, *Nymphaea polysepala*, grows also in some of these high lakes.

d. **Arbustales.** The arid brush slope vegetation consists quite wholly of the true sage-brush, *Artemisia tridentata*. This community is rare in the region, and I have seen it only between Glacier lake and Eldora near Bluebird mine.

e. **Pratenses.** The montane meadow is truly a paradise of flowers. It is not uncommon to see acre upon acre of meadow glorious with purple and blue and red and yellow and white and scarlet. Never have I seen flowers anywhere else in such profusion nor with such gorgeous hues—monkshoods, larkspurs, louseworts, milk-vetches, locoweeds, squawweeds, death-camasses, grasses, rushes, sedges, and blue-eyed grasses. The following species are typical:

*For a detailed account of the vegetation of these high lakes, consult the paper by Ramaley and Robbins on Redrock lake near Ward (Univ. of Colo. Studies, 6, 133-168).

Muhlenbergia Richardsonis	Anemone globosa
M. simplex	Clemensia rhodantha
Phleum alpinum	Potentilla pulcherrima
Agrostis asperifolia	P. Hippiana
Deschampsia caespitosa	P. propinqua
Poa pratensis	Dasiphora fruticosa
P. reflexa	Geum Oregonense
P. leptocoma	Erythrocoma ciliata
P. interior	Tium alpinum
P. Vaseyana	Homalobus tenellus
Festuca rubra	Aragallus Lambertii
Carex occidentalis	A. patens
C. Hoodii	A. Richardsonii
C. festiva	Geranium Richardsonii
C. ebenea	Sidalcea candida
C. petasata	Dodecatheon radicum
C. lanuginosa	Castilleja sulphurea
Anticlea Coloradensis	Elephantella Groenlandica
Juncus longistylis	Pedicularis Grayi
J. parous	Valeriana ceratophylla
J. Saximontanus	Erigeron Smithii
Sisyrinchium alpestre	Arnica subplumosa
S. angustifolium	Senecio scopulinus
Delphinium occidentale	S. chloranthus
Aconitum porrectum	S. pseud aureus
A. Columbianum	Agoseris parviflora
A. insigne	A. laciniata
A. ochroleucum	A. humilis

There is, of course, a montane rupestrine society, **Rupestris**, but I am too little acquainted with it to be able to give an adequate account of it. I, however, noted the

austromontane saxifrage, *Leptasea austromontana*, and the glandular phacelia, *Phacelia glandulosa*. There is also a brief campestrian vegetation about Eldora, reproducing, in other species, the facies of the Great Plains, **Campestres**; I may instance as species: *Grindelia subalpina*, *G. Eldorae*, *Chrysothamnus Parryi*, and *C. elegans*.

f. **Amnicolae**. The montane stream vegetation is seen at its best about small rills. Along the larger streams it assumes a typical riparian aspect, much like that of the cañon society of the foot-hills along the large streams. Since the water in these streams is very cold inasmuch as they are fed from the wasting snows of the alpine valleys, the montane vegetation can scarcely be distinguished from the true subalpine vegetation of the streams. The list of species will, therefore, be deferred until the subalpine stream vegetation is reached.

E. SUBALPESTRES

The Subalpine zone extends from about the 10000 foot level to timberline, and hence coincides with the upper slopes of the Main Range. It is in the main a forest of Engelmann spruce, with occasional high meadows and bogs. Lakes, too, are numerous.

I have personal knowledge of only two formations: a. The subalpine forest (**Sylvaes**). b. The subalpine stream (**Amnicolae**).

a. **Ses. lval**. The subalpine forest consists mainly of Engelmann spruce, *Picea Engelmanni*, and balsam fir, *Abies lasiocarpa*. I have but a very slight knowledge of the herbs characterizing this formation, but I noticed along the Arapahoe Trail the following species, which I had not seen in the mon-

tane forest: *Eriogonum subalpinum*, *Arnica Parryi*, and *Senecio atratus*. A large number of the montane sylvan species were observed.

b. **Amnicolae.** The subalpine stream vegetation is very luxuriant. It has on the one hand a very close affinity with the montane stream vegetation, and on the other with that of the wet alpine tundra. Not only does the snow linger late in these high valleys, the water of the streams is also very cold. In the list that follows the montane species are included as well:

<i>Poa platyphylla</i>	<i>Cardamine cordifolia</i>
<i>P. alpina</i>	<i>C. incana</i>
<i>Carex Goodenovii</i>	<i>Clematis rhodantha</i>
<i>Populus balsamifera</i>	<i>Pectianthia pentandra</i>
<i>P. angustifolia</i>	<i>Micranthes arguta</i>
<i>Salix caudata</i>	<i>Parnassia fimbriata</i>
<i>S. Scouleriana</i>	<i>Sidalcea candida</i>
<i>Betula fontinalis</i>	<i>Oxyopolis Fendleri</i>
<i>Alnus tenuifolia</i>	<i>Primula Parryi</i>
<i>Bistorta bistortioides</i>	<i>Swertia palustris</i>
<i>Alsine Baicalensis</i>	<i>Polemonium robustum</i>
<i>Caltha leptosepala</i>	<i>Mertensia polyphylla</i>
<i>Trollius albiflorus</i>	<i>Mimulus Langsdorfii</i>
<i>Anemone Canadensis</i>	<i>M. puberulus</i>
<i>Ranunculus reptans</i>	<i>Helianthella quinquenervis</i>
<i>R. inamoenus</i>	<i>Senecio triangularis</i>
<i>R. micropetalus</i>	

I am almost wholly unacquainted with the remaining subalpine formations, such as the lacustrine, palustrous, rupes-trine, the subalpine summit and high ridge floras. I saw a

little of these at Ward and on the high slopes above Bloomerville, and on Arapahoe Peak just below timberline, but I am unable to give any clear account of the vegetation.*

F. ALPESTRES†

Between 11,000 and 12,000 feet tree-growth ceases abruptly. The spruces and firs bend and hug the ground. The willows branch and fork underground and rise to the height of but a few inches. The precise altitude of the timberline depends somewhat on the exposure, and differs, therefore, from peak to peak, but 11,500 feet is, perhaps, on an average the lower limit of the alpine zone. I am acquainted with this zone only on Arapahoe Peak, where I spent one day, September first, and collected some 110 species, most of them above timberline. The total number of species known to reach an altitude of 12,000 feet, or above, in Colorado is 386.‡

The alpine flora may be conveniently gathered into two societies: a. The wet alpine tundra (*Tundrales*). b. The dry rock-desert (*Alpinae*) of the summits.

a. *Tundrales*. The wet tundra occupies the region of cold water-soaked soil. The water from the wasting snows collects in depressions, streams are formed, and along these the

*I refer the reader to the excellent paper on Redrock lake near Ward, by Ramaley and Robbins (*Univ. of Colo. Studies*, 6, 133-168).

†Consult for the Alpine Flora Cooper's Alpine vegetation in the vicinity of Long's Peak, Colorado (*Bot. Gaz.*, 45, 319-337). He recognizes three plant formations: 1. The dry meadow. 2. The wet meadow. 3. The Krummholtz. The latter, while striking enough, is rather but the upper level of the spruce forest, striving to persist in Alpine conditions.

‡For a list of these see the article by Cockerell on the Alpine Flora of Colorado (*Am. Nat.*, 40, 86-873).

vegetation clings. Often the streams flow concealed under the dwarf spruces and firs, their existence there being known only by their roaring underneath. Parry's primrose, saxifrages, globeflowers, white cowslips, gentians, red elephants, several sedges, grasses, and rushes are examples of the wet tundra vegetation. The Krummholtz of spruce and fir at the timberline consists chiefly of Engelmann spruce, *Picea Engelmanni*, and balsam fir, *Abies lasiocarpa*. The wet tundra continues down to the lower edge of the alpine zone, whence it descends and coalesces with the subalpine stream vegetation. The following are characteristic species:

<i>Lycopodium annotinum</i>	<i>Trollius albiflorus</i>
<i>Picea Engelmanni</i>	<i>Ranunculus pedatifidus</i>
<i>Abies lasiocarpa</i>	<i>R. alpeophilus</i>
<i>Alopecurus occidentalis</i>	<i>Thlaspi Coloradense</i>
<i>Trisetum majus</i>	<i>Draba Fladnizensis</i>
<i>Poa reflexa</i>	<i>Clementsia rhodantha</i>
<i>P. leptocoma</i>	<i>Pectianthia pentandra</i>
<i>P. alpicola</i>	<i>Saxifraga debilis</i>
<i>P. alpina</i>	<i>Micranthes arguta</i>
<i>Carex festiva</i>	<i>Viola Canadensis Neo-</i>
<i>C. ebenea</i>	<i>Mexicana</i>
<i>C. bella</i>	<i>Angelica Grayi</i>
<i>Juncus Drummondii</i>	<i>Pseudocymopterus</i>
<i>Juncoides spicatum</i>	<i>tenuifolius</i>
<i>Salix glaucops</i>	<i>Kalmia microphylla</i>
<i>S. chlorophylla</i>	<i>Primula Parryi</i>
<i>Bistorta bistortioides</i>	<i>Androsace subumbellata</i>
<i>B. vivipara</i>	<i>A. diffusa</i>
<i>Alsine Baicalensis</i>	<i>Anthopogon elegans</i>
<i>Caltha leptosepala</i>	<i>A. barbellatus</i>

Amarella monantha	Erigeron jucundus
A. plebeja Holmii	E. salsuginosus
Swertia palustris	E. superbus
Mertensia polyphylla	Senecio carthamoides
Veronica Wormskjoldia	S. blitoides
Castilleja Arapahoensis	S. pseud aureus
Elephantella Groenlandica	Hieracium gracile
Pedicularis Parryi	

b. **Alpinae.** The dry rock-desert lies mingled with or above the wet tundra and extends to the summit, wherever there is soil not covered with snow. The vegetation suffers from extreme exposure, and grows close to the ground, seldom, unless sheltered by rocks, rising more than an inch or two in height. In sheltered places under rocks, even at this extreme altitude, I found several beautiful clusters of the blue columbine, the state flower of Colorado, with stems twelve to eighteen inches high, and with blossoms two inches across. The wooly-headed thistle, too, was found of the same height. But in general the vegetation is much dwarfed. Next to the wet tundra the Krummholtz of spruce and fir still persists, under which I detected some fine specimens of club-moss; but farther up there is no shrubby vegetation except the underground willows. The vegetation grows in little rounded tussocks, and consists of the alpine catch-fly, rock-primrose scarcely half an inch high, sibbaldia, dryas, alpine clovers, dwarf sedges, grasses, and rushes, and, last of all, the little yellow saxifrages and the snowflowers, which are often blossoming at the snow-line. Now and then on the high exposed ridges the beautiful rydbergia rises five or six inches above the mountain turf, its stems and leaves and large yellow flowers swathed in dense wool. For what must be the tribulations of this

alpine vegetation at the line of perpetual snow, with the alternate freezing by night and thawing by day, with the keen light, and bleak winds, and the fierce fury of the storms? And yet the alpine flora is exquisitely beautiful. It shares the fascination of its sublime mountain home, to which it lends the only touch of delicate grace. I append a list of alpine summit species, most of which I found on Arapahoe Peak or are known to grow there:

<i>Trisetum subspicatum</i>	<i>Salix pseudolapponicum</i>
<i>Poa crocata</i>	<i>S. petrophila</i>
<i>P. rupicola</i>	<i>S. Saximontana</i>
<i>P. Pattersonii</i>	<i>Monolepis Nuttalliana</i>
<i>P. longipedunculata</i>	<i>Oxyria digyna</i>
<i>Festuca brachyphylla</i>	<i>Paronychia pulvinata</i>
<i>F. minutiflora</i>	<i>Claytonia megarrhiza</i>
<i>Agropyron violaceum</i>	<i>Oreobroma pygmaea</i>
<i>Carex incurva</i>	<i>Arenaria Tweedyi</i>
<i>C. atrata</i>	<i>A. Fendleri</i>
<i>C. chalciolepis</i>	<i>Alsinopsis propinqua</i>
<i>C. rigida</i>	<i>A. obtusiloba</i>
<i>C. chimaphila</i>	<i>Silene acaulis</i>
<i>C. nigricans</i>	<i>Aquilegia coerulea</i>
<i>C. Pyrenaica</i>	<i>Ranunculus adoneus</i>
<i>C. rupestris</i>	<i>Thlaspi Nuttallii</i>
<i>C. obtusata</i>	<i>T. purpurascens</i>
<i>C. capillaris</i>	<i>Erysimum nivale</i>
<i>Juncus triglumis</i>	<i>E. Cockerellianum</i>
<i>J. castaneus</i>	<i>Draba crassifolia</i>
<i>Allium Pikeanum</i>	<i>D. cana</i>
<i>Erythronium parviflorum</i>	<i>D. streptocarpa</i>
<i>Lloydia serotina</i>	<i>D. luteola</i>

<i>D. aureiformis</i>	<i>Pentstemon glaucus</i>
<i>D. aurea</i>	<i>stenosepalus</i>
<i>D. decumbens</i>	<i>Chionophila Jamesii</i>
<i>Sedum stenopetalum</i>	<i>Besseya alpina</i>
<i>Heuchera Hallii</i>	<i>Castilleja occidentalis</i>
<i>H. parvifolia</i>	<i>Pedicularis scopulorum</i>
<i>Micranthes rhomboidea</i>	<i>Campanula uniflora</i>
<i>Leptasea chrysantha</i>	<i>Tonestus pygmaeus</i>
<i>L. austromontana</i>	<i>Solidago decumbens</i>
<i>L. flagellaris</i>	<i>Erigeron pinnatisectus</i>
<i>Potentilla dissecta</i>	<i>E. multifidus</i>
<i>Sibbaldia procumbens</i>	<i>E. melanocephalus</i>
<i>Erythrocoma ciliata</i>	<i>E. simplex</i>
<i>Acomastyliis turbinata</i>	<i>E. leucotrichus</i>
<i>A. Arapahoensis</i>	<i>Antennaria media</i>
<i>Dryas octopetala</i>	<i>A. umbrinella</i>
<i>Amelanchier polycarpa</i>	<i>A. imbricata</i>
<i>Trifolium lividum</i>	<i>A. corymbosa</i>
<i>T. dasyphyllum</i>	<i>A. aprica</i>
<i>Epilobium anagallidifolium</i>	<i>A. anaphaloides</i>
<i>Vaccinium scoparium</i>	<i>Tetranneuris lanigera</i>
<i>Primula angustifolia</i>	<i>Rydbergia grandiflora</i>
<i>P. Parryi</i>	<i>Artemisia spithamea</i>
<i>Dasystephana Romanzovii</i>	<i>Arnica platyphylla</i>
<i>D. Parryi</i>	<i>A. Parryi</i>
<i>Polemonium scopulinum</i>	<i>Senecio crassulus</i>
<i>P. delicatum</i>	<i>S. atratus</i>
<i>P. Brandegeei</i>	<i>S. crocatus</i>
<i>Eutoca sericea</i>	<i>Cirsium scopulorum</i>
<i>Mertensia alpina</i>	<i>C. griseum</i>
<i>M. perplexa</i>	<i>Crepis alpicola</i>

IV. SPECIAL CLASSES OF PLANTS

Independent of the five great zones of vegetation are two special classes of plants: A. The saprophytic and parasitic plants (**SAPROPHYTICALES ET PARASITICALES**). B. The plants which largely owe their presence to human agency (**ANTHROPOPHYTICALES**). These consist of the various cultural plants, of weeds, and of escapes.

A. SAPROPHYTICALES ET PARASITICALES

Besides the saprophytic and parasitic fungi there are a few phanerogams, which are destitute of chlorophyl and are true saprophytes or parasites. The following are known to occur in the region:

Corallorrhiza Corallorrhiza (saprophytic in rich soil)

C. multiflora (saprophytic in rich soil)

Razoumofskya Americana (parasitic on lodgepole pine)

R. cryptopoda (parasitic on bull pine)

Pterospora Andromedea (parasitic on the roots of bull pine)

Cuscuta curta (parasitic on *Iva xanthifolia* and other coarse herbs)

C. indecora (parasitic on *Thermopsis pinetorum* and other legumes)

Thalesia fasciculata (parasitic on *Artemisia frigida* and other Composites)

There are also a few root-parasites with green foliage, notably *Comandra pallida*, *Gerardia Besseyana*, and the *Castillejas*.

B. ANTHROPOPHYTICALES

Only three kinds of anthropophytic plants need concern us here: a. Forage plants (**Faenales**), which have become

thoroughly naturalized. b. Weeds (**Ruderales**). c. Cultural and ornamental plants that have escaped (**Fugitivae**).

a. **Faenales**. Most of the common forage grasses and clovers have become thoroughly established about Boulder. I have noted the following:

Phleum pratense	Festuca elatior
Agrostis alba	Lolium Italicum
Dactylis glomerata	Trifolium pratense
Poa pratensis	T. repens
P. compressa	T. hybridum
P. trivialis	Medica sativa

b. **Ruderales**. In the appended list of weeds only those that have been introduced from elsewhere, or, if native, are also common weeds in many parts of the United States, have been included. However, many native species, such as the various gum-weeds and spurges, must often be bad weeds in cultivated grounds. But to do justice to the ruderal aspects of the native flora would require much special study, such as one is unable to make in the course of a few weeks, and especially one who is unfamiliar with agriculture as carried on in Colorado. I noted the following weeds:

Syntherisma sanguinale	B. secalinus
Panicum capillare	B. hordeaceus
Echinochloa Crus-galli	B. tectorum
Chaetochloa glauca	Rumex Acetosella
C. viridis	R. crispus
Cenchrus Carolinianus	R. obtusifolius
Avena fatua	Polygonum erectum
Eragrostis major	P. aviculare
Poa annua	Persicaria Persicaria
Bromus brizaeformis	Tiniaria Convolvulus

Chenopodium leptophyllum	Mentha spicata
C. album	Physalis Virginiana
C. hybridum	P. heterophylla
C. Botrys	Datura Stramonium
Salsola Tragus	D. Tatula
Amaranthus retroflexus	Verbascum Thapsus
A. blitoides	V. Blattaria
A. graecizens	Veronica serpyllifolia
Mollugo verticillata	V. Byzantina
Portulaca oleracea	Plantago major
P. retusa	P. lanceolata
Alsine media	Micrampelis lobata
Silene antirrhina	Iva xanthifolia
S. noctiflora	I. axillaris
Vaccaria Vaccaria	Ambrosia trifida
Thlaspi arvense	A. artemisifolia
Bursa Bursa-pastoris	A. psilostachya
Sisymbrium officinale	Xanthium commune
Brassica juncea	Erigeron ramosus
B. nigra	Leptilon Canadense
Camelina sativa	Helianthus petiolaris
Tridophyllum Monspeliensis	Bidens vulgata
Medicago Lupulina	Boebera papposa
Melilotus alba	Anthemis Cotula
M. officinale	Tragopogon pratensis
Erodium cicutarium	T. porrifolius
Malva rotundifolia	Cichorium Intybus
Pastinaca sativa	Taraxacum Taraxacum
Convolvulus arvensis	Lactuca integrata
Nepeta Cataria	Sonchus arvense
Glecoma hederacea	S. asper
Leonurus Cardiaca	

c. **Fugitivae.** I noted the following escapes:

Chaetochloa Italica	Brassica campestris
Avena sativa	Koniga maritima
Triticum vulgare	Raphanus sativus
Hordeum sativum	Ribes vulgare
hexastichon	Althaea rosea
Asparagus officinale	Carum Carvi
Atriplex hortensis	Pharbitis purpurea
Saponaria officinalis	Lycopsis arvensis
Delphinium Ajacis	Lycium vulgare
Papaver Argemone	Lycopersicon Lycopersicon
Armoracia Armoracia	

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FLORA OF BOULDER, COLORADO, AND VICINITY

Subkingdom I. PTERIDOPHYTA. Fern-worts.

Order 1. OPHIOGLOSSALES.

Family 1. OPHIOGLOSSACEAE Presl. Adder's-tongue family.

1. BOTRYCHIUM Swartz. MOONWORT.

1. *B. Virginianum* (L.) Swartz. VIRGINIA GRAPE-FERN.

Forested slopes of Green Mt., above 7000 ft.; very scarce, only two or three plants discovered (Daniels, 606).*

LABRADOR to BRITISH COLUMBIA; FLORIDA to TEXAS and WASHINGTON.

Order 2. FILICALES.

Family 2. POLYPODIACEAE R. Br. Polypody family.

2. POLYPODIUM L. POLYPODY.

2. *P. hesperium* Maxon. WESTERN POLYPODY.

On a single rock in a cañon on the north slope of Green Mt., 7500 ft. (Daniels, 605).

MONTANA to BRITISH COLUMBIA and WASHINGTON; COLORADO to ARIZONA.

3. DRYOPTERIS Adans. SHIELD-FERN.

3. *D. Filix-mas* (L.) Schott [*Aspidium Filix-mas* (L.) Swartz]. MALE-FERN.

Summit of South Boulder Peak; Bear Cañon; high cañons of Green Mt.; Boulder Cañon near Falls; apparently quite

* See preface for explanation of numbers.

evenly, but not abundantly distributed throughout in moist rocky cañons, 6000-8600 ft. (Daniels, 555).

NOVA SCOTIA and MICHIGAN to ALASKA; NEW MEXICO and COLORADO to CALIFORNIA.

4. **WOODSIA** R. Br.

4. **W. scopulina** D. C. Eaton. CLIFF WOODSIA.

The most abundant fern of the foot-hills and lower mountainsides, occurring wherever rocks are exposed to the surface, 5700-8100 ft. (Daniels, 156).

MICHIGAN to BRITISH COLUMBIA; COLORADO and ARIZONA to CALIFORNIA.

5. **W. Oregana** D. C. Eaton. MOUNTAIN WOODSIA.

With the preceding, but much scarcer, and ranging to the timberline or above, 5600-11000 ft. (Daniels, 361). Long's Peak (Coulter in Wabash College Herb.).

MICHIGAN to BRITISH COLUMBIA; COLORADO and ARIZONA to CALIFORNIA.

5. **FILIX** Adans. BLADDER-FERN.

6. **F. fragilis** (L.) Underw. [*Cystopteris fragilis* Bernh.]. FRAGILE-FERN.

Throughout on the moister rocks; apparently the only fern of the plains region, 5100-13000 ft. (Daniels, 23).

Almost cosmopolitan.

6. **PTERIDIUM** Scop. BRACKEN.

7. **P. aquilinum pubescens** Underw. HAIRY BRAKE.

Cañons of Green Mt., and gulches at the foot of the Flatirons; Bear Cañon; local, but abundant where found, 5800-10000 ft. (Daniels, 277).

MONTANA and COLORADO to ARIZONA and CALIFORNIA.

7. **CRYPTOGRAMMA** R. Br. PARSLEY-FERN.

8. **C. acrostichoides** R. Br. ROCK PARSLEY-FERN.

High ridges of rock, descending on Green Mt. to about 6500 ft., thence to above 11000 ft. (Daniels, 271).

MICHIGAN to ALASKA; COLORADO to CALIFORNIA.

8. **CHEILANTHES** Swartz. LIP-FERN.

- 9.
- C. Féei**
- Moore [
- C. gracilis*
- Mett.;
- C. lanuginosa*
- Nutt.].

WOOLLY LIP-FERN.

Growing with *Asplenium Andrewsii* A. Nelson on the south face of a white sandstone (alkaline) cliff extending along Boulder creek for a mile or more (Andrews, in Nelson, Proc. of the Biol. Soc. of Wash., 17, 175).

ILLINOIS and MINNESOTA to BRITISH COLUMBIA; MISSOURI to TEXAS and ARIZONA.

- 10.
- C. Fendleri**
- Hook. FENDLER'S LIP-FERN.

Dry rocks, Boulder, 5900-8500 ft. (Rydberg).

COLORADO and TEXAS to CALIFORNIA.

9. **ASPLENIUM** L. SPLEENWORT.

- 11.
- A. Trichomanes**
- L. MAIDEN-HAIR SPLEENWORT.

Limestone rocks, South Boulder Cañon, 5400-7000 ft. (Rydberg).

NORTH AMERICA: EUROPE: ASIA: SOUTH AFRICA: PACIFIC ISLANDS.

- 12.
- A. Andrewsii**
- A. Nelson. ANDREWS'S SPLEENWORT.

Growing abundantly in crevices with *Cheilanthes Féei* Moore (Andrews, in Nelson, loc. cit. pp. 174-175).

Known only from the type locality as above.

10. **BELVISIA** Mirb. GRASS-FERN.

- 13.
- B. septentrionalis**
- (L.) Mirb. [
- Asplenium septentrionalis*
- (L.) Hoffm.] NORTHERN GRASS-FERN.

Bald ridges of Green Mt.; south slope of Bear Mt.; South Boulder Cañon, 6000-7000 ft. (Daniels, 358).

SOUTH DAKOTA to MONTANA; NEW MEXICO to ARIZONA.

Order 3. EQUISETALES.

Family 3. EQUISETACEAE Michx. Horsetail family.

11. EQUISETUM L. HORSETAIL.

14. *E. arvense* L. FIELD HORSETAIL.

Swales and shores of streams; sandy moist meadows, 5100-10000 ft. (Daniels, 260).

NORTH AMERICA: EUROPE: ASIA.

15. *E. laevigatum* A. Br. SMOOTH SCOURING RUSH.

Along streams and railway embankments in the plains and on the mountains, 5100-12500 ft. (Daniels, 392).

NEW JERSEY to BRITISH COLUMBIA; NORTH CAROLINA to MEXICO and CALIFORNIA.

Order 4. LYCOPODIALES.

Family 4. LYCOPODIACEAE Michx. Clubmoss family.

12. LYCOPODIUM L. CLUBMOSS.

16. *L. annotinum* L. STIFF CLUBMOSS.

Under dwarf and procumbent shrubs, hidden almost completely from view, Arapahoe Peak, above timberline, 11000-11500 ft. (Daniels, 879).

LABRADOR to ALASKA; WEST VIRGINIA to COLORADO and WASHINGTON: EUROPE: ASIA.

Family 5. SELAGINELLACEAE Underw. Selaginella family.

13. SELAGINELLA Beauv. LITTLE CLUBMOSS.

17. *S. densa* Rybd. [*S. Engelmanni* Hieron.] DENSE SELAGINELLA.

Forests, Redrock lake, 10100 ft. (Ramaley & Robbins).
SOUTH DAKOTA to MONTANA; NEBRASKA to COLORADO.

17½. *S. Underwoodii* Hieron. [*S. rupestris Fendleri* Underw.]. UNDERWOOD'S SELAGINELLA.

Common on exposed rocks, 6000-8100 ft. (Daniels, 151).
Redrock lake 10100 ft. (Ramaley and Robbins).

COLORADO to NEW MEXICO.

Subkingdom II. SPERMATOPHYTA. Seed plants.

Class I. GYMNOSPERMAE.

Order 5. PINALES.

Family 6. PINACEAE Lindl. Pine family.

14. PINUS L. PINE.

18. *P. scopulorum* (Engelm.) Lemmon [*P. ponderosa scopulorum* Engelm.]. BULL PINE.

Common on the higher mesas, foothills, and mountains, 5700-10000 ft. (Daniels, 97).

SOUTH DAKOTA and NEBRASKA to MONTANA; TEXAS to ARIZONA.

19. *P. contorta Murrayana* (Oreg. Com.) Engelm. LODGE POLE PINE.

Mountains about Ward, and between Sugarloaf Mt. and Glacier Lake, 7000-10000 ft. (Daniels, 302).

MONTANA to ALASKA; COLORADO to CALIFORNIA.

15. APINUS Necker. CEMBRA PINE.

20. *A. flexilis* (James) Rydb. [*Pinus flexilis* James].

ROCKY MOUNTAIN WHITE PINE.

Rare on high ridges of Green Mt.; also at Ward, 7300-11000 ft. (Daniels, 771).

ALBERTA to TEXAS and CALIFORNIA.

16. PICEA Link. SPRUCE.

21. *P. Engelmanni* (Parry) Engelm. ENGELMANN SPRUCE.

Bear Cañon; Boulder Cañon near Falls; common upon the main range of the mountains, 7000 (Bear Cañon) -11000 ft. (Daniels, 294).

ALBERTA to BRITISH COLUMBIA; NEW MEXICO to ARIZONA.

22. *P. Parryana* (Andrée) Sarg. [*P. pungens* Engelm.].

BLUE SPRUCE.

Common in cañons throughout, 6500-10000 ft. (Cockerell); Fourth of July Mine; South Boulder Cañon (Ramaley).

WYOMING and NEW MEXICO to UTAH.

17. **PSEUDOTSUGA** Carr. RED FIR.

23. *P. mucronata* (Raf.) Sudw. [*P. Douglasii* Carr.].
DOUGLAS SPRUCE.

Abundant on the foothills and mountains; some trees have green foliage, others glaucous blue, 6000-10000 ft. (Daniels, 142).

ALBERTA to BRITISH COLUMBIA; TEXAS to MEXICO and CALIFORNIA.

18. **ABIES** Miller. BALSAM FIR.

24. *A. lasiocarpa* (Hook.) Nutt. WESTERN BALSAM FIR.

North slope of Green Mt.; Bear Cañon; Boulder Cañon near Falls and above them; common on the main mountain range, 7000 (Bear Cañon) -11000 ft. (Daniels, 303).

ALBERTA to ALASKA; NEW MEXICO to ARIZONA.

Family 7. **JUNIPERACEAE** Horan. Juniper family.

19. **JUNIPERUS** L. JUNIPER.

25. *J. Sibirica* Burgsd. MOUNTAIN JUNIPER.

Mesa at the foot of the Flat-irons, 5700-6000 ft. (Daniels, 182). Mountains between Sunshine and Ward (Rydberg).

LABRADOR to ALASKA; MASSACHUSETTS and MICHIGAN to UTAH; EUROPE; ASIA.

20. **SABINA** Haller. SAVIN.

26. *S. scopulorum* (Sarg.) Rydb. [*Juniperus scopulorum* Sarg.]. ROCKY MOUNTAIN RED CEDAR.

High mesas and mountain crags; some trees have green foliage, others glaucous blue, 5700-8500 (Daniels, 217).

ALBERTA to BRITISH COLUMBIA; TEXAS to ARIZONA and OREGON.

Class II. **ANGIOSPERMAE.**Subclass I. **MONOCOTYLEDONES.**Order 6. **PANDANALES.**Family 8. **TYPHACEAE** J. St. Hil. Cattail family.21. **TYPHA** L. CATTAIL.27. **T. latifolia** L. BROAD-LEAVED CATTAIL.

Swales and bogs in the plains, common, 5100-5600 ft. (Daniels, 408).

NORTH AMERICA, except the far north: EUROPE: ASIA.

Family 9. **SPARGANIACEAE** Agard. Bur-reed family.22. **SPARGANIUM** L. BUR-REED.28. **S. angustifolium** Michx. [*S. simplex angustifolium* (Michx.) Engelm.]. NARROW-LEAVED BUR-REED.

Floating in a pond at Glacier Lake, 9000 ft. (Daniels, 620). Also Redrock lake, 10100 ft. (Ramaley and Robbins).

NEWFOUNDLAND to OREGON; NEW YORK to CALIFORNIA.

Order 7. **NAIADALES.**Family 10. **ZANICHELLIACEAE** Dumort. Zanichellia family.23. **POTAMOGETON** L. PONDWEED.29. **P. lonchites** Tuckerm. [*P. fluitans* Roth.] LONG-LEAVED PONDWEED.

Owen's lake; Boulder lake, 5300 ft. (Daniels, 683).

NEW BRUNSWICK to WASHINGTON; FLORIDA to CALIFORNIA.

29½. **P. alpinus** Balbis [*P. rufescens* Schrad.]. ALPINE PONDWEED.

Redrock lake, 10100 ft. (Ramaley and Robbins).

NOVA SCOTIA to ALASKA; NEW JERSEY to CALIFORNIA.

30. **P. heterophyllus** Schreb. VARIOUS-LEAVED PONDWEED.
Near Boulder, 5100-6000 ft. (Rydberg).
NORTH AMERICA, except extreme north: EUROPE.
31. **P. foliosus** Raf. [*P. pauciflorus* Pursh]. LEAFY PONDWEED.
Streams and ditches east of Boulder, 5100-5500 ft. (Daniels, 736).
NEW BRUNSWICK to BRITISH COLUMBIA; FLORIDA to CALIFORNIA.
32. **P. Spirillus** Tuckerm. SPIRAL PONDWEED.
Swales along railroad between Boulder and Marshall, 5400 ft. (Daniels, 486). Not included in Rydberg's Flora of Colorado.
NOVA SCOTIA to MINNESOTA; VIRGINIA to COLORADO.
33. **P. pectinatus** L. FENNEL-LEAVED PONDWEED.
Owen's lake; Boulder lake, 5300 ft. (Daniels, 681).
NORTH AMERICA: EUROPE.
24. **ZANICHELLIA** L.
34. **Z. palustris** L. MARSH ZANICHELLIA.
Owen's lake; Boulder lake, 5300 ft. (Daniels, 682). Red-rock lake, 10100 ft. (Ramaley & Robbins).
NORTH TEMPERATE ZONE.

Order 8. ALISMALES.

Family II. ALISMACEAE D C. Water-plantain family.

25. ALISMA L. WATER-PLANTAIN.

35. **A. Plantago** L. COMMON WATER-PLANTAIN.
Bogs west of Marshall; swales, ditches, streams, and ponds east of Boulder, 5100-6000 ft. (Daniels, 424).
NORTHERN HEMISPHERE.

26. SAGITTARIA L. ARROWHEAD.

36. **S. arifolia** J. G. Smith. ARUM-LEAVED ARROWHEAD.
With the preceding, 5100-6000 ft. (Daniels, 441).
QUEBEC to BRITISH COLUMBIA; MAINE and MICHIGAN to NEW MEXICO and CALIFORNIA.

Order 9. POALES.

Family 12. POACEAE R. Br. Meadowgrass family.

27. **SCHIZACHYRIUM** Nees. BUNCH-GRASS.

37. **S. scoparium** (Michx.) Nash [*Andropogon scoparius* Michx.]. BROOM-GRASS.

Common in dry plains and mesas; occasional in the lower foothills, 5100-6300 ft. (Daniels, 478).

NEW BRUNSWICK to SASKATCHEWAN; FLORIDA to TEXAS.

28. **ANDROPOGON** L. BEARD-GRASS.

38. **A. furcatus** Muhl. TURKEY-FOOT GRASS.

Common on the plains, mesas and foothills, 5100-8000 ft. (Daniels, 512).

MAINE to SASKATCHEWAN; FLORIDA to TEXAS and COLORADO.

39. **A. chrysocomus** Nash. GOLDEN BEARD-GRASS.

Common on the plains and mesas, 5100-6000 ft. (Daniels, 486).

NEBRASKA to COLORADO; KANSAS to TEXAS.

29. **SORGHASTRUM** Nash. INDIAN GRASS.

40. **S. nutans** (L.) Nash [*Chrysopogon nutans* (L.) Benth.]. NODDING INDIAN GRASS.

Frequent on the plains and mesas, 5100-6000 ft. (Daniels, 655).

ONTARIO to MANITOBA; FLORIDA to ARIZONA.

30. **SYNTHESISMA** Walt. CRAB GRASS.

41. **S. sanguinale** (L.) Dulac. [*Panicum sanguinale* L.]. FINGER GRASS.

Along roadsides, and in yards and fields, still uncommon, 5300-5700 ft. (Daniels).

OLD WORLD, thence to the NEW.

31. **PANICUM** L. PANIC-GRASS.

42. **P. capillare** L. WITCH GRASS.

Along roads and railroads, and in yards and fields, appearing as if introduced, 5100-6500 ft. (Daniels, 586).

A form, undoubtedly native, with somewhat narrower leaves, slenderer stems, which are branched from the root, the sheaths less hairy and less prominently papillose, the spikelets acute and greenish, or the uppermost purplish, occurs in swales in the plains region, 5100-5500 ft. (Daniels, 985). An analogous, or perhaps identical form, gathered by P. A. Rydberg in the sand-hills of Nebraska, is referred by him (somewhat doubtfully) to *P. capillare agreste* Gatt. with the remark that the form is named var. *occidentale* in the National Herbarium with no published description (Rydberg U. S. Nat. Herb. Cont. 3, 186).

Throughout SOUTHERN CANADA and the UNITED STATES.

43. **P. virgatum** L. TALL SWITCH GRASS.

Frequent on the plains and mesas, 5100-6000 ft. (Daniels, 397).

MAINE to ASSINIBOIA; FLORIDA to ARIZONA.

43½. **P. Tennesseense** Ashe. TENNESSEE PANIC-GRASS.

Collected by Jones at South Boulder (Hitchcock and Chase).

MAINE to MINNESOTA and UTAH; GEORGIA to ARIZONA.

44. **P. Scribnerianum** Nash [*P. scoparium* Auct., not Lam.].

SCRIBNER'S PANIC-GRASS.

Common among rocks on the foot-hills, but occurring occasionally on the mesas and plains, 5400-7000 ft. (Daniels, 99).

MAINE to BRITISH COLUMBIA; VIRGINIA to ARIZONA and OREGON.

32. **ECHINOCHLOA** Beauv. BARNYARD GRASS.

45. **E. Crus-galli** (L.) Beauv. [*Panicum Crus-galli* L.].

COCKSPUR GRASS.

Common in waste places and along irrigation ditches, 5100-6000 ft. (Daniels, 741).

EUROPE, thence to NORTH AMERICA.

45a. **E. Crus-galli mutica** (Vasey) Rydb.

With the type (Daniels, 997).

Range of the type.

33. CHAETOCHLOA Scribn. FOXTAIL.

46. *C. glauca* (L.) Scribn. [*Setaria glauca* (L.) Beauv.].
YELLOW FOXTAIL.

Along streets and waste places, 5100-5700 ft. (Daniels, 773).

EUROPE, thence to NORTH AMERICA.

47. *C. viridis* (L.) Scribn. [*S. viridis* (L.) Beauv.]. GREEN
FOXTAIL.

With the preceding, but far more common, 5100-6000 ft. (Daniels, 507).

EUROPE, thence to NORTH AMERICA.

48. *C. Italica* (L.) Scribn. [*S. Italica* (L.) Kunth.]. ITALIAN
MILLET.

Escaped to roads and waste places, 5100-5700 ft. (Daniels).
The OLD WORLD, thence to the NEW.

34. CENCHRUS L. BUR-GRASS.

49. *C. Carolinianus* Walt. [*C. tribuloides* Auct., not L.].
SAND-BUR.

Along railroads and on the sandy shores of streams, 5100-6500 ft. (Daniels, 776).

MAINE to MINNESOTA; FLORIDA to TEXAS and COLORADO.

35. HOMALOCENCHRUS Mieg. CATCH-FLY GRASS.

50. *H. oryzoides* (L.) Poll. [*Leersia oryzoides* (L.) Sw.].
RICE CUT-GRASS.

Swales, streams, and irrigation ditches, 5100-6000 ft. (Daniels, 786).

NOVA SCOTIA to WASHINGTON; FLORIDA to CALIFORNIA:
EUROPE: ASIA.

36. PHALARIS L. CANARY-GRASS.

51. *P. arundinacea* L. REED CANARY-GRASS.

Swales and wet meadows near Boulder lake, 5300 ft. (Daniels, 732).

Temperate NORTH AMERICA: EUROPE: ASIA.

361½. **HIEROCHLOE** Gmel. HOLY GRASS.

- 51½. **H. odorata** (L.) R. and S. [*Savastana odorata* (L.) Scribn; *H. borealis* R. and S.] SWEET HOLY GRASS.
 Redrock lake, 10100 ft. (Ramaley & Robbins).
 LABRADOR to ALASKA; NEW JERSEY to ARIZONA; EUROPE: ASIA.

37. **ARISTIDA** L. TRIPLE-AWNED GRASS.

52. **A. fasciculata** Torr. BUSHY POVERTY-GRASS.
 In the plains, scarce, 5100-5700 ft. (Daniels, 777).
 KANSAS to CALIFORNIA; TEXAS to MEXICO.
53. **A. longiseta** Steud. LONG-AWNED POVERTY-GRASS.
 Abundant on the plains, mesas and foothills, 5100-8500 ft. (Daniels, 300). Also on the mountains between Sunshine and Ward (Rydberg).
 ILLINOIS to WASHINGTON; TEXAS to MEXICO.

38. **STIPA** L. PORCUPINE GRASS.

54. **S. comata** Trin. & Rupr. WESTERN PORCUPINE GRASS.
 Common on the plains and foothills, 5100-8500 ft. (Daniels, 197).
 ALBERTA to ALASKA; NEW MEXICO to CALIFORNIA.
55. **S. viridula** Trin. [*S. parviflora Americana* Schultes].
 GREENISH PORCUPINE GRASS.
 Common on the plains, mesas, and foothills, 5100-8500 ft. (Daniels, 301). Also at Gato (Rydberg).
 SASKATCHEWAN to MONTANA; KANSAS to UTAH.
56. **S. Nelsonii** Scribn. NELSON'S PORCUPINE GRASS.
 On the mesas, foothills, and mountain sides, 5700-10000 ft. (Daniels, 365).
 ASSINIBOIA to IDAHO and COLORADO.
57. **S. Scribneri** Vasey. SCRIBNER'S PORCUPINE GRASS.
 On the plains, mesas, foothills and mountainsides, 5100-9500 ft. (Daniels, 749).
 COLORADO to NEW MEXICO.

58. **S. Lettermannii** Vasey. LETTERMANN'S PORCUPINE GRASS.
Barren hilltops east of the Flat-irons, 5800 ft. (Daniels, 184).

WYOMING to IDAHO; COLORADO to UTAH.

39. ORYZOPSIS Michx. MOUNTAIN RICE.

59. **O. micrantha** (Trin. & Rupr.) Thurber. SMALL-FLOW-
ERED MOUNTAIN RICE.

Rocky soil on the mesas and foothills, 5700-8500 ft. (Daniels, 269).

ASSINIBOIA to MONTANA; NEBRASKA to ARIZONA.

40. ERIOCOMA Nutt.

60. **E. cuspidata** Nutt. [*Oryzopsis cuspidata* (Nutt.) Benth.].
SILKY MOUNTAIN RICE.

Barren mesa near entrance to Bear Cañon, 5800-6000 ft. (Daniels, 765).

SASKATCHEWAN to WASHINGTON; TEXAS and MEXICO to CALIFORNIA.

41. MUHLENBERGIA Schreb. DROP-SEED GRASS.

61. **M. racemosa** (Michx.) B. S. P. [*M. glomerata* Trin.].
MARSH DROP-SEED GRASS.

Cañon on Green Mt.; subalpine meadows at Eldora, 6000-10000 ft. (Daniels, 526).

NEWFOUNDLAND to BRITISH COLUMBIA; NEW JERSEY to NEW MEXICO.

62. **M. cuspidata** (Torr.) Rydb. [*Sporobolus cuspidatus* (Torr.) Woods]. PRAIRIE RUSH-GRASS.

Dry ledges, Gregory Cañon, 6000 ft. (Daniels, 371).

MANITOBA to ALBERTA; MISSOURI to COLORADO.

63. **M. Richardsonsii** (Trin.) Rydb. [*Vilfa Richardsonsii* Trin.; *Sporobolus depauperatus* Coulter in part]. RICHARDSON'S RUSH-GRASS.

Subalpine meadows and open bogs, Eldora, 8600 ft. (Daniels, 840).

ANTICOSTI to BRITISH COLUMBIA; NEW MEXICO to CALIFORNIA.

64. **M. simplex** (Scribn.) Rydb. [*Sporobolus simplex* Scribn.].
SIMPLE RUSH-GRASS.

In shallow water, aspen bogs about Glacier Lake, 9000 ft. (Daniels, 708). Also mountains between Sunshine and Ward, (Rydberg).

NEBRASKA to WYOMING and NEW MEXICO.

65. **M. filiformis** (Thurber) Rydb. [*Vilfa depauperata filiformis* Thurber]. FILIFORM RUSH-GRASS.

Subalpine bogs, Eldora, 8600 ft. (Daniels, 366).

WYOMING to OREGON; COLORADO to CALIFORNIA.

66. **M. gracilis** Trin. SLENDER DROP-SEED.

Summits of crags on the foot-hills, thence to subalpine mountain-ridges, the most characteristic grass of such places, 6000-10000 ft. (Daniels, 208).

COLORADO to CALIFORNIA; TEXAS to MEXICO.

42. LYCURUS H. B. K.

67. **L. phleoides** H. B. K. FALSE TIMOTHY.

Meadow Park, 6500 ft. (Rydberg).

COLORADO and TEXAS to ARIZONA and MEXICO.

43. PHLEUM L. TIMOTHY.

68. **P. pratense** L. COMMON TIMOTHY.

Throughout the area of cultivation, but has penetrated distant cañons, 5100-11000 ft. (Daniels, 504).

Temperate OLD WORLD, thence to all temperate lands.

69. **P. alpinum** L. MOUNTAIN TIMOTHY.

Subalpine meadows from Glacier Lake to Eldora; above timber-line, Arapahoe Peak, 8500-12000 ft. (Daniels, 632).

Circumboreal and alpine, EUROPE: ASIA: NORTH AMERICA.

44. ALOPECURUS L. FOXTAIL.

70. **A. aristulatus** Michx. [*A. fulvus* J. E. Smith]. SWAMP FOXTAIL.

Along irrigation ditches and at the margins of ponds and puddles, 5100-5600 ft. (Daniels, 246).

MAINE to ALASKA; PENNSYLVANIA to CALIFORNIA.

71. *A. occidentalis* Scribn. [*A. alpinus* Coulter, not L.].
WESTERN FOXTAIL.

Above timber-line, Arapahoe Peak, 11000-11500 ft. (Daniels, 942).

ALBERTA to BRITISH COLUMBIA; COLORADO to UTAH.

45. **SPOROBOLUS** R. Br. DROPSEED.

72. *S. airoides* Torr. HAIR-GRASS DROPSEED.

Alkaline flats about Boulder lake, scarce, 5300 ft. (Daniels, 731).

NEBRASKA and TEXAS to CALIFORNIA.

73. *S. cryptandrus* (Torr.) Gray. SAND DROPSEED.

Common on the plains, mesas, and grassy slopes of the foothills, 5100-8000 ft. (Daniels, 513).

MASSACHUSETTS to WASHINGTON; PENNSYLVANIA to ARIZONA and MEXICO.

74. *S. heterolepis* Gray. NORTHERN DROPSEED.

Common along the railroad between Boulder and Marshall, 5400 ft. (Daniels, 518).

QUEBEC to SASKATCHEWAN; PENNSYLVANIA to COLORADO.

75. *S. asperifolius* (Nees & Meyen) Thurber. ROUGH DROPSEED.

Common on the plains, 5100-5600 ft. (Daniels, 493).

ASSINIBOIA to BRITISH COLUMBIA; MISSOURI and TEXAS to CALIFORNIA.

46. **POLYPOGON** Desf. BEARD-GRASS.

76. *P. Monspeliensis* (L.) Desf. DITCH FOXTAIL.

Common along irrigation ditches east of Boulder, 5100-5500 ft. (Daniels, 676).

EUROPE and ASIA, thence to NORTH AMERICA.

47. **CINNA** L. WOOD REED-GRASS.

77. *C. latifolia* (Trev.) Griseb. [*C. pendula* Trin.]. SLENDER WOOD REED-GRASS.

Deep cañons in shade, frequent; in aspen bogs at Glacier lake and Eldora, 5700-8600 ft. (Daniels, 987).

NEWFOUNDLAND TO BRITISH COLUMBIA; NORTH CAROLINA TO UTAH: EUROPE.

48. **AGROSTIS** L. BENT-GRASS.

78. **A. alba** L. WHITE BENT-GRASS. RED-TOP.

Common about ditches and swales throughout the cultivated area, and already penetrating remote cañons, where the smaller forms are quite possibly native. The larger cultivated form is *A. alba vulgaris* (With.) Thurber, 5100-8600 ft. (Daniels, 689).

Mostly naturalized from EUROPE, and now in all temperate lands; there are indigenous boreal and alpine forms in NORTH AMERICA.

79. **A. asperifolia** Trin. [*A. exarata* Coult. in part, not Trin.]. HARSH BENT-GRASS.

Moist meadows throughout, 5100-10500 ft. (Daniels, 376) MANITOBA and NEW MEXICO to CALIFORNIA.

79½. **A. Rossae** Vasey [*A. varians* Trin.]. MISS ROSS'S BENT-GRASS.

Long's Peak (Holm).

BRITISH COLUMBIA to COLORADO and CALIFORNIA.

80. **A. hyemalis** (Walt.) B. S. P. [*A. scabra* Willd.]. HAIR-GRASS.

Common throughout in both dry and moist soil, 5100-11000 ft. (Daniels, 374). Also on the mountains between Sunshine and Ward (Rydberg).

NORTH AMERICA, except the extreme north.

80½. **A. tenuiculmis** Nash [*A. tenuis* Vasey]. THIN BENT-GRASS.

Redrock lake, 10100 ft. (Ramaley and Robbins).

MONTANA to WASHINGTON; COLORADO to CALIFORNIA.

49. **CALAMAGROSTIS** Adans. REED-GRASS.

81. **C. purpurascens** R. Br. [*Deyeuxia sylvatica* Vasey, not DC.]. PURPLE BLUE-JOINT.

Barren ridges in the foothills and mountains, common, 6000-12500 ft. (Daniels, 700). Long's Peak (Holm).

GREENLAND to ALASKA; COLORADO to CALIFORNIA.

82. **C. Canadensis** (Michx.) Beauv. [*Deyeuxia Canadensis* (Michx.) Munro]. CANADA BLUE-JOINT.

Along streams in the plains; also in deep cañons and aspen bogs in the foothills and mountains, 5100-11000 ft. (Daniels, 649).

LABRADOR to BRITISH COLUMBIA; NORTH CAROLINA to CALIFORNIA.

50. **DESCHAMPSIA** Beauv. HAIR-GRASS.

83. **D. caespitosa** (L.) Beauv. TUFTED HAIR-GRASS.

Wet margins of Glacier lake, often in water of some depth, 9000 ft. (Daniels, 617). Redrock lake, 10100 ft. (Ramaley and Robbins).

NEWFOUNDLAND to ALASKA; NEW JERSEY to CALIFORNIA.

51. **TRISSETUM** Pers. FALSE OAT.

84. **T. spicatum** (L.) Richter [*T. subspicatum molle* Gray]. NARROW FALSE OAT.

Mountainsides at Ward, Bloomerville, Glacier Lake, and Eldora, 8600-13000 ft. (Daniels, 330).

GREENLAND to ALASKA; NEW HAMPSHIRE to COLORADO and CALIFORNIA: EUROPE: ASIA.

85. **T. majus** (Vasey) Rydb. [*T. subspicatum majus* Vasey]. LARGER FALSE OAT.

Arapahoe Peak above timberline, 11000-12000 ft. (Daniels, 988).

MONTANA to BRITISH COLUMBIA; COLORADO to UTAH.

86. **T. montanum** Vasey. MOUNTAIN FALSE OAT.

Deep cañons and aspen bogs, local, 7000 (Bear Cañon) -10000 ft. (Daniels, 631).

WYOMING to NEW MEXICO.

52. **AVENA** L. OAT.

87. **A. striata** Michx. PURPLE OAT.

Rare in deep cañons and aspen bogs, usually with the preceding; Bear Cañon; Eldora, 7000-11000 ft. (Daniels, 665).

NEW BRUNSWICK to BRITISH COLUMBIA; PENNSYLVANIA to COLORADO.

88. **A. fatua** L. WILD OAT.

Common along streets and waste places in the city of Boulder, 5300-5700 ft. (Daniels, 387).

EUROPE: ASIA, thence to NORTH AMERICA.

89. **A. sativa** L. COMMON OAT.

Adventitious along railroads, 5300-5400 ft. (Daniels, 479).

OLD WORLD, thence universal in cultivation.

53. **MERATHREPTA** Raf. WILD OAT-GRASS.90. **M. Californica** (Bolander) Piper [*Danthonia Californica* Bolander]. CALIFORNIA WILD OAT-GRASS.

Arapahoe Pass, 12000 ft. (Rydberg).

MONTANA to BRITISH COLUMBIA; COLORADO to CALIFORNIA.

91. **M. intermedia** (Vasey) Piper [*Danthonia intermedia* Vasey]. INTERMEDIATE WILD OAT-GRASS.

Aspen bogs at Glacier Lake and Eldora, 8600-11500 ft. (Daniels, 621).

ALBERTA to BRITISH COLUMBIA; COLORADO to CALIFORNIA.

92. **M. spicata** (L) Raf. [*Danthonia spicata* (L) Beauv.].

COMMON WILD OAT-GRASS.

Common on dry slopes in the foothills, 6000-8000 ft. (Daniels, 370). Also mesas at foot of the Flat-irons.

NEWFOUNDLAND to BRITISH COLUMBIA; NORTH CAROLINA to LOUISIANA and CALIFORNIA.

54. **SPARTINA** Schreb. CORD-GRASS.93. **S. cynosuroides** (L.) Willd. TALL MARSH GRASS. FRESH-WATER CORD-GRASS.

Swales and bogs in the plains, infrequent, 5100-5500 ft. (Daniels, 522).

NOVA SCOTIA to MACKENZIE; NEW JERSEY to TEXAS and COLORADO.

55. **SCHEDONNARDUS** Steud. CRAB-GRASS.94. **S. paniculatus** (Nutt.) Trelease [*S. Texanus* Steud.]. WILD CRAB-GRASS.

Frequent on the plains and mesas, 5100-6000 ft. (Daniels, 175).

MANITOBA to ASSINIBOIA; ILLINOIS to TEXAS and NEW MEXICO.

56. BOUTELOUA Lag. GRAMA-GRASS. MESQUIT-GRASS.

95. **B. hirsuta** Lag. HAIRY MESQUIT.

Dry plains and mesas, less common than the next, 5100-6000 ft. (Daniels, 956). Also at Meadow Park, 6500 ft. (Rydberg).

ILLINOIS to SOUTH DAKOTA; TEXAS to ARIZONA.

96. **B. oligostachya** (Nutt.) Torr. COMMON GRAMA-GRASS, or MESQUIT-GRASS.

Common on the plains and mesas; occasional on the foothills, 5100-8000 ft. (Daniels, 220). One of the most characteristic grasses of the Great Plains.

WISCONSIN to ASSINIBOIA; MISSISSIPPI to ARIZONA and MEXICO.

57. ATHEROPOGON Muhl. TALL MESQUIT.

97. **A. curtipendulus** (Michx.) Fourn [*Bouteloua racemosa* Lag.]. PRAIRIE GRAMA-GRASS.

Frequent on the plains, mesas and foothills, 5100-7000 ft. (Daniels, 299). Meadow Park (Rydberg).

ONTARIO and MICHIGAN to MANITOBA; NEW JERSEY to TEXAS, ARIZONA, and MEXICO.

58. BULBILIS Raf. BUFFALO GRASS.

98. **B. dactyloides** (Nutt.) Raf. [*Buchloe dactyloides* (Nutt.) Eng.]. COMMON BUFFALO GRASS.

Abundant on the plains and mesas, 5100-6000 ft. (Daniels, 198).

MINNESOTA to NORTH DAKOTA; ARKANSAS to NEW MEXICO and MEXICO.

59. PHRAGMITES Trin. REED.

99. **P. Phragmites** (L.) Karst. [*P. communis* Trin.]. COMMON REED.

About a spring at foot of Flagstaff Hill, only three or four plants, 6000 ft. (Daniels, 834).

EUROPE: ASIA: temperate NORTH AMERICA.

60. **MUNROA** Torr. FALSE BUFFALO GRASS.

100. **M. squarrosa** (Nutt.) Torr. MUNRO'S GRASS.

Dry plains and mesas, 5100-6000 ft. (Daniels, 359). Also at Lafayette (Rydberg).

NORTH DAKOTA to ASSINIBOIA; TEXAS to ARIZONA.

61. **KOELERIA** Pers.

101. **Koeleria cristata** (L.) Pers. [*K. nitida* Nutt., as to some of the forms]. PRAIRIE-GRASS.

Throughout below 10000 ft., but especially common on the foothills, 5100-10000 ft. (Daniels, 133).

ONTARIO to BRITISH COLUMBIA; PENNSYLVANIA to CALIFORNIA.

62. **ERAGROSTIS** Beauv. STINK-GRASS.

102. **E. major** Host. SKUNK GRASS.

Waste places and along railroads, 5100-6000 ft. (Daniels, 588). Also at Longmont (Rydberg).

EUROPE, thence to NORTH AMERICA.

103. **E. pectinacea** (Michx.) Steud. PURPLE STINK-GRASS.

Meadow Park, 6500 ft. (Rydberg).

MASSACHUSETTS to SOUTH DAKOTA; FLORIDA to TEXAS and COLORADO.

63. **EATONIA** Raf. EATON GRASS.

104. **E. robusta** (Vasey) Rydb. [*E. obtusata robusta* Vasey].

STOUT EATON GRASS.

Along streams and springy cañons, 5100-7000 ft. (Daniels, 416).

NEBRASKA to WASHINGTON; NEW MEXICO to ARIZONA.

105. **E. obtusata** (Michx.) Gray. BLUNT-SCALED EATON GRASS.

About Boulder, 5100-6000 ft. (Rydberg).

MASSACHUSETTS to MONTANA; FLORIDA to ARIZONA.

106. **E. Pennsylvanica** (DC.) Gray. PENNSYLVANIA EATON GRASS.

Deep mountain cañons, 5600-7000 ft. (Daniels, 718).

NEW BRUNSWICK to BRITISH COLUMBIA; GEORGIA to COLORADO.

64. **MELICA** L. MELIC-GRASS.

107. **M. bella** Piper [*M. bulbosa* Geyer]. BULBOUS MELIC-GRASS.

North slopes of Flagstaff Hill along Boulder Cañon, 6000-7000 ft. (Daniels, 144). Spikelets often monstrous.

MONTANA to WASHINGTON; COLORADO and UTAH to OREGON.

65. **DACTYLIS** L. ORCHARD GRASS.

108. **D. glomerata** L. COMMON ORCHARD GRASS.

Throughout the whole cultivated district and penetrating into shady cañons; 5100-9000 ft. (Daniels, 235).

EUROPE, thence to NORTH AMERICA.

66. **DISTICHLIS** Raf. SALT-GRASS.

109. **D. stricta** (Torr.) Rydb. [*D. maritima stricta* (Torr.) Thurber]. MARSH SPIKE-GRASS.

Alkali flats about Boulder lake, 5300 ft. (Daniels, 728).

SASKATCHEWAN to WASHINGTON; MISSOURI to TEXAS and CALIFORNIA.

67. **POA** L. MEADOW-GRASS.

110. **P. annua** L. LOW SPEAR-GRASS.

Roadsides and at the entrance to Gregory Cañon, 5100-6000 ft. (Daniels, 250).

EUROPE and ASIA, thence to NORTH AMERICA.

111. **P. pratensis** L. KENTUCKY BLUE-GRASS.

Meadows throughout, 5100-11500 ft. (Daniels, 558). Probably naturalized in the irrigated district.

EUROPE: ASIA: NORTH AMERICA, but only the boreal and alpine forms native.

112. **P. trivialis** L. ROUGH MEADOW-GRASS.

About ponds and ditches, 5400-5500 ft. (Daniels, 245). Not in Rydberg's Flora.

EUROPE, thence naturalized in many places in the UNITED STATES.

- 112½. *P. cenisia* All. [*P. flexuosa* Wahl.]. FLEXUOUS
MEADOW-GRASS.
Long's Peak (Holm).
GREENLAND to ALASKA; COLORADO.
113. *P. callichroa* Rydb. FAIR-HUED MEADOW-GRASS.
Mountain-sides at Eldora, 8600-11500 ft. (Daniels, 647).
COLORADO.
114. *P. reflexa* V. & S. REFLEXED MEADOW-GRASS.
In mountain meadows descending to the slopes of the
foothills, 6400 (Flagstaff Hill) -13000 ft. (Daniels, 952).
MONTANA to NEW MEXICO and OREGON.
115. *P. leptocoma* Trin. SMOOTH-GLUMED MEADOW-GRASS.
In mountain meadows with the preceding, 6300 (Flagstaff
Hill) -12500 ft. (Daniels, 225).
MONTANA to ALASKA; COLORADO to CALIFORNIA.
116. *P. alpicola* Nash [*P. laxa* Thurber]. MOUNTAIN
MEADOW-GRASS.
Above timberline, Arapahoe Peak, 11500-13000 ft.
(Daniels, 941). Also on Long's Peak (Rydberg).
COLORADO to UTAH; CALIFORNIA.
117. *P. platyphylla* Nash & Rydb. [*P. occidentalis* Vasey].
WESTERN MEADOW-GRASS.
Along mountain streams, 5600 (Boulder Cañon) -10500
ft. (Daniels, 150).
COLORADO to NEW MEXICO.
118. *P. compressa* L. ENGLISH BLUE-GRASS.
Common throughout the irrigated district, but not noticed
in the mountains, 5100-6000 ft. (Daniels, 242).
EUROPE, thence to NORTH AMERICA.
119. *P. triflora* Gilib. [*P. serotina* Ehr.]. FOWL MEADOW-
GRASS.
Common in swales and wet meadows, 5100-8600 (Eldora)
ft. (Daniels, 482).
NEWFOUNDLAND to BRITISH COLUMBIA; NEW JERSEY to
CALIFORNIA; EUROPE.

120. **P. interior** Rydb. INLAND MEADOW-GRASS.

Along streams and in wet meadows, 5100-10000 ft. (Daniels, 28).

MACKENZIE to WASHINGTON and NEW MEXICO.

121. **P. crocata**. Michx. [*P. caesia strictior* Gray]. WOOD MEADOW-GRASS.

High mesas, dry slopes of the foothills, and mountain ridges, 6000-13000 ft. (Daniels, 154). Mountains between Sunshine and Ward (Rydberg).

LABRADOR to ALASKA; MASSACHUSETTS to MINNESOTA and ARIZONA.

122. **P. rupicola** Nash [*P. rupestris* Vasey]. CRAG MEADOW-GRASS.

Dry tundras above timberline, Arapahoe Peak, 11500-13000 ft. (Daniels, 1010).

MONTANA to OREGON; COLORADO to UTAH.

123. **P. Pattersonii** Vasey. PATTERSON'S MEADOW-GRASS.

Above timberline, Arapahoe Peak, 11000-13000 ft. (Daniels, 895).

COLORADO to ARIZONA.

124. **P. alpina** L. ALPINE MEADOW-GRASS.

Above timberline, Arapahoe Peak, 11000-13000 ft. (Daniels, 935). Long's Peak (Holm).

GREENLAND to ALASKA; QUEBEC to UTAH.

124½. **P. Wheeleri** Vasey. [*P. cuspidata* Vasey]. WHEELER'S MEADOW-GRASS.

Redrock lake, 10100 ft. (Ramaley and Robbins).

MONTANA to IDAHO; COLORADO to OREGON.

125. **P. Vaseyana** Scribn. VASEY'S MEADOW-GRASS.

Subalpine meadows at Eldora, 8600-10000 ft. (Daniels, 868).

COLORADO.

120. *P. longiligula* Scribn. & Will. LONG-LIGULATE MEADOW-GRASS.

Boulder (E. Bethel), determined by P. L. Ricker of U. S. Dept. of Agric., and recorded (as host of a fungus) by Arthur in Journal of Mycology, Jan. 1908, p. 13.

SOUTH DAKOTA to OREGON; NEW MEXICO to CALIFORNIA.

127. *P. pseudopratensis* Scribn. & Rydb. FALSE KENTUCKY BLUE-GRASS.

About swales and streams in the plains and mesas, 5100-6000 ft. (Daniels, 953).

SOUTH DAKOTA to NEBRASKA and COLORADO.

128. *P. longipedunculata* Scribn. LONG-PEDUNCULATE MEADOW-GRASS.

Plains and mountain-cañons, 5100-12500 ft. (Daniels, 503).

WYOMING to NEW MEXICO.

129. *P. juncifolia* Scribn. RUSH-LEAVED MEADOW-GRASS.

Common on the plains and mesas, 5100-6000 ft. (Daniels, 905).

WYOMING to COLORADO and UTAH.

130. *P. confusa* Rydb. BUNCH MEADOW-GRASS.

Dry plains, mesas, and mountainsides, 5100-10000 ft. (Daniels, 924).

NEBRASKA to MONTANA and COLORADO.

131. *P. pratericola* Rydb. & Nash [*P. andina* Nutt.]. PRAIRIE MEADOW-GRASS.

Near Long's Peak (Porter & Coulter).

NEBRASKA to WYOMING and COLORADO.

68. PANICULARIA Fabr. MANNA-GRASS.

132. *P. nervata* (Willd.) Kuntze [*Glyceria nervata* (Willd.) Trin.]. NERVED MANNA-GRASS.

About streams and ditches, in swales and at the margins of lakes and ponds, 5100-9000 ft. (Daniels, 264).

LABRADOR to BRITISH COLUMBIA; FLORIDA to MEXICO and CALIFORNIA.

133. **P. Americana** (Torr.) Mac M. [*Glyceria grandis* Wats.].
REED MEADOW-GRASS.

In swales and along streams, less common than the preceding, 5100-8600 ft. (Daniels, 969).

NEW BRUNSWICK to ALASKA; TENNESSEE to NEVADA.

134. **P. Holmii** Beal. HOLM'S MANNA-GRASS.

Deep cañons on north slope of Green Mountain, 7000-8100 ft. (Daniels, 464). Lamb's Ranch, Long's Peak, 9100 ft. (Beal).

COLORADO.

135. **P. borealis** Nash. NORTHERN FLOATING MANNA.

In irrigation ditches about Boulder; also floating in Glacier lake, 5100-9000 ft. (Daniels, 739).

MAINE to ALASKA; NEW YORK to CALIFORNIA.

69. PUCCINELLIA Parl. SALT MEADOW-GRASS.

136. **P. airoides** (Nutt.) Wats. & Coult. SLENDER SALT MEADOW-GRASS.

Along water-courses in the mesas, and in alkaline soil on the plains, 5100-6000 ft. (Daniels, 383). Also at Longmont (Rydberg).

MANITOBA to MACKENZIE and BRITISH COLUMBIA; KANSAS to NEVADA.

70. FESTUCA L. FESCUE-GRASS.

137. **F. octoflora** Walt. [*F. tenella* Willd.]. SLENDER FESCUE-GRASS.

Abundant on the plains and arid open mountain slopes, 5100-9000 ft. (Daniels, 181).

QUEBEC to BRITISH COLUMBIA; FLORIDA to CALIFORNIA.

138. **F. elatior** L. [*F. elatior pratensis* (Huds.) Gray]. MEADOW FESCUE.

Common throughout the irrigated area, especially along ditches, 5100-6000 ft. (Daniels, 785).

EUROPE, thence to temperate NORTH AMERICA.

139. **F. rubra** L. RED FESCUE.
Subalpine meadows at Glacier Lake, 9000 ft. (Daniels, 699).
LABRADOR to ALASKA; NORTH CAROLINA to CALIFORNIA:
EUROPE: ASIA.
140. **F. brachyphylla** Schultes [*F. ovina brevifolia* S. Watson]. SHORT-LEAVED FESCUE.
Bald ridges in the mountain region, 7000 (Green Mt.)
-14500 ft. (Daniels, 364).
GREENLAND to ALASKA; VERMONT to CALIFORNIA.
141. **F. minutiflora** Rydb. SMALL-FLOWERED FESCUE.
Mountainsides at Eldora, and on Arapahoe Peak above
timberline, 8600-12000 ft. (Daniels, 1001).
COLORADO to CALIFORNIA.
- 141½. **F. ovina** L. SHEEP FESCUE.
Redrock lake, 10100 ft. (Ramaley and Robbins). Long's
Peak (Holm).
NORTH AMERICA: EUROPE.
- 141½a. **F. ovina supina** (Schur). Hack. PROSTRATE FESCUE.
Long's Peak (Holm).
GREENLAND and BRITISH COLUMBIA to NEW HAMPSHIRE,
ARIZONA, and CALIFORNIA.
142. **F. ingrata nudata** (Vasey) Rydb. [*F. ovina nudata*
Vasey]. NAKED-STEMMED FESCUE. BLUE BUNCH-GRASS.
Common throughout the mountain region and the mesas,
5700-12000 ft. (Daniels, 174). The type doubtless occurs,
but all the material preserved belongs to the variety.
MONTANA to BRITISH COLUMBIA; COLORADO to UTAH.
143. **F. Kingii** (S. Watson) Scribn. [*F. confinis* Vasey].
KING'S FESCUE.
Boulder Cañon, 6500-10000 ft. (Rydberg); Boulder (E.
Bethel).
MONTANA to COLORADO and CALIFORNIA.
71. **BROMUS** L. BROME-GRASS.
144. **B. marginatus latior** Shear. LARGE MARGINATE BROME.
Vicinity of Boulder, 5100-6000 ft. (Rydberg).
ALBERTA to BRITISH COLUMBIA; COLORADO to CALIFORNIA.

145. **B. brizaeformis** F. & M. QUAKE-GRASS BROME.

The commonest ruderal grass about Boulder, and fast spreading throughout the plains district, 5100-6000 ft. (Daniels, 257).

EUROPE and ASIA, thence to the UNITED STATES.

146. **B. secalinus** L. COMMON CHESS, or CHEAT.

In fields and waste places, 5100-6000 ft. (Daniels, 388).

EUROPE and ASIA, thence to all temperate lands.

147. **B. hordeaceus** L. [*B. mollis* L.]. SOFT CHESS.

Along the railroad between Boulder and Marshall, 5400 ft. (Daniels, 524).

EUROPE, thence to the UNITED STATES.

148. **B. lanatipes** (Shear) Rydb. [*B. Porteri lanatipes* Shear]. LANATE BROME.

Common on the mesas, foothills, and mountain slopes, less frequent in the plains, 5100-9000 ft. (Daniels, 346). Also at Lafayette (Rydberg).

COLORADO.

149. **B. Richardsonii** Link. RICHARDSON'S BROME.

Common on the mesas, foothills, and mountains, 6000-11000 ft. (Daniels, 454).

SASKATCHEWAN to BRITISH COLUMBIA; COLORADO to ARIZONA and OREGON.

150. **B. Pumpellianus** Scribn. PUMPELLY'S BROME.

Frequent throughout, 5100-10000 ft. (Daniels, 382).

SASKATCHEWAN to ALASKA and NEW MEXICO.

151. **B. tectorum** L. THATCH CHEAT.

Waste places about Boulder, 5100-6000 ft. (Daniels, 496). Also at Longmont (Rydberg).

EUROPE, thence to the UNITED STATES.

72. **LOLIUM** L. DARNEL.152. **L. Italicum** A. Br. ITALIAN RYE GRASS.

About irrigation ditches in the city of Boulder, 5300-5600 ft. (Daniels, 839). Not in Rydberg's Flora.

EUROPE, thence to the UNITED STATES.

73. AGROPYRON Gaertn. WHEAT GRASS.

153. **A. Scribneri** Vasey. SCRIBNER'S WHEAT GRASS.
Long's Peak (Holm).
MONTANA to COLORADO and ARIZONA.
- 153½. **A. spicatum inerme** (Scribn. & Sm.) Heller [*A. Vaseyi* S. & S.]. VASEY'S WHEAT GRASS.
Frequent on the mesas and foothills, 5700-7000 ft.
(Daniels, 171).
MONTANA to OREGON; COLORADO to UTAH.
154. **A. Arizonicum** S. & S. ARIZONA WHEAT GRASS.
Mountains between Sunshine and Ward, 8000-11000 ft.
(Rydberg).
COLORADO to ARIZONA and MEXICO.
155. **A. Richardsonii** (Trin.) Schrad. [*A. unilaterale* Cassidy]. RICHARDSON'S WHEAT GRASS.
Mountain meadows, rather local, 7000 (Bear Cañon)-10000 ft. (Daniels, 830).
MINNESOTA to BRITISH COLUMBIA; IOWA to COLORADO.
156. **A. andinum** (S. & S.) Rydb. [*A. violaceum andinum* S. & S.]. MOUNTAIN WHEAT GRASS.
Mountainsides at Eldora 8600-9000 ft. (Daniels, 640).
MONTANA to COLORADO.
157. **A. violaceum** (Hornem.) Vasey. VIOLET WHEAT GRASS.
Common on the foothills and mountains, 6300 (GreenMt.)
—12000 ft. (Daniels, 362).
GREENLAND to ALASKA; NEW HAMPSHIRE to UTAH.
158. **A. tenerum** Vasey. SLENDER WHEAT GRASS.
Common on the plains, foothills, and lower mountain slopes, 5100-7500 ft. (Daniels, 395).
LABRADOR to ALASKA; NEW HAMPSHIRE to COLORADO.
159. **A. pseudorepens** S. & S. FALSE QUACK GRASS.
Common on the plains and in mountain meadows, 5100-10000 ft. (Daniels, 511).
IOWA to ALBERTA; NEW MEXICO to UTAH.

160. **A. riparium** S. & S. RIPARIAN WHEAT GRASS.
About ditches in the plains, 5400-5700 ft. (Daniels, 398).
MONTANA to COLORADO.

161. **A. occidentale** Scribn. WESTERN WHEAT GRASS.
On the plains, where it is very abundant; also sparingly
in mountain meadows, 5100-9500 ft. (Daniels, 402). Also
at Longmont (Rydberg).
MANITOBA to SASKATCHEWAN and OREGON; MISSOURI to
ARIZONA.

162. **A. molle** (S. & S.) Rydb. SOFT WHEAT GRASS.
On the plains, where it is especially characteristic of
alkaline flats, and in the drier mountain valleys, 5100-
9000 ft. (Daniels, 978).
SASKATCHEWAN to WASHINGTON and NEW MEXICO.

74. TRITICUM L. WHEAT.

163. **T. sativum vulgare** (Vill.) Hack. [*T. vulgare* Vill.].
WHEAT.
Adventitious along the railroad between Boulder and
Marshall, 5400 ft. (Daniels, 514).
OLD WORLD, thence to the NEW.

75. HORDEUM L. BARLEY.

164. **H. jubatum** L. SQUIRREL-TAIL GRASS.
Common on the plains and in mountain cañons; a fre-
quent weed in waste places, 5100-11000 ft. (Daniels, 380).
ONTARIO to ALASKA; MISSOURI to CALIFORNIA, thence
naturalized eastward.

165. **H. pusillum** Nutt. LITTLE BARLEY.
Abundant on the plains and mesas, and following the
roads into the mountain district, 5100-7000 ft. (Daniels,
203).
ONTARIO to BRITISH COLUMBIA; FLORIDA to CALIFORNIA.

166. **H. sativum hexastichon** (L.) Hack. SIX-ROWED BARLEY.
Adventitious along the railroad between Boulder and
Mrshall, 5400 ft. (Daniels, 480).
OLD WORLD, thence to the NEW.

76. **SITANION** Raf. BRISTLE GRASS.

167. **S. longifolium** J. G. Smith. LONG-LEAVED BRISTLE GRASS.
Common on the foothills and mountain slopes, 6000-9000 ft. (Daniels, 363).

NEBRASKA to NEVADA; TEXAS to ARIZONA.

168. **S. brevifolium** J. G. Smith. SHORT-LEAVED BRISTLE GRASS.

Abundant on the plains, and frequent on open mountain slopes, 5100-10000 ft. (Daniels, 202). Also on the mountains between Sunshine and Ward (Rydberg).

WYOMING to UTAH; COLORADO to ARIZONA.

77. **ELYMUS** L. LYME GRASS.

169. **E. Canadensis** L. CANADIAN WILD RYE.

Common along ditches and streams both in and out of shade, 5100-7000 ft. (Daniels, 357).

NOVA SCOTIA to WASHINGTON; GEORGIA to NEW MEXICO.

170. **E. robustus** S. & S. STOUT WILD RYE.

In swales along railroads and on stream-banks, 5100-6000 ft. (Daniels, 489).

SOUTH DAKOTA to IDAHO; MISSOURI to COLORADO.

171. **E. brachystachys** Scribn. & Ball. SLENDER WILD RYE.

Plains south of Boulder, 5400-5700 ft. (Daniels, 396).

MICHIGAN to SOUTH DAKOTA; TEXAS to UTAH and MEXICO.

172. **E. Macounii** Vasey. MACOUN'S WILD RYE.

On the plains and in meadows on the foot-hills, 5100-7000 ft. (Daniels, 417).

MANITOBA and SASKATCHEWAN to ALBERTA; NEW MEXICO to UTAH.

173. **E. condensatus** Presl. SMOOTH LYME GRASS.

Dry meadows throughout, 5100-10000 ft. (Daniels, 961).

ALBERTA to BRITISH COLUMBIA; NEW MEXICO to CALIFORNIA.

174. **E. ambiguus** Vasey & Scribn. AMBIGUOUS LYME GRASS.
Common on the foothills and mountainsides, 5900-9000 ft.
(Daniels, 158).

COLORADO.

175. **E. strigosus** Rydb. STRIGOSE LYME GRASS.
Common on the foothills and mountain ridges, 6000-8600
ft. (Daniels, 962). Boulder is the type locality.

WYOMING to COLORADO.

176. **E. villiflorus** Rydb. VILLOUS LYME GRASS.
Common on the foothills; occasional on the plains and
mesas, 5100-8000 ft. (Daniels, 963). Boulder is the type
locality.

SOUTH DAKOTA and the CANADIAN ROCKIES to COLORADO.

Family 13. CYPERACEAE J. St. Hil. **Galingale family.**

78. CYPERUS L. GALINGALE.

177. **C. inflexus** Muhl. [*C. aristatus* Boeckl.]. AWNED CY-
PER GRASS.

Scarce on the plains and foothills in moist sands, 5100-
6500 ft. (Daniels, 253).

VERMONT to BRITISH COLUMBIA; FLORIDA to CALIFORNIA
and MEXICO.

178. **C. Bushii** Britt. BUSH'S CYPER GRASS.

In sandy soil at Meadow Park, 6500 ft. (Rydberg).

WISCONSIN to OREGON; KANSAS to COLORADO.

79. SCIRPUS L. BULRUSH.

179. **S. Americanus** Pers. [*S. pungens* Vahl.]. THREE
SQUARE.

In swales, along ditches and streams, and at the margins
of ponds and lakes, but apparently not following the streams
very far into the foothills, 5100-6500 ft. (Daniels, 668).

NORTH AMERICA: CHILI: EUROPE.

180. *S. lacustris* L. GREAT BULRUSH.

With the preceding but often in water of greater depth, and penetrating farther back into the mountains, 5100-8600 ft. (Daniels, 414).

Throughout the NORTH TEMPERATE ZONE.

181. *S. atrovirens pallidus* Britton. PALE BULRUSH.

Swales, ditches and streams in the plains and mesas, and ascending but slightly into the foot-hills, 5100-6000 ft. (Daniels, 490).

MINNESOTA to the NORTHWEST TERRITORY and COLORADO.

80. *ELEOCHARIS* R. Br. SPIKE RUSH.182. *E. palustris* (L.) R. & S. SWAMP SPIKE RUSH.

Common in swamps, swales, and stagnant pools throughout, 5100-10000 ft. (Daniels, 492).

NORTH AMERICA: EUROPE: ASIA.

183. *E. glaucescens* (Willd.) Schultes [*E. palustris glaucescens* (Willd.) Gray]. PALE SWAMP SPIKE RUSH.

Common with the above, but in shallower water, 5100-9000 (Glacier Lake, Eldora) ft. (Daniels, 733).

ONTARIO and the UNITED STATES.

184. *E. acicularis* (L.) R. & S. NEEDLE RUSH.

Common in limose places throughout, 5100-10000 ft. (Daniels, 254).

EUROPE: ASIA: NORTH AMERICA: CENTRAL AMERICA.

184½. *E. tenuis* (Willd.) Schult. SLENDER SPIKE RUSH.

Redrock lake, 10100 ft. (Ramaley and Robbins).

NEWFOUNDLAND to MANITOBA; FLORIDA to COLORADO.

185. *E. acuminata* (Muhl.) Nees. FLAT-STEMMED SPIKE RUSH.

Ditches and swales in the plains, 5100-5600 ft. (Daniels, 734).

ANTICOSTI to ALBERTA; GEORGIA to LOUISIANA and COLORADO.

81. CAREX L. SEDGE.

186. *C. canescens* L. SILVERY SEDGE.

Subalpine bogs at Eldora, 8500-11500 ft. (Daniels, 852).
Redrock lake, 10100 ft. (Ramaley and Robbins).

NEWFOUNDLAND to BRITISH COLUMBIA; VIRGINIA to COLORADO and OREGON: EUROPE and ASIA.

187. *C. tenella* Schkuhr. SOFT-LEAVED SEDGE.

Local in deep mountain cañons in shade, 6000-11500 ft. (Daniels, 610).

NEWFOUNDLAND to BRITISH COLUMBIA; NEW JERSEY to CALIFORNIA: EUROPE.

188. *C. Deweyana* Schwein. DEWEY'S SEDGE.

Only detected in Bear Cañon, where it is very rare, 6000-7000 ft. (Daniels, 762).

NOVA SCOTIA to MANITOBA and OREGON; PENNSYLVANIA to NEW MEXICO and UTAH.

189. *Carex stipata* Muhl. AWL-FRUITED SEDGE.

Irrigation ditches, 5100-5600 ft. (Daniels, 237). Not in Rydberg's Flora.

NEWFOUNDLAND to BRITISH COLUMBIA; FLORIDA to CALIFORNIA.

190. *C. vulpinoidea* Michx. FOX SEDGE.

Irrigation ditches, 5100-5600 ft. (Daniels, 745).

NEW BRUNSWICK to MANITOBA; FLORIDA to TEXAS and COLORADO.

191. *C. occidentalis* Bailey [*C. muricata Americana* Bailey]. WESTERN SEDGE.

Low meadows at Eldora, 8600-11000 ft. (Daniels, 611).

COLORADO to NEW MEXICO and ARIZONA.

192. *C. Hoodii* Boott [*C. muricata confixa* Bailey]. HOOD'S SEDGE.

Grassy meadows, Bluebell cañon, thence to the subalpine zone, 5800-10000 ft. (Daniels, 497).

MONTANA to BRITISH COLUMBIA; COLORADO to CALIFORNIA.

193. *C. marcida* Boott. CLUSTERED FIELD SEDGE.
Abundant in dry meadows, 5100-8600 ft. (Daniels, 95).
MANITOBA to BRITISH COLUMBIA; KANSAS to NEW MEXICO
and NEVADA.
194. *C. Sartwellii* Dewey. SARTWELL'S SEDGE.
Swales along railroads in the plains, 5100-6000 ft. (Daniels, 971).
ONTARIO to BRITISH COLUMBIA; NEW YORK to UTAH.
195. *C. Douglasii* Boott. DOUGLAS' SEDGE.
Common in dry soil throughout, 5100-11000 ft. (Daniels, 317). Also near Long's Peak (Rydberg; Coulter in Wabash College Herb.).
MANITOBA to BRITISH COLUMBIA; NEBRASKA to NEW MEXICO and CALIFORNIA.
196. *C. scoparia* Schkuhr. BROOM SEDGE.
Wet meadows about ditches and streams, 5100-7000 ft. (Daniels, 266).
NOVA SCOTIA to MANITOBA; FLORIDA to COLORADO.
197. *C. athrostachya* Olney. BRACKETED SEDGE.
Shores of a pond south of Boulder, thence to timberline, 5500-11000 ft. (Daniels, 258).
ASSINIBOIA to BRITISH COLUMBIA; COLORADO to CALIFORNIA.
198. *C. festiva* Dewey. PRETTY SEDGE.
Abundant throughout the foothills and mountains in cañons and humid meadows, 6000-13000 ft. (Daniels, 103).
ASSINIBOIA and BRITISH COLUMBIA to MEXICO.
199. *C. ebenea* Rydb. [*C. festiva Haydeniana* Bailey]. EBONY SEDGE.
In frozen ground, alpine valley near snow, above Bloomerville, 9000-10000 ft. (Daniels, 324). Also on Long's Peak (Rydberg).
ALBERTA to BRITISH COLUMBIA; COLORADO to UTAH.
200. *C. petasata* Dewey. WESTERN'S HARE'S-FOOT SEDGE.
Deep cañons, north slope of Green Mt., 7000 ft. (Daniels, 469).
ALBERTA to ALASKA; COLORADO to OREGON.

201. **C. pratensis** Drej. MEADOW SEDGE.
Gregory Cañon, 6000-6500 ft. (Daniels, 688). Also on Long's Peak (Rydberg).
ONTARIO to ALASKA; MICHIGAN to COLORADO.
202. **C. siccata** Dewey. DRY-SPIKED SEDGE.
Common in dry meadows throughout, 5100-10000 ft. (Daniels, 972). Also near Long's Peak (Rydberg).
ONTARIO to BRITISH COLUMBIA; NEW YORK to CALIFORNIA.
203. **C. straminea** Willd. STRAW SEDGE.
Common along watercourses and grassy meadows in the plains, mesas, and foothills, 5100-6500 ft. (Daniels, 372).
NEW BRUNSWICK to MANITOBA; NORTH CAROLINA to OKLAHOMA and COLORADO.
204. **C. straminiformis** Bailey. FALSE STRAW SEDGE.
Dry torrents, high mesas at the foot of the Flat-irons, 5700-6000 ft. (Daniels, 381).
COLORADO to WASHINGTON and CALIFORNIA.
205. **C. festucacea** Schkuhr. FESCUE SEDGE.
Meadows and swales, frequent in the plains and mesas, and in meadows on the lower foothills, 5100-6400 (Flagstaff Hill) ft. (Daniels, 185).
NEW BRUNSWICK to MINNESOTA; FLORIDA to COLORADO.
206. **C. stenophylla** Wahl. NARROW-LEAVED SEDGE.
Dry mesas between Marshall and South Boulder Peak, 5700-6000 ft. (Daniels, 438).
MANITOBA to BRITISH COLUMBIA; IOWA to COLORADO.
207. **C. incurva** Lightf. CURVED SEDGE.
Arapahoe Peak above timberline, 11000-12000 ft. (Daniels, 916).
GREENLAND to ALASKA; COLORADO to BRITISH COLUMBIA.
208. **C. alpina Stevenii** Holm. STEVEN'S ALPINE SEDGE.
Lamb's ranch, near Long's Peak, 9100 ft. (Rydberg).
COLORADO.

209. *C. atrata* L. BLACK SEDGE.
Long's Peak, 11500-13000 ft. (Rydberg).
LABRADOR to ALASKA; QUEBEC to COLORADO and CALIFORNIA.
210. *C. chalciolepis* Holm. BRONZE-SCALED SEDGE.
Long's Peak, 8500-13000 ft. (Rydberg).
COLORADO.
211. *C. bella* Bailey. BEAUTIFUL SEDGE.
Above timberline, Arapahoe Peak, 11000-12000 ft. (Daniels, 940).
COLORADO to UTAH and ARIZONA.
212. *C. rhomboidea* Holm. RHOMBIC SEDGE.
In swamps near Long's Peak, 8500-9500 ft. (Rydberg).
COLORADO.
213. *C. Goodenovii* J. Gay [*C. vulgaris* Fries]. COMMON SEDGE.
Subalpine bogs, Eldora, 8600-10000 ft. (Daniels, 851).
NEWFOUNDLAND to ALASKA; PENNSYLVANIA to COLORADO: EUROPE.
214. *C. rigida* Good. [*C. vulgaris alpina* Booth]. STIFF SEDGE.
Arapahoe Peak above timberline, 11000-12000 ft. (Daniels, 907).
ALASKA to COLORADO.
215. *C. chimaphila* Holm. WINTER-LOVING SEDGE.
Above timberline, Arapahoe Peak, 11000-12000 ft. (Daniels, 923). Also on Long's Peak (Rydberg).
COLORADO.
216. *C. acutina* Bailey. ACUTISH SEDGE.
Boulder Cañon (5400-7000 ft. (Daniels, 556). Also Lamb's ranch, near Long's Peak, 9100 ft. (Rydberg).
MACKENZIE to ALASKA; COLORADO to OREGON.
217. *C. stricta* Lam. ERECT SEDGE.
Swales along railroad between Boulder and Marshall, 5400 ft. (Daniels, 418). Not in Rydberg's Flora.

EASTERN UNITED STATES and CANADA to COLORADO and TEXAS.

217½. *C. variabilis* Bailey. VARIABLE SEDGE.

Redrock lake, 10100 ft. (Ramaley and Robbins).

MONTANA to COLORADO.

218. *C. aurea* Nutt. GOLDEN SEDGE.

About springs in deep cañons, 6700-11000 ft. (Daniels, 354).

NEWFOUNDLAND to BRITISH COLUMBIA; PENNSYLVANIA to UTAH and WASHINGTON.

219. *C. Geyeri* Boott. GEYER'S SEDGE.

At edge of snow in alpine valley above Bloomerville, 9000-10000 ft. (Daniels, 311).

MONTANA to BRITISH COLUMBIA; COLORADO to OREGON.

220. *C. nigricans* C. A. Mey. BLACKISH SEDGE.

Above timberline, Arapahoe Peak, 11000-13000 ft. (Daniels, 926). Also Thompson's Cañon, Long's Peak (Rydberg).

ALBERTA to ALASKA; COLORADO to CALIFORNIA: ASIA.

221. *C. Pyrenaica* Wahl. PYRENAIC SEDGE.

Above timberline, Arapahoe Peak, 11000-14000 ft. (Daniels, 925). Also on Long's Peak (Rydberg).

ALBERTA to ALASKA; COLORADO to OREGON: EUROPE.

222. *C. rupestris* All. CRAG SEDGE.

Above timberline, Arapahoe Peak, 11000-13000 ft. (Daniels, 930). Also on Long's Peak (Rydberg).

GREENLAND to ALASKA and COLORADO: EUROPE: ASIA.

223. *C. obtusata* Lilj. OBTUSISH SEDGE.

Above timberline on Arapahoe Peak, 11000-12000 ft. (Daniels, 931). Also on Long's Peak (Rydberg).

NEWFOUNDLAND to BRITISH COLUMBIA and COLORADO.

224. *C. oreocharis* Holm. MOUNTAIN-GRACE SEDGE.

Lamb's ranch, near Long's Peak, 9100 ft. (Rydberg).

COLORADO.

225. **C. Pennsylvanica vespertina** Bailey [*C. vespertina* (Bailey) Howell]. WESTERN PENNSYLVANIA SEDGE.
Common on the plains and foothills, 5100-8500 ft. (Daniels, 11).
COLORADO to OREGON and BRITISH COLUMBIA.
226. **C. umbellata brachyrhina** Piper [*C. umbellata brevirostris* Boott]. SHORT-BEAKED UMBELLATE SEDGE.
Dry rocky mesa fronting Flagstaff Hill, 5700-6000 ft. (Daniels, 125).
MAINE to BRITISH COLUMBIA; NEW MEXICO to CALIFORNIA.
227. **C. Beckii** Boott [*C. durifolia* Bailey]. BECK'S SEDGE.
Cañon at base of Flagstaff Hill, 5700-6000 ft. (Daniels, 463).
ONTARIO to MANITOBA; NEW YORK to COLORADO.
228. **C. capillaris** L. HAIR SEDGE.
Above timberline, Arapahoe Peak, 11000-12000 ft. (Daniels, 915). Also Thompson's Cañon on Long's Peak (Rydberg).
GREENLAND to ALASKA; NEW HAMPSHIRE to UTAH: EUROPE: ASIA.
229. **C. utriculata** Boott. BOTTLE SEDGE.
Swales and limose banks of streams, local (Boulder creek half way to Falls; subalpine bogs at Eldora, etc.), 5100-10000 ft. (Daniels, 563).
LABRADOR to BRITISH COLUMBIA; DELAWARE to CALIFORNIA.
- 229½. **C. saxatilis** L. [*C. pulla* Gooden.]. ROCK SEDGE.
Redrock lake, 10100 ft. (Ramaley & Robbins).
GREENLAND and ALASKA to COLORADO.
230. **C. lanuginosa** Michx. WOOLLY SEDGE.
Subalpine bogs at Eldora, 8600 ft. (Daniels, 652).
NOVA SCOTIA to BRITISH COLUMBIA; NEW JERSEY to CALIFORNIA.

Order 10. ARALES.

Family 14. ARACEAE Neck. Arum family.

82. ACORUS L. CALAMUS.

231. *A. Calamus* L. SWEET FLAG.

Swales along railroad in the city of Boulder, 5300-5400 ft. (Daniels).

NOVA SCOTIA to MINNESOTA; FLORIDA to TEXAS and COLORADO: EUROPE: ASIA.

Family 15. LEMNACEAE Dumort. Duckweed family.

83. LEMNA L. DUCKWEED.

232. *L. gibba* L. GIBBOUS DUCKWEED.

Ponds near Boulder, 5100-6000 ft. (Rydberg).

NEBRASKA to CALIFORNIA; TEXAS to MEXICO: OLD WORLD and AUSTRALIA.

233. *L. minor* L. LESSER DUCKWEED.

Springy swales in the city of Boulder, 5400 ft. (Daniels 748).

Cosmopolitan.

Order 11. XYRIDALES.

Family 16. COMMELINACEAE Reichenb. Dayflower family.

84. TRADESCANTIA L. SPIDERWORT.

234. *T. Universitatis* Cockerell [*T. occidentalis* Rydb., not Britton]. UNIVERSITY SPIDERWORT.

Common on the plains, mesas, and foothills, and following the deeper cañons several miles into the mountain region, 5100-7000 ft. (Daniels, 44). The vicinity about Boulder is the type locality. Both *T. scopulorum* Rose and *T. occidentalis* Britton, according to Rydberg's Flora, occur about Boulder, but the former is a New Mexico plant, while the latter is from Wisconsin.

COLORADO.

Family 17. PONTEDERIACEAE Dumort. Pickerel-weed family.

85. HETERANTHERA Willd. MUD PLANTAIN.

235. *H. limosa* (Sw.) Willd. LIMOSE MUD PLANTAIN.
Between Longmont and Loveland, 5100-5500 ft. (Rydberg), in shallow water or mud.

VIRGINIA to NEBRASKA and COLORADO; FLORIDA to MEXICO, the WEST INDIES, and CENTRAL AMERICA.

Order 12. LILIALES.

Family 18. MELANTHACEAE R.Br. Bunch-flower family.

86. ANTICLEA Kunth. ZYGADENUS.

235½. *A. elegans* (Pursh) Rydb. [*Zygadenus elegans* Pursh]. SHOWY ZYGADENUS.

Redrock lake, 10100 ft. (Ramaley).

SASKATCHEWAN to ALASKA; COLORADO to NEVADA.

236. *A. Coloradensis* Rydb. COLORADO ZYGADENUS.

In cañons and subalpine meadows, locally abundant, 7000 (Bear Cañon) -12000 ft. (Daniels, 651).

COLORADO and NEW MEXICO to UTAH.

87. TOXICOSCORDION Rydb. POISON CAMASS.

237. *T. gramineum* Rydb. DEATH CAMASS.

Mesas and foothills; blossoming in June, 5800-7000 ft. (Daniels, 106).

SASKATCHEWAN to IDAHO and COLORADO.

238. *T. falcatum* Rydb. FALCATE POISON CAMASS.

Spruce forests along Bear Cañon, 6000-7500 ft. (Daniels 759).

COLORADO.

Family 19. JUNCACEAE Vent. Rush family.

88. JUNCUS L. RUSH.

239. *J. Balticus montanus* Engelm. MOUNTAIN BALTIC RUSH.

Along ditches and in swales and wet meadows, 5100-11000 ft. (Daniels, 379).

LABRADOR to WASHINGTON, COLORADO, and UTAH.

240. **J. Drummondii** Mey. DRUMMOND'S RUSH.

Above timberline, Arapahoe Peak, 11000-13000 ft. (Daniels, 922).

MONTANA to ALASKA; COLORADO to CALIFORNIA.

241. **J. interior** Wiegand. INLAND RUSH.

Common in swales and meadows on the plains, mesas, and foothills, and following the main streams some distance into the mountains, 5100-6500 ft. (Daniels, 152).

ILLINOIS to WYOMING; MISSOURI to COLORADO.

242. **J. Arizonicus** Wiegand. ARIZONA RUSH.

Dry beds of torrents, mesas at foot of the Flat-irons 5700-6000 ft. (Daniels, 964).

TEXAS to COLORADO and ARIZONA.

243. **J. confusus** Coville. CONFUSED RUSH.

Swales along the railroad between Boulder and Marshall, 5400 ft. (Daniels, 421).

MONTANA to WASHINGTON and COLORADO.

244. **J. Dudleyi** Wiegand. DUDLEY'S RUSH.

Swales, meadows, and mountain cañons, 5100-8600 ft. (Daniels, 965). Replaces *J. interior* Wiegand in the mountain region.

MAINE to WASHINGTON; NEW YORK to MEXICO.

245. **J. bufonius** L. TOAD RUSH.

Wet sandy soil throughout except at the higher elevations, 5100-9000 ft. (Daniels, 251).

Cosmopolitan.

246. **J. marginatus** Rostk. GRASS-LEAVED RUSH.

Irrigation ditches along the Arapahoe Road, 5300 ft. (Daniels, 740). Not in Rydberg's Flora.

MAINE to ONTARIO; FLORIDA to COLORADO.

247. **J. longistylis** Torr. LONG-STYLED RUSH.

Common in swales, about ditches and ponds, and in wet meadows throughout, 5100-10000 ft. (Daniels, 249).

ALBERTA to IDAHO; NEBRASKA to MEXICO and CALIFORNIA.

248. *J. triglumis* L. THREE-FLOWERED RUSH.

Above timberline, Arapahoe Peak, 11000-12000 ft. (Daniels, 1007).

LABRADOR to ALASKA; NEW YORK to COLORADO.

249. *J. castaneus* Smith. CHESTNUT RUSH.

Above timberline, Arapahoe Peak, 11000-12500 ft. (Daniels, 639).

GREENLAND to ALASKA and COLORADO.

250. *J. nodosus* L. KNOTTED RUSH.

In swales and along ditches and streams, 5100-6500 ft. (Daniels, 735).

NOVA SCOTIA to MACKENZIE and BRITISH COLUMBIA: VIRGINIA to NEVADA.

251. *J. Torreyi* Coville. TORREY'S RUSH.

With the preceding, but more abundant, 5100-6500 ft. (Daniels, 495).

NEW YORK to MONTANA; TEXAS to ARIZONA.

251½. *J. Mertensianus* Bong. MERTENS' RUSH.

Redrock lake, 10100 ft. (Ramaley and Robbins).

MONTANA to ALASKA; COLORADO to CALIFORNIA.

252. *J. parous* Rydb. REDDISH BROWN RUSH.

Dry beds of torrents, mesas fronting the Flat-irons, 5700-6000 ft. (Daniels, 373).

COLORADO to NEW MEXICO.

253. *J. Saximontanus* A. Nelson [*J. xiphioides montanus* Engelm.]. ROCKY MOUNTAIN RUSH.

Aspen bogs at Glacier Lake and Eldora; also a dwarf form on Arapahoe Peak above timberline, 8500-12000 ft. (Daniels, 703).

89. *JUNCOIDES* Adans. WOOD RUSH.254. *J. parviflorum melanocarpum* (Michx.) Cockerell. Nov. comb. [*Luzula melanocarpus* Michx.]. SMALL-FLOWERED WOOD RUSH.

Cañons on the north slope of Green Mt., 7000-8100 ft.

(Daniels, 332). A similar form was gathered above Bloomerville, 9000-10000 ft. Also at Caribou (Rydberg).

GREENLAND to ALASKA; COLORADO to CALIFORNIA: EUROPE: ASIA.

254a. *J. parviflorum subcongestum* (S. Wats.) Daniels. Nov. comb. [*Luzula spadicea subcongesta* S. Wats.]. DENSE-CYMED WOOD RUSH.

Alpine valley near edge of snow, Bloomerville, 8500-11500 ft. (Daniels, 328).

COLORADO to CALIFORNIA.

255. *J. spicatum* (L.) Kuntze [*Luzula spicata* (L.) Desv.]. SPIKED WOOD RUSH.

Above timberline, Arapahoe Peak, 11000-13000 ft. (Daniels, 896).

GREENLAND to BRITISH COLUMBIA; NEW HAMPSHIRE to CALIFORNIA.

Family 20. **ALLIACEAE** Batch. Onion family.

90. **ALLIUM** L. ONION.

256. *A. recurvatum* Rydb. [*A. cernuum obtusum* Cockerell]. RECURVED WILD ONION.

Common throughout the mesas, foothills and the mountain plateau, 5700-8600 ft. (Daniels, 452). Also in the mountains between Sunshine and Ward (Rydberg).

SOUTH DAKOTA to BRITISH COLUMBIA and NEW MEXICO.

257. *A. Nuttallii* S. Wats. NUTTALL'S WILD ONION.

Aspen bog at Glacier Lake, 9000 ft. (Daniels, 336). Also southwest of Ward (Rydberg).

SOUTH DAKOTA to WYOMING; KANSAS to COLORADO.

258. *A. Geyeri* S. Wats. [*A. dictyotum* Greene; *A. reticulatum deserticola* Jones]. GEYER'S WILD ONION.

Common throughout in both dry and moist soils, 5100-11500 ft. (Daniels, 54).

NORTH DAKOTA to WASHINGTON and NEW MEXICO.

259. **A. reticulatum** Fraser. FRASER'S WILD ONION.
Springy cañons in the foothills and the mountain plateau,
6000-8500 ft. (Daniels, 292).
SASKATCHEWAN to IDAHO; SOUTH DAKOTA to ARIZONA.
260. **A. Pikeanum** Rydb. PIKE'S PEAK WILD ONION.
Above timberline, Arapahoe Peak, 11000-13000 ft. (Dan-
iels, 1002).
COLORADO.

Family 21. **LILIACEAE** Adans. Lily family.

91. **LEUCOCRINUM** Nutt. SAND LILY.

261. **L. montanum** Nutt. MOUNTAIN SAND LILY.
Along the railroad between Boulder and Marshall, 5400
ft. (Daniels). Very abundant at Boulder (Cockerell).
SOUTH DAKOTA to MONTANA and COLORADO.

92. **LILIUM** L. LILY.

262. **L. Philadelphicum montanum** (A. Nelson) Cocker-
ell. Nov. comb. MOUNTAIN LILY.
Springy cañon on north slope of Green Mt., 6500-8000
ft. (Daniels, 355). Occasionally bearing two or more flowers.
MONTANA to COLORADO.

93. **ERYTHRONIUM** L. ADDER'S-TONGUE. DOG-TOOTH
VIOLET.

263. **E. parviflorum** (S. Wats.) Goodding [*E. grandiflorum*
parviflorum S. Wats.]. SMALL-FLOWERED ADDER'S TONGUE.
Above timberline, Arapahoe Peak, 11000-11500 ft. (Dan-
iels, 888).
WYOMING to COLORADO and UTAH.

94. **LLOYDIA** Salisb.

264. **L. serotina** (L.) Sweet. LATE LLOYDIA.
Arapahoe Peak, 10000-14000 ft. (Rydberg).
MONTANA to ALASKA and COLORADO.

Family 22. **CONVALLARIACEAE** Link. **Lily-of-the-valley family.**

95. VAGNERA Adans. **FALSE SOLOMON'S SEAL.**

265. *V. racemosa* (L.) Morong [*Smilacina racemosa* (L.) Desf.]. **WILD SPIKENARD.**

Boulder Cañon, 6500-8500 ft. (Rydberg).

NOVA SCOTIA to WASHINGTON; GEORGIA to CALIFORNIA.

266. *V. amplexicaulis* (Nutt.) Greene [*Smilacina amplexicaulis* Nutt.] **CLASPING-LEAVED FALSE SOLOMON'S SEAL.**

Common in shady cañons throughout; at the edge of the wasting snows in a high alpine valley above Bloomerville July 7, 1906, 5700-10000 ft. (Daniels, 143).

MONTANA to BRITISH COLUMBIA; COLORADO to CALIFORNIA.

267. *V. stellata* (L.) Morong [*Smilacina stellata* (L.) Desf.] **STARRY FALSE SOLOMON'S SEAL.**

Common throughout; along ditches and streams in the plains, and in cañons and wooded valleys in the mesas and mountains, 5100-12000 ft. (Daniels, 111). St. Vrain creek (Coulter in Wabash College Herb.).

NEWFOUNDLAND to SASKATCHEWAN and MONTANA; VIRGINIA to COLORADO.

96. STREPTOPUS Michx. **TWISTED STALK.**

268. *S. amplexifolius* (L.) DC. **CLASPING-LEAVED TWISTED STALK.**

Local in deep cañons in the foothills and mountains, 6500-10000 ft. (Daniels, 456).

GREENLAND to ALASKA; NORTH CAROLINA to COLORADO and OREGON.

97. DISPORUM Salisb.

269. *D. majus* (Hook.) Britton [*D. trachycarpum* (S. Wats.) B. & H.; *Prosartes trachycarpa* S. Wats.]. **ROUGH-FRUITED DISPORUM.**

Local in company with the preceding, 6500 (Green Mt.; Bear Cañon) -11000 ft. (Daniels, 455). Also at Eldora (Rydberg).

MANITOBA to BRITISH COLUMBIA; NEBRASKA to ARIZONA.

98. **ASPARAGUS L.**

270. **A. officinalis L.** COMMON ASPARAGUS.

A common escape throughout the cultivated district, 5100-6000 ft. (Daniels, 114).

EUROPE, thence to NORTH AMERICA.

Family 23. **DRACAENACEAE** Link. Dragon-tree family.

99. **YUCCA L.** SPANISH BAYONET.

271. **Y. glauca** Nutt. [*Y. angustifolia* Pursh]. NARROW-LEAVED SPANISH BAYONET.

Common in the plains, mesas, and foothills; just north of the entrance to Bear Cañon it forms the main facies of the vegetation, 5100-6500 (Green Mt.) ft. (Even higher I think on the first line of hills). (Daniels, 39).

NEBRASKA to MONTANA; MISSOURI to TEXAS and ARIZONA.

Family 24. **CALOCHORTACEAE** Rydb. Mariposa lily family.

100. **CALOCHORTUS** Pursh. MARIPOSA LILY.

272. **C. Gunnisonii** S. Wats. GUNNISON'S MARIPOSA LILY.

Common in the mesas and mountain meadows, 5600-10000 ft. (Daniels, 53). At Ward occurs the forma *immaculatus* Cockerell (Cockerell).

MONTANA to COLORADO and ARIZONA.

Family 25. **SMILACEAE** Vent. Greenbrier family.

101. **NEMEXIA** Raf. CARRION FLOWER.

273. **N. lasioneuron** (Hook.) Rydb. [*Smilax lasioneuron* Hook.; *N. herbacea melica* A. Nelson]. WESTERN CARRION FLOWER.

Cañons in the mesas and foothills; especially frequent in gulches on the east slope of Flagstaff Hill, 5700-7000 ft. (Daniels, 224). The type locality of *N. herbacea melica* A. Nelson.

SASKATCHEWAN to NEBRASKA and COLORADO.

Order 13. AMARYLLIDALES.

Family 26. IXIACEAE Ecklon. *Ixia* family.102. *SISYRINCHIUM* L. BLUE-EYED GRASS.274. *S. alpestre* Bickn. ALPINE BLUE-EYED GRASS.

Mountain meadows at Eldora, 8600 ft. (Daniels, 648).
COLORADO.

275. *S. angustifolium* Miller. NARROW-LEAVED BLUE-EYED GRASS.

Common in meadows and about streams throughout except at the higher elevations, 5100-9000 ft. (Daniels, 72). Also at North Boulder Peak (Rydberg).

NEWFOUNDLAND to MACKENZIE and BRITISH COLUMBIA;
VIRGINIA to COLORADO.

103. *IRIS* L. FLEUR-DE-LIS.276. *I. Missouriensis* Nutt. MISSOURI BLUE FLAG.

In swales and wet meadows about Boulder, 5100-6000 ft. (Daniels). Common at 8000-9000 ft. at Eldora, Hesse, Miller's Ranch (Ramaley). Near Long's Peak (Coulter in Wabash College Herb.)

NORTH DAKOTA to IDAHO; COLORADO to CALIFORNIA.

Order 14. ORCHIDALES.

Family 27. ORCHIDACEAE Lindl. *Orchis* family.104. *LIMNORCHIS* Rydb. BOG ORCHIS.277. *L. stricta* (Lindl.) Rydb. NARROW-SPIKED BOG ORCHIS.

Subalpine bogs and springy mountainsides at Eldora, 8600-10000 ft. (Daniels, 993).

MONTANA to ALASKA; COLORADO to WASHINGTON.

278. *L. viridiflora* (Cham.) Rydb. GREEN-FLOWERED BOG ORCHIS.

Common in deep cañons and about springs throughout the mesas, foothills, and mountains, 5800-10000 ft. (Daniels, 69).

ALBERTA to ALASKA and COLORADO.

279. **L. borealis** (Cham.) Rydb. NORTHERN BOG ORCHIS.
Springs on mountainside at Eldora, 8600-10000 ft. (Daniels, 842).

MONTANA to ALASKA; COLORADO to WASHINGTON.

280. **L. laxiflora** Rydb. LOOSE-FLOWERED BOG ORCHIS.
Common in deep mountain cañons, 6500-10000 ft. (Daniels, 602).

OREGON to COLORADO and UTAH.

105. PIPERIA Rydb. PIPER'S ORCHIS.

281. **P. Unalascensis** (Spreng.) Rydb. [*Habenaria Unalascensis* S. Wats.] ALASKAN PIPER'S ORCHIS.

Under pines on north slope of Green Mt., very rare, 6000-8100 ft. (Daniels, 470). Also on South Boulder Peak, 8500 ft. (Rydberg).

MONTANA to ALASKA; COLORADO to CALIFORNIA.

106. IBIDIUM Salisb. LADIES' TRESSES.

282. **I. Romanzoffianum strictum** (Rydb.) Daniels. Nov. comb. [*Gyrostachys stricta* Rydb.] NARROW-SPIKED LADIES' TRESSES.

One plant in a deep cañon on the north slope of Green Mt.; common in springy bogs at Eldora, 7000-10000 ft. (Daniels, 769).

NEWFOUNDLAND to ALASKA; PENNSYLVANIA to COLORADO.

107. OPHRYS (Tourn.) L. TWAYBLADE.

283. **O. borealis** (Morong) Rydb. [*Listera borealis* Morong]. NORTHERN TWAYBLADE.

Deep cañons on north slope of Green Mt., very rare, 6500-8100 ft (Daniels, 607).

HUDSON BAY to MACKENZIE; COLORADO to MONTANA.

- 283½. **O. nephrophylla** Rydb. [*Listera nephrophylla* Rydb.] KIDNEY-LEAVED TWAYBLADE.

Redrock lake 10100 ft. (Ramaley and Robbins).

ALASKA to COLORADO and OREGON.

108. **PERAMIUM** Salisb. RATTLESNAKE PLANTAIN.

- 284.
- P. ophioides**
- (Fernald) Rydb. SNAKE-MOUTH RATTLESNAKE PLANTAIN.

Densely wooded cañons on north slope of Green Mt., very rare, 7000-8100 ft. (Daniels, 827).

PRINCE EDWARD'S ISLAND to SOUTH DAKOTA; NORTH CAROLINA to COLORADO.

109. **ACROANTHES** Raf. ADDER'S MOUTH.

- 285.
- A. monophylla**
- (L.) Greene [
- Microstylis monophylla*
- (L.) Lindl.]. ONE-LEAVED ADDER'S MOUTH.

Deep cañons on north slope of Green Mt., very scarce, 6500-8100 ft. (Daniels, 342).

QUEBEC to MINNESOTA; PENNSYLVANIA to COLORADO.

110. **CYTHEREA** Salisb. CALYPSO.

- 286.
- C. bulbosa**
- (L.) House. [
- Calypso borealis*
- Salisb.]. NORTHERN CALYPSO.

Nederland, Boulder County, 8263 ft. (Miss Zora Phillips).

LABRADOR to ALASKA; MAINE to CALIFORNIA; EUROPE.

111. **CORALLORHIZA** R. Br. CORALROOT.

- 286½.
- C. ochroleuca**
- Rydb. YELLOW CORALROOT.

Redrock lake, 10100 ft. (Ramaley and Robbins).

NEBRASKA to COLORADO.

- 287.
- C. Corallorhiza**
- (L.) Karst. [
- C. innata*
- R. Br.]. EARLY CORALROOT.

Cañon in mesa at foot of Flagstaff Hill, only two plants, 5700-5800 ft. (Daniels, 122). Also at Caribou, 10000 ft. (Rydberg).

NOVA SCOTIA to ALASKA; GEORGIA to COLORADO and WASHINGTON.

- 288.
- C. multiflora**
- Nutt. LARGE CORALROOT.

A solitary cluster of plants under conifers at the Royal Arch at base of the Flat-irons, 6200 ft. (Daniels, 229). Also on North Boulder Peak (Rydberg).

NOVA SCOTIA to ALASKA; FLORIDA to CALIFORNIA.

Sub-class 2. **DICOTYLEDONES.**Series 1. **CHORIPETALAE.**Order 15. **SALICALES.****Family 28. SALICACEAE Lindl. Willow family.****112. POPULUS L. POPLAR. ASPEN. COTTONWOOD.**

289. **P. tremuloides aurea** (Tidestrom) Daniels, Nov. comb.*
AMERICAN ASPEN.

Throughout the foothills and mountain region except at the higher elevations, 5800-10000 ft. (Daniels, 314).

NEWFOUNDLAND to HUDSON BAY and ALASKA; NEW JERSEY and TENNESSEE to MEXICO and LOWER CALIFORNIA.

290. **P. Sargentii** Dode. [*P. occidentalis* (Rydb.) Britton; *P. deltoides occidentalis* Rydb.]. WESTERN COTTONWOOD.
Common along streams, ascending Boulder creek as far as Eldora, 5100-8600 ft. (Daniels, 820). Also at Lyons (Rydberg).

SASKATCHEWAN to MONTANA; KANSAS to ARIZONA.

291. **P. acuminata** Rydb. BLACK COTTONWOOD.

A solitary tree near a stream about half way between Boulder and Marshall, 5400 ft. (Daniels, 819). Common in all gulches; there are large trees in Sunshine Cañon, 6500 ft. (Ramaley).

SOUTH DAKOTA to IDAHO; NEW MEXICO to NEVADA.

292. **P. angustifolia** James. NARROW-LEAVED COTTONWOOD.

Along streams and in cañons on the mesas and in the foothills and mountains, 5400-9000 ft. (Daniels, 52).

NORTH DAKOTA to WASHINGTON; NEW MEXICO to CALIFORNIA.

293. **P. balsamifera** L. BALSAM POPLAR.

Fourth of July mine; Eldora; Allenspark, 8000-10000 ft. (Ramaley).

LABRADOR to ALASKA; NEW ENGLAND to COLORADO.

*See Appendix A.

113. SALIX L. WILLOW.

294. *S. amygdaloides* Anders. PEACH WILLOW.

Common along streams; the only willow, except the next, of tree size about Boulder, 5100-7000 ft. (Daniels, 90).

QUEBEC to WASHINGTON; NEW YORK to MISSOURI and ARIZONA.

295. *S. caudata* (Nutt.) Piper [*S. Fendleriana* Anders. ; *S. pentandra caudata* Nutt.; *S. lasiandra Fendleriana* Bebb].
FENDLER'S WILLOW.

Along streams in mountain cañons, 5500 (Boulder creek)-10000 ft. (Daniels, 807).

ALBERTA to BRITISH COLUMBIA; NEW MEXICO to CALIFORNIA.

296. *S. exigua* Nutt. NARROWLEAF WILLOW.

Marshall; Valmont; Boulder; South Boulder Cañon; near junction of Fourmile and Boulder creeks, 5000-9000 ft. (Ramaley).

MACKENZIE to WASHINGTON; COLORADO to CALIFORNIA.

297. *S. luteosericea* Rydb. SILKY SANDBAR WILLOW.

Sandy stream flats in the plains and mesas, 5100-7000 ft. (Daniels, 134).

NEBRASKA to IDAHO and COLORADO.

297½. *S. lutea* Nutt. YELLOW WILLOW.

Redrock lake, 10100 ft. (Ramaley and Robbins).

CANADA to COLORADO and CALIFORNIA.

298. *S. Wolfii* Bebb. WOLF'S WILLOW.

Eldora to Baltimore, 8000-10000 ft. (Rydberg).

WYOMING to COLORADO.

299. *S. irrorata* Anders. BLOOM-BRANCHED WILLOW.

Gregory Cañon (E. Bethel).

COLORADO to NEW MEXICO.

300. *S. perrostrata* Rydb. LONG-BEAKED WILLOW.

Common in mountain cañons, 5500-8600 ft. (Daniels, 811).

HUDSON BAY to ALASKA and COLORADO.

301. **S. Bebbiana** Sarg. [*S. rostrata* Richardson]. BEBB'S WILLOW.

Cañons and mountain valleys, frequent, 5700-10000 ft. (Daniels, 824). St.Vrain Cañon (Coulter in Wabash College Herb.).

ANTICOSTI to ALASKA; NEW JERSEY to CALIFORNIA.

302. **S. Scouleriana** Barratt [*S. Nuttallii* Sarg.; *S. flavescens* Nutt.]. NUTTALL'S WILLOW.

High alpine valley next to snow, above Bloomerville, Boulder Cañon, 5700-10000 ft. (Daniels, 321). Also from Eldora to Baltimore (Rydberg).

ASSINIBOIA to BRITISH COLUMBIA; NEW MEXICO to CALIFORNIA.

303. **S. brachycarpa** Nutt. DWARF WILLOW.

Silver lake, 7000-11000 ft. (Ramaley).

QUEBEC to ALBERTA and COLORADO.

304. **S. pseudolapponicum** Seem. FALSE LAPLAND WILLOW.

Above timberline, Arapahoe Peak, 11000-13000 ft. (Daniels, 883). Also between Eldora and Baltimore (Rydberg).

COLORADO.

305. **S. glaucops** Anderson. GLAUCOUS WILLOW.

Above timberline, Arapahoe Peak, 11000-13000 ft. (Daniels, 937). Also mountains south of Ward, and between Sunshine and Ward, (Rydberg).

ALBERTA to YUKON; COLORADO to CALIFORNIA.

306. **S. chlorophylla** Anders. GREEN-LEAF WILLOW.

Near Fourth of July mine, (Ramaley).

LABRADOR and NEW HAMPSHIRE to ALASKA and COLORADO.

307. **S. petrophila** Rydb. [*S. arctica petraea* Anderson]. ROCK-LOVING WILLOW.

Above timberline, Arapahoe Peak, 11000-14000 ft. (Daniels, 951).

NEW HAMPSHIRE to BRITISH COLUMBIA; COLORADO to UTAH.

308. *S. Saximontana* Rydb. ROCKY MOUNTAIN WILLOW.
Above timberline, Arapahoe Peak, 11000-14000 ft. (Daniels, 901).

WYOMING and COLORADO to WASHINGTON and CALIFORNIA.

Order 16. FAGALES.

Family 29. BETULACEAE Agardh. Birch family.

114. *BETULA* L. BIRCH.

309. *B. papyrifera Andrewsii* (A. Nels.) Daniels [*B. Andrewsii* A. Nels.] ANDREWS'S CANOE BIRCH.

A few patches in valleys on the north slope of Green Mountain (Daniels, 1018). The type locality.

COLORADO, as above.

310. *B. fontinalis* Sarg. [*B. occidentalis* S. Wats.]. FOUNTAIN BIRCH. WESTERN RED BIRCH.

Everywhere along streams except at high altitudes, where the next takes its place, 5100-9000 ft. (Daniels, 149). Also Eldora to Baltimore (Rydberg). Near Long's Peak (Couiter in Wabash College Herb.).

ALBERTA to YUKON; SOUTH DAKOTA to NEW MEXICO and OREGON.

311. *B. glandulosa* Michx. GLANDULAR BIRCH. SCRUB BIRCH.
In bogs, Eldora to Baltimore, 9000-11000 ft. (Rydberg): Ward (Cockerell).

GREENLAND to ALASKA; MAINE to COLORADO and OREGON: ASIA.

115. *ALNUS* Gaertn. ALDER.

312. *A. tenuifolia* Nutt. [*A. ineana virescens* S. Wats.]. THIN-LEAVED ALDER.

Along streams throughout, 5400 (Boulder creek)-10000 ft. (Daniels, 571). Also mountains between Sunshine and Ward (Rydberg).

MONTANA to ALASKA; NEW MEXICO to CALIFORNIA.

Family 30. CORYLACEAE Mirbel. **Hazel family.**

116. CORYLUS L. HAZEL.

313. **C. rostrata** Ait. **BEAKED HAZEL NUT.**

Abundant in cañons in the mesas, foothills, and the mountain plateau, 5600-8000 ft. (Daniels, 116).

NOVA SCOTIA to NORTH DAKOTA; GEORGIA to COLORADO.

Order 17. URTICALES.

Family 31. URTICACEAE Reichenb. **Nettle family.**

117. URTICA L. NETTLE.

314. **U. gracilis** Ait. **SLENDER NETTLE.**

Common in stream-flats both in and out of shade, 5100-9000 ft. (Daniels, 583). Also mountains between Sunshine and Ward (Rydberg).

NOVA SCOTIA to ALASKA; NORTH CAROLINA to NEW MEXICO

118. PARIETARIA L. PELLITORY.

315. **P. Pennsylvanica** Muhl. **PENNSYLVANIA PELLITORY.**

Moist places under rocks and in cañons and on shady banks of streams, 5100-7000 ft. (Daniels, 498).

ONTARIO to BRITISH COLUMBIA; FLORIDA to MEXICO.

316. **P. obtusa** Rydb. **OBTUSE-LEAVED PELLITORY.**

Sunset Cañon, 6000 ft. (Rydberg).

COLORADO to UTAH; TEXAS to CALIFORNIA.

Family 32. CANNABINACEAE Lindl. **Hemp family.**

119. HUMULUS L. HOP.

317. **H. Lupulus Neo-Mexicanus** A. Nels. & Cockerell. **NEW MEXICO HOP.**

Rocky banks of cañons and along streams and in waste places as along fences, 5100-8000 ft. (Daniels, 573).

WYOMING to UTAH; NEW MEXICO to ARIZONA.

Family 33. **ULMACEAE** Mirbel. Elm family.

120. **ULMUS** L. ELM.

318. **U. Americana** L. AMERICAN ELM.

A tree of considerable size occurs in a wild place near the entrance to Boulder Cañon, doubtless self-sown from trees planted for shade, 5500 ft. (Daniels).

NEWFOUNDLAND to MANITOBA; FLORIDA to TEXAS.

121. **CELTIS** L. HACKBERRY.

319. **C. reticulata** Torr. VEINY-LEAVED HACKBERRY.

Rocky ridges on the mesas and foothills, scarce, 5700-6500 ft. (Daniels, 796).

TEXAS to COLORADO and ARIZONA.

Order 18. **SANTALALES.**

Family 34. **LORANTHACEAE** D. Don. Mistletoe family.

122. **RAZOUMOFSKYA** Hoffm. SMALL MISTLETOE.

320. **R. Americana** (Nutt.) Kuntze [*Arceuthobium Americanum* Nutt.]. AMERICAN SMALL MISTLETOE.

On *Pinus contorta Murrayana* (Oreg. Com.) Engelm. at Sunset, 7700 ft. (Rydberg).

BRITISH COLUMBIA to COLORADO and OREGON.

321. **R. cryptopoda** (Engelm.) Coville [*Arceuthobium cryptopodum* Engelm.; *A. robustum* Engelm.]. HIDDEN-FOOTED SMALL MISTLETOE.

On *Pinus scopulorum* (Engelm.) Lemmon upon high ridge well toward eastern summit of Green Mt., 7500-8000 ft. (Daniels, 770). Also between Sunshine and Ward (Rydberg).

TEXAS and COLORADO to ARIZONA and MEXICO.

Family 35. **SANTALACEAE** R. Br. Sandalwood family.

123. **COMANDRA** Nutt. BASTARD TOAD-FLAX.

322. **C. pallida** A. DC. PALE BASTARD TOAD-FLAX.

Frequent on the plains, mesas, and foothills, 5100-8000 ft. (Daniels, 49). St. Vrain Cañon (Coulter in Wabash College Herb.).

MANITOBA to BRITISH COLUMBIA; TEXAS to CALIFORNIA.

Order 19. POLYGONALES.

Family 36. POLYGONACEAE Lindl. Knotweed family.

124. **ERIOGONUM** Michx. WOOL-JOINT.323. **E. alatum** Torr. WINGED WOOL-JOINT.

Common on the plains, mesas, foothills, and open mountainsides, 5100-10000 ft. (Daniels, 170).

NEBRASKA TO WYOMING; TEXAS TO ARIZONA.

324. **E. vegetius** (T. & G.) A. Nels. [*E. flavum vegetius* T. & G.; *E. Jamesii flavescens* S. Wats.; *E. Bakeri* Greene].

BAKER'S WOOL-JOINT.

Mountains between Sunshine and Ward, and at Meadow Park, 9000-10000 ft. (Rydberg).

WYOMING TO UTAH; NEW MEXICO TO ARIZONA.

325. **E. flavum** Nutt. [*E. crassifolium* Dougl.]. YELLOW WOOL-JOINT.

Common in open places throughout, 5100-12000 ft. (Daniels, 368).

SASKATCHEWAN TO ALBERTA; NEBRASKA TO COLORADO.

326. **E. umbellatum** Torr. UMBELLATE WOOL-JOINT.

Very abundant in open places throughout, 5100-12000 ft. (Daniels, 55).

WYOMING TO IDAHO; COLORADO TO UTAH.

327. **E. subalpinum** Greene. SUBALPINE WOOL-JOINT.

Along the Arapahoe Trail from Eldora to Arapahoe Peak and ascending to the timberline, but not above it, 8600-11000 ft. (Daniels, 950).

ALBERTA TO BRITISH COLUMBIA; COLORADO TO NEVADA.

328. **E. effusum** Nutt. EFFUSE WOOL-JOINT.

Plains and mesas between Marshall and South Boulder Peaks, and along the railroad between Boulder and Marshall, 5400-6000 ft. (Daniels, 439).

NEBRASKA TO MONTANA and COLORADO.

125. **RUMEX** L. DOCK.329. **R. Acetosella** L. SHEEP SORREL.

Along railroads and roadsides, and in fields and waste places, in 1906 still somewhat scarce, 5100-6000 ft. (Daniels, 589). Very common now (1910), along railways up to 9000 ft. and higher (Ramaley).

EUROPE: ASIA, thence to NORTH AMERICA.

330. **R. occidentalis** S. Wats. WESTERN DOCK.

In Bear Cañon, 6000-7000 ft. (Daniels, 710).

LABRADOR to ALASKA; TEXAS to CALIFORNIA.

331. **R. densiflorus** Osterh. [*R. Bakeri* Greene]. DENSE-FLOWERED DOCK.

Subalpine bogs at Eldora, 8600-10000 ft. (Daniels, 908).

WYOMING to COLORADO.

332. **R. crispus** L. CURLY DOCK.

Fields and waste places and becoming common in ditches and swales, 5100-5700 ft. (Daniels, 491).

EUROPE and ASIA, thence to NORTH AMERICA.

333. **R. salicifolius** Weinm. WILLOW-LEAVED DOCK.

Common in ditches, shallow streams, and in swales and low meadows, 5100-10000 ft. (Daniels, 234).

LABRADOR to ALASKA; TEXAS to LOWER CALIFORNIA: EUROPE.

334. **R. obtusifolius** L. BITTER DOCK.

Waste places and fields, 5100-6000 ft. (Daniels).

EUROPE and ASIA, thence to NORTH AMERICA.

126. **OXYRIA** Hill.335. **O. digyna** (L.) Hill. MOUNTAIN SORREL.

Creek-banks at Eldora; above timberline, Arapahoe Peak, 8600-12000 ft. (Daniels, 844).

GREENLAND to ALASKA; NEW HAMPSHIRE to ARIZONA and CALIFORNIA: EUROPE: ASIA.

127. **POLYGONUM** L. KNOTWEED.336. **P. erectum** L. ERECT KNOTWEED.

Along the railroad in Boulder Cañon, 5500 ft. (Daniels, 580).
MAINE to ALBERTA; GEORGIA to ARKANSAS and COLORADO.

337. **P. buxiforme** Small. BOX-LIKE KNOTWEED.

Bear Cañon, and all waste places, 5100-10000 ft. (Daniels, 698).

ONTARIO to WASHINGTON; VIRGINIA to TEXAS and NEVADA.

338. **P. aviculare** L. DOORWEED.

Common about houses, along railroads, and in all waste places, 5100-8000 ft. (Daniels, 582).

ASIA: EUROPE: NORTH AMERICA.

339. **P. ramosissimum** Michx. BUSHY KNOTWEED.

Common along railroads and roads, and in low weedy grounds, 5100-10000 ft. (Daniels, 519).

MINNESOTA to WASHINGTON; ILLINOIS to NEW MEXICO and NEVADA; MAINE to NEW JERSEY along the coast.

340. **P. Sawatchense** Small. SAGUACHE KNOTWEED.

High mesas at foot of the Flat-irons, 5700-6000 ft. (Daniels, 178).

SOUTH DAKOTA to WASHINGTON; COLORADO to ARIZONA and CALIFORNIA.

341. **P. confertiflorum** Nuttall [*P. Watsonii* Small]. WATSON'S KNOTWEED.

About the quarries at foot of the Flat-irons, 5700-6000 ft. (Daniels, 660).

MONTANA to WASHINGTON; COLORADO to CALIFORNIA.

342. **P. unifolium** Small. ONE-LEAVED KNOTWEED.

Aspen bogs at Glacier Lake, 9000 ft (Daniels, 672).

MONTANA to COLORADO.

343. **P. Engelmannii** Greene [*P. tenue microspermum* Engelm.]. ENGELMANN'S KNOTWEED.

Sandy stream-flats, especially common along the railroad in Boulder Cañon, 5100-10000 ft. (Daniels, 568).

MONTANA and COLORADO to BRITISH COLUMBIA.

344. **P. Douglasii** Greene. DOUGLAS'S KNOTWEED.

Common in open, especially sandy places throughout, 5100-10000 ft. (Daniels, 958).

VERMONT to BRITISH COLUMBIA; NEW YORK to NEW MEXICO and CALIFORNIA.

344a. **P. Douglasii consimile** (Greene) Small [*P. consimile* Greene]. BRANCHED DOUGLAS'S KNOTWEED.

Gregory Cañon, 6000-6300 ft. (Daniels, 546). Lower Boulder Cañon (Rydberg).

Range of the type?

128. **PERSICARIA** Adans. SMARTWEED. LADY'S THUMB.345. **P. emersa** (Michx.) Cockerell. Nov. comb. [*Polygonum Muhlenbergii* S. Wats; *Polygonum emersum* (Michx.) Britton]. MUHLENBERG'S LADY'S THUMB.

Along ditches and in swales in the plains, 5100-6000 ft. (Daniels).

MAINE to BRITISH COLUMBIA; VIRGINIA to CALIFORNIA and MEXICO.

346. **P. lapathifolia** (L.) S. F. Gray [*Polygonum lapathifolium* L.]. DOCK-LEAVED LADY'S THUMB.

Swales and ditches in the plains, 5100-6000 ft. (Daniels, 506).

EUROPE: ASIA: NORTH AMERICA.

347. **P. Persicaria** (L.) Small. [*Polygonum Persicaria* L.]. COMMON LADY'S THUMB.

Common in waste places, and along ditches and in swales, 5100-6000 ft. (Daniels, 517).

EUROPE, thence to NORTH AMERICA.

348. **P. punctata** (Ell.) Small [*Polygonum punctatum* Ell.; *Polygonum acre* H. B. K.]. WATER SMARTWEED. DOTTED WATER PEPPER.

Margins of ponds, in swales and springy grounds, 5100-6000 ft. (Daniels, 798).

NORTH AMERICA: CENTRAL AMERICA: SOUTH AMERICA.

129. **BISTORTA** Tourn. BISTORT.

- 349.
- B. bistortoides**
- (Pursh) Small [
- Polygonum Bistorta oblongifolium*
- Meisn.]. OBLONG-LEAVED BISTORT.

Along Arapahoe Trail and above timberline on Arapahoe Peak, 8600-13000 ft. (Daniels, 890).

MONTANA to WASHINGTON; NEW MEXICO to CALIFORNIA.

- 350.
- B. vivipara**
- (L.) S. F. Gray [
- Polygonum viviparum*
- L.]. ALPINE BISTORT.

Above timberline, Arapahoe Peak, 11000-12000 ft. (Daniels, 894). Also Eldora to Baltimore (Rydberg). Redrock lake, 10100 ft. (Ramaley & Robbins).

GREENLAND to ALASKA; NEW HAMPSHIRE to COLORADO: EUROPE: ASIA.

130. **TINIARIA** Reichenb. FALSE BUCKWHEAT.

- 351.
- T. Convolvulus**
- (L.) Webb. & Moq. [
- Polygonum Convolvulus*
- L.]. BLACK BINDWEED. COMMON FALSE BUCKWHEAT.

Along railroads and roads; throughout the cultivated area as a weed in fields, 5100-9000 ft. (Daniels, 484).

EUROPE and ASIA, thence to NORTH AMERICA.

Order 20. CHENOPODIALES.

Family 37. CHENOPODIACEAE Dumort. Goosefoot family.

131. **CHENOPODIUM** L. GOOSEFOOT. LAMB'S QUARTERS. PIGWEED.

- 352.
- C. leptophyllum**
- Nutt. NARROW-LEAVED GOOSEFOOT.

Common in the plains, mesas, and gullies of the foothills and mountains, 5100-8000 ft. (Daniels, 604).

NEBRASKA to MONTANA; MISSOURI to ARIZONA.

- 353.
- C. oblongifolium**
- (S. Wats.) Rydb. [
- C. leptophyllum oblongifolium*
- S. Wats.]. OBLONG-LEAVED GOOSEFOOT.

Common in dry places on the plains and mesas, 5100-7000 ft. (Daniels, 994).

NORTH DAKOTA to WYOMING; MISSOURI and TEXAS to ARIZONA.

354. **C. incanum** (S. Wats.) Heller [*C. Fremontii incanum* S. Wats.]. HOARY GOOSEFOOT.

Frequent on the plains and in waste places, 5100-6000 ft. (Daniels, 411).

NEBRASKA to COLORADO; NEW MEXICO to NEVADA.

355. **C. Fremontii** S. Wats. FREMONT'S GOOSEFOOT.

Bear Cañon in shade, 6000-7000 ft. (Daniels, 829).

SOUTH DAKOTA to MONTANA; NEW MEXICO to ARIZONA and MEXICO.

356. **C. album** L. WHITE GOOSEFOOT. COMMON PIGWEED.

Common in fields, yards, and waste places, 5100-8600 ft. (Daniels, 806).

EUROPE and ASIA, thence a cosmopolitan weed.

357. **C. hybridum** L. MAPLE-LEAVED GOOSEFOOT.

Common in shady cañons, and as a weed in gardens and waste places, 5100-8600 ft. (Daniels, 601).

Temperate NORTH AMERICA: EUROPE.

358. **C. rubrum** L. [*Blitum rubrum* (L.) Reichenb.]. RED GOOSEFOOT.

Along Boulder Cañon near Falls, 6500-8000 ft. (Daniels, 549).

NEWFOUNDLAND to BRITISH COLUMBIA; NEW JERSEY to COLORADO: EUROPE: ASIA.

359. **C. Botrys** L. FEATHER GERANIUM. JERUSALEM OAK.

Common in waste places and along railroads in coal ashes. 5100-8000 ft. (Daniels, 598).

EUROPE and ASIA, thence to NORTH AMERICA.

132. **BLITUM** L. BLITE.

360. **B. capitatum** L. STRAWBERRY BLITE.

Frequent in cañons and along mountain roads, 6000-10000 ft. (Daniels, 545). Also mountains between Sunshine and Ward (Rydberg).

NOVA SCOTIA to ALASKA; NEW JERSEY to CALIFORNIA: EUROPE.

133. CYCLOLOMA Moq.

361. *C. atriplicifolium* (Spreng.) Coult. [*C. platyphyllum* Moq.] WINGED PIGWEED.

Along the railroad between Boulder and Marshall; also along the railroad in Sunset Cañon, 5400-7700 ft. (Daniels, 485). Marshall (W. W. Robbins).

ONTARIO to MONTANA; ARKANSAS to ARIZONA.

134. MONOLEPIS Schrad.

362. *M. Nuttalliana* (R. & S.) Greene [*M. chenopodioides* Moq.]. NUTTALL'S MONOLEPIS.

Above timberline, Arapahoe Peak, the only ruderal observed there, 11000-15000 ft. (Daniels, 918).

MINNESOTA to WASHINGTON; TEXAS to CALIFORNIA.

135. ATRIPLEX L. ORACHE.

363. *A. carnososa* A. Nels. FLESHY ORACHE.

Alkaline flats at Boulder lake, 5300 ft. (Daniels, 729).

NEBRASKA to MONTANA; KANSAS to COLORADO.

364. *A. argentea* Nutt. SILVERY ORACHE.

Alkaline flats at Boulder lake, 5300 ft. (Daniels, 730).

NORTH DAKOTA to BRITISH COLUMBIA; KANSAS to COLORADO.

365. *A. occidentalis* Torr & Fremont. WESTERN ORACHE.

Dry mesas at Boulder (Rydberg).

COLORADO to UTAH; TEXAS to ARIZONA.

366. *A. hortensis* L. GARDEN ORACHE.

Along railroads and in yards, 5100-7000 ft. (Daniels, 679).

EUROPE, thence to NORTH AMERICA.

136. EUROTIA Adans. WHITE SAGE.

367. *E. lanata* (Pursh) Moq. WOOLLY WHITE SAGE.

Plains at Boulder (Rydberg).

SOUTH DAKOTA to WASHINGTON; KANSAS to CALIFORNIA.

137. CORISPERMUM L. BUGSEED.

368. *C. marginale* Rydb. MARGINAL-FRUITED BUGSEED.

Valleys near Boulder (Rydberg).

WYOMING to COLORADO.

138. **DONDIA** Adans. SEA BLITE.

369. **D. depressa** (Pursh) Britton [*Suaeda depressa* S. Wats.].
LOW SEA BLITE.

About the shores of Boulder lake, and other brackish lakes and pools, 5100-6000 ft. (Daniels, 778). Near Boulder (W. W. Robbins).

SASKATCHEWAN to MONTANA; COLORADO to NEVADA.

- 369½. **D. erecta** (S. Wats.) A. Nels. [*Suaeda depressa erecta* S. Wats.]. ERECT SEA BLITE

Calkins lake (W. W. Robbins).

NORTH DAKOTA to MONTANA; COLORADO to NEVADA.

139. **SALSOLA** L. SALTWORT. SEA KALE.

370. **S. Tragus** L. RUSSIAN THISTLE.

Very common in waste places and along railroads, 5100-7000 ft. (Daniels, 419).

EUROPE and ASIA, thence to NORTH AMERICA.

Family 38. AMARANTHACEAE J. St. Hil. **Amaranth family.**

140. **AMARANTHUS** L. AMARANTH. PIGWEED.

371. **A. Powellii** S. Wats. POWELL'S PIGWEED.

Sandy valleys at Boulder (Rydberg).

TEXAS to COLORADO and CALIFORNIA.

372. **A. retroflexus** L. ROUGH PIGWEED.

Abounding in fields and waste places, 5100-7000 (clearings in Bear Cañon, perhaps even higher in the mountains) ft. (Daniels, 812).

TROPICAL AMERICA, thence a cosmopolitan weed.

373. **A. blitoides** S. Wats. PROSTRATE PIGWEED.

Along thoroughfares, and in fields, waste places, and creek-sands throughout, very common, 5100-10000 ft. (Daniels, 814).

COLORADO to UTAH and MEXICO, thence to the rest of the UNITED STATES and SOUTHERN CANADA.

374. *A. graecizans* L. [*A. albus* L.]. WHITE PIGWEED. TUMBLE WEED.

Common in waste places, especially on the plains, 5100-6000 ft. (Daniels, 813).

TROPICAL AMERICA, thence throughout NORTH AMERICA.

141. FROELICHIA Moench.

375. *F. gracilis* Moq. SLENDER FROELICHIA.

Along the railroad between Boulder and Marshall; also along the railroad in Boulder Cañon, 5400-6000 ft. (Daniels, 476).

NEBRASKA to COLORADO; ARKANSAS to TEXAS.

Family 39. CORRIGIOLACEAE Reichenb. *Corrigiola* family.

142. PARONYCHIA Adans. WHITLOWWORT.

376. *P. pulvinata* Gray. PULVINATE WHITLOWWORT.

Massif de l' Arapahoe, 1100-13500 ft. (Rydberg).

WYOMING and COLORADO to UTAH.

377. *P. Jamesii* T. & G. JAMES'S WHITLOW-WORT.

Common in open situations throughout, 5100-10000 ft. (Daniels, 136). Also mountains between Sunshine and Ward, and at Meadow Park and Lyons (Rydberg).

NEBRASKA to WYOMING; TEXAS to NEW MEXICO and MEXICO.

Family 40. ALLIONIACEAE Reichenb. *Umbrella-wort* family.

143. ABRONIA Juss.

378. *A. fragrans* Nutt. FRAGRANT ABRONIA.

Near Boulder (Tweedy). Valmont Butte, not getting to Boulder (Ramaley).

SOUTH DAKOTA to IDAHO; KANSAS to NEW MEXICO.

144. ALLIONIA Loeffl. UMBRELLA-WORT.

379. *A. nyctaginea* Michx. [*Oxybaphus nyctagineus* Sweet].

HEART-LEAVED UMBRELLA-WORT.

Plains and mesas, especially about streams, 5100-6000 ft. (Daniels, 113).

ILLINOIS to SASKATCHEWAN; MISSOURI to COLORADO.

380. *A. hirsuta* Pursh. HAIRY UMBRELLA-WORT.

Common on the plains, mesas, and foothills, 5100-7000 ft. (Daniels, 353).

WISCONSIN and MINNESOTA to SOUTH DAKOTA; MISSOURI to COLORADO.

381. *A. diffusa* Heller. DIFFUSE UMBRELLA-WORT.

On the plains and mesas and rich mountain slopes, 5100-9000 ft. (Daniels, 167).

NORTH DAKOTA to WYOMING; KANSAS to ARIZONA.

382. *A. lanceolata* Rydb. LANCE-LEAVED UMBRELLA-WORT.

Between Sunshine and Ward (Tweedy).

MINNESOTA to WYOMING; TENNESSEE to TEXAS and COLORADO.

383. *A. linearis* Pursh [*Oxybaphus angustifolius* Sweet].

NARROW-LEAVED UMBRELLA-WORT.

On the plains, 5100-6000 ft. (Daniels, 960).

MINNESOTA to MONTANA; LOUISIANA to ARIZONA and MEXICO.

Family 41. TETRAGONIACEAE Reichenb. **New Zealand spinach family.**

145. MOLLUGO L. CARPET-WEED.

384. *M. verticillata* L. COMMON CARPET-WEED.

Common on shales with thin soil between Marshall and South Boulder Peaks, 5400-6000 ft. (Daniels, 427). Not in Rydberg's Flora.

TROPICAL AMERICA, thence to NORTH AMERICA.

Family 42. PORTULACACEAE Reichenb. **Purslane family.**

146. TALINUM Adans. FAME-FLOWER.

385. *T. parviflorum* Nutt. SMALL-FLOWERED FAME-FLOWER.

Common on shales with thin soil between Marshall and South Boulder Peaks; also on rocks in Gregory Cañon, 5400-7000 ft. (Daniels, 437).

MINNESOTA to SOUTH DAKOTA; TEXAS to ARIZONA and MEXICO.

147. CLAYTONIA L. SPRING BEAUTY.

386. *C. rosea* Rydb. ROSY SPRING BEAUTY.

Common at Boulder (Cockerell).

SASKATCHEWAN to BRITISH COLUMBIA; COLORADO to CALIFORNIA.

387. *C. megarrhiza* Parry. LARGE-ROOTED SPRING BEAUTY.

Arapahoe Peak, towards summit, 12000-13500 ft. (Daniels, 889, collected by Mrs. T. D. A. Cockerell).

MONTANA and COLORADO to UTAH.

148. CRUNOCALLIS Rydb. WATER SPRING BEAUTY.

388. *C. Chamissoi* (Ledeb.) Cockerell. Nov. comb. [*Claytonia Chamissonis* Esch.]. CHAMISSO'S WATER SPRING BEAUTY.

Along ditches in the plains, and in deep cañons in the foothills and mountains; along streams at Ward and Bloomerville; in subalpine bogs at Eldora; and in wet tundras on Arapahoe Peak, 5100-11000 ft. (Daniels, 239). Arapahoe Pass (Rydberg).

MINNESOTA to BRITISH COLUMBIA; NEW MEXICO to CALIFORNIA.

149. OREOBROMA Howell. BITTER ROOT.

389. *O. pygmaea* (Gray) Howell. [*Calandrinia pygmaea* Gray; *Lewisia pygmaea* (Gray) Robinson]. PYGMY BITTER ROOT.

Arapahoe Peak, 12000 ft. (Rydberg). Redrock lake, 10100 ft. (Ramaley & Robbins).

MONTANA and COLORADO to CALIFORNIA.

150. PORTULACA L. PURSLANE. PUSSLEY.

390. *P. oleracea* L. COMMON PURSLANE.

Campus of the University of Colorado at Boulder (Cockerell).

TROPICAL AMERICA, now cosmopolitan.

391. *P. retusa* Engelm. RETUSE-LEAVED PURSLANE.

Along the railroad in Sunset Cañon, 5700-7700 ft. (Daniels, 722).

ARKANSAS to NEVADA; TEXAS to NEW MEXICO.

Family 43. ALSINACEAE Wahl. Chickweed Family.

151. ALSINE L. CHICKWEED. STARWORT.

392. **A. media** L. [*Stellaria media* (L.) Cyr.]. COMMON CHICKWEED.

Streets in the city of Boulder, 5300-5600 ft. (Daniels, 803). EUROPE and ASIA, thence a cosmopolitan weed.

393. **A. Baicalensis** Coville [*Stellaria umbellata* Turcz.]. LAKE BAICAL STARWORT.

Arapahoe Peak above timberline in wet tundras, 11000-13500 ft. (Daniels, 929). Also along mountain streams from Eldora to Baltimore (Rydberg).

MONTANA to OREGON; COLORADO to CALIFORNIA: SIBERIA.

394. **A. longifolia** (Muhl.) Britton [*Stellaria longifolia* Muhl.]. LONG-LEAVED STITCHWORT.

In high alpine valley near snow above Bloomerville, 9000-11000 ft. (Daniels, 326).

NEWFOUNDLAND to ALASKA; MARYLAND to COLORADO: EUROPE: ASIA.

395. **A. longipes** (Goldie) Coville [*Stellaria longipes* Goldie]. LONG-PEDICELLED STITCHWORT.

Wet meadows at Caribou, 8000-10000 ft. (Rydberg).

LABRADOR to ALASKA and COLORADO: SIBERIA.

- 395a. **A. longipes stricta** (Richardson) Rydb. [*Stellaria stricta* Richardson]. STRICT LONG-PEDICELLED STITCHWORT.

Eldora to Baltimore, 8000-11000 ft. (Rydberg).

Range of the type, but extending to CALIFORNIA.

396. **A. Jamesiana** (Torr.) Heller [*Stellaria Jamesiana* Torr.]. JAMES'S STARWORT.

Along a stream in the mesa fronting Flagstaff Hill, 5700-6000 ft. (Daniels, 26). The plants have fimbriate petals!

WYOMING to NEW MEXICO and CALIFORNIA.

152 CERASTIUM L. MOUSE-EAR CHICKWEED.

397. **C. occidentale** Greene. WESTERN MOUSE-EAR CHICKWEED.

Common on the mesas, foothills, and mountainsides in

sheltered places and about streams and springs, 5700 (stream in mesa fronting Flagstaff Hill)—12000 ft. (Daniels, 24). St. Vrain Cañon, 7000 ft. (Coulter in Wabash College Herb.).

MONTANA to COLORADO and UTAH.

153. ARENARIA L. SANDWORT.

398. **A. Tweedyi** Rydb. TWEEDY'S SANDWORT.

Above timberline, Arapahoe Peak, 11000-12000 ft. (Daniels, 1003).

WYOMING to NEW MEXICO and ARIZONA.

399. **A. Fendleri** Gray. FENDLER'S SANDWORT.

High mesas between Marshall and South Boulder Peaks, thence throughout the mountain region, 5700-12000 ft. (Daniels, 425). Also mountains between Sunshine and Ward, and at Caribou (Rydberg).

WYOMING to NEW MEXICO and ARIZONA.

399a. **A. Fendleri diffusa** Porter & Coulter. DIFFUSE FENDLER'S SANDWORT.

Plains and mesas about Boulder and Marshall, and in the foothills and mountains, 5100-10000 ft. (Daniels, 423).

COLORADO.

154. ALSINOPSIS Small.

400. **A. propinqua** (Richardson) Rydb. [*Arenaria propinqua* Richardson; *A. verna aequicaulis* A. Nels.]. GLANDULAR SANDWORT.

Arapahoe Peak in dry tundras, 11000-13000 ft. (Daniels, 754). Also Eldora to Baltimore (Rydberg).

HUDSON BAY to BRITISH COLUMBIA; COLORADO to UTAH.

401. **A. obtusiloba** Rydb. [*Arenaria obtusa* Torr.]. OBTUSE-LEAVED SANDWORT.

Very common in dry tundras, forming often the main part of the turf, Arapahoe Peak, 11000-13500 ft. (Daniels, 913). Also at Caribou, 10000 ft. (Rydberg). Redrock lake, 10100 ft. (Ramaley & Robbins).

ALBERTA to BRITISH COLUMBIA; NEW MEXICO to UTAH.

Family 44. CARYOPHYLLACEAE Reichenb. **Pink family.**

155. SILENE L. **CAMPION. CATCHFLY.**

402. **S. antirrhina** L. **SLEEPY CATCHFLY.**

Common on the plains and mesas, and in deep cañons for some distance in the mountains, 5100-6500 (Boulder Cañon), ft. (Daniels, 477).

NEWFOUNDLAND to BRITISH COLUMBIA; FLORIDA to CALIFORNIA and MEXICO.

402a. **S. antirrhina depauperata** Rydb. **DEPAUPERATE SLEEPY CATCHFLY.**

Bear Cañon, 7000 ft. (Daniels, 974).

SASKATCHEWAN to BRITISH COLUMBIA; COLORADO to ARIZONA.

403. **S. noctiflora** L. **NIGHT-BLOOMING CATCHFLY.**

Along streets and in waste places in the city of Boulder, 5300-5600 ft. (Daniels, 815). Campus of the University of Colorado (Cockerell).

EUROPE, thence to NORTH AMERICA.

404. **S. acaulis** L. **MOSS CAMPION.**

Dry tundras, Arapahoe Peak, where it is abundant and characteristic, 11000-13500 ft. (Daniels, 902).

GREENLAND to ALASKA; NEW HAMPSHIRE to ARIZONA: arctic-alpine in the OLD WORLD.

156. LYCHNIS L.

405. **L. Drummondii** (Hook.) S. Wats. **DRUMMOND'S PINK.**

Common in open places throughout, 5100-10000 ft. (Daniels, 173). Also mountains between Sunshine and Ward (Rydborg).

MANITOBA to BRITISH COLUMBIA; NEW MEXICO to ARIZONA.

157. VACCARIA Medic.

406. **V. Vaccaria** (L.) Britton [*V. vulgaris* Host; *Saponaria Vaccaria* L.]. **COW HERB.**

Common in waste places about Boulder, 5300-5700 ft. (Daniels, 135).

EUROPE, thence to NORTH AMERICA.

158. **SAPONARIA** L. SOAPWORT.407. **S. officinalis** L. BOUNCING BET.Roadsides and along railroads, 5300-5600 ft. (Daniels, 725).
Not in Rydberg's Flora.

EUROPE, thence to NORTH AMERICA.

Order 21. **RANALES.**Family 45. **CERATOPHYLLACEAE** Gray. Hornwort family.159. **CERATOPHYLLUM** L. HORNWORT.408. **C. demersum** L. COMMON HORNWORT.Owen's lake; Boulder lake, 5200-5300 ft. (Daniels, 614).
NORTH AMERICA: EUROPE: ASIA.Family 46. **RANUNCULACEAE** Juss. Crowfoot family.160. **CALTHA** L. MARSH MARIGOLD.409. **C. leptosepala** DC. [*C. rotundifolia* (Huth) Greene;
C. chionophila Greene]. WHITE MARSH MARIGOLD.Along brooks crossing the Arapahoe Trail from Eldora to
Arapahoe Peak, where in the wet tundras it ascends above
timberline, 8600-12000 ft. (Daniels, 880). Long's Peak (Coul-
ter in Wabash College Herb.).MACKENZIE to YUKON and ALASKA; COLORADO to NEVADA
and OREGON.161. **TROLLIUS** L. GLOBE FLOWER.410. **T. albiflorus** (Gray) Rydb. [*T. laxus albiflorus* Gray].

WHITE GLOBE FLOWER.

Along brooks crossing the Arapahoe Trail from Eldora to
Arapahoe Peak, where in the wet tundras it ascends above
timberline, 9000-12000 ft. (Daniels, 919). Long's Peak (Coul-
ter in Wabash College Herb.).

MONTANA to WASHINGTON; COLORADO to UTAH.

162. ACTAEA L. BANE BERRY.411. **A. arguta** Nutt. WESTERN RED BANE BERRY.

Frequent in deep cañons throughout, 6000 (Bear Cañon at entrance)—10000 ft. (Daniels, 970).

MONTANA to ALASKA; NEW MEXICO to CALIFORNIA: NORTHERN ASIA.

411a. **A. arguta eburnea** (Rydb.) Cockerell. Nov. comb. [*Actaea eburnea* Rydb.]. IVORY BANE BERRY.

Mountain cañons throughout, 6500 (Bear Cañon)—10000 ft. (Daniels, 468).

NEWFOUNDLAND to ALBERTA; VERMONT to UTAH.

163. AQUILEGIA L. COLUMBINE.412. **A. coerulea** James. AZURE COLUMBINE.

North slope of Green Mt.; Bear Cañon; common on the mountains between Sunset and Ward; above timberline, Arapahoe Peak, 6500-12000 ft. (Daniels, 350). Nearly exterminated in the immediate region about Boulder. Also North Boulder Peak (Rydberg). The State flower of Colorado.

MONTANA to COLORADO and UTAH.

164. DELPHINIUM L. LARKSPUR.413. **D. Penardii** Huth. PENARD'S LARKSPUR.

Common on the plains, mesas, and foothills, 5100-8000 ft. (Daniels, 66).

COLORADO.

414. **D. camporum** Greene. PLAINS LARKSPUR.

Plains and foothills near Boulder, 5100-8000 ft. (Rydberg).

TEXAS to COLORADO and ARIZONA.

415. **D. Nelsonii** Greene. NELSON'S LARKSPUR.

Along streams in mesa fronting Flagstaff Hill, 5700-6000 ft. (Daniels, 112). Sugarloaf Mountain, 8000 ft. (Ramaley).

ALBERTA to WASHINGTON; NEBRASKA to UTAH.

416. **D. occidentale** S. Wats. [*D. quercetorum* Greene].

WESTERN LARKSPUR.

Rich mountainsides between Glacier Lake and Eldora, 8000-10000 ft. (Daniels, 628).

WYOMING and COLORADO to UTAH.

416½. **D. Barbeyi** Huth [*D. scopulorum subalpinum* Gray; *D. subalpinum* (Gray) A. Nels.]. BARBEY'S LARKSPUR.
Boulder Cañon (Coulter in Wabash College Herb.).
WYOMING and COLORADO.

417. **D. Ajacis** L. GARDEN LARKSPUR.
Escaped into streets in the city of Boulder, 5300-5600 ft.
(Daniels, 191).
EUROPE, thence to CANADA and the UNITED STATES.

165. ACONITUM L. MONKSHOOD.

418. **A. porrectum** Rydb. PORRECT MONKSHOOD.
Arapahoe Pass, 10000 ft. (Rydberg).
WYOMING to COLORADO.

419. **A. Columbianum** Nutt. COLUMBIA MONKSHOOD.
Boulder Cañon above the Falls near the Perfect Tree, 7500-8000 ft. (Daniels, 540). Also Redrock lake, 10100 ft. (Rama-ley & Robbins).
MONTANA to BRITISH COLUMBIA; NEW MEXICO to CALIFORNIA.

420. **A. insigne** Greene. SHOWY MONKSHOOD.
Subalpine meadows near Eldora, 8600-11000 ft. (Daniels, 979).
COLORADO.

421. **A. ochroleucum** A. Nels. OCHROLEUCOUS MONKSHOOD.
Aspen bogs at Eldora, 8600-9000 ft. (Daniels, 980).
WYOMING to COLORADO.

166. ANEMONE L. WIND FLOWER.

422. **A. globosa** Nutt. GLOBOSE ANEMONE.
Bear Cañon, scarce; common in aspen bogs at Eldora and Glacier Lake, 7000-11000 ft. (Daniels, 446). Also at Caribou (Rydberg).
SOUTH DAKOTA to MACKENZIE and ALASKA; COLORADO to CALIFORNIA.

423. **A. cylindrica** Gray. LONG-FRUITED ANEMONE.

Common in the mesas, thence following the streams in the plains, and on the foothills, 5100-8000 ft. (Daniels, 186).

NEW BRUNSWICK to BRITISH COLUMBIA; NEW JERSEY to ARIZONA.

424. **A. Canadensis** L. [*A. Pennsylvanica* L.] CANADA ANEMONE. PENNSYLVANIA ANEMONE.

Common in cañons and along streams throughout, except in the higher elevations, 5100-9000 ft. (Daniels, 443).

LABRADOR to ALBERTA; MARYLAND to NEW MEXICO.

167. PULSATILLA Adans. PASQUE FLOWER.425. **P. hirsutissima** (Pursh) Britton [*Anemone patens Nuttalliana* Gray]. AMERICAN PASQUE FLOWER.

Common in open places throughout, 5100-10000 ft. (Daniels, 219). Also Sugarloaf, 8500 ft. (Cockerell), and North Boulder Peak, and Eldora to Baltimore (Rydberg). Long's Peak (Coulter in Wabash College Herb.).

ILLINOIS to MACKENZIE; TEXAS to WASHINGTON.

425a. **P. hirsutissima rosea** (Cockerell) Daniels. Nov. comb. PINK PASQUE FLOWER.

Boulder (Miss Marie Gill). This rose-colored form is due to some unusual acidity of the sap, not to a difference in the character of the pigment.

168. CLEMATIS L. VIRGIN'S BOWER.426. **C. ligusticifolia** Nutt. WESTERN VIRGIN'S BOWER.

Common among bushes in cañons and along streams, ascending for a considerable distance into the mountains along the principal streams, 5100-8000 ft. (Daniels, 155).

NORTH DAKOTA to BRITISH COLUMBIA; MISSOURI to CALIFORNIA.

169. VIORNA Reichenb. LEATHER FLOWER.427. **V. Jonesii** (Kuntze) Rydb. [*Clematis Douglasii Jonesii* Kuntze]. JONES'S LEATHER FLOWER.

Scarce in the foothills at Orodell along Boulder Cañon, 6000-7000 ft. (Daniels, 723). Near Boulder (Patterson).

COLORADO to NEVADA.

428. **V. eriophora** Rydb. [*Clematis eriophora* Rydb.]. WOOLLY LEATHER FLOWER.

Foothills along Boulder Cañon, 6000-7000 ft. (Daniels, 998). Puzzling intermediates between this species and the preceding were found at Orodell.

WYOMING to COLORADO and UTAH.

170. **ATRAGENE** L. BELL RUE.

429. **A. occidentalis** Hornem. [*A. Columbiana* Nutt.]. WESTERN BELL RUE.

Very scarce in Bear Cañon, 6000-7000 ft. (Daniels, 761). Redrock lake 10100 ft. (Ramaley & Robbins).

MONTANA to BRITISH COLUMBIA; COLORADO to UTAH.

171. **MYOSURUS** L. MOUSE TAIL.

430. **M. apetalus** Gay [*M. aristatus* Benth.]. BEAKED MOUSE TAIL.

In muddy places, Long's Peak, 9000 ft. (Rydberg).

MONTANA to WASHINGTON; COLORADO to CALIFORNIA; CHILI: NEW ZEALAND.

172. **BATRACHIUM** S. F. Gray. WHITE WATER CROWFOOT.

431. **B. aquatile flaccidum** (Pers.) Cockerell. Nov. comb. [*B. flaccidum* (Pers.) Rupr.]. FLACCID-LEAVED WHITE WATER CROWFOOT.

Aquatic in a pond at Glacier Lake, 9000 ft. (Daniels, 618). Also at Boulder (Rydberg). Redrock lake, 10100 ft. (Ramaley & Robbins).

LABRADOR to WASHINGTON; NORTH CAROLINA to LOWER CALIFORNIA.

173. **RANUNCULUS** L. CROWFOOT. BUTTERCUP.

432. **R. reptans** L. [*R. Flammula reptans* (L.) E. Meyer]. CREEPING CROWFOOT.

Common in limose places about Boulder; at Marshall; in Sunset Cañon; aspen and subalpine bogs at Glacier Lake and

Eldora, 5100-10000 ft. (Daniels, 619). Also at Ward (Rydberg).

LABRADOR to ALASKA; NEW JERSEY to UTAH and OREGON: EUROPE: ASIA.

433. **R. ellipticus** Greene. ELLIPTIC-LEAVED CROW-FOOT.

Long's Peak (Porter and Coulter).

MONTANA to BRITISH COLUMBIA; COLORADO to CALIFORNIA.

434. **R. cardiophyllus** Hook. [*R. affinis cardiophyllus* Gray].

HEART-LEAVED CROWFOOT.

Wet meadows and bogs from Eldora to Baltimore, 8000-10000 ft. (Rydberg).

SASKATCHEWAN to COLORADO.

435. **R. inamoenus** Greene. UGLY CROWFOOT.

Bear Cañon, 7000 ft. (Daniels, 449). Also in meadows and along streams at Caribou, and from Eldora to Baltimore, 7000-10000 ft. (Rydberg).

MONTANA to NEW MEXICO and UTAH.

436. **R. micropetalus** (Greene) Rydb. [*R. affinis micropetalus*

Greene]. SMALL-PETALED CROWFOOT.

Aspen bogs at Glacier Lake, 9000 ft. (Daniels, 715).

COLORADO to UTAH and ARIZONA.

437. **R. pedatifidus** J. G. Smith [*R. affinis* R. Br.]. NORTH-

ERN BUTTERCUP.

Alpine bogs and meadows, Eldora to Baltimore, 7000-12000 ft. (Rydberg). Near Long's Peak (Coulter in Wabash College Herb.).

LABRADOR to ALASKA; COLORADO to ARIZONA: SIBERIA.

438. **R. alpeophilus** A. Nels. ALPINE CROWFOOT.

In wet places near the snow at Caribou, 9000-12000 ft. (Rydberg).

MONTANA to COLORADO.

439. **R. adoneus** Gray. ADONIS-LIKE BUTTERCUP.

Alpine peaks at Ward (Rydberg).

WYOMING and COLORADO to UTAH.

440. **R. abortivus** L. KIDNEY-LEAVED CROWFOOT.

Common in low grounds, 5100-9000 (streams at Bloomerville) ft. (Daniels, 322).

LABRADOR to SASKATCHEWAN; FLORIDA to COLORADO.

441. **R. micranthus** Nutt. SMALL-FLOWERED CROWFOOT.

In Bear Cañon, 6000-7000 ft. (Daniels, 828).

MASSACHUSETTS to SASKATCHEWAN; FLORIDA to COLORADO.

442. **R. sceleratus eremogenes** (Greene) Cockerell. Nov. comb.

[*R. eremogenes* Greene]. WESTERN SWAMP CROWFOOT.

Along ditches and in swales about Boulder and Marshall; along Four-mile creek in Sunset Cañon, 5100-8000 ft. (Daniels, 429).

SASKATCHEWAN to ALBERTA; NEW MEXICO to CALIFORNIA.

443. **R. Macounii** Britton. MACOUN'S BUTTERCUP.

About irrigation ditches in the plains, 5100-5600 ft. (Daniels, 236).

ONTARIO to ALBERTA: IOWA to COLORADO.

174. **HALERPESTES** Greene.444. **H. Cymbalaria** (Pursh) Greene [*Ranunculus Cymbalaria* Pursh; *Oxygraphis Cymbalaria* (Pursh) Prantl; *Cyrtorrhyncha Cymbalaria* (Pursh) Britton]. SEASIDE CROWFOOT.

Around ponds and irrigation ditches about Boulder and Marshall on the plains, 5100-5700 ft. (Daniels, 255). Also at Ward (Cockerell). Valmont (Coulter in Wabash College Herb.).

NORTH AMERICA: SOUTH AMERICA: ASIA.

175. **CYRTORRHYNCHA** Nutt.445. **C. ranunculina** Nutt. [*Ranunculus Nuttallii* Gray]. NUTTALL'S BUTTERCUP.

Rare on the north slope of Green Mt., 6500-7000 ft. (Daniels, 369). Near Long's Peak (Porter & Coulter; also Coulter in Wabash College Herb.).

WYOMING to COLORADO.

176. **THALICTRUM** L. MEADOW-RUE.446. **T. purpurascens** L. PURPLISH MEADOW-RUE.

Springy cañon at the foot of Flagstaff Hill; wet meadows between Marshall and South Boulder Peaks, 5400-6000 ft. (Daniels, 434).

NOVA SCOTIA to SASKATCHEWAN; FLORIDA to COLORADO.

447. **T. Fendleri** Engelm. FENDLER'S MEADOW-RUE.

Cañons on the north slope of Green Mt., 6000-8100 ft. (Daniels, 532). Also in the mountains from Eldora to Baltimore (Rydberg).

WYOMING and NEW MEXICO to ARIZONA.

Family 47. **NYMPHAEACEAE** DC. Water-lily family.177. **NYMPHAEA** L. YELLOW POND LILY.448. **N. polysepala** (Engelm.) Greene [*Nuphar polysepalum* Engelm.]. MANY-SEPALLED YELLOW POND LILY. WESTERN SPATTER DOCK.

Alpine lakes at Ward, 9000-11000 ft. (Daniels). A portion of Engelmann's type material came from the vicinity of Long's Peak, lat. 40°.

MONTANA to ALASKA; COLORADO to CALIFORNIA.

Family 48. **BERBERIDACEAE** T. & G. Barberry family.178. **ODOSTEMON** Raf. OREGON GRAPES.449. **O. repens** (Lindl.) Cockerell [*O. Aquifolium* Rydb., not *Berberis Aquifolium* Pursh; *B. repens* Lindl.]. CREEPING OREGON GRAPES. HOLLY BARBERRY.

Common on the mesas, foothills, and mountain slopes, 5700-10000 ft. (Daniels, 471). Long's Peak (Coulter in Wabash College Herb.).

MONTANA to IDAHO; NEW MEXICO to CALIFORNIA.

Order 22. PAPAVERALES.

Family 49. PAPAVERACEAE Juss. Poppy family.

179. PAPAVER L. POPPY.

450. **P. Argemone** L. ROUGH-FRUITED POPPY. WIND ROSE.
Escaped into streets and plains near dwellings, 5500-5600 ft.
(Daniels, 200).
EUROPE, thence to the UNITED STATES.

180. ARGEMONE L. PRICKLY POPPY.

451. **A. intermedia** Sweet. WHITE PRICKLY POPPY.
Abundant on the plains, mesas, and open meadows in the
foothills, 5100-7500 ft. (Daniels, 85).
SOUTH DAKOTA to WYOMING; TEXAS to MEXICO.
452. **A. hispida** Gray [*A. bipinnatifida* Greene]. HAIRY PRICK-
LY POPPY.
Plains and foothills near Boulder, 5100-9000 ft. (Rydberg).
WYOMING to NEW MEXICO and UTAH.

Family 50. FUMARIACEAE DC. Fumitory family.

181. CAPNOIDES Adans. CORYDALIS.

453. **C. aureum** (Willd.) Kuntze [*Corydalis aurea* Willd.].
GOLDEN CORYDALIS.
Rather frequent in rocky places throughout, 5100-10000 ft.
(Daniels, 82). Also in the mountains between Sunshine and
Ward, and at Ward (Rydberg). Long's Peak (Coulter in
Wabash College Herb.).
NOVA SCOTIA to ALASKA; PENNSYLVANIA to CALIFORNIA.
454. **C. montanum** (Engelm.) Britton [*C. pachylobum*
Greene; *Corydalis aurea occidentalis* Gray]. MOUNTAIN
CORYDALIS.
Near Boulder, and in the mountains between Sunshine and
Ward (Rydberg).
SOUTH DAKOTA to UTAH; MISSOURI to TEXAS and ARIZONA.

Family 51. BRASSICACEAE Lindl. Mustard family.**182. CARDARIA Desv.**

455. **C. Draba** (L.) Desv. [*Lepidium Draba* L.]. HOARY
CRESS.

Near Boulder, (Rydberg).

EUROPE and ASIA, thence to the UNITED STATES.

183. LEPIDIUM L. PEPPER GRASS.

456. **L. medium** Greene. MEDIUM PEPPER GRASS.

Plains and foothills near Boulder, and in Boulder Cañon,
5000-7000 ft. (Daniels, 123).

MISSOURI to TEXAS and CALIFORNIA.

457. **L. divergens** Osterh. DIVERGENT PEPPER GRASS.

Common in creek-sands and along roads and railroads in the
foothills and mesas, 5400-8000 ft. (Daniels, 32).

COLORADO.

184. THLASPI L. PENNY GRASS.

458. **T. arvense** L. FIELD PENNY GRASS.

Local in waste places; especially abundant along roadsides
at the entrance of Boulder Cañon, 5100-6000 ft. (Daniels, 163).

EUROPE and ASIA, thence to NORTH AMERICA.

459. **T. Nuttallii** Rydb. NUTTALL'S PENNY GRASS.

Rocky cañons on the north slope of Green Mt., 6000-8100
ft. (Daniels, 275).

MONTANA and COLORADO to WASHINGTON.

460. **T. Coloradense** Rydb. COLORADO PENNY GRASS.

Gregory Cañon, 6200 ft. (Daniels, 194). Also in wet places
among rocks, Massif de l' Arapahoe, 11000-13500 ft. (Ryd-
berg).

COLORADO.

461. **T. purpurascens** Rydb. PURPLISH PENNY GRASS.

Among rocks on the peaks, Eldora to Baltimore. (Rydberg).

COLORADO to ARIZONA.

185. **BURSA** Weber. SHEPHERD'S PURSE.

462. **B. Bursa-pastoris** (L.) Weber [*Capsella Bursa-pastoris* (L.) Medic.]. COMMON SHEPHERD'S PURSE.

Very common in fields and waste places, 5100-9000 ft. (Daniels, 252).

EUROPE, thence now cosmopolitan.

186. **PHYSARIA** Gray. DOUBLE BLADDER POD.

463. **P. didymocarpa** (Hook.) Gray. COMMON DOUBLE BLADDER POD.

Common under rocks in the mesas and foothills, 5700-7000 ft. (Daniels, 80). Also Long's Peak (Porter & Coulter; Coulter in Wabash College Herb.).

SASKATCHEWAN to ALBERTA; COLORADO to UTAH.

464. **P. floribunda** Rydb. MANY-FLOWERED DOUBLE BLADDER POD.

Plains and foothills near Boulder; Eldora to Baltimore, (Rydberg). Also Boulder (Mrs. T. D. A. Cockerell).

COLORADO.

187. **LESQUERELLA** S. Wats. BLADDER POD.

465. **L. Shearis** Rydb. SHEAR'S BLADDER POD.

On shales with thin soil between Marshall and South Boulder Peaks, 5400-6000 ft. (Daniels, 436). Plains and foothills at Boulder (Rydberg).

COLORADO.

188. **CAMELINA** Crantz. MYAGRUM.

466. **C. sativa** (L.) Crantz [*Myagrum sativum* L.]. FALSE FLAX.

Along streets and in waste places in the city of Boulder, 5300-5700 ft. (Daniels, 281). Not in Rydberg's Flora.

EUROPE, thence to NORTH AMERICA.

189. **NASTURTIUM** R. Br. CRESS.

467. **N. Nasturtium—aquaticum** (L.) Karst. [*N. officinale* R. Br.; *Roripa Nasturtium* (L.) Rusby.]. WATER CRESS.

Frequent in ditches, streams, and springy swales in and about Boulder, 5100-6000 ft. (Daniels, 590).

EUROPE and ASIA, thence to both NORTH and SOUTH AMERICA.

190. RADICULA Hill. YELLOW CRESS.

468. *R. calycina* (Engelm.) Greene [*Nasturtium calycinum* Engelm.; *Roripa calycina* (Engelm.) Rydb.]. WARTY PODDED YELLOW CRESS.

Along the railroad near Boulder lake, 5200-5300 ft. (Daniels, 774).

MONTANA to WASHINGTON and NEW MEXICO.

469. *R. sinuata* (Nutt.) Greene [*Nasturtium sinuatum* Nutt.; *Roripa sinuata* (Nutt.) A. S. Hitchc.]. SPREADING YELLOW CRESS.

On stream banks and in wet ground near Boulder (Rydberg).

MINNESOTA to WASHINGTON; MISSOURI to ARIZONA.

470. *R. hispida* (Desv.) Moench. [*Nasturtium hispidum* Desv.; *Roripa hispida* (Desv.) Britton]. HAIRY MARSH CRESS.

Along streams, ditches, and in swales, 5100-9000 ft. (Daniels, 581).

NEW BRUNSWICK to BRITISH COLUMBIA; FLORIDA to NEW MEXICO.

471. *R. obtusa* (Nutt.) Greene [*Nasturtium obtusum* Nutt.; *Roripa obtusa* (Nutt.) Britton]. BLUNT-LEAVED MARSH CRESS.

Massif de l' Arapahoe, 10000 ft. (Rydberg).

MICHIGAN to WASHINGTON; TEXAS to UTAH.

472. *R. curvipes* (Greene) Greene [*Roripa curvipes* Greene]. CURVED-PODDED MARSH CRESS.

In Boulder Cañon, 5500-6000 ft. (Daniels, 544).

WYOMING to COLORADO.

190½. **ARMORACIA** Gaertn. HORSE RADISH.

473. **A. Armoracia** (L.) Cockerell. Nov. comb. [*Roripa Armoracia* (L.) A. S. Hitchc.; *Nasturtium Armoracia* (L.) Fries.]. COMMON HORSE RADISH.
Escaped to waysides, Boulder (Daniels).
EUROPE, thence to AMERICA.

191. **SISYMBRIUM** L. HEDGE MUSTARD.

474. **S. officinale** (L.) Scop. COMMON HEDGE MUSTARD.
Common in waste places about Boulder, 5100-6000 ft. (Daniels, 256).
EUROPE and ASIA, thence to NORTH AMERICA.

192. **SOPHIA** Adans. TANSY MUSTARD.

475. **S. leptophylla** Rydb. FINE-LEAVED TANSY MUSTARD.
Along Boulder Cañon, 6000 ft. (Daniels, 284).
WYOMING and IDAHO to COLORADO.
476. **S. incisa** (Engelm.) Greene [*Sisymbrium incisum* Engelm.; *Descurainia incisa* (Engelm.) Britton]. CUT-LEAVED TANSY MUSTARD.
Boulder Cañon at Falls; also in Gregory Cañon on rocky banks, 6000-9000 ft. (Daniels, 981).
WYOMING to NEW MEXICO.

477. **S. intermedia** Rydb. WESTERN TANSY MUSTARD.
Common throughout the lower elevations, 5100-9000 ft. (Daniels, 121).
MICHIGAN to BRITISH COLUMBIA; TENNESSEE to CALIFORNIA.

478. **S. andrenarum** Cockerell. HOARY TANSY MUSTARD.
Rather frequent in Boulder Cañon, 5500-7000 ft. (Daniels, 550).
MONTANA to WASHINGTON and NEW MEXICO.

193. **ERYSIMUM** L. TREACLE MUSTARD.

479. **E. asperum** (Nutt.) DC. WESTERN WALLFLOWER.
Mountains between Sunshine and Ward (Rydberg).
SASKATCHEWAN to ARKANSAS and COLORADO.

480. **E. ob lanceolatum** Rydb. OBLANCEOLATE-LEAVED WALL-FLOWER.

Plains and foothills near Boulder (Rydberg).

WYOMING to COLORADO.

481. **E. nivale** (Greene) Rydb. [*E. asperum nanum* Cockerell]. SNOW WALLFLOWER.

Above timberline, Arapahoe Peak, 11000-13000 ft. (Daniels, 885).

WYOMING to COLORADO.

482. **E. Cockerellianum** Daniels. Nov. nomen. [*E. asperum alpestre* Cockerell; *E. alpestre* (Cockerell) Rydb.; not Kotschy nor Jordan]. COCKERELL'S WALLFLOWER.

Abundant throughout, 5100-12000 ft. (Daniels, 57). Also mountains between Sunshine and Ward (Rydberg). Since *E. alpestre* has been twice used as a specific name (by Kotschy and by Jordan) a new name is necessary for the species.

COLORADO to UTAH; TEXAS to ARIZONA.

194. **RAPHANUS** L. RADISH.

483. **R. sativus** L. GARDEN RADISH.

Spontaneous along streets in waste places, 5400-5600 ft. (Daniels, 772).

ASIA, thence universal in cultivation.

195. **CAMPE** Dulac. WINTER CRESS.

484. **C. Americana** (Rydb.) Cockerell. Nov. comb. [*Barbarea Americana*, Rydb.]. AMERICAN WINTER CRESS.

In rich soil, between Eldora and Baltimore, 8500-9000 ft. (Rydberg).

SASKATCHEWAN to MONTANA; COLORADO to NEVADA.

196. **BRASSICA** L. MUSTARD.

485. **B. juncea** (L.) Coss. INDIAN MUSTARD.

Along Boulder Cañon Road about six miles beyond Boulder, 7000 ft. (Daniels, 283).

ASIA, thence to both NORTH and SOUTH AMERICA.

486. **B. nigra** (L.) Koch. BLACK MUSTARD.

Frequent along roadsides and in waste places, 5100-6000 ft. (Daniels, 747).

EUROPE and ASIA, thence to NORTH AMERICA.

487. **B. campestris** L. RUTA BAGA.

Adventitious along the Arapahoe Road, 5300 ft. (Daniels, 790).

EUROPE, thence universal in cultivation.

197. **ALYSSUM** L. MADWORT.488. **A. alyssoides** (L.) Gouan. [*A. calycinum* L.]. YELLOW ALYSSUM.

Boulder, roadside on University Hill, 5300-5600 ft. (Cockerell).

EUROPE, thence to NORTH AMERICA.

198. **KONIGA** Adans.489. **K. maritima** (L.) R. Br. [*Alyssum maritimum* (L.) Lam.]. SWEET ALYSSUM.

Spontaneous on the campus of the University of Colorado, Boulder, 5500 ft. (Daniels, 680).

EUROPE, thence universal in cultivation.

199. **DRABA** L. WHITLOW-GRASS.490. **D. Coloradensis** Rydb. COLORADO WHITLOW-GRASS.

Plains and hillsides near Boulder, 5100-5500 ft. (Rydberg). COLORADO.

491. **D. nemorosa** L. WOOD WHITLOW-GRASS.

At Boulder, University Hill, on rise opposite base of Flagstaff Hill, 5500-6000 ft. (Cockerell).

MICHIGAN and ONTARIO to BRITISH COLUMBIA; COLORADO to OREGON: EUROPE: ASIA.

492. **D. crassifolia** Graham. THICK-LEAVED WHITLOW-GRASS.

Above timberline, Arapahoe Peak, 11000-13500 ft. (Daniels, 928).

GREENLAND to BRITISH COLUMBIA; COLORADO to UTAH.

493. **D. Fladnizensis** Wulf. WHITE ARCTIC WHITLOW-GRASS.
Above timberline, Arapahoe Peak, 11000-13000 ft. (Daniels, 1009).

LABRADOR to BRITISH COLUMBIA; COLORADO to UTAH: EUROPE: ASIA.

494. **D. cana** Rydb. HOARY WHITLOW-GRASS.

Massif de l' Arapahoe, 11000-12000 ft. (Rydberg).

LABRADOR to YUKON and COLORADO.

495. **D. streptocarpa** Gray. TWISTED-PODDED WHITLOW-GRASS.

Common in barren, rocky places throughout the mountainous region 6000-13000 ft. (Daniels, 313). Also Eldora to Baltimore (Rydberg). Sugarloaf, 8500 ft. (Cockerell).

COLORADO to NEW MEXICO and ARIZONA.

496. **D. luteola** Greene. YELLOWISH WHITLOWWORT.

In spray of Boulder Falls, a decumbent small-flowered form, 7500 ft. (Daniels, 295). Also Eldora to Baltimore (Rydberg).

COLORADO.

497. **D. aureiformis** Rydb. [*D. Bakeri* Greene]. BAKER'S WHITLOW-GRASS.

Above timberline, Arapahoe Peak, 11000-12000 ft. (Daniels, 1004).

SOUTH DAKOTA to COLORADO.

498. **D. aurea** Wahl. GOLDEN WHITLOWWORT.

Common in the subalpine and alpine district, 8600 (Eldora)-13000 (Arapahoe Peak) ft. (Daniels, 805). Also Eldora to Baltimore (Rydberg).

GREENLAND to BRITISH COLUMBIA; COLORADO to ARIZONA.

499. **D. decumbens** Rydb. DECUMBENT WHITLOWWORT.

At snow-line, Arapahoe Peak, 12000-13000 ft. (Daniels, 914).

COLORADO.

200. CARDAMINE L. BITTERCRESS.

500. **C. cordifolia** Gray. HEART-LEAVED BITTERCRESS.

Wet mossy tundras above timberline, Arapahoe Peak, 11000-12000 ft. (Daniels, 713). Also mountains between Sunshine

and Ward, and at Caribou (Rydberg). Common everywhere above 9000 ft. (Ramaley).

WYOMING to NEW MEXICO and ARIZONA.

501. *C. incana* (Gray) A. Nels. [*C. cardiophylla* Rydb.; *C. infausta* Greene]. HOARY BITTERCRESS.

Along an alpine brook at edge of snow above Bloomerville, 9000-10000 ft. (Daniels, 323).

COLORADO.

502. *C. vallicola* Greene. VALLEY BITTERCRESS.

Dripping rocks under an irrigation sluice, Boulder Cañon, 5500-5600 ft. (Daniels, 578).

WYOMING to COLORADO.

201. *ARABIS* L. ROCK-CRESS.

503. *A. ovata* (Pursh) Poir. OVATE-LEAVED ROCK-CRESS.

Common among rocks throughout the mountain region and the rougher mesas, 5700-10000 ft. (Daniels, 567). Also from Eldora to Baltimore (Rydberg).

NEW BRUNSWICK to ALBERTA; GEORGIA to CALIFORNIA.

504. *A. philonipha* A. Nelson. SNOW-LOVING ROCK-CRESS.

Mountainsides at Ward, 9000-9500 ft. (Daniels, 954).

MONTANA to WASHINGTON; COLORADO to UTAH.

505. *A. oxyphylla* Greene. SHARP-LEAVED ROCK-CRESS.

Mesas and foothills; common, 5600-8000 ft. (Daniels, 199). University Hill near base of Flagstaff Hill (Cockerell).

WYOMING to COLORADO and UTAH.

506. *A. connexa* Greene. RELATED ROCK-CRESS.

Ward 9200 ft. (Daniels, 207). Also from Eldora to Baltimore (Rydberg).

MONTANA to COLORADO and UTAH.

507. *A. Fendleri* (S. Wats.) Greene [*A. Hoelboellii Fendleri* S. Wats.]. FENDLER'S ROCK-CRESS.

High alpine slope near snow above Bloomerville, 9000-10000 ft. (Daniels, 318).

COLORADO to NEW MEXICO.

508. *A. divaricarpa* A. Nels. DIVERGENTLY PODDED ROCK-CRESS.

North slope of Green Mt., Gregory Cañon, 6400 ft. (Daniels, 528). Mountains between Sunshine and Ward (Rydberg).

ASSINIBOIA to COLORADO and UTAH.

202. *THELYPODIUM* Endl.

509. *T. paniculatum* A. Nels. [*T. sagittatum* Endl.; *T. torulosum* Heller]. PANICLED THELYPODIUM.

Near the summit of Flagstaff Hill, 6500-7000 ft. (Daniels, 223).

MONTANA to COLORADO and UTAH.

203. *STANLEYA* Nutt.

510. *S. glauca* Rydb. GLAUCOUS STANLEY'S CRESS.

Along the railroad between Boulder and Valmont, 5200-5300 ft. (Daniels, 415).

NORTH DAKOTA to WYOMING; COLORADO to UTAH.

Family 52. CAPPARIDACEAE Lindl. Caper family.

204. *POLANISIA* Raf. CLAMMY-WEED.

511. *P. trachysperma* T. & G. LARGE-FLOWERED CLAMMY WEED.

Along railroads and in creek-sands, 5100-7000 ft. (Daniels, 483).

ASSINIBOIA to TEXAS and NEVADA.

205. *PERITOMA* DC. CLEOME.

512. *P. serrulatum* (Pursh) DC. [*Cleome serrulata* Pursh].

PINK CLEOME. ROCKY MOUNTAIN BEE PLANT.

Sands and waste places, 5100-9000 ft. (Daniels, 286).

SASKATCHEWAN to IDAHO; MISSOURI to ARIZONA.

512a. *P. serrulatum albiflorum* Cockerell. WHITE CLEOME.

Sunset Cañon, 7000 ft. (Daniels, 603).

Order 23. ROSALES.

Family 53. CRASSULACEAE DC. Orpine family.

206. CLEMENTSIA Rose.

- 513.
- C. rhodantha*
- (Gray) Rose [
- Sedum rhodanthum*
- Gray].

RED ORPINE.

Alpine and subalpine in bogs and along streams, 8600 (Eldora)—13000 (Arapahoe Peak) ft. (Daniels, 848). Also at Caribou (Rydberg).

MONTANA to COLORADO and ARIZONA.

206½. RHODIOLA L. ROSE-ROOT.

- 513½.
- R. integrifolia*
- Raf. ENTIRE-LEAVED ROSE-ROOT.

Common at high altitudes (Ramaley). Arapahoe Peak (Rydberg).

ALBERTA to ALASKA; COLORADO to CALIFORNIA.

207. SEDUM L. ORPINE. STONE-CROP.

- 514.
- S. stenopetalum*
- Pursh. NARROW-PETALLED ORPINE.

Abundant throughout the mountainous regions in rocky places, 5600-12000 ft. (Daniels, 104). Also in the mountains between Sunshine and Ward (Rydberg).

ALBERTA to BRITISH COLUMBIA; NEW MEXICO to CALIFORNIA.

- 514a.
- S. stenopetalum rubrolineatum*
- Cockerell.

With the type, but in the higher altitude (Cockerell).

ROCKY MOUNTAINS.

Family 54. SAXIFRAGACEAE Dumort. Saxifrage family.

208. PECTIANTHIA Raf. BISHOP'S CAP.

- 515.
- P. pentandra*
- (Hook.) Rydb. [
- Mitella pentandra*
- Hook.]. WESTERN BISHOP'S CAP.

Springy places and along streams, Caribou (Rydberg).

ALBERTA to ALASKA; COLORADO to CALIFORNIA.

209. **OZOMELIS** Raf. MITRE-WORT.516. **O. stenopetala** (Piper) Rydb. [*Mitella stenopetala* Piper].

NARROW-PETALLED MITRE-WORT.

Springy places, Eldora to Baltimore (Rydberg).

Redrock lake, 10100 ft. (Ramaley & Robbins).

COLORADO to UTAH.

210. **HEUCHERA** L. ALUM-ROOT.517. **H. bracteata** (Torr.) Ser. BRACTED ALUM-ROOT.

Common in the crevices of rocks, 5800-10000 ft. (Daniels, 139). Also in the mountains between Sunshine and Ward, and from Eldora to Baltimore (Rydberg).

WYOMING to COLORADO.

518. **H. Hallii** Gray. HALL'S ALUM-ROOT.

Rocky places, Arapahoe Peak, 11500-12000 ft. (Daniels, 881).

COLORADO.

519. **H. parvifolia** Nutt. SMALL-LEAVED ALUM-ROOT.

Common on banks in the mesas, foothills, and mountains throughout, 5700-12000 ft. (Daniels, 98). Also at Ward and Caribou (Rydberg).

ALBERTA to OREGON; NEW MEXICO to ARIZONA.

211. **SAXIFRAGA** L. SAXIFRAGE.520. **S. debilis** Engelm. WEAK SAXIFRAGE.

Wet rocks, Massif de l' Arapahoe, 9000-13000 ft. (Rydberg).

MONTANA to COLORADO and UTAH.

212. **MICRANTHES** Haw.521. **M. rhomboidea** (Greene) Small [*Saxifraga rhomboidea* Greene]. RHOMBOID-LEAVED SAXIFRAGE.Among rocks in the foothills and mountains, Flagstaff Hill, 6000 ft. (Daniels). Also Massif de l' Arapahoe, 12000 ft., and Eldora to Baltimore (Rydberg). Near Long's Peak (Coulter in Wabash College Herb.). *Saxifraga nivalis* L., reported by Ramaley & Robbins from Redrock lake, 10100 ft.,

is probably this plant (cf. Coulter-Nelson's New Manual of Rocky Mountain Botany, p. 240).

MONTANA and IDAHO to COLORADO.

522. *M. arguta* (D. Don) Small [*Saxifraga arguta* D. Don; *S. denudata* Nutt.; *S. punctata* Hook., in part; not L.].

SMOOTH SAXIFRAGE.

In springy places and along streams; mountains between Sunshine and Ward; Massif de l' Arapahoe (Rydberg). Streams near Bloomerville, and on Arapahoe Peak, 9000-12000 ft. (Daniels, 308).

MONTANA to BRITISH COLUMBIA; NEW MEXICO to CALIFORNIA.

213. LEPTASEA Haw.

523. *L. chrysantha* (Gray) Small [*Saxifraga chrysantha* Gray]. GOLDEN SAXIFRAGE.

Toward summit of Arapahoe Peak, 13000-13500 ft. (Daniels, 949, collected by Mrs. T. D. A. Cockerell).

COLORADO and NEW MEXICO.

524. *L. Hirculus* (L.) Small [*Saxifraga Hirculus* L.]. ARCTIC SAXIFRAGE.

In wet places at Caribou (Rydberg). Redrock lake, 10100 ft. (Ramaley & Robbins).

GREENLAND to ALASKA; COLORADO to BRITISH COLUMBIA; EUROPE: ASIA.

525. *L. austromontana* (Wieg.) Small [*Saxifraga bronchiales* Torr.; not L.; *S. austromontana* Wieg.]. WESTERN MOUNTAIN SAXIFRAGE.

On rocky ledges, Boulder Cañon above the Falls; at Sunset; and above timberline, Arapahoe Peak, 7000-13000 ft. (Daniels, 542). Also at Caribou; South Boulder Peak; mountains between Sunshine and Ward (Rydberg).

ALBERTA to BRITISH COLUMBIA; NEW MEXICO to WASHINGTON.

526. *L. flagellaris* (Willd.) Small [*Saxifraga flagellaris* Willd.]. FLAGELLATE SAXIFRAGE.

Massif de l' Arapahoe, 10000-13500 ft. (Rydberg).

GREENLAND to ALASKA; COLORADO to ARIZONA.

Family 55. PARNASSIACEAE Dumort. Grass of Parnassus family.

214. PARNASSIA L. GRASS OF PARNASSUS.

527. *P. fimbriata* Banks. FIMBRIATE GRASS OF PARNASSUS.

Springs and springy places, Caribou (Rydberg).

ALBERTA to ALASKA; COLORADO to CALIFORNIA.

Family 56. HYDRANGEACEAE Dumort. Hydrangea family.

215. EDWINIA Heller. JAMESIA.

528. *E. Americana* (T. & G.) Heller [*Jamesia Americana* T. & G.]. AMERICAN JAMESIA.

Abundant in the foothills and mountains in rocky and clivose places, 5700-10000 ft. (Daniels, 138). Also at Ward; in the mountains between Sunshine and Ward; and from Eldora to Baltimore (Rydberg).

WYOMING and UTAH to NEW MEXICO.

Family 57. GROSSULARIACEAE Dumort. Gooseberry family.

216. RIBES L. GOOSEBERRY. CURRANT.

529. *R. Purpusi* Koehne. PURPUS'S GOOSEBERRY.

Common in mountain cañons, 6000-10000 ft. (Daniels, 290). Also in the mountains between Sunshine and Ward (Rydberg).

WYOMING to NEW MEXICO.

530. *R. vallicola* Greene. VALLEY GOOSEBERRY.

Along streams and in gulches, 5000-9000 ft., St. Vrain creek below Lyons; Pine Glade School (Ramaley).

MONTANA to WASHINGTON; COLORADO to CALIFORNIA.

531. *R. lentum* (Jones) Coville & Rose [*R. lacustre molle* Gray]. WESTERN RED CURRANT.

Eldora to Baltimore (Rydberg).

WYOMING and COLORADO to CALIFORNIA.

532. *R. parvulum* (Gray) Rydb. [*R. lacustre parvulum* Gray]. SMALL BLACK CURRANT.

Moist places, 8000 to 11500 ft.; Redrock lake, west of Ward; Fourth of July mine (Ramaley).

ALBERTA and YUKON to COLORADO and UTAH.

533. *R. pumilum* Nutt. [*R. cereum* Coulter, in part]. SMALL WAX-CURRENT.

Abundant on the mesas, foothills, and mountains, 5500-10000 ft. (Daniels, 84). Long's Peak (Coulter in Wabash College Herb.).

MONTANA to NEW MEXICO and ARIZONA.

534. *R. longiflorum* Nutt. [*R. aureum* T. & G.; not Pursh]. LONG-FLOWERED GOLDEN CURRENT.

Along stream in mesa at the foot of Flagstaff Hill, 5700 ft. (Daniels, 600).

SOUTH DAKOTA to WYOMING; KANSAS to ARIZONA.

535. *R. vulgare* Lam. RED CURRENT.

Escaped into a thicket about a pond near Boulder, 5400 ft. (Daniels, 265).

LABRADOR to ALASKA; NEW JERSEY to INDIANA and MINNESOTA: EUROPE: ASIA. Frequently escaped from cultivation in all temperate regions.

Family 58. ROSACEAE Juss. Rose family.

217. OPULASTER Medic. NINE-BARKS.

536. *O. intermedius* Rydb. [*O. Missouriensis* Daniels]. INTERMEDIATE NINE-BARKS.

Cañons in the foothills, 5700-6500 ft. (Daniels, 74). Lower Boulder Cañon, 5600-7000 ft. (Rydberg).

ILLINOIS to SOUTH DAKOTA; MISSOURI to COLORADO.

537. *O. Ramaleyi* Aven Nelson [*O. bracteatus* Rydb.]. RAMALEY'S NINE-BARKS.

Cañons in the foothills, 5600-6500 ft. (Daniels, 693).

COLORADO.

538. *O. glabratus* Rydb. GLABROUS NINE-BARKS.

Boulder, along streams, 5000-11000 ft. (Rydberg).

COLORADO.

539. *O. monogynus* (Torr.) Kuntze [*Physocarpus Torreyi* Max.]. TORREY'S NINE-BARKS.

Rocky cañons in the foothills, 6000-7000 ft. (Daniels, 450).

SOUTH DAKOTA to WYOMING; NEW MEXICO to NEVADA.

218. BOSSEKIA Necker. SALMON-BERRY.

540. **B. parviflora** (Nutt.) Greene [*Rubus Nutkanus* Moç.; *Rubacer parviflorus* (Nutt.) Rydb.]. NUTKA SOUND SALMON-BERRY.

Local in deep wooded cañons in the foothills and mountains, 6500-9000 ft. (Daniels, 533). Near Long's Peak (Porter & Coulter).

ONTARIO to ALASKA; NEW MEXICO to CALIFORNIA and MEXICO.

219. OREOBATUS Rydb. FLOWERING RASPBERRY.

541. **O. deliciosus** (James) Rydb. [*Rubus deliciosus* James]. SAVORY FLOWERING RASPBERRY.

Abundant throughout the higher mesas, the foothills and the mountains, 5500-10000 ft. (Daniels, 29).

COLORADO.

220. RUBUS L. BRAMBLE.

542. **R. Americanus** (Pers.) Britton [*R. triflorus* Richardson]. DWARF RASPBERRY.

Deep cañons on north slope of Green Mt., 6400-8000 ft. (Daniels, 345). Not in Rydberg's Flora.

NEWFOUNDLAND to MANITOBA; NEW JERSEY to COLORADO.

221. BATIDAEA Dumort. RED RASPBERRY.

543. **B. laetissima** Greene. WILD RED RASPBERRY.

Common in gulches in the mesas and foothills, 5500-8000 ft. (Daniels, 212).

LABRADOR to MACKENZIE; NEW JERSEY to COLORADO.

222. TRIDOPHYLLUM Necker. FIVE-FINGER. CINQUEFOIL.

544. **T. paradoxum** (Nutt.) Greene [*Potentilla paradoxa* Nutt.]. BUSHY CINQUEFOIL.

Wet places and along streams, ascending in Sunset Cañon to about 7000 ft., 5100-7000 ft. (Daniels, 241).

PENNSYLVANIA and ONTARIO to WASHINGTON; MISSOURI to NEW MEXICO and MEXICO: EASTERN ASIA.

545. **T. leucocarpum** (Rydb.) Cockerell. Nov. comb. [*Potentilla leucocarpa* Rydb.]. WHITE-SEEDED CINQUEFOIL.

Wet places in the plains and ascending in the cañons to a considerable distance into the mountain region, 5100-7000 (Bear Cañon) ft. (Daniels, 826).

ILLINOIS to WASHINGTON; NEW MEXICO to CALIFORNIA.

546. **T. lateriflorum** (Rydb.) Cockerell. Nov. comb. [*Potentilla lateriflora* Rydb.]. LATERAL-FLOWERED CINQUEFOIL.

Foothills at Boulder, 6000-8000 ft. (Daniels, 238).

ASSINIBOIA to BRITISH COLUMBIA; COLORADO to ARIZONA.

547. **T. Monspeliense** (L.) Greene [*P. Norvegica hirsuta* T. & G.; *P. Monspeliensis* L.]. ROUGH CINQUEFOIL.

Common in meadows in the plains, mesas, and foothills, and in aspen bogs in the mountains, 5100-8600 (Eldora) ft. (Daniels, 117).

LABRADOR to ALASKA; SOUTH CAROLINA to ARIZONA and MEXICO: EUROPE: ASIA.

223. POTENTILLA L. FIVE-FINGER. CINQUEFOIL.

548. **P. concinna** Richardson [*P. humifusa* Nutt.]. GROUND CINQUEFOIL.

Mountainsides at Eldora, and bald ridges at Glacier Lake, 8600-10000 ft. (Daniels, 989). Also Long's Peak (Porter & Coulter; and Coulter in Wabash College Herb.). Redrock lake, 10100 ft. (Ramaley & Robbins).

SASKATCHEWAN to ALBERTA; COLORADO to UTAH.

549. **P. dissecta** Pursh [*P. diversifolia* Lehm.]. CUT-LEAVED CINQUEFOIL.

Above timberline, Arapahoe Peak, 11500-13000 ft. (Daniels, 933). Also at Caribou (Rydberg). Redrock lake, 10100 ft. (Ramaley & Robbins).

SASKATCHEWAN to BRITISH COLUMBIA; COLORADO to CALIFORNIA.

550. **P. glaucophylla** Lehm. [*P. dissecta glaucophylla* (Lehm.) S. Wats.]. GLAUCOUS CUT-LEAVED CINQUEFOIL.

At Caribou, 9900 ft. (Rydberg).

ROCKY MOUNTAINS.

551. *P. pulcherrima* Lehm. FAIREST CINQUEFOIL.

Aspen bogs and subalpine meadows at Eldora and Glacier Lake, 8000-10000 ft. (Daniels, 630).

SASKATCHEWAN to ALBERTA; NEW MEXICO to NEVADA.

552. *P. Pennsylvanica strigosa* Pursh. VILLOUS PENNSYLVANIA CINQUEFOIL.

Common on the plains and in mountain meadows, 5100-8000 ft. (Daniels, 31).

HUDSON BAY to ALBERTA; KANSAS to NEW MEXICO: SIBERIA

552a. *P. Pennsylvanica arachnoidea* Lehm. ARACHNOID PENNSYLVANIA CINQUEFOIL.

Near Boulder, 5000-8000 ft. (Rydberg).

MONTANA to UTAH; NEW MEXICO to ARIZONA.

553. *P. minutifolia* Rydb. MINUTE-LEAVED CINQUEFOIL.

High peaks, Eldora to Baltimore, 9000-13000 ft. (Rydberg). COLORADO.

554. *P. Hippiana* Lehm. WOOLLY CINQUEFOIL.

Plains, mesas, and mountain meadows, 5100-10000 ft. (Daniels, 433).

MINNESOTA to SASKATCHEWAN and ALBERTA; NEW MEXICO to ARIZONA.

555. *P. propinqua* Rydb. [*P. Hippiana diffusa* Lehm.]. DIFFUSE CINQUEFOIL.

Plains, mesas, and mountain meadows, 5700-10000 ft. (Daniels, 206). Redrock lake, 10100 ft. (Ramaley & Robbins).

COLORADO to NEW MEXICO and ARIZONA.

556. *P. effusa* Dougl. BRANCHED CINQUEFOIL.

Plains, mesas, and mountain ridges, 5100-10000 ft. (Daniels, 287).

ASSINIBOIA to MONTANA; thence to NEW MEXICO.

224. *FRAGARIA* L. STRAWBERRY.557. *F. bracteata* Heller. BRACTED STRAWBERRY.

Common in cañons in the foothills and mountains, 6300-11000 ft. (Daniels, 291).

MONTANA to BRITISH COLUMBIA; NEW MEXICO to CALIFORNIA.

558. **F. Americana** (Porter) Britton [*F. vesca Americana* Porter]. AMERICAN STRAWBERRY.

At Boulder, 5400 ft. (Rydberg).

NEWFOUNDLAND to MANITOBA; VIRGINIA to NEW MEXICO and OREGON.

558½. **F. prolifica** Baker & Rydb. PROLIFIC STRAWBERRY.

Boulder Cañon, 8500 ft. (Coulter in Wabash College Herb.).

COLORADO.

559. **F. glauca** (S. Wats.) Rydb. GLAUCOUS STRAWBERRY.

Mountainsides at Eldora, 8600 ft. (Daniels, 850). Redrock lake, 10100 ft. (Ramaley & Robbins).

MACKENZIE to MONTANA; SOUTH DAKOTA to COLORADO and NEVADA.

560. **F. pauciflora** Rydb. SMALL-FLOWERED STRAWBERRY.

North Boulder Peak (Rydberg). Boulder Cañon, 8500 ft. (Coulter in Wabash College Herb.).

HUDSON BAY to ALBERTA; COLORADO to UTAH.

225. SIBBALDIA L.

561. **S. procumbens** L. PROCUMBENT SIBBALDIA.

Above timberline in dry tundras near the snow, 11500-13500 ft., Arapahoe Peak (Daniels, 912). Redrock lake, 10100 ft. (Ramaley & Robbins).

Arctic-alpine around the world.

226. DASIPHORA Raf.

562. **D. fruticosa** (L.) Rydb. [*Potentilla fruticosa* L.].

SHRUBBY CINQUEFOIL.

Subalpine bogs, mostly in aspen zone; but also in bogs in the plains and mesas, 5600-10000 ft. (Daniels, 541).

LABRADOR to ALASKA; NEW JERSEY to CALIFORNIA: EUROPE: ASIA.

227. DRYMOCALLIS Fourn.

563. **D. arguta** (Pursh) Rydb. [*Potentilla arguta* Pursh].

TALL CINQUEFOIL.

On the plains and mesas, the flowers yellow as well as white,

5100-6000 ft. (Daniels, 432). St. Vrain Cañon (Porter & Coulter).

NEW BRUNSWICK to MACKENZIE; DISTRICT OF COLUMBIA to COLORADO.

564. **D. fissa** (Nutt.) Rydb. [*Potentilla fissa* Nutt.]. LARGE-FLOWERED GLANDULAR CINQUEFOIL.

Common in the mesas, foothills, and mountains throughout, 5700-12000 ft. (Daniels, 30). St. Vrain Cañon 7000 ft., and Boulder Cañon (Coulter in Wabash College Herb.).

MONTANA to COLORADO.

228. GEUM L. AVENS.

565. **G. strictum** Ait. YELLOW AVENS.

In Bear Cañon, 7000 ft. (Daniels, 637).

NEWFOUNDLAND to BRITISH COLUMBIA; PENNSYLVANIA to ARIZONA and MEXICO: EUROPE: ASIA.

566. **G. Oregonense** (Scheutz) Rydb. [*G. urbanum Oregonense* Scheutz]. OREGON AVENS.

Mountain meadows and cañons, 6000-10000 ft. (Daniels, 634). Also at Arapahoe Pass and Eldora (Rydberg).

MACKENZIE to BRITISH COLUMBIA; NEW MEXICO to CALIFORNIA.

567. **G. scopulorum** Greene. ROCKY MOUNTAIN AVENS.

In cañons and gulches about springs, 5700-9000 ft. (Daniels, 68).

ROCKY MOUNTAINS.

229. ERYTHROCOMA Greene. PURPLE MOUNTAIN AVENS.

568. **E. ciliata** (Pursh) Greene [*Geum ciliatum* Pursh; *Sieversia ciliata* (Pursh) Don; *G. triflorum* Pursh]. THREE-FLOWERED MOUNTAIN AVENS.

Subalpine and alpine meadows at Eldora, 8000-12000 ft. (Daniels, 627). Also at Arapahoe Pass (Rydberg). Near Long's Peak (Porter & Coulter).

LABRADOR to BRITISH COLUMBIA; NEW YORK to CALIFORNIA and MEXICO.

230. **ACOMASTYLIS** Greene. YELLOW MOUNTAIN AVENS.

569. **A. turbinata** (Rydb.) Greene [*Geum turbinatum* (Rydb.); *Sieversia turbinata* (Rydb.) Greene]. TURBINATE MOUNTAIN AVENS.

Above timberline, Arapahoe Peak, 11500-13500 ft. (Daniels, 877).

WYOMING to NEW MEXICO and ARIZONA.

570. **A. Arapahoensis** Daniels. Nov. spec. ARAPAHOE YELLOW MOUNTAIN AVENS.

Plant 20- 30 cm. high, the stems (about three in number) puberulent, becoming softly hairy or villous above; basal leaves ascending, about 1 dm. long and 3 cm. wide, pinnate, the lower pinnae narrowly falcate, entire, the others mainly ovate in outline, deeply cut into 2- 7 cuneate lobes, but with occasional little, simple pinnae interspersed with the larger ones; leaves puberulent or glabrate, the margins softly ciliate with white hairs; rhachis about 3 mm. broad, the base of the petiole about 1 cm. broad, becoming chaffy and sheathing the stems; lower half of stem leafless, the upper half bearing two leaves, 2½- 3 cm. long, pinnately parted into about 10 narrow lobes, the lowermost broad, stipule-like, and sheathing the stem; peduncles softly hairy, 3- 4 in number, subtended by leaves closely resembling the two stem leaves, but smaller, the peduncles themselves occasionally bearing 1 or 2 bracts, simple or 2- 5 pinnately incised; flowers 2- 2½ cm. wide, bright yellow, the petals broadly obovate, five in number; sepals and bractlets villous at base, 5 each, spreading, becoming erect in fruit or the tips reflexed in age; sepals broadly triangular, about twice as high as the narrower bractlets; stamens numerous; styles included in fruit, glabrate; achenes softly villous with white hairs. Foliage, stems, sepals and bractlets purple-tinged.

The plant differs from *A. turbinata* (Rydb.) Greene, in its larger size, its softly hairy upper portion, its 3- 4 flowered stems, its broader sepals, which are much longer than the bractlets, and in its larger flowers. This is probably the

Geum Rossii humilis of Coulter's Manual, but genuine *G. Rossii humilis* T. & G. comes no nearer than Unalaska, the type locality. *A. turbinata* (Rydb.) Greene is a low plant, 7-15 cm. high, usually 1-flowered.

At timberline, Arapahoe Peak, 11500 ft. (Daniels, 906).

231. HOLODISCUS Max. MEADOWSWEET.

571. *H. dumosus* (Nutt.) Heller. [*Spiraea dumosa* Nutt.].

BUSHY MEADOWSWEET.

Boulder County (McFarland).

WYOMING and UTAH to COLORADO and ARIZONA.

232. KUNZIA Spreng. PURSHIA.

572. *K. tridentata* (Pursh) Spreng. [*Purshia tridentata* (Pursh) DC.]. THREE-TOOTHED PURSHIA.

Rocky hillsides, 6500-8500 ft.; head of Gregory Cañon; north of Nederland (Ramaley). Boulder Cañon, 9000 ft. (Coulter in Wabash College Herb.).

MONTANA to WASHINGTON; NEW MEXICO to CALIFORNIA.

233. CERCOCARPUS H. B. K. MOUNTAIN MAHOGANY.

573. *C. parvifolius* Nutt. SMALL-LEAVED MOUNTAIN MAHOGANY.

High mesas fronting the Flat-irons, 5700-6000 ft. (Daniels, 172). Also from Eldora to Baltimore (Rydberg).

SOUTH DAKOTA to MONTANA; NEW MEXICO to UTAH.

234. DRYAS L.

574. *D. octopetala* L. WHITE MOUNTAIN AVENS.

Above timberline, Arapahoe Peak, 11500-13500 ft. (Daniels, 939). Also mountains south of Ward (Rydberg).

Arctic-alpine around the world.

235. AGRIMONIA L. AGRIMONY.

575. *A. Brittoniana occidentalis* Bickn. WESTERN AGRIMONY.

Plains, and cañons among the foothills, 5100-7500 (Bear Cañon) ft. (Daniels, 259).

SOUTH DAKOTA to WYOMING; NEW MEXICO to ARIZONA.

236. *ROSA* L. ROSE. BRIER.576. *R. pratincola* Greene. PRAIRIE ROSE.

Common on the plains and mesas, 5100-6000 ft. (Daniels, 58).

MINNESOTA TO ALBERTA; KANSAS TO COLORADO.

576a. *R. pratincola angustiarum* Cockerell, n. var. CASTLE ROCK ROSE.

Boulder Cañon, 7340 ft. (near Castle Rock), Sept. 22, 1907, growing close to *R. Engelmanni* Wats.

Low bush. *Flowers* corymbose, often four together.

Sepals foliolar-tipped, narrow tomentose, with scattered large dark marginal stalked glands, these last present or absent on same branch. No lateral lobes. Length of sepals prox. 17 mm. Sepals in fruit erect.

Fruit depressed globose, very shiny, with no sign of a neck.

Five fruits { Long. (mm.) 11. 9½. 11. 10. 10. Measured while fresh.
Lat. (mm.) 13. 11. 12. 10 ⅞. 10½.

Twigs and *peduncles* deep crimson. *Peduncles* minutely hairy.

Branches with straw colored, fairly numerous, straight slender prickles, the larger ones about 7 mm., long; infrastipular prickles normally absent.

Stipules broad, to 8½ mm., margins dentate, more or less glandular.

Leaflets: a series of leaves counted showed leaflets: 11. 9. 9. 10. 9. 9. 7. 5. 11. 9. 11. 9. 9. 11. 9. 9. 11. 11. 9. 3,

Leaflets; cuneate basally, simply and strongly toothed, very finely but closely pubescent beneath. Terminal leaflet long. 26., lat. 13½ mm.

Frequently one or two leaflets from between auricles of stipules, as in *R. suffulta*. Stipules convolute as in *R. Woodsii*, but leaves not shining. (Cockerell, MS., Oct. 1907.)

576b. *R. pratincola setulosa* Cockerell. N. var.

Fruit bristly. Bluebell Cañon (Cockerell), 1910.

577. **R. Sayi** Schweinitz. SAY'S ROSE.

Common throughout the mesas, foothills and lower mountainsides, 5500-10000 ft. (Daniels, 47). Also Eldora to Baltimore (Rydberg). Redrock lake, 10100 ft. (Ramaley & Robbins).

QUEBEC to ALBERTA; MICHIGAN to COLORADO and NEW MEXICO.

578. **R. Engelmannii** S. Wats. ENGELMANN'S ROSE.

High ridges of Green Mt., 7000-8100 ft. (Daniels, 535). Also Boulder Cañon above Falls (Cockerell). Eldora; foot of Long's Peak (Ramaley).

MICHIGAN to NORTH DAKOTA; TEXAS to COLORADO.

579. **R. melina** Greene. ASHEN ROSE.

Cañons and gulches at foot of Flagstaff Hill, 5700-6000 ft. (Daniels, 102). *R. Nutkana* Presl., reported by Ramaley from Marshall; Bluebell Cañon; Gregory Cañon; and Pine Glade School, is probably *R. Melina* Greene.

WYOMING to COLORADO.

580. **R. Macounii** Greene. MACOUN'S ROSE.

Along the railroad between Boulder and Marshall, 5400 ft. (Daniels, 968). *R. Woodsii* Lindl., reported by Ramaley from Sugarloaf Mt., Bluebird Mine.; and Spencer Mt. at Eldora, is probably *R. Macounii* Greene.

SOUTH DAKOTA to ALBERTA; KANSAS to COLORADO.

581. **R. Fendleri** Crepin. FENDLER'S ROSE.

Bear Cañon, 7000 ft. (Daniels, 205). Also mountains between Sunshine and Ward (Rydberg). Marshall; above Magnolia (Ramaley).

SOUTH DAKOTA to MONTANA; NEW MEXICO to ARIZONA.

582. **R. aciculata** (Cockerell) Cockerell [*R. blanda aciculata* Cockerell]. PRICKLY ROSE.

Gulches at the foot of the Flat-irons, 5700-6000 ft. (Daniels, 462). Also mountains between Sunshine and Ward (Rydberg).

COLORADO to NEW MEXICO.

583. **R. Maximiliani** Nees. MAXIMILIAN'S ROSE.
Gregory Cañon, 5800-6500 ft. (Daniels, 190).
SASKATCHEWAN to WASHINGTON; COLORADO to UTAH.

Family 59. MALACEAE Small. Apple family.

237. **AMELANCHIER** L. SHADBUSH.

584. **A. polycarpa** Greene. MANY-FRUITED JUNE BERRY.
Mountainsides from Eldora to Arapahoe Peak, where it
occurs at timberline, 8600-11500 ft. (Daniels, 909).
WYOMING to COLORADO.
585. **A. elliptica** A. Nels. ELLIPTICAL-LEAVED JUNE BERRY.
Sugarloaf Mountain (Ramaley).
SOUTH DAKOTA to COLORADO.
586. **A. alnifolia** Nutt. ALDER-LEAVED SHADBUSH.
Sunshine Cañon and Eldora (Ramaley).
NORTH DAKOTA to MONTANA; COLORADO to UTAH.
587. **A. oreophila** A. Nels. MOUNTAIN SHADBUSH.
Mesas and foothills, common, 5700-8100 ft. (Daniels, 501).
WYOMING to COLORADO.

238. **CRATAEGUS** L. HAWTHORN.

588. **C. occidentalis** Britton [*C. Colorado* Ashe]. WESTERN
HAW.
Banks of gulches in the mesas and lower foothills, 5700-
6000 ft. (Daniels, 835).
COLORADO.
589. **C. Coloradensis** A. Nels. COLORADO HAW.
Banks of gulches in the mesas and lower foothills, 5700-
6000 ft. (Daniels, 767). A form from the entrance to Gregory
Cañon (Daniels, 838) has the petioles not distally widened.
NORTH DAKOTA to MONTANA; NEBRASKA to COLORADO.

590. *C. erythropoda* Ashe, 1900 [*C. Cerronis* A. Nels., 1902].
CERRO HAW.

Banks of gulches in the mesas and lower foothills, 5700-6000 ft. (Daniels, 794).

COLORADO.

591. *C. Doddsii* Ramaley. DODDS'S HAW.

Pole Cañon (the type locality); also various localities in Boulder Co., 5000-8000 ft. (Ramaley).

COLORADO.

592. *C. Coloradoides* Ramaley. FALSE COLORADO HAW.

Pole Cañon (the type locality); also gulches in the lower foot-hills, 5500-7000 ft. (Ramaley).

COLORADO.

239. SORBUS L. MOUNTAIN ASH.

593. *S. scopulina* Greene. ROCKY MOUNTAIN MOUNTAIN ASH.

At entrance of Bear Cañon and very sparingly throughout the mountainous region, 6000-10000 ft. (Daniels, 764).

ALBERTA to WASHINGTON; COLORADO to UTAH.

Family 60. AMYGDALACEAE Reichenb. Peach family.

240. PRUNUS L. PLUM. CHERRY.

594. *P. Americana* Marsh. AMERICAN WILD PLUM.

Mesas and lower foothills, 5700-7000 ft. (Daniels, 795).

NEW YORK to MONTANA; FLORIDA to COLORADO.

595. *P. prunella* Daniels. Nov. sp. PYGMY PLUM.

Undershrub, thornless, trailing or ascending, 3-6 dm. high with grayish bark, the new twigs reddish; fruits lateral, solitary in the specimens secured, on slender pedicels 1 cm. long; drupes oblong, 1¼-1½ cm. long and 1 cm. wide when dried, black-purple with but slight traces of bloom; pulp red-purple, astringent but sweet and edible; stone oblong 12 mm. long by 7 mm. wide, bean-shaped, flattish, rugose, the margins slightly winged, the ends plainly so; leaves lanceolate, 3-5 cm. long including the petiole, and 12-15 mm. wide in the middle, sharply but not deeply serrate, entire toward the acuminate

base; upper surfaces glossy green, under surfaces paler, the midrib white and shining both above and below. Flowers not seen. Mesa at entrance of Gregory Cañon and facing the first Flat-iron, scarce; 5700-6000 ft. (Daniels, 654). A true plum, having perhaps as its nearest ally *P. Watsoni* Sargent. Specific name the diminutive of *Prunus*.

596. **P. Besseyi** Bailey. BESSEY'S SAND CHERRY.

One-fourth mile above Chautauqua grounds, Boulder, (Beth-el). Also White Rocks (Ramaley).

NORTH DAKOTA to KANSAS and COLORADO.

597. **P. Pennsylvanica** L. f. WILD RED CHERRY.

Common throughout, 5100-9500 ft. (Daniels, 327). Also mountains between Sunshine and Ward and from Eldora to Baltimore (Rydberg).

NEWFOUNDLAND to NORTH DAKOTA; GEORGIA to COLORADO.

598. **P. melanocarpa** (A. Nels.) Rydb. [*Cerasus demissa melanocarpa* A. Nels.] BLACK-FRUITED WESTERN WILD CHERRY.

Common along cañons throughout the mesas and foothills, 5600-8500 ft. (Daniels, 465).

NORTH DAKOTA to ALBERTA and BRITISH COLUMBIA; NEW MEXICO to CALIFORNIA.

Family 61. FABACEAE Reichenb. Bean family.

241. SOPHORA L.

599. **S. sericea** Nutt. SILKY SOPHORA.

Alkaline flats about Owen's lake, 5200 ft. (Daniels, 664).

SOUTH DAKOTA to WYOMING; TEXAS to ARIZONA.

242. THERMOPSIS R. Br.

600. **T. pinetorum** Greene. PINELAND THERMOPSIS.

Marshall, 5400 ft. (Daniels, 273). Open woodlands and hillsides, Boulder (Rydberg).

COLORADO to NEW MEXICO.

601. **T. divaricarpa** A. Nels. DIVARICATE-PODDED THERMOPSIS.

Abundant throughout the mesas, foothills, and mountains, 5600-11000 ft. (Daniels, 109). Also from Eldora to Baltimore (Rydberg).

WYOMING to COLORADO.

602. **T. arenosa** A. Nels. SAND THERMOPSIS.

In sandy soil, Eldora to Baltimore (Rydberg). Redrock lake, 10100 ft. (Ramaley & Robbins).

SASKATCHEWAN and MONTANA to COLORADO.

243. **LUPINUS** L. LUPINE.

603. **L. Plattensis** S. Wats. PLATTE LUPINE.

Abundant on the plains, mesas, and foothills, 5100-8000 ft. (Daniels, 48).

NEBRASKA and WYOMING to COLORADO.

604. **L. rubricaulis** Greene. RED-STEMMED LUPINE.

Mesas and foothills, 5600-8000 ft. (Daniels, 394).

COLORADO.

604½. **L. alpestris** A. Nels. [*L. alsophilus* Greene]. ALPINE LUPINE.

Redrock lake, 10100 ft. (Ramaley & Robbins).

MONTANA to COLORADO and UTAH.

605. **L. parviflorus** Nutt. SMALL-FLOWERED LUPINE.

Among pines, Gregory Cañon and slopes of Green Mountain, 6000-8000 ft. (Daniels, 344).

SOUTH DAKOTA to MONTANA; COLORADO to UTAH.

606. **L. decumbens** Torr. [*L. argenteus decumbens* (Torr.) Gray; *L. leptostachys* Greene]. DECUMBENT LUPINE.

Common in the plains and foothills, 5100-9000 ft. (Daniels, 704).

NEBRASKA to MONTANA and OREGON; COLORADO to CALIFORNIA.

606a. *L. decumbens argentatus* Rydb. SILVERY DECUMBENT LUPINE.

Plains, foothills, and mountain slopes, 5100-9000 ft. (Daniels, 131). Also between Sunshine and Ward (Rydberg).

WYOMING to COLORADO.

244. *TRIFOLIUM* L. CLOVER.

607. *T. pratense* L. RED CLOVER.

Throughout the cultivated area, 5100-8500 ft. (Daniels, 744).

EUROPE and ASIA, thence cultivated and naturalized in all temperate lands.

608. *T. hybridum* L. ALSIKE CLOVER.

Roadsides and fields about Boulder, 5100-5700 ft. (Daniels, 244). Not in Rydberg's Flora.

EUROPE, thence to all temperate lands.

609. *T. repens* L. WHITE CLOVER. SHEEP CLOVER.

Common throughout the cultivated area, whence it has penetrated to distant cañons in the foothills, 5100-7500 ft. (Daniels, 500).

EUROPE: SIBERIA: SUB-ARCTIC AMERICA; now in the greater part of NORTH AMERICA.

610. *T. lividum* Rydb. LIVID CLOVER.

Above timberline, Arapahoe Peak, 11500-13000 ft. (Daniels, 1019).

WYOMING to COLORADO.

611. *T. dasycyllum* Torr. GRAY CLOVER.

Above timberline, Arapahoe Peak, 11500-13000 ft. (Daniels, 874). Also Eldora to Baltimore and in the mountains south of Ward (Rydberg).

MONTANA to COLORADO.

245. *MEDICA* Hill. LUCERNE.

612. *M. sativa* (L.) Hill [*Medicago sativa* L.]. ALFALFA.

Throughout the cultivated area, and extending into the mountains along the roads and railroads, 5100-7000 ft. (Daniels, 509).

EUROPE, thence to all temperate lands.

246. **MEDICAGO** L. MEDIC.613. **M. lupulina** L. HOP MEDIC.

Streets of Boulder, and about the quarries at the base of the Flat-irons, 5300-6000 ft. (Daniels, 658). Not in Rydberg's Flora.

EUROPE and ASIA, becoming cosmopolitan.

247. **MELILOTUS** Juss. SWEET CLOVER. MELILOT.614. **M. alba** Desv. WHITE SWEET CLOVER.

Throughout the cultivated area, and abundant along railroads, 5100-7000 ft. (Daniels, 591).

EUROPE and ASIA, thence to NORTH AMERICA.

615. **M. officinalis** (L.) Lam. YELLOW MELILOT.

Streets and waste places, and about the quarries at the base of the Flat-irons, 5100-6000 ft. (Daniels, 657).

EUROPE and ASIA, thence to NORTH AMERICA.

248. **GEOPRUMNON** Rydb. GROUND PLUM.616. **G. succulentum** (Richardson) Rydb. [*Astragalus succulentus* Richardson; *A. prunifer* Rydb.]. SUCCULENT GROUND PLUM.

Plains and foothills about Boulder, 5100-7000 ft. (Daniels).

SASKATCHEWAN to MONTANA; SOUTH DAKOTA to COLORADO.

249. **ASTRAGALUS** L. MILK VETCH.617. **A. Canadensis** L. [*A. Carolinianus* L.]. CANADA MILK VETCH.

Frequent on the plains, mesas, and along cañons in the foothills, 5100-7000 (Green Mt.) ft. (Daniels, 461).

QUEBEC to BRITISH COLUMBIA; FLORIDA to CALIFORNIA.

618. **A. oreophilus** Rydb. MOUNTAIN MILK VETCH.

Plains, mesas, and foothills, local, 5100-8000 ft. (Daniels, 124).

COLORADO,

619. **A. nitidus** Dougl. SHINING MILK VETCH.

Cañons, north slope of Green Mt., 7000 ft. (Daniels, 278).

SASKATCHEWAN to ALBERTA and OREGON; MINNESOTA to COLORADO.

620. **A. sulphurescens** Rydb. SULPHUR MILK VETCH.

Gregory Cañon, and cañons on Green Mt., 6000-7500 ft. (Daniels, 613). Also Boulder Cañon and near Boulder (Rydberg). Redrock lake, 10100 ft. (Ramaley & Robbins).

COLORADO.

621. **A. virgultatus** Sheld. [*A. hypoglottis bracteosus* Osterh.].

BUSHY MILK VETCH.

At Boulder, 5000-8000 ft. (Rydberg).

WYOMING to COLORADO.

622. **A. goniatus** Nutt. [*A. hypoglottis polyspermus* T. & G.].

PURPLE MILK VETCH.

Abundant on the plains, mesas, and along streams in the foothills, 5100-9000 ft. (Daniels, 5).

SASKATCHEWAN to WASHINGTON; COLORADO to CALIFORNIA.

250. **TIUM** Medic.623. **T. Drummondii** (Dougl.) Rydb. [*Astragalus Drummondii* Dougl.]. DRUMMOND'S MILK VETCH.

Mesas and foothills, 5700-8000 ft. (Daniels, 76). Valmont (Coulter in Wabash College Herb.).

SASKATCHEWAN to ALBERTA; NEBRASKA to COLORADO.

624. **T. alpinum** (L.) Rydb. [*Astragalus alpinus* L.].

ALPINE MILK VETCH.

Boulder Cañon above Falls; Eldora and along the Arapahoe Trail to timberline, 7000-11500 ft. (Daniels, 857).

LABRADOR to ALASKA; VERMONT to COLORADO: NORTHERN EUROPE and ASIA.

251. **ATELOPHRAGMA** Rydb.625. **A. elegans** (Hook.) Rydb. [*Phaca elegans* Hook.; *Astragalus oroboides Americanus* Gray]. PRETTY MILK VETCH.

About Eldora and along the Arapahoe Trail to timberline and beyond, 8600-13000 ft. (Daniels, 1020).

LABRADOR and QUEBEC to SASKATCHEWAN; IDAHO to COLORADO.

252. **XYLOPHACOS** Rydb.

626. **X. Parryi** (Gray) Rydb. [*Astragalus Parryi* Gray]. PARRY'S MILK VETCH.

On rocks, Gregory Cañon road and other bare ridges in the foothills, 5900-9000 ft. (Daniels, 638).

WYOMING to COLORADO.

627. **X. Shortianus** (Nutt.) Rydb. [*Astragalus Shortianus* Nutt.]. SHORT'S MILK VETCH.

Dry plains, mesas, and ridges in the foothills, 5100-9000 ft. (Daniels, 35).

NEBRASKA to WYOMING; COLORADO to ARIZONA.

253. **HOMALOBUS** Nutt.

628. **H. tenellus** (Pursh) Britton [*Astragalus tenellus* Pursh; *A. multiflorus* (Pursh) Gray]. SLENDER MILK VETCH.

Boulder Cañon above Falls and at Eldora, 7000-10000 ft. (Daniels, 539). Also at Ward, and mountains between Sunshine and Ward (Rydberg).

SASKATCHEWAN to YUKON; MINNESOTA and NEBRASKA to COLORADO and NEVADA.

629. **H. decumbens** Nutt. [*Astragalus decumbens* Gray]. DECUMBENT MILK VETCH.

Valley lying west of South Boulder Peak and Bear Mountain, 7000-7500 ft. (Daniels, 444).

WYOMING to COLORADO.

630. **H. campestris** Nutt. [*Astragalus campestris* Gray; *A. convallarius* Greene]. PLAINS MILK VETCH.

Meadows on Green Mountain, 6500-8100 ft. (Daniels, 316).

MONTANA to BRITISH COLUMBIA; COLORADO to UTAH.

631. **H. flexuosus** (Dougl.) Rydb. [*Phaca flexuosa* (Dougl.) Hook.; *Astragalus flexuosus* Dougl.]. FLEXILE MILK VETCH.

Near Boulder (Rydberg).

SASKATCHEWAN to ALBERTA; MINNESOTA to KANSAS and COLORADO.

632. **H. Salidae** Rydb. SALIDA MILK VETCH.

Plains in Boulder, 5600 ft. (Daniels, 4).

COLORADO.

254. **OROPHACA** Britton.633. **O. tridactylica** (Gray) Rydb. [*Astragalus tridactylus* Gray]. THREE-FINGERED MILK VETCH.

St. Vrain's Cañon (Rydberg; also Coulter in Wabash College Herb.).

COLORADO.

255. **ARAGALLUS** Necker. LOCO-WEED.634. **A. deflexus** (Pall.) Heller [*Oxytropis deflexa* (Pall.) DC.]. DEFLEXED LOCO-WEED.

Boulder Cañon; also in subalpine meadows about Eldora and along the Arapahoe Trail, 6000-11000 ft. (Daniels, 808).

SASKATCHEWAN and ALASKA to NEW MEXICO.

634½. **A. multiceps** (Nutt) Heller [*Oxytropis multiceps* Nutt.]. CESPITOSE LOCO-WEED.

Boulder Cañon, 9000 ft. (Coulter in Wabash College Herb.). Redrock lake, 10100 ft. (Ramaley & Robbins).

NEBRASKA to WYOMING and COLORADO.

635. **A. minor** (Gray) Cockerell. Nov. comb. [*Oxytropis multiceps minor* Gray; *A. multiceps minor* (Gray) A. Nels.]. LITTLE LOCO-WEED.

Sugarloaf, 8500 ft. (Cockerell). Also mountains between Sunshine and Ward, and at Caribou (Rydberg).

COLORADO.

636. **A. patens** Rydb. BROAD-LEAVED LOCO-WEED.

Plains and foothills near Boulder; below Sunshine and Ward; Eldora to Baltimore (Rydberg). Common throughout, 5500-9000 ft. (Daniels, 333). Boulder is the type locality.

COLORADO.

637. **A. Lamberti** (Pursh) Greene [*Oxytropis Lamberti* Pursh; *Spiesia Lamberti* (Pursh) Kuntze]. LAMBERT'S LOCO-WEED.

Abundant on the plains, mesas, foothills, and in subalpine meadows, 5100-9000 ft. (Daniels, 15). Also on the mountains between Sunshine and Ward, and from Eldora to Baltimore (Rydberg). Saint Vrain creek (Coulter in Wabash College Herb.).

MINNESOTA to MONTANA; MISSOURI to COLORADO.

638. **A. sericeus** (Nutt.) Greene [*Oxytropis sericea* Nutt.; *Spiesia Lamberti sericea* (Nutt.) Rydb.] SILKY LOCO-WEED.

With the preceding, 5100-9000 ft. (Daniels, 43).

NORTH DAKOTA to WYOMING; NEW MEXICO to ARIZONA.

639. **A. Richardsonii** (Hook.) Greene [*Oxytropis splendens Richardsonii* Hook.]. RICHARDSON'S LOCO-WEED.

In mountain valleys from Eldora to Baltimore (Rydberg). SASKATCHEWAN to YUKON; and in the ROCKY MOUNTAINS to COLORADO.

256. GLYCYRRHIZA L. WILD LIQUORICE.

640. **G. lepidota** Nutt. SCALY WILD LIQUORICE.

Common along roads and railroads, and in the larger cañons, and on the plains throughout, 5100-8000 ft. (Daniels, 160).

ONTARIO to WASHINGTON; NEW YORK to ARIZONA and MEXICO.

257. AMORPHA L. FALSE INDIGO. LEAD PLANT.

641. **A. fruticosa** L. SHRUBBY FALSE INDIGO.

Along streams and in gulches in the mesas and plains, 5100-6000 ft. (Daniels, 50). Not in Rydberg's Flora. Prof. Ramaley reports *A. angustifolia* (Pursh) Boynton from Boulder, but according to Prof. Cockerell the specimen in the Univ. of Colorado Herbarium is *A. fruticosa* L.

OHIO to MANITOBA; FLORIDA to COLORADO and CHIHUAHUA.

642. **A. nana** Nutt. [*A. microphylla* Pursh]. SMALL-LEAVED FALSE INDIGO.

Dry plains between Boulder and Marshall, 5400 ft. (Daniels, 521).

IOWA to MANITOBA; MISSOURI to COLORADO.

258. PSORALEA L. INDIAN BREADROOT. POMME BLANCHE.

643. **P. tenuiflora** Pursh. FEW-FLOWERED INDIAN BREADROOT.
One of the commonest and most characteristic plants of the plains and mesas, and in open meadows on the foothills, 5100-8000 ft. (Daniels, 297). A white-flowered form is occasional (Daniels, 297a).

MINNESOTA to MONTANA; ILLINOIS to ARKANSAS, TEXAS and ARIZONA.

644. **P. argophylla** Pursh. SILVER-LEAF INDIAN BREADROOT.
Local on the plains and mesas, 5100-6000 ft. (Daniels, 189).
WISCONSIN to SASKATCHEWAN; MISSOURI to NEW MEXICO and ARIZONA.

259. PETALOSTEMON Lam. PRAIRIE CLOVER.

645. **P. oligophyllus** (Torr.) Rydb. [*P. gracilis oligophyllus* Torr.; *Kuhnistera oligophylla* (Torr.) Heller]. SLENDER WHITE PRAIRIE CLOVER.

On the plains and mesas, 5100-6000 ft. (Daniels, 161).

IOWA to ASSINIBOIA; TEXAS to ARIZONA and MEXICO.

646. **P. purpureus** (Vent.) Rydb. [*P. violaceus* Michx.; *Kuhnistera purpurea* (Vent.) MacM.]. VIOLET PRAIRIE CLOVER.

Common on the plains and mesas, 5100-7000 ft. (Daniels).

INDIANA to SASKATCHEWAN and ALBERTA; MISSOURI to TEXAS and NEW MEXICO.

647. **P. pubescens** A. Nelson. HAIRY VIOLET PRAIRIE CLOVER.
Plains about Boulder, 5600 ft. (Daniels, 349).
COLORADO.

260. VICIA L. VETCH.

648. *Vicia sparsifolia* Nutt. [*V. linearis* (Nutt.) Greene].
NARROW-LEAVED VETCH.

Mesas and gulches about Boulder, 5600-6000 ft. (Daniels, 334).

MANITOBA and ALBERTA to IDAHO; KANSAS to CALIFORNIA.

649. *V. dissitifolia* (Nutt.) Rydb. [*Lathyrus dissitifolius* Nutt.]. REMOTE-LEAVED VETCH.

In gulches and cañons in the plains, mesas, and foothills, 5100-9000 ft. (Daniels, 107).

NEBRASKA to COLORADO.

650. *V. oregana* Nutt. MOUNTAIN VETCH.

Common throughout in cañons and along the banks of streams, 5100-10000 ft. (Daniels, 78).

MINNESOTA to SASKATCHEWAN and WASHINGTON; KANSAS to CALIFORNIA.

651. *V. producta* Rydb. SMALL-FLOWERED MOUNTAIN VETCH.

Gulches on east slope of Flagstaff Hill, 6000 ft. (Daniels, 100).

COLORADO to UTAH; NEW MEXICO to CALIFORNIA.

261. LATHYRUS L. VETCHLING.

652. *L. leucanthus* Rydb. WHITE-FLOWERED VETCHLING.

Common in gulches and cañons, 5700-7000 ft. (Daniels, 79).

COLORADO to NEW MEXICO.

262. APIOS Moench. GROUND NUT.

653. *A. Apios Boulderensis* Daniels. Nov. var. BOULDER GROUND NUT.

Differing from the typical eastern plant chiefly in the somewhat larger, thinner long-acuminate leaflets, which are nine as well as seven in number, the somewhat smaller brownish deep-violet flowers, which are densely granular under a lens. No pods were secured, nor tubers from the rootstock, only one vine being discovered, which it did not seem wise to up-root for fear of exterminating the plant in the only locality known for the ground nut in the Rocky Mountains.

One vine in a gulch at the foot of Flagstaff Hill, Aug. 18, 1906, 5900-6000 ft. (Daniels, 799).

The species ranges from NEW BRUNSWICK to ONTARIO; FLORIDA to LOUISIANA and EASTERN KANSAS.

Order 24. GERANIALES.

Family 62. GERANIACEAE J. St. Hil. Geranium family.

263. GERANIUM L. CRANESBILL.

654. *G. Richardsonii* Fish. & Traut. [*G. gracilentum* Greene].
RICHARDSON'S CRANESBILL.

Common in springy cañons and damp meadows in the foothills and mountains, 6500-8600 ft. (Daniels, 447).

SASKATCHEWAN to BRITISH COLUMBIA; NEW MEXICO to CALIFORNIA.

655. *G. Parryi* (Engelm.) Heller [*G. Fremontii Parryi* Engelm.]. PARRY'S CRANESBILL.

Meadows and gulches in the high mesas and foothills, 5700-8000 ft. (Daniels, 64). Long's Peak (Coulter in Wabash College Herb.).

WYOMING to COLORADO.

656. *G. Pattersonii* Rydb. PATTERSON'S CRANESBILL.
Eldora to Baltimore (Rydberg).
COLORADO.

657. *G. Fremontii* Torr. in Gray. FREMONT'S CRANESBILL.
Abundant on the plains, mesas, and mountain meadows, 5100-8600 ft. (Daniels, 62). Five miles north of Boulder (Cockerell). St. Vrain Cañon (Coulter in Wabash College Herb.).

COLORADO.

658. *G. longipes* (Wats.) Goodding [*G. Bicknellii* Britton].
BICKNELL'S CRANESBILL.

Waste places, acting like an introduced weed, about Boulder, and along Boulder Cañon road almost to the Falls in the vicinity of houses, 5100-7000 ft. (Daniels, 558).

NOVA SCOTIA to BRITISH COLUMBIA; NEW YORK to CALIFORNIA.

264. ERODIUM L. STORK'S-BILL.

659. *E. cicutarium* (L.) L'Her. HEMLOCK STORK'S-BILL.
PIN-CLOVER.

Boulder (Rydberg), where it is very common (Cockerell).
EUROPE, thence to NORTH AMERICA.

Family 63. LINACEAE Dumont. Flax family.

265. LINUM L. FLAX.

660. *L. Lewisii* Pursh [*L. perenne Lewisii* (Pursh) Eat. & Wright]. LEWIS'S FLAX.

Abundant on the plains, mesas, and open mountain slopes,
5100-8600 ft. (Daniels, 132).

MACKENZIE to YUKON; TEXAS to CALIFORNIA and MEXICO.

661. *L. pratense* (Norton) Small. MEADOW FLAX.

Abundant in a meadow north of Boulder (Henderson & Cockerell).

Range of the preceding.

Family 64. OXALIDACEAE Lindl. Wood sorrel family.

266. XANTHOXALIS Small. YELLOW WOOD SORREL.

662. *X. stricta* (L.) Small [*Oxalis stricta* L.] UPRIGHT YELLOW WOOD SORREL.

Common throughout except at the higher elevations, especially along roads and railroads, and in yards about houses, 5100-8000 ft. (Daniels, 572).

NOVA SCOTIA to SOUTH DAKOTA; FLORIDA to TEXAS and COLORADO: adventitious in EUROPE.

Order 25. EUPHORBIALES.

Family 65. EUPHORBIACEAE St. Hil. Spurge family.

267. CROTON L. CROTON.

663. *C. Texensis* (Klotzsch) Muell. Arg. TEXAS CROTON.
Longmont and Boulder (Rydberg).

ILLINOIS to WYOMING; ALABAMA to ARIZONA and MEXICO.

268. **TRAGIA L.** NETTLE SPURGE.

664. **T. ramosa** Torr. BRANCHING NETTLE SPURGE.
 Dry soil and under rocks, 5100-6000 ft. (Daniels, 86).
 MISSOURI to COLORADO; TEXAS to ARIZONA and MEXICO.

269. **CHAMAESYCE** S. F. Gray. SPURGE.

665. **C. petaloidea** (Engelm.) Small [*Euphorbia petaloidea* Engelm.]. WHITE-FLOWERED SPURGE.
 Along the road and railroad in Boulder Cañon, and in creek-sands along Boulder creek, 5400-7000 ft. (Daniels, 775). Also at Longmont (Rydberg).
 IOWA to WYOMING; TEXAS to COLORADO.
666. **C. Fendleri** (T. & G.) Small [*Euphorbia Fendleri* T. & G.]. FENDLER'S SPURGE.
 Foot of Valmont Butte, near Owen's lake, 5300-5400 ft. (Daniels, 666).
 NEBRASKA to WYOMING; TEXAS to ARIZONA.
667. **C. glyptosperma** (Engelm.) Small [*Euphorbia glyptosperma* Engelm.]. RIDGE-SEEDED SPURGE.
 Abundant in sandy places and along railroads, 5100-7000 (Sunset Cañon) ft. (Daniels, 576).
 ONTARIO to BRITISH COLUMBIA; TEXAS to MEXICO.
668. **C. rugulosa** (Engelm.) Rydb. [*Euphorbia serpyllifolia rugulosa* Engelm.]. RUGULOSE-SEEDED SPURGE.
 Mountains between Sunshine and Ward (Rydberg).
 WYOMING and NEW MEXICO to CALIFORNIA.
669. **C. serpyllifolia** (Pers.) Small [*Euphorbia serpyllifolia* Pers.]. THYME-LEAVED SPURGE.
 Very common in waste places, along roadsides and railroads, and on creek-sands, 5100-8000 ft. (Daniels, 420). Also at Lyons (Rydberg).
 MICHIGAN to WASHINGTON; TEXAS to CALIFORNIA and MEXICO.

270. **TITHYMALUS** Adans.

670. **T. marginatus** (Pursh) Cockerell [*Euphorbia marginata* Pursh; *Dichrophyllum marginatum* (Pursh) Kl. & Garcke]. SNOW-ON-THE-MOUNTAIN.

Plains and mesas about Boulder, 5100-6000 ft. (Daniels, 188). My specimens have flowers with five glands.

MINNESOTA to MONTANA; MISSOURI to TEXAS and COLORADO.

670a. **T. marginatus tetramerus** Cockerell. BOULDER SNOW-ON-THE-MOUNTAIN.

Very common about Boulder; although in some plants the central flower of each umbel has five petaloid appendages, the others have but three or four. An occasional form—*forma inornata* has the white margin of the leaves obsolete, or nearly so, but my material is too scant to enable me to determine whether this is characteristic of the variety alone, though a few of my specimens have the central flower with five appendages, 5100-7000 ft. (Daniels, 957).

671. **T. robustus** (Engelm.) Small [*Euphorbia montana robusta* Engelm.]. STOUT SPURGE.

High mesas fronting the Flat-irons, 5700-6000 ft. (Daniels, 187). Also at Longmont (Rydberg).

SOUTH DAKOTA to MONTANA; COLORADO to ARIZONA.

672. **T. phlorus** Cockerell [*Euphorbia montana* Engelm.; not Raf.]. MOUNTAIN SPURGE.

Frequent on the plains, mesas and foothills, 5500-8000 ft. (Daniels, 16). Boulder Cañon (Porter & Coulter). A form,—*forma dichotoma* (Daniels, 367) from the high ridges of Green Mt. repeatedly forks into long leafy branches topped by a cluster of two or three flowers, with a few others in the axils of the upper leaves, the central cyme or umbel not being present.

COLORADO to UTAH; TEXAS to ARIZONA.

673. **T. Arkansanus** (Engelm. & Gray) Kl. & Garcke [*Euphorbia Arkansana* Engelm. & Gray]. ARKANSAS SPURGE.

Plains about Boulder, especially on the banks of irrigation ditches, 5100-6000 ft. (Daniels, 391).

MISSOURI to SOUTH DAKOTA and COLORADO; ALABAMA to ARIZONA.

271. POINSETTIA Graham.

674. **P. cuphosperma** (Engelm.) Small [*Euphorbia cuphosperma* Boiss.]. WARTY SPURGE.

Plains east of Boulder and along railroads, 5100-6000 ft. (Daniels, 692). Tenth Street, Boulder (Cockerell).

SOUTH DAKOTA to WYOMING; TEXAS to ARIZONA and MEXICO.

675. **P. dentata** (Michx.) Small [*Euphorbia dentata* Michx.]. TOOTHED SPURGE.

On the plains and mesas, frequent, 5100-6000 ft. (Daniels, 431).

PENNSYLVANIA to SOUTH DAKOTA; LOUISIANA to UTAH and MEXICO.

Family 66. CALLITRICHACEAE Lindl. Water starwort family.

272. CALLITRICHE L. WATER STARWORT.

676. **C. palustris** L. MARSH WATER STARWORT.

Aspen bog, Glacier Lake; also in streams and ponds about Boulder, 5100-9000 ft. (Daniels, 248). Eldora lake (W. W. Robbins).

NOVA SCOTIA to BRITISH COLUMBIA; FLORIDA to CALIFORNIA; EUROPE: ASIA: SOUTH AMERICA.

677. **C. bifida** (L.) Morong [*C. autumnalis* L.]. AUTUMNAL WATER STARWORT.

South Boulder creek, Arapahoe Road, common; in company with the preceding species, but more abundant, 5200-5400 ft. (Daniels, 738). Not in Rydberg's Flora.

QUEBEC to MANITOBA and OREGON; MICHIGAN to COLORADO.

Order 26. SAPINDALES.

Family 67. SPONDIACEAE Kunth. Cashew family.

273. TOXICODENDRON Miller. POISON IVY.

678. *T. Rydbergii* (Small) Greene [*Rhus Rydbergii* Small].
RYDBERG'S POISON IVY.

Common along streams, roadsides, gulches, and cañons for some distance in the mountainous region, 5100-7000 (Bear Cañon) ft. (Daniels, 42).

MONTANA to BRITISH COLUMBIA; NEBRASKA to COLORADO.

274. RHUS L. SUMACH.

679. *R. glabra cismontana* (Greene) Cockerell. Nov. comb.
[*R. cismontana* Greene]. CISMONTANE SUMACH.

Common on the mesas and foothills, 5400-8000 ft. (Daniels, 221). Magnificently scarlet in the fall.

DAKOTA and UTAH to NEW MEXICO and ARIZONA.

275. SCHMALTZIA Desv. FRAGRANT SUMAC.

680. *S. trilobata* (Nutt.) Small [*Rhus trilobata* Nutt.].
THREE-LOBED FRAGRANT SUMAC.

On the dry banks of streams, and on dry hills and ridges, 5400-8000 ft. (Daniels, 599).

ASSINIBOIA to WASHINGTON; MISSOURI to TEXAS, CALIFORNIA, and MEXICO.

Family 68. ACERACEAE J. St. Hil. Maple family

276. ACER L. MAPLE.

681. *A. glabrum* Torr. SMOOTH MAPLE.

In gulches and cañons and along streams, 5400-8600 ft. (Daniels, 96). Also in the mountains between Sunshine and Ward, and from Eldora to Baltimore (Rydberg).

NEBRASKA to WYOMING; NEW MEXICO to UTAH.

- 681a. *A. glabrum tripartitum* (Nutt.) Pax [*A. tripartitum* Nutt.]. THREE-LEAVED MAPLE.

Along Boulder Cañon road, 6000-7000 ft. (Daniels, 285).

Range of the type.

277. **RULAC** Adans. BOX ELDER.

682. **R. Negundo** (L.) Hitchc. [*Acer Negundo* L.; *Negundo Negundo* (L.) Karst.; *Negundo aceroides* Moench].
COMMON BOX ELDER.

Common along streams, 5100-7000 ft. (Daniels, 390). Also St. Vrain creek below Lyons (Ramaley).

VERMONT to IDAHO; FLORIDA to TEXAS.

683. **R. Texanum** (Pax) Small [*Acer Texanum* Pax; *Acer Negundo Texanum* Pax]. TEXAN BOX ELDER.

Bear and Bluebell Cañons (Ramaley). Foothills near Boulder (Rydberg).

SASKATCHEWAN to MONTANA; MISSOURI to ARIZONA.

Order 27. **RHAMNALES**.Family 69. **FRANGULACEAE** D C. Buckthorn family.278. **CEANOTHUS** L. NEW JERSEY TEA.

684. **C. velutinus** Dougl. VARNISHED NEW JERSEY TEA.

Common on the foothills, 6000-8000 ft. (Daniels, 272). Also mountains between Sunshine and Ward (Rydberg); Eldora and near foot of Long's Peak (Ramaley).

MONTANA to BRITISH COLUMBIA; COLORADO to CALIFORNIA.

685. **C. mollissimus** Torr. [*C. ovatus pubescens* T. & G.; *C. pubescens* (T. & G.) Rydb.] HAIRY NEW JERSEY TEA.

Common on the mesas and foothills, 5600-8000 ft. (Daniels, 65). Eldora (Ramaley).

MICHIGAN to SOUTH DAKOTA; MISSOURI to COLORADO.

686. **C. subsericeus** Rydb. SILKISH NEW JERSEY TEA.

Slopes of Green Mt., 6000-7000 ft. (Daniels, 756). Plains north of Marshall, and Boulder Cañon (Ramaley). Appears like a hybrid between the preceding and the next.

COLORADO.

687. **C. Fendleri** Gray. FENDLER'S NEW JERSEY TEA.

Common on the mesas, foothills, and mountains, 5600-9000 ft. (Daniels, 91). Also in the mountains between Sunshine

and Ward (Rydberg). South Boulder Cañon, and hill north of Nederland (Ramaley).

SOUTH DAKOTA to WYOMING; NEW MEXICO to ARIZONA.

Family 70. VITACEAE Lindl. Grape family.

279. VITIS L. GRAPE.

688. **V. vulpina** L. [*V. riparia* Michx.]. RIVER-BANK GRAPE.

Common along the banks of streams in the plains, mesas, and lower foothills, 5100-6000 ft. (Daniels, 110). Certain forms with strongly lobed leaves simulate *V. palmata* Vahl., and may be a distinct species.

NEW BRUNSWICK to NORTH DAKOTA; WEST VIRGINIA to TEXAS and COLORADO.

689. **V. Boulderensis** Daniels. Nov. sp. BOULDER GRAPE.

Plant weakly climbing, tendrils few, but these stout and little curled, bark reddish brown, the young twigs densely floccose pubescent, leaves small, at most 6 cm. long and wide, exclusive of the petiole, ovate to orbicular, the sinus often deep or sometimes shallow, broad and nearly obsolete; leaves mostly truncate at the top, the apices of the two shallow lateral lobes but little shorter than the main apex, the leaves, however, occasionally sharply acuminate, the margins coarsely dentate, slightly lobed, on slender petioles, which are loosely floccose as well as the veins both above and beneath, but becoming glabrate in age; clusters small, mostly in simple racemes, or with one or two prominent branches, fruit not set on the only vine discovered, and all flowers examined staminate.

Nearest *Vitis Arizonica* Engelm.

Gulch at base of Flagstaff Hill, 5800-6000 ft. (Daniels, 119).

280. PESEDERA Neck. VIRGINIA CREEPER.

690. **P. vitacea** (Hitchc.) Greene [*Ampelopsis quinquefolia vitacea* (Hitchc.) Knerr; *Parthenocissus vitacea* (Hitchc.)]. VINELIKE VIRGINIA CREEPER.

Common about streams and along fences, in the latter case perhaps the plant is *P. quinquefolia* (L.) Planch, intro-

duced; my material which came from cañons in the foothills is, however, all of *P. vitacea* (Hitche.) Greene, 5100-6500 ft. Daniels, 584).

MICHIGAN to WYOMING; OHIO to ARIZONA.

Order 28. MALVALES.

Family 71. MALVACEAE Neck. Mallow family.

281. MALVA L. MALLOW.

691. *M. rotundifolia* L. ROUND-LEAVED MALLOW. COMMON CHEESES.

Common in waste places, and following the roads and railroads, into the foothills, 5100-7000 ft. (Daniels, 587).

EUROPE, thence to NORTH AMERICA.

282. SIDALCEA Gray. WESTERN MALLOW.

692. *S. candida* Gray. WHITE WESTERN MALLOW.

Along irrigation ditches and streams and in moist mountain meadows, both at Boulder (rare) and at Eldora, 5400-11000 ft. (Daniels, 162).

WYOMING to NEW MEXICO and UTAH.

283. ALTHAEA L. HOLLYHOCK.

693. *A. rosea* Cav. COMMON HOLLYHOCK.

Escaped to roadsides and along streams at Boulder, 5300-5600 ft. (Daniels, 746).

TURKEY, GREECE, and CRETE, thence widely cultivated.

284. MALVASTRUM Gray. FALSE MALLOW.

694. *M. dissectum* (Nutt.) Cockerell. SCARLET FALSE MALLOW.

Common on the plains and mesas, 5100-6000 ft. (Daniels, 204).

SASKATCHEWAN to OREGON; IOWA to TEXAS and UTAH.

Order 29. HYPERICALES.

Family 72. HYPERICACEAE Lindl. St. Johnswort family.

285. HYPERICUM L. ST. JOHN SWORT.

694½. *H. formosum* H. B. K. HANDSOME ST. JOHN SWORT.
Common in mountain swamps (Ramaley).
COLORADO and UTAH to MEXICO and SOUTHERN CALIFORNIA.

695. *H. majus* (Gray) Britton [*H. Canadense majus* Gray].
LARGER CANADIAN ST. JOHN SWORT.

Along streams in the plains, a dwarf form only a decimetre high, 5100-5400 ft. (Daniels, 787). Also foothills near Boulder (Rydberg).

MAINE to BRITISH COLUMBIA; NEW JERSEY to COLORADO.

Family 73. VIOLACEAE D C. Violet family.

286. VIOLA L. VIOLET.

696. *V. palustris* L. MARSH VIOLET.
Eldora to Baltimore (Rydberg).

LABRADOR to ALASKA; NEW YORK to COLORADO.

697. *V. pallens* (Banks) Brainerd. PALE VIOLET.

Caribou (Rydberg). Redrock lake, 10100 ft. (Ramaley & Robbins).

NEWFOUNDLAND to BRITISH COLUMBIA; NORTH CAROLINA to UTAH.

698. *V. cognata* Greene. WESTERN BLUE VIOLET.

Plains and foothills near Boulder (Rydberg).

SOUTH DAKOTA to ALBERTA; NEW MEXICO to CALIFORNIA.

699. *V. Nuttallii* Pursh. NUTTALL'S VIOLET.

Plains and foothills near Boulder (Rydberg). Abundant at Boulder (Cockerell).

MANITOBA to MONTANA; MISSOURI to NEW MEXICO and ARIZONA.

700. *V. vallicola* A. Nels. [*V. physalodes* Greene]. VALLEY VIOLET.

Spruce forest, Bear Cañon, 7000 ft. (Daniels, 760). The plant in fruit only.

NORTH DAKOTA to MONTANA; COLORADO to UTAH.

701. *V. biflora* L. TWO-FLOWERED VIOLET.

Eldora to Baltimore (Rydberg).

COLORADO: EUROPE: ASIA.

702. *V. Canadensis Rydbergii* (Greene) House [*V. Rydbergii* Greene]. RYDBERG'S VIOLET.

Common in moist cañons and along streams, 5100-8000 ft. (Daniels, 126). Long's Peak (Coulter in Wabash College Herb.).

ALBERTA to IDAHO; SOUTH DAKOTA to COLORADO.

- 702a. *V. Canadensis Neo-Mexicana* (Greene) House [*V. Neo-Mexicana* Greene]. NEW MEXICO VIOLET.

Common in moist soil at Glacier Lake, Eldora, and Arapahoe Peak above timberline, 8000-12000 ft. (Daniels, 864). Also Eldora to Baltimore (Rydberg).

COLORADO to NEW MEXICO.

703. *V. bellidifolia* Greene. DAISY-LEAVED VIOLET.

Eldora to Baltimore (Rydberg). Redrock lake, 10100 ft. (Ramaley & Robbins).

WYOMING to COLORADO.

287. CALCEOLARIA Loefl. NODDING VIOLET.

704. *C. linearis* (Torr.) Daniels. Nov. comb. [*Ionidium lineare* Torr.]. NARROW-LEAVED NODDING VIOLET.

Banks of stream at foot of Flagstaff Hill, 5700-6000 ft. (Daniels, 108).

KANSAS to COLORADO; TEXAS to ARIZONA and MEXICO.

Order 30. OPUNTIALES.

Family 74. LOASACEAE Reichenb. Loasa family.

288. NUTTALLIA Raf. WESTERN STAR.

705. *N. multiflora* (Nutt.) Greene [*Mentzelia multiflora* (Nutt.) Gray; *Toutheria multiflora* (Nutt.) Rydb.]
MANY-FLOWERED WESTERN STAR.

Common on the plains, mesas, and foothills, 5100-8000 ft. (Daniels, 77).

TEXAS to COLORADO, ARIZONA and MEXICO.

706. *N. speciosa* (Osterh.) Greene [*Mentzelia speciosa* Osterh. ; *Toutheria speciosa* Osterh.]. SHOWY WESTERN STAR.

Near Boulder; also between Sunshine and Ward (Rydberg).

WYOMING to COLORADO.

707. *N. sinuata* (Rydb.) Daniels. Nov. comb. [*Toutheria sinuata* Rydb.]. WAVY-LEAVED WESTERN STAR.

At Boulder the type-locality (Rydberg).

COLORADO.

708. *N. nuda* (Pursh) Greene [*Mentzelia nuda* (Pursh) T. & G. ; *Toutheria nuda* (Pursh) Eat. & Wr.]. NAKED WESTERN STAR.

At Boulder (Rydberg).

NEBRASKA to WYOMING and COLORADO.

709. *N. stricta* (Osterh.) Greene [*Hesperaster strictus* Osterh.]. STRICT WESTERN STAR.

Along the Union Pacific Railroad, the flowers as large as in the next, but the outer filaments dilated, 5200-5400 ft. (Daniels, 678). Also at Lyons (Rydberg).

NEBRASKA to WYOMING; TEXAS to COLORADO.

710. *N. decapetala* (Pursh) Greene [*Bartonia decapetala* Pursh; *Mentzelia decapetala* (Pursh) Urb. & Gilg.; *M.*

ornata Pursh; *Touitorea decapetala* (Pursh) Rydb.]. TEN-
PETALLED WESTERN STAR.

Near Boulder (Rydberg).

ALBERTA to MONTANA; TEXAS to NEVADA.

289. ACROLASIA Presl. MENTZELIA.

711. **A. latifolia** Rydb. BROAD-LEAVED MENTZELIA.

At Boulder the type locality (Daniels). Between Sunshine
and Ward (Rydberg).

COLORADO.

712. **A. albicaulis** (Dougl.) Rydb. [*Mentzelia albicaulis*
Dougl.]. WHITE-STEMMED MENTZELIA.

Common in dry, especially sandy soil, 5100-6500 ft. (Daniels,
92).

NEBRASKA to BRITISH COLUMBIA; NEW MEXICO and UTAH.

712a. **A. albicaulis integrifolia** (Wats.) Daniels. Nov. comb.

[*Mentzelia albicaulis integrifolia* Wats.; *A. integrifolia*
(Wats.) Rydb.; *M. dispersa* Wats.]. ENTIRE-LEAVED
MENTZELIA.

With the preceding, into which it apparently passes, 5100-
6500 ft. (Daniels, 88).

MONTANA to BRITISH COLUMBIA; COLORADO to CALIFORNIA.

Family 75. CACTACEAE H. B. K. Cactus family.

290. CACTUS L. BALL CACTUS.

713. **C. viviparus** Nutt. [*Mamillaria vivipara* (Nutt.) Haw.].

VIVIPAROUS BALL CACTUS.

Near Long's Peak (Porter & Coulter).

NEBRASKA and MONTANA to COLORADO.

291. ECHINOCEREUS Engelm. PRICKLY CEREUS.

714. **E. viridiflorus** Engelm. [*Cereus viridiflorus* Engelm.].

GREEN-FLOWERED PRICKLY CEREUS.

Common on the plains, mesas, and foothills, 5100-8000 ft.
(Daniels, 818). Not seen in flower.

KANSAS to WYOMING; TEXAS to NEW MEXICO.

292. **OPUNTIA** Mill. PRICKLY PEAR.

715. **O. mesacantha** Raf. [*O. humifusus* Raf.; *O. Rafinesquii* Engelm.]. WESTERN PRICKLY PEAR.

Abundant on the plains, mesas and foothills, the commonest cactus about Boulder, 5100-7000 ft. (Daniels, 93).

WISCONSIN and MINNESOTA to COLORADO; KENTUCKY and TEXAS to ARIZONA.

716. **O. polyacantha** Haw. MANY-SPINED PRICKLY PEAR.

On the mesas and foothills, apparently ascending higher than the preceding species, 5600-8000 ft. (Daniels, 690).

NORTH DAKOTA to BRITISH COLUMBIA; OKLAHOMA to NEW MEXICO and OREGON.

717. **O. rhodantha** K. Sch. RED-FLOWERED PRICKLY PEAR.

On the foothills near the juncture of Sunset and Boulder Cañons, 6500 ft. (Daniels).

NEBRASKA to COLORADO.

718. **O. Greenei** Englm., in Coult. Cont. U. S. Nat. Herb. 3. 431, [*O. mesacantha Greenei* (Engelm.). Coult.]. GREENE'S PRICKLY PEAR.

Vicinity of Boulder (Andrews).

COLORADO.

719. **O. fragilis** (Nutt.) Haw. BRITTLE PRICKLY PEAR.

Common on the plains, mesas, and lower foothills, 5100-6500 ft. (Daniels, 817). Not seen in flower.

WISCONSIN to BRITISH COLUMBIA; KANSAS to NEW MEXICO and UTAH.

Order 31. THYMELIALES.

Family 76. ELAEAGNACEAE Lindl. Silverberry family.

293. **LEPARGYRAEA** Raf. BUFFALO BERRY.

720. **L. Canadensis** (L.) Greene [*Shepherdia Canadensis* (L.) Nutt.]. CANADIAN BUFFALO BERRY.

Valleys in the foothills west of Bear Mountain and South Boulder Peaks, 7000 ft. (Daniels, 445). Also from Eldora to

Baltimore (Rydberg). Near Magnolia; Sugarloaf Mt.; Spencer Mt. (Ramaley).

NEWFOUNDLAND to ALASKA; NEW YORK and MICHIGAN to COLORADO and OREGON.

Order 32. MYRTALES.

Family 77. LYTHRACEAE Lindl. Loosestrife family.

293½. *AMMANNIA* L.

720½. *A. coccinea* Rottb. SCARLET AMMANNIA.

Marshall lake (W. W. Robbins).

MICHIGAN to SOUTH DAKOTA; FLORIDA to MEXICO: SOUTH AMERICA.

294. *LYTHRUM* L. LOOSESTRIFE.

721. *L. alatum* Pursh. WINGED LOOSESTRIFE.

Common in swales in the plains, 5100-5600 ft. (Daniels, 413).

MASSACHUSETTS to SOUTH DAKOTA; KENTUCKY to COLORADO.

Family 78. EPILOBIACEAE D C. Willowherb family.

295. *CHAMAENERION* Adans. FIREWEED.

722. *C. angustifolium* (L.) Scop. [*Epilobium angustifolium* L.]. GREAT WILLOW-HERB. NARROW-LEAVED FIREWEED.

Common throughout, especially in burns and in aspen thickets, 5700-10000 (Arapahoe Trail) ft. (Daniels, 211). Also at Caribou, and in the mountains between Sunshine and Ward (Rydberg). A form from the foothills has white flowers (Daniels, 196).

GREENLAND to ALASKA; NORTH CAROLINA to CALIFORNIA: EUROPE: ASIA.

722a. *C. angustifolium platyphyllum* Daniels. Nov. var.

Leaves remarkably large and broad, some being 17 cm. long and 4 cm. broad, and merely acutish at apex; lateral nerves

evident, confluent in loops; flowers few, 2-3 cm. wide, dark purple, subtended by large leaves; style pubescent at base.

Cañons on Green Mt., 6500-7000 ft. (Daniels, 268).

296. EPILOBIUM L. WILLOW-HERB.

723. *E. occidentale* (Trelease) Rydb. [*E. adenocaulon occidentale* Trellease]. WESTERN WILLOW-HERB.

In wet ground at Caribou and Boulder (Rydberg).

MONTANA to ALBERTA; SOUTH DAKOTA to COLORADO.

724. *E. adenocaulon* Haussk. NORTHERN WILLOW-HERB.

Common in swales and along streams in the plains, and in mountain cañons and aspen bogs, 5100-8600 ft. (Daniels, 243).

NEW BRUNSWICK to WASHINGTON; PENNSYLVANIA to CALIFORNIA.

725. *E. rubescens* Rydb. REDDISH WILLOW-HERB.

In aspen bogs at Glacier Lake and Eldora, 8600-10000 ft. (Daniels, 707).

COLORADO.

725½. *E. alpinum* L. ALPINE WILLOW-HERB.

Redrock lake, 10100 ft. (Ramaley & Robbins).

GREENLAND and ALASKA to NEW HAMPSHIRE, COLORADO, and CALIFORNIA.

726. *E. anagallidifolium* Lam. PIMPERNEL WILLOW-HERB.

Mountain slopes above Bloomerville near snow, and above timberline on Arapahoe Peak in wet tundras, 10000-12000 ft. (Daniels, 325). Also at Caribou (Rydberg).

LABRADOR and ARCTIC AMERICA to ALASKA; COLORADO to NEVADA: EUROPE: ASIA.

727. *E. paniculatum* Nutt. PANICLED WILLOW-HERB.

Common, especially on creek-sands and along roads and railroads, 5100-8600 ft. (Daniels, 440).

LAKE HURON to ALBERTA and BRITISH COLUMBIA; COLORADO and ARIZONA to CALIFORNIA.

728. **E. adenocladon** (Haussk.) Rydb. [*E. paniculatum adenocladon* Haussk.]. GLANDULAR PANICLED WILLOW-HERB. At Boulder (Rydberg).
SOUTH DAKOTA to WYOMING; COLORADO to UTAH.

297. GAYOPHYTUM Juss. GAYOPHYTE.

729. **G. intermedium** Rydb. INTERMEDIATE GAYOPHYTE.
Very common throughout except in the high alpine region, 5100-8600 (Eldora) ft. (Daniels, 159). Also at Caribou, Ward, and between Sunshine and Ward (Rydberg).
MONTANA to WASHINGTON; COLORADO to CALIFORNIA.

298. OENOTHERA L. EVENING PRIMROSE.

730. **O. strigosa** (Rydb.) Blankinship [*Onagra strigosa* Rydb.; *Oenothera biennis strigosa* Rydb.]. HAIRY EVENING PRIMROSE.
Common on the plains and foothills, 5100-8000 ft. (Daniels, 137).
MINNESOTA to WASHINGTON; MISSOURI to NEW MEXICO and UTAH.

731. **O. Hookeri** T. & G. [*O. biennis hirsutissima* Gray; *Onagra Hookeri* (T. & G.) Small]. HOOKER'S EVENING PRIMROSE.
Rare on the mesas and foothills, the flowers turning pink in withering, 5700-9000 ft. (Daniels, 562).
IDAHO to CALIFORNIA; NEW MEXICO to MEXICO.

299. ANOGRA Spach. WHITE EVENING PRIMROSE.

732. **A. albicaulis** (Pursh) Britton [*Oenothera albicaulis* Pursh; *O. pinnatifida* Nutt.]. WHITE-STEMMED WHITE EVENING PRIMROSE.
Common on the plains and mesas, and along the shore-sands of Boulder creek, 5100-7000 ft. (Daniels, 141).
NORTH DAKOTA to MONTANA; TEXAS to NEW MEXICO and SONORA.

733. **A. rhizomata** A. Nels. RHIZOMATOUS WHITE EVENING PRIMROSE.

Local on the plains, but abundant where found, since it spreads fast with its slender rootstocks, 5600-5400 ft. (Daniels, 393).

WYOMING to COLORADO.

734. **A. Nuttallii** (Sweet) A. Nels. [*Oenothera Nuttallii* Lindl.]. NUTTALL'S WHITE EVENING PRIMROSE.

At Boulder (Rydberg).

MINNESOTA to IDAHO and COLORADO.

735. **A. coronopifolia** (T. & G.) Britton [*Oenothera coronopifolia* T. & G.]. CUT-LEAVED WHITE EVENING PRIMROSE.

At Boulder (Rydberg). Very common from Boulder and Marshall up to about 8000 ft. in dry soil (Ramaley).

SOUTH DAKOTA to WYOMING; KANSAS to NEW MEXICO.

300. PACHYLOPHUS Spach. SCAPOSE EVENING PRIMROSE.

736. **P. montanus** (Nutt.) A. Nels. [*Oenothera montana* Nutt.]. MOUNTAIN SCAPOSE EVENING PRIMROSE.

In eroded soil on Green Mountain and along Boulder Cañon road, 6000-8000 ft. (Daniels, 536).

ASSINIBOIA to IDAHO; COLORADO to NEVADA.

737. **P. macroglottis** Rydb. LARGE-THROATED SCAPOSE EVENING PRIMROSE.

At Boulder (Rydberg).

COLORADO.

738. **P. hirsutus** Rydb. HAIRY SCAPOSE EVENING PRIMROSE. Mountains between Sunshine and Ward (Rydberg).

WYOMING to NEW MEXICO and UTAH.

301. LAVAUXIA Spach. DELAUX' EVENING PRIMROSE.

739. **L. brachycarpa** (Gray) Britton [*Oenothera brachycarpa* Gray]. SHORT-PODDED DELAUX' EVENING PRIMROSE.

At Boulder (Rydberg).

KANSAS to MONTANA; TEXAS to NEW MEXICO.

302. **MERIOLIX** Raf.

- 740.
- M. serrulata**
- (Nutt.) Walp. [
- Oenothera serrulata*
- Nutt.].

TOOTH-LEAVED EVENING PRIMROSE.

Common on the plains and foothills, 5100-8000 ft. (Daniels, 38).

MANITOBA TO SASKATCHEWAN; TEXAS TO ARIZONA.

303. **GAURA** L. GAURA.*

- 741.
- G. parviflora**
- Dougl. SMALL-FLOWERED GAURA.

Frequent on the plains, mesas, and lower foothills, 5100-7000 ft. (Daniels, 263).

SOUTH DAKOTA TO WASHINGTON; LOUISIANA TO ARIZONA and SONORA.

- 742.
- G. coccinea**
- Pursh. SCARLET GAURA.

Abundant on the plains and mesas, and in meadows on lower hillslopes, 5100-6300 ft. (Daniels, 12).

MANITOBA TO MONTANA; TEXAS TO ARIZONA and MEXICO.

- 743.
- G. glabra**
- Lehm. SMOOTH GAURA.

At Boulder (Rydberg).

SOUTH DAKOTA TO MONTANA; COLORADO TO ARIZONA.

304. **CIRCAEA** L. ENCHANTER'S NIGHTSHADE.

- 744.
- C. alpina**
- L. ALPINE ENCHANTER'S NIGHTSHADE.

Locally abundant along streams in shady cañons, 5700-8000 ft. (Daniels, 279).

LABRADOR TO ALASKA; GEORGIA TO COLORADO: EUROPE: ASIA.

*"Gaura and allied evening flowering plants have a special bee-visitor, *Halictus galpinsiae* Cockerell, which has been taken by my wife at Boulder. It flies in the evening, at 7:30 p. m., when the other bees have retired."—Prof. T. D. A. Cockerell, in a letter to the author, Jan. 23, 1908.

Family 79. **GUNNERACEAE** Endl. Gunnera family.

305. **MYRIOPHYLLUM** L. WATER MILFOIL.

745. **M. spicatum** L. SPIKED WATER MILFOIL.

Common in Boulder and Owen's lakes, 5200 ft. (Daniels, 661).

NEWFOUNDLAND to SASKATCHEWAN and IDAHO; FLORIDA to CALIFORNIA: EUROPE: ASIA.

Order 33. **UMBELLALES.**

Family 80. **HEDERACEAE** L. Ivy family.

306. **ARALIA** L. WILD SARSAPARILLA.

746. **A. nudicaulis** L. COMMON WILD SARSAPARILLA.

Very common in shady cañons, 5700-9000 ft. (Daniels, 341). South Boulder Cañon (Ramaley).

NEWFOUNDLAND to MANITOBA and IDAHO; NORTH CAROLINA to MISSOURI and COLORADO.

Family 81. **CORNACEAE** Link. Dogwood family.

307. **SVIDA** Opiz. DOGWOOD.

747. **S. stolonifera** (Michx.) Rydb. RED-OISER DOGWOOD.

Common along streams throughout, 5100-10000 ft. (Daniels, 289). Sugarloaf Mt.; South Boulder Cañon (Ramaley).

MANITOBA to MACKENZIE and ALASKA; NEBRASKA to COLORADO and ARIZONA.

Family 82. **AMMIACEAE** Presl. Parsley family.

308. **SANICULA** L. SANICLE.

748. **S. Marilandica** L. MARYLAND SANICLE. BLACK SNAKE-ROOT.

Common in springy gulches and cañons, 5100-8000 ft. (Daniels, 71).

NEWFOUNDLAND to WASHINGTON; GEORGIA to COLORADO.

309. OSMORRHIZA Raf. SWEET CICELY.

749. **O. longistylis** (Torr.) DC. [*Washingtonia longistylis* (Torr.) Britton]. SMOOTH SWEET CICELY.

Gulches in the mesas at the base of the foothills, rare, 5700-6300 ft. (Daniels, 118).

NOVA SCOTIA to ASSINIBOIA; GEORGIA to COLORADO.

750. **O. obtusa** (C. & R.) Fernald [*Washingtonia obtusa* C. & R.]. OBTUSE-FRUITED SWEET CICELY.

Common in cañons in the mesas, foothills and mountains, 5700-11000 (Arapahoe Trail) ft. (Daniels, 128).

ALBERTA to NEW MEXICO and CALIFORNIA.

310. CARUM L. CARAWAY.

751. **C. Carvi** L. COMMON CARAWAY.

Escaped in the mountains between Sunshine and Ward (Rydberg).

EUROPE and the MEDITERRANEAN region to THIBET and SIBERIA, thence to NORTH AMERICA.

311. CICUTA L. WATER HEMLOCK. COWBANE.

752. **C. occidentalis** Greene. WESTERN COWBANE. WESTERN MUSQUASH ROOT.

Swales in the plains, 5100-5600 ft. (Daniels, 412).

NORTH DAKOTA to IDAHO; NEW MEXICO to CALIFORNIA.

312. HARBOURIA C. & R. HARBOUR'S HEMLOCK.

753. **H. trachypleura** (Gray) C. & R. [*Cicuta trachypleura* (Gray) S. Wats.]. ROUGH-RIBBED HARBOUR'S HEMLOCK.

At Boulder, and in the mountains between Sunshine and Ward (Rydberg). In Boulder Cañon (Porter & Coulter). St. Vrain Cañon (Coulter in Wabash College Herb.). Common in the foothills. (Daniels, 157, in part.)

WYOMING to NEW MEXICO.

313. ALETES C. & R. MOUNTAIN CARAWAY.

754. **A. obovata** Rydb. OBOVATE-LEAVED MOUNTAIN CARAWAY.

Very common on naked mountain slopes, 6000-8100 (summit of Green Mt.) ft. (Daniels, 145).

COLORADO.

755. *A. acaulis* (Torr.) C. & R. [*Deweya acaulis* (Torr.); *Carum Hallii* S. Wats.]. STEMLESS MOUNTAIN CARAWAY.

High mesa at entrance to South Boulder Cañon, 5900-6000 ft. (Daniels, 422). Also in gulch south of Boulder (perhaps the same locality as the above), and in the mountains between Sunshine and Ward (Rydberg).

COLORADO to NEW MEXICO.

314. BERULA Hoffm.

756. *B. erecta* (Huds.) Coville [*B. angustifolia* (L.) Mert. & Koch]. CUT-LEAVED WATER PARSNIP.

In a springy puddle in the eastern part of Boulder, 5300-5400 ft. (Daniels, 410).

ONTARIO to BRITISH COLUMBIA; MASSACHUSETTS to TEXAS and CALIFORNIA: EUROPE: ASIA.

315. LIGUSTICUM L. LOVAGE.

757. *L. Porteri* C. & R. PORTER'S LOVAGE.

Common in shady cañons and gulches, 5700-10000 ft. (Daniels, 83). Also in the mountains between Sunshine and Ward (Rydberg). A plant was gathered in a cañon on the north slope of Green Mt., with somewhat differently shaped leaf-segments; it may possibly be *L. affine* A. Nels.

WYOMING to NEW MEXICO and ARIZONA.

316. MUSINEON Raf.

758. *M. divaricatum* (Pursh) C. & R. [*Seseli divaricatum* Pursh; *Adorium divaricatum* (Pursh) Rydb.]. LEAFY MUSINEON.

At Boulder (Rydberg).

ASSINIBOIA to ALBERTA; SOUTH DAKOTA to COLORADO.

317. OXYPOLIS Raf. WATER DROPWORT.

759. *O. Fendleri* (Gray) Heller [*Archemora Fendleri* Gray]. FENDLER'S WATER DROPWORT.

In bogs at Eldora and at Bloomerville, 8600-10000 ft. (Daniels, 310). Also between Sunshine and Ward (Rydberg).

WYOMING to NEW MEXICO.

318. CONIOSELINUM Hoffm. HEMLOCK PARSLEY.

760. *C. scopulorum* (Gray) C. & R. [*Ligusticum scopulorum* Gray]. ROCKY MOUNTAIN HELMLOCK PARSLEY.

In aspen bogs at Eldora, 8600-9000 ft. (Daniels, 721). Red-rock lake, 10100 ft. (Ramaley & Robbins).

COLORADO to NEW MEXICO and ARIZONA.

319. HERACLEUM L. COW PARSNIP.

761. *H. lanatum* Michx. WOOLLY COW PARSNIP.

Common in gulches and cañons, 5100-8600 ft. (Daniels, 75). Also between Sunshine and Ward (Rydberg).

LABRADOR and NEWFOUNDLAND to ALASKA; NORTH CAROLINA to CALIFORNIA.

320. ANGELICA L. ANGELICA.

762. *A. Grayi* C. & R. GRAY'S ANGELICA.

In wet tundras, Arapahoe Peak, above timberline, 11500-13000 ft. (Daniels, 891).

WYOMING to COLORADO.

763. *A. ampla* A. Nels. LARGE ANGELICA.

Bear Cañon, 6000-7000 ft. (Daniels, 763).

WYOMING to COLORADO.

321. PASTINACA L. PARSNIP.

764. *P. sativa* L. COMMON PARSNIP.

Very common in waste places about Boulder, and along Boulder Cañon road well towards Falls, 5100-7000 ft. (Daniels, 560).

EUROPE, thence to NORTH AMERICA.

322. COGSWELLIA Sprengel. PARSLEY.

765. *C. orientalis* (C. & R.) Jones [*Lomatium orientale* C. & R.; *Peucedanum nudicaule* Nutt. in part].

Common in the foothills, 4000-8000 ft. (Daniels, 157 in part).

SOUTH DAKOTA, MONTANA and IDAHO to KANSAS, NEW MEXICO and ARIZONA.

323. PSEUDOCYMOPTERUS C. & R. FALSE CYMOPTERUS.

766. *P. sylvaticus* A. Nels. SYLVAN FALSE CYMOPTERUS.
Mountains between Sunshine and Ward (Rydberg).
WYOMING to COLORADO.

767. *P. multifidus* Rydb. [*P. montanus multifidus* Rydb.].
MULTIFID-LEAVED FALSE CYMOPTERUS.
Arapahoe Peak, above timberline, 11500-12000 ft. (Daniels,
899).
COLORADO.

Series 2. SYMPETALAE.

Order 34. ERICALES.

Family 83. MONOTROPACEAE Lindl. Indian pipe family.

324. PTEROSPORA Nutt. PINE DROPS.

768. *P. Andromedea* Nutt. GIANT BIRD'S-NEST.
Rare under pines on the north slopes of Green Mt., 6000-
8100 ft. (Daniels, 530). Also on North and South Boulder
Peaks (Rydberg).
NOVA SCOTIA to ALASKA; GEORGIA to CALIFORNIA.

Family 84. PYROLACEAE Agardh. Wintergreen family.

325. CHIMAPHILA Pursh. PIPSISSEWA.

769. *C. umbellata* (L.) Nutt. UMBELLATE PIPSISSEWA.
Common in shady cañons on Green Mt., 6500-8100 ft. (Dan-
iels, 751). Also on north and south Boulder Peaks (Rydberg).
NOVA SCOTIA to ALASKA; GEORGIA to CALIFORNIA and MEX-
ICO: EUROPE: ASIA.

326. MONESES Salisb. SINGLE DELIGHT.

770. *M. uniflora* (L.) Gray [*Pyrola uniflora* L.]. ONE-
FLOWERED WINTERGREEN.
At Caribou (Rydberg). Redrock lake, 10100 ft. (Ramaley
& Robbins).
LABRADOR to ALASKA; PENNSYLVANIA to COLORADO and ORE-
GON: EUROPE: ASIA.

327. PYROLA L. WINTERGREEN. SHINLEAF.

771. *P. secunda* L. ONE-SIDED WINTERGREEN, OR SHINLEAF.

Shady banks of cañons on the north slopes of Green Mt., mainly under Douglas spruce, 6500-8100 ft. (Daniels, 531). Also in the mountains between Sunshine and Ward (Rydberg).

LABRADOR to ALASKA; DISTRICT OF COLUMBIA to CALIFORNIA; EUROPE: ASIA.

772. *P. uliginosa* Torr. [*P. rotundifolia uliginosa* Gray]. BOG WINTERGREEN, OR SHINLEAF.

With the preceding, 6500-8100 ft. (Daniels, 534). Also on South Boulder Peak (Rydberg).

NOVA SCOTIA to BRITISH COLUMBIA; NEW YORK to COLORADO and CALIFORNIA: JAPAN.

Family 85. ERICACEAE D C. Heath family.

328. ARCTOSTAPHYLOS Adans. BEARBERRY.

773. *A. Uva-ursi* (L.) Spreng. [*Uva-ursi Uva-ursi* (L.) Cockerell. nov. comb.; *U. procumbens* Moench]. RED BEARBERRY.

Common on dry slopes, 5800-8600 ft. (Daniels, 453). Also at Eldora and on the mountains between Sunshine and Ward (Rydberg). South Boulder Cañon; Sugarloaf Mt.; Pine Glade School; Copeland's (Ramaley). *Uva-ursi* (Tourn.) Miller, 1754, has priority over *Arctostaphylos* Adans. 1763, but should such a hyphenated word stand as a generic name?

LABRADOR and ARCTIC AMERICA to ALASKA; NEW JERSEY to COLORADO and OREGON: EUROPE: ASIA.

329. GAULTHERIA L. WINTERGREEN.

774. *G. humifusa* (Graham) Rydb. [*G. Myrsinitis* Hook.]. CREEPING WINTERGREEN.

Fourth of July Mine, 10000-11000 ft. (Andrews).

MONTANA to BRITISH COLUMBIA; COLORADO to CALIFORNIA.

330. KALMIA L. LAMBKILL.

775. *K. microphylla* (Hook.) Heller [*K. glauca microphylla* Hook.]. SMALL-LEAVED SWAMP LAUREL.

Above timberline, Arapahoe Peak, 11500-12000 ft. (Daniels, 900). Also at Caribou, and on Long's Peak (Rydberg). Camp Albion; Fourth of July Mine (Ramaley).

ALBERTA to ALASKA; COLORADO to CALIFORNIA.

Family 86. VACCINIACEAE Lindl. Blueberry family.

331. VACCINIUM L. BLUEBERRY. BILBERRY.

776. *V. caespitosum* Michx. DWARF BILBERRY.

From Eldora to Baltimore (Rydberg).

LABRADOR to ALASKA; NEW BRUNSWICK and NEW HAMPSHIRE to COLORADO and WASHINGTON.

777. *V. scoparium* Leiberg. [*V. Myrtillus microphyllum* HOOK; *V. erythrococcum* Rydb.]. RED-BERRIED BILBERRY.

Mountain slopes above Bloomerville near snow and on Arapahoe Peak above timberline, 9000-12000 ft. (Daniels, 331).

ALBERTA to BRITISH COLUMBIA; COLORADO to CALIFORNIA.

778. *V. oreophilum* Rydb. MYRTLE BLUEBERRY.

Common in coniferous forests at 10000 ft. (Ramaley), where it has been collected at Bald Mountain near Ward; Redrock lake above Ward; Fourth of July Mine; and at the foot of Long's Peak.

ALBERTA and BRITISH COLUMBIA to NEW MEXICO.

Order 35. PRIMULALES.

Family 87. PRIMULACEAE Vent. Primrose family.

332. PRIMULA L. PRIMROSE.

779. *P. angustifolia* Torr. NARROW-LEAVED PRIMROSE.

Arapahoe Peak above timberline in dry tundras near snow, 12000-13500 ft. (Daniels, 886).

COLORADO.

780. *P. Parryi* Gray. PARRY'S PRIMROSE.

Along cold streams crossing the Arapahoe Trail, and in wet tundras, Arapahoe Peak, above timberline, 9000-13000 ft. (Daniels, 921). Also at Caribou, and in the mountains south of Ward (Rydberg).

MONTANA to COLORADO and ARIZONA.

333. ANDROSACE L. ROCK PRIMROSE.

781. **A. puberulenta** Rydb. PUBERULENT ROCK PRIMROSE.
Mountain slopes above Bloomerville near snow, 9200 ft. (Daniels, 338). Plains near Boulder (Rydberg).
MANITOBA, MACKENZIE and ALBERTA to NEW MEXICO.
782. **A. pinetorum** Greene. PINE FOREST ROCK PRIMROSE.
Common under rocks in the foothills and mesas, 5700-8100 ft. (Daniels, 276). Probably Porter and Coulter's *A. septentrionalis* L. from Long's Peak is this plant, as is Coulter's plant from Long's Peak in Wabash College Herb.
MACKENZIE to YUKON; COLORADO to ARIZONA.
783. **A. subumbellata** (A. Nelson) Small. SUBUMBELLATE ROCK PRIMROSE.
Above timberline, Arapahoe Peak, a diminutive alpine form, 11500-12000 ft. (Daniels, 876).
MONTANA to COLORADO and ARIZONA.
784. **A. diffusa** Small. DIFFUSE ROCK PRIMROSE.
At Glacier lake, 8500-9000 ft. (Daniels, 714). Also Massif de l' Arapahoe (Rydberg). Redrock lake, 10100 ft. (Ramaley & Robbins).
MACKENZIE to BRITISH COLUMBIA; NEW MEXICO to ARIZONA.
785. **A. subulifera** (Gray) Rydb. [*A. septentrionalis subulifera* Gray]. SUBULIFEROUS ROCK PRIMROSE.
Near Boulder (Coulter).
MONTANA to COLORADO.

334. STEIRONEMA Raf. LOOSESTRIFE.

786. **S. ciliatum** (L.) Raf. [*Lysimachia ciliata* L.]. FRINGED LOOSESTRIFE.
In springy grounds and moist cañons, 5100-8000 ft. (Daniels, 73).
NOVA SCOTIA to BRITISH COLUMBIA; GEORGIA to ARIZONA: naturalized in EUROPE.

335. CENTUNCULUS L. CHAFFWEED.787. **C. minimus** L. LEAST CHAFFWEED.

Under pines, mesas south of Chautauqua grounds, Boulder, 5800 ft. (Daniels, 180). Not in Rydberg's Flora.

ILLINOIS and MINNESOTA to BRITISH COLUMBIA; FLORIDA to TEXAS and MEXICO: EUROPE: SOUTH AMERICA.

336. DODECATHEON L. SHOOTING STAR.788. **D. philoscia** A. Nels. SHADE-LOVING SHOOTING STAR.

In the spray of Boulder Falls and along other deep cañons, 6500-8600 ft. (Daniels, 800).

WYOMING to COLORADO.

789. **D. radicum** Greene. MANY-FLOWERED SHOOTING STAR.

Common in deep cañons, 6200-8000 ft. (Daniels, 274). Also from Eldora to Baltimore (Rydberg). Boulder Cañon (Coulter in Wabash College Herb.).

SOUTH DAKOTA to WYOMING; KANSAS to NEW MEXICO.

790. **D. sinuatum** Rydb. [*D. radicum sinuatum* Rydb.].

WAVY-LEAVED SHOOTING STAR.

Occasional in cañons with the preceding, of which it seems to be merely a wavy-leaved form, 6200-8000 ft. (Daniels, 854).

COLORADO.

790½. **D. pauciflorum** (Durand) Greene. FEW-FLOWERED SHOOTING STAR.

Redrock lake, 10100 ft. (Ramaley & Robbins).

MACKENZIE and SASKATCHEWAN to COLORADO.

337. DROSACE A. Nels.791. **D. carinata** (Torr.) A. Nels. [*Douglasia Johnstoni* Aven Nelson]. JOHNSTON'S DOUGLASIA.

Long's Peak (Aven Nelson), the type locality of *Douglasia Johnstoni*.

COLORADO.

Order 36. GENTIANALES.

Family 88. GENTIANACEAE Dumont. Gentian family.

338. EUSTOMA Salisb.

792. **E. Andrewsii** A. Nelson. ANDREWS'S EUSTOMA.
Near Boulder, the type locality (Andrews).
COLORADO.

339. ANTHOPOGON Heck. FRINGED GENTIAN.

793. **A. elegans** (A. Nels.) Rydb. [*Gentiana elegans* A. Nels.].
SHOWY FRINGED GENTIAN.
Long's Peak (Rydberg). Redrock lake, 10100 ft. (Ramaley
& Robbins).
MACKENZIE to COLORADO and ARIZONA.

794. **A. barbellatus** (Engelm.) Rydb. [*Gentiana barbellata*
Engelm.; *G. Moseleyi* A. Nels.]. BEARDED FRINGED GEN-
TIAN.
Aspen bogs at Eldora and along streams crossing Arapahoe
Trail, 8600-11000 ft. (Daniels, 863). Redrock lake, 10100 ft.
(Ramaley and Robbins). The type of Nelson's *G. Moseleyi* is
from Boulder Co.
COLORADO.

340. AMARELLA Gileb. GENTIAN.

795. **A. monantha** (A. Nels.) Rydb. [*Gentiana monantha*
A. Nels.]. ONE-FLOWERED GENTIAN.
Above timberline in wet tundras, Arapahoe Peak, 11500-
12000 ft. (Daniels, 897). Redrock lake, 10100 ft. (Ramaley
& Robbins).
COLORADO.
796. **A. strictiflora** (Rydb.) Greene [*Gentiana amarella stric-
ta* S. Wats.; *G. strictiflora* Rydb.]. STRICT-FLOWERED GEN-
TIAN.
Mountains between Sunshine and Ward (Rydberg).
SASKATCHEWAN to ALASKA; COLORADO to CALIFORNIA.

797. **A. scopulorum** Greene [*Gentianella Clementis* Rydb.].

CRAG GENTIAN.

Common in deep cañons and aspen bogs, 6500 (Green Mt.)-9000 ft. (Daniels, 608). Redrock lake, 10100 ft. (Ramaley & Robbins).

SOUTH DAKOTA to MONTANA; COLORADO to ARIZONA.

798. **A. plebeja** (Cham.) Greene [*Gentiana plebeja* Cham.; *G. amarella acuta* Gray, not Hook.]. LOW GENTIAN.

Ward (Cockerell).

MACKENZIE and ALASKA to COLORADO and CALIFORNIA. (?)

- 798a. **A. plebeja Holmii** (Wettst.) Rydb. [*Gentiana plebeja Holmii* Wettst.; *Amarella nana* Engelm.]. HOLM'S GENTIAN.

Above timberline, Arapahoe Peak, 11500-12000 ft. (Daniels, 944). Also at Caribou (Rydberg).

Range of the type.

341. CHONDROPHYLLA A. Nels.

799. **C. Fremontii** (Torr.) A. Nels. [*Gentiana Fremontii* Torr.]. FREMONT'S GENTIAN.

Long's Peak (Porter & Coulter; also Coulter in Wabash College Herb.).

WYOMING to COLORADO.

- 799½. **C. Americana** (Engelm.) A. Nels. [*Gentiana prostrata Americana* Engelm.]. AMERICAN GENTIAN.

Redrock lake, 10100 ft. (Ramaley & Robbins).

ALBERTA and ALASKA to COLORADO.

342. DASYSTEMPHANA Adans. CLOSED GENTIAN.

800. **D. Romanzovii** (Ledeb.) Rydb. [*Gentiana Romanzovii* Ledeb.]. ROMANZOV'S CLOSED GENTIAN.

Above timberline, Arapahoe Peak, 11500-13000 ft. (Daniels, 892). Redrock lake, 10100 ft. (Ramaley & Robbins).

MONTANA to ALASKA; COLORADO to UTAH: ASIA.

801. **D. Parryi** (Engelm.) Rydb. [*Gentiana Parryi* Engelm.].

PARRY'S CLOSED GENTIAN.

Bogs at Eldora, thence along Arapahoe Trail to Arapahoe Peak, 8600-12000 ft. (Daniels, 847). Redrock lake, 10100 ft. (Ramaley & Robbins). Also mountains between Sunshine and Ward (Rydberg).

WYOMING to COLORADO and UTAH.

802. **D. Bigelovii** (Gray) Rydb. [*Gentiana Bigelovii* Gray].

BIGELOW'S CLOSED GENTIAN.

Dry mesas near entrance to Bear Cañon, 5800-6000 ft. (Daniels, 766).

COLORADO to NEW MEXICO and ARIZONA.

343. PLEUROGYNE Eschsch.

803. **P. fontana** A. Nels. [*P. rotata tenuifolia* Griseb.]. FOUNTAIN PLEUROGYNE.

At Caribou (Rydberg).

HUDSON BAY and ALASKA to COLORADO.

344. SWERTIA L.

804. **S. palustris** A. Nels. MARSH SWERTIA.

Along alpine streams, Arapahoe Trail, and in wet tundras, Arapahoe Peak, above timberline, 9000-12000 ft. (Daniels, 893). Redrock lake, 10100 ft. (Ramaley & Robbins).

MONTANA to COLORADO and UTAH.

- 804½. **S. congesta** A. Nels. DENSE-FLOWERED SWERTIA.

Long's Peak (Cooper).

MONTANA to COLORADO and UTAH.

345. FRASERA Walt. COLUMBO.

805. **F. stenosepala** Rydb. NARROW-SEPALLED COLUMBO.

On the mesas and foothills, common, 5700-8000 ft. (Daniels, 168). Also at Ward (Rydberg).

WYOMING to NEW MEXICO.

806. **F. speciosa** Dougl. SHOWY COLUMBO.

Redrock lake, 10100 ft. (Ramaley & Robbins).

SOUTH DAKOTA to MONTANA and OREGON; COLORADO to CALIFORNIA.

807. *F. angustifolia* Rydb. NARROW-LEAVED COLUMBO.
Mountains between Sunshine and Ward (Rydberg).
MONTANA to COLORADO.

Order 37. ASCLEPIADALES.

Family 89. APOCYNACEAE Lindl. Dogbane Family.

346. APOCYNUM L. DOGBANE.

808. *A. androsaemifolium* L. SPREADING DOGBANE.
South Boulder Cañon, and north of Nederland, 6500-9000
ft. (Ramaley).
ANTICOSTI to BRITISH COLUMBIA; GEORGIA to ARIZONA.
809. *A. scopulorum* Greene. CRAG DOGBANE.
Common on the foothills, 6000-9000 ft. (Daniels, 231). Su-
garloaf (Ramaley).
SASKATCHEWAN and YUKON to COLORADO.
810. *A. lividum* Greene. PALE DOGBANE.
Eldora (Ramaley).
COLORADO.
811. *A. ambigens* Greene. SMOOTH DOGBANE.
In Boulder Cañon, Bear Cañon, and other valleys in the
foothills, 5600-8000 ft. (Daniels, 515).
MONTANA to WASHINGTON; COLORADO to CALIFORNIA.
812. *A. cannabinum* L. INDIAN HEMP.
Along railroads and stream banks, and ascending along the
cañons and gulches for some distance into the foothills, 5100-
6500 ft. (Daniels, 348).
ANTICOSTI to WASHINGTON; FLORIDA to LOWER CALIFOR-
NIA.
813. *A. hypericifolium* Ait. CLASPING-LEAVED DOGBANE. ST.
JOHNSWORT INDIAN HEMP.
Along the railroad between Boulder and Marshall, and along
roads in the plains, 5100-6000 ft. (Daniels, 409).
ONTARIO to BRITISH COLUMBIA; OHIO to NEW MEXICO.

Family 90. ASCLEPIADACEAE. Milkweed family.

347. ACERATES Ell. GREEN MILKWEED.

814. *A. viridiflora* (Raf.) Eaton. COMMON GREEN MILKWEED.
Occasional in the plains about Boulder, 5100-6000 ft. (Daniels, 405).

MASSACHUSETTS to MONTANA; FLORIDA to NEW MEXICO.

815. *A. angustifolia* (Nutt.) Dec. [*Asclepias stenophylla* Gray]. NARROW-LEAVED GREEN MILKWEED.

Common in the plains about Boulder, 5100-6000 ft. (Daniels, 298).

SOUTH DAKOTA to COLORADO; MISSOURI to TEXAS and NEW MEXICO.

348. ASCLEPIAS L. MILKWEED.

816. *A. speciosa* Torr. SHOWY MILKWEED.

Frequent in the plains about Boulder, 5100-6000 ft. (Daniels, 262).

MANITOBA to BRITISH COLUMBIA; NEW MEXICO to CALIFORNIA.

817. *A. brachystephana* Engelm. SHORT-CROWNED MILKWEED.

Rare on the plains about Boulder, 5100-6000 ft. (Daniels, 404).

WYOMING to TEXAS and ARIZONA.

818. *A. incarnata* L. SWAMP MILKWEED.

In swales and along streams in the plains, 5100-6000 ft. (Daniels, 671).

NEW BRUNSWICK to MANITOBA; FLORIDA to NEW MEXICO.

819. *A. pumila* (Gray) Vail [*A. verticillata pumila* Gray].

DWARF MILKWEED.

Local in the plains about Boulder, 5100-6000 ft. (Daniels, 386).

SOUTH DAKOTA to MONTANA; ARKANSAS to NEW MEXICO.

Order 38. POLEMONIALES.

Family 91. CUSCUTACEAE Dumont. Dodder family.

349. CUSCUTA L. DODDER.

820. *C. curta* Engelm. [*C. Gronovii curta* Engelm.] SHORT-STYLED DODDER.

On *Ambrosia psilostachya* DC., along Union Pacific Railroad east of Boulder, 5400 ft. (Daniels, 696).

COLORADO to UTAH.

821. *C. indecora* Choisy. PRETTY DODDER.

On *Thermopsis pinetorum* Greene. Rocky ledge at Marshall, 5600 ft. (Daniels, 426).

ILLINOIS to NEBRASKA and COLORADO; FLORIDA to CALIFORNIA; TROPICAL AMERICA.

Family 92. CONVULVULACEAE Vent. Bindweed family.

350. EVOLVULUS L.

822. *E. Nuttallianus* R. & S. [*E. argenteus* Pursh]. NUTTALL'S EVOLVULUS.

Common on the plains about Boulder, 5100-6000 ft. (Daniels, 474).

SOUTH DAKOTA to COLORADO; TEXAS to ARIZONA.

351. PHARBITIS Choisy. MORNING GLORY.

823. *P. purpurea* (L.) Voight [*P. hispida* Choisy; *Ipomoea purpurea* (L.) Roth]. COMMON MORNING GLORY.

Escaped along Arapahoe Road, 5300 ft. (Daniels, 792).

TROPICAL AMERICA, thence to NORTH AMERICA.

352. CONVULVULUS L. BINDWEED.

824. *C. arvensis* L. FIELD BINDWEED.

Along streets of Boulder, 5300-5700 (Chautauqua grounds) ft. (Daniels, 816).

EUROPE, thence to NORTH AMERICA.

825. **C. ambigens** House. HAIRY BINDWEED.

Plains near Boulder (Rydberg). Perhaps only a state of the preceding.

COLORADO to NEW MEXICO and CALIFORNIA.

353. VOLVULUS Medic. BRACTED BINDWEED.826. **V. interior** (House) Cockerell. Nov. comb. [*Convolvulus interior* House]. INLAND BRACTED BINDWEED.

Low flats near Valmont Dike, 5200-5300 ft. (Daniels, 669). NEBRASKA to COLORADO; OKLAHOMA to ARIZONA.

Family 93. **POLEMONIACEAE**. Jacob's ladder family.**354. PHLOX** L. PHLOX.827. **P. multiflora** A. Nelson. MANY-FLOWERED PHLOX.

North Boulder Peak (Rydberg).

MONTANA to COLORADO.

828. **P. depressa** (E. Nelson) Rydberg [*P. multiflora depressa* E. Nelson]. LOW PHLOX.

Dry slopes of the foothills, 6000-8000 ft. (Daniels, 105).

COLORADO.

829. **P. longifolia** Nutt. LONG-LEAVED PHLOX.

Near Long's Peak (Porter & Coulter; also Coulter in Wash College Herb.).

MONTANA to WASHINGTON; COLORADO to OREGON.

355. MICROSTERIS Greene.830. **M. micrantha** (Kellogg) Greene [*Collomia micrantha* Kellogg]. SMALL-FLOWERED MICROSTERIS.

At Boulder (Cockerell).

NEBRASKA to WYOMING; COLORADO to CALIFORNIA; SOUTH AMERICA (CHILI and BOLIVIA to MAGELLAN STRAITS).

356. LINANTHUS Benth.831. **L. Harknessii** (Curran) Greene [*Gilia Harknessii* Curran]. HARKNESS' LINANTHUS.

Flood-sands of streams, north slope of Green Mt., 6000-8000 ft. (Daniels, 467).

MONTANA to BRITISH COLUMBIA; COLORADO to CALIFORNIA.

357. *GILIA* R. & P. *GILIA*.832. *G. spicata* Nutt. SPIKED *GILIA*.

Mountains between Sunshine and Ward (Rydberg).

NEBRASKA to WYOMING; COLORADO to UTAH.

833. *G. attenuata* (Gray) A. Nelson [*G. aggregata attenuata* Gray]. ACUTE-LOBED *GILIA*.

Foothills and mesas about Boulder, 5700-9000 ft. (Daniels). White flowered, but it passes into the following variety through a series of forms of all shades of pink from nearly white to almost scarlet.

IDAHO to COLORADO and UTAH.

833a. *G. attenuata collina* (Greene) Cockerell. Nov. comb. [*Callisteris collina* Greene]. FOOTHILL *GILIA*.

Alpine forested slopes near Eldora, and also near the summit of Flagstaff Hill, 6000-9000 ft. (Daniels, 343). The pink of the flowers varies from nearly white to scarlet.

Range of the type?

834. *G. candida* Rydb. [*Callisteris leucantha* Greene]. WHITE *GILIA*.

Common on the mesas, foothills and mountain slopes, 5700-9000 ft. (Daniels, 46). Corollas often pinkish, perhaps hybrids with the above. Also South Boulder Peak, and in the mountains between Sunshine and Ward (Rydberg).

COLORADO.

835. *G. pinnatifida* Nutt. SMALL-FLOWERED *GILIA*.

Common throughout and very variable, 5100-10000 ft. (Daniels, 45). Also in the mountains between Sunshine and Ward (Rydberg).

NEBRASKA and WYOMING to NEW MEXICO.

836. *G. sinuata* Benth. WAVY-LEAVED *GILIA*.

Common in the plains, mesas, and lower foothills, 5100-6500 ft. (Daniels, 193).

COLORADO and NEW MEXICO to CALIFORNIA.

837. *G. inconspicua* (Smith) Dougl. INCONSPICUOUS *GILIA*.

On the foothills, 5900-8000 ft. (Daniels).

COLORADO and UTAH to ARIZONA and MEXICO.

358. **COLLOMIA** Nutt.

838. **C. linearis** Nutt. [*Gilia linearis* (Nutt.) Gray]. NARROW-LEAVED COLLOMIA.

Very common throughout in shady or half-shady places, especially on creek sands, 5100-9000 ft. (Daniels, 51). Also at Ward (Rydberg).

NORTH DAKOTA and MANITOBA to BRITISH COLUMBIA; ARIZONA to CALIFORNIA; introduced eastward.

- 838a. **C. linearis Boulderensis** Daniels. Nov. var.

Leaves narrower than in the type, sharply acuminate; flower-clusters densely capitate, the calyx-lobes and the bracts strongly pungent; a dwarfish form, blossoming earlier than the type. Near *Gilia linearis subulata* Gray.

Plains about Boulder, 5400-5700 ft. (Daniels, 60).

359. **POLEMONIUM** L. JACOB'S LADDER. GREEK VALERIAN.

839. **P. pulcherrimum** Hook. FAIREST JACOB'S LADDER.

Arapahoe Peak above timberline, 11000-12000 ft. (Daniels, 1021). Also from Eldora to Baltimore, and in the mountains between Sunshine and Ward, Brand makes this species a synonym of the next.

COLORADO.

840. **P. delicatum** Rydb. DELICATE JACOB'S LADDER.

At timberline (or just below) under shrubs, Arapahoe Peak, 10500-11500 ft. (Daniels, 872).

COLORADO and NEW MEXICO.

841. **P. molle** Greene. SOFT JACOB'S LADDER.

Eldora to Baltimore (Rydberg).

COLORADO.

842. **P. robustum** Rydb. STOUT GREEK VALERIAN.

Boulder creek near Falls, 6500-7500 ft. (Daniels, 296).

COLORADO.

843. **P. mellitum** (Gray) Greene [*P. confertum mellitum* Gray]. YELLOW GREEK VALERIAN.

Eldora to Baltimore (Rydberg).

WYOMING and COLORADO to NEVADA.

843½. *P. confertum* Gray. PURPLE GREEK VALERIAN.

Redrock lake, 10100 ft. (Ramaley & Robbins).

WYOMING to COLORADO.

844. *P. Brandegeei* (Gray) Greene [*Gilia Brandegéi* Gray].

BRANDEGEE'S GREEK VALERIAN.

Mountains between Sunshine and Ward (Rydberg).

COLORADO.

Family 94. HYDROLEACEAE. H. B. K. Hydrolea family.

360. HYDROPHYLLUM L. WATERLEAF.

845. *H. Fendleri* (Gray) Heller [*H. occidentale Fendleri* Gray]. FENDLER'S WATERLEAF.

Common along streams in shade, and in deep mountain cañons, 5100-8600 ft. (Daniels, 129). Also in the mountains between Sunshine and Ward (Rydberg).

WYOMING and IDAHO to NEW MEXICO.

361. MACROCALYX Trew.

846. *M. Nyctelea* (L.) Kuntze [*Ellisia Nyctelea* L.]. NYCTELEA.

Along streams and in gulches in mesas, 5100-6000 ft. (Daniels, 597).

SASKATCHEWAN to MONTANA; VIRGINIA to COLORADO.

362. PHACELIA Juss. PHACELIA.

847. *P. leucophylla* Torr. WHITE-LEAVED PHACELIA.

Mountains between Sunshine and Ward (Rydberg).

SOUTH DAKOTA to WASHINGTON; COLORADO to UTAH.

848. *P. heterophylla* Pursh. VARIOUS-LEAVED PHACELIA.

Common on the mesas and foothills, 5600-8000 ft. (Daniels, 40). Also Eldora to Baltimore (Rydberg).

MONTANA to WASHINGTON; COLORADO to CALIFORNIA.

849. *P. glandulosa* Nutt. GLANDULAR PHACELIA.

Boulder Cañon above Falls, 7000-8000 ft. (Daniels, 548).

MONTANA to TEXAS and ARIZONA.

850. **P. Neo-Mexicana** alba (Rydb.) Daniels. Nov. comb.
 WHITE NEW MEXICAN PHACELIA.
 Eldora to Baltimore (Rydberg).
 WYOMING to NEW MEXICO.

363. EUTOCA R. Br.

851. **E. sericea** Graham in Hook. [*Phacelia sericea* (Grah.) Gray]. SILKY PHACELIA.
 Common about Ward, 9000-9500 ft. (Daniels, 312). Also Eldora to Baltimore (Rydberg).
 MONTANA to BRITISH COLUMBIA; COLORADO to NEVADA.

Family 95. **BORAGINACEAE** Gray. Borage family.

364. LAPPULA Moench. STICKSEED.

852. **L. floribunda** (Lehm.) Greene [*Echinosperrnum floribundum* Lehm.]. LARGE-FLOWERED STICKSEED.
 Frequent in Bear and Boulder Cañons, 6000-7500 ft. (Daniels, 448).
 MANITOBA to ALBERTA; NEW MEXICO to CALIFORNIA.
853. **L. angustata** Rydb. NARROW-LEAVED STICKSEED.
 Common in cañons in the foothills, 5600-7500 ft. (Daniels, 674).
 COLORADO to WYOMING.
854. **L. occidentalis** (Wats.) Greene [*Echinosperrnum Redowskyi occidentale* Wats.]. WESTERN STICKSEED.
 Common on the plains about Boulder, 5100-6000 ft. (Daniels, 6).
 SASKATCHEWAN to WASHINGTON; MISSOURI to NEW MEXICO.
855. **L. cupulata** (Gray) Rydb. [*Echinosperrnum Redowskyi cupulatum* Gray]. CUPULATE STICKSEED.
 Plains about Boulder, 5100-6000 ft. (Daniels, 9).
 SOUTH DAKOTA to IDAHO; TEXAS to COLORADO.

364½. **ERITRICHIMUM** Schrader. MOUNTAIN FORGET-ME-NOT.

855½. **E. argenteum** Wight. SILVERY MOUNTAIN FORGET-ME-NOT.

Redrock lake, 10100 ft. (Ramaley & Robbins).

WYOMING and COLORADO to UTAH.

365. **OREOCARYA** Greene. MOUNTAIN NUT.

856. **O. suffruticosa** (Torr.) Greene [*Krynitzkia Jamesii* Gray]. JAMES'S MOUNTAIN NUT.

Slopes of Green Mountain, 6300 ft. (Daniels, 527). Plains and foothills near Boulder (Rydberg).

SOUTH DAKOTA to WYOMING and COLORADO.

857. **O. virgata** (Porter) Greene [*Krynitzkia virgata* (Porter) Gray]. VIRGATE MOUNTAIN NUT.

Common on the plains, mesas, and foothills, 5100-8000 ft. (Daniels, 19).

WYOMING to COLORADO.

857½. **O. pulvinata** A. Nels. PULVINATE MOUNTAIN NUT.

Redrock lake, 10100 ft. (Ramaley & Robbins).

COLORADO.

366. **ALLOCARYA** Greene.

858. **A. scopulorum** Greene. MOUNTAIN ALLOCARYA.

Aspen bogs at Glacier lake, 8600-9000 ft. (Daniels, 701). Also at Boulder (Rydberg).

MONTANA to WASHINGTON; COLORADO to NEVADA.

367. **CRYPTANTHE** Lehm.

859. **C. crassisepala** (T. & G.) Greene [*Krynitzkia crassisepala* (T. & G.) Gray]. THICK-SEPALLED CRYPTANTHE.

Frequent on the plains, 5100-6000 ft. (Daniels, 389).

SASKATCHEWAN to MONTANA; TEXAS to UTAH and MEXICO.

860. *C. Pattersonii* (Gray) Greene [*Krymitzchia Pattersonii* Gray]. PATTERSON'S CRYPTANTHE.

In the spray of Boulder Falls, 7500 ft. (Daniels, 609).
WYOMING and COLORADO.

368. *MERTENSIA* Roth. LUNGWORT. BLUEBELLS.

861. *M. punctata* Greene. PUNCTATE BLUEBELLS.

Bear Cañon, 7000 ft. (Daniels, 716).
COLORADO.

862. *M. polyphylla* Greene. MANY-LEAVED BLUEBELLS.

Along stream in alpine valley near snow, above Bloomerville, and in Boulder Cañon above the Falls, 8000-10000 ft. (Daniels, 320). Also from Eldora to Baltimore, and at Ward (Rydberg).

WYOMING to COLORADO.

863. *M. lateriflora* Greene. SIDE-FLOWERED LUNGWORT.

Along streams on mountain slope above Bloomerville near snow, 9300 ft. (Daniels, 337). Redrock lake, 10100 ft. (Rama-ley & Robbins). Eldora to Baltimore (Rydberg).

COLORADO.

864. *M. viridula* Rydb. GREENISH LUNGWORT.

Cañons in the foothills, 6000-8000 ft. (Daniels, 34).

COLORADO.

865. *M. amoena* A. Nels. PLEASANT LUNGWORT.

At Boulder; and from Eldora to Baltimore (Rydberg).

WYOMING to COLORADO.

866. *M. linearis* Greene. LINEAR-LEAVED LUNGWORT.

Subalpine meadows, Boulder Cañon beyond the Falls, 7000-8000 ft. (Daniels, 226). Also at Boulder; and from Eldora to Baltimore (Rydberg).

ASSINIBOIA to NEBRASKA and COLORADO.

867. *M. lanceolata* (Pursh) DC. LANCE-LEAVED LUNGWORT.

Common throughout except in high alpine places, 5100-9000 ft. (Daniels, 14). Very variable.

MONTANA to COLORADO and NEW MEXICO.

868. *M. Secundorum* Cockerell. HAIRY LUNGWORT.

Near mouth of Boulder Cañon (Cockerell), the type locality, where it was discovered by students of the State Preparatory School, whence the specific name.

COLORADO.

869. *M. micrantha* Aven Nelson. SMALL-FLOWERED LUNGWORT.

Flagstaff Hill, 6000-6500 ft. (Daniels, 636). Also Sugar Loaf Mt., collected by Dr. Ramaley (Nelson), the type locality.

COLORADO.

870. *M. perplexa* Rydb. PERPLEXING LUNGWORT.

Arapahoe Peak above timberline, 11000-12000 ft. (Daniels, 645). Also mountains south of Ward the type-locality (Rydberg).

COLORADO.

871. *M. alpina* (Torr.) Don. ALPINE LUNGWORT.

Arapahoe Peak above timberline, 11500-12000 ft. (Daniels, 1022).

COLORADO.

369. LITHOSPERMUM L. GROMWELL. PUCCOON.872. *L. canescens* (Michx.) Lehm. HOARY PUCCOON.

At Boulder (Rydberg).

ONTARIO to NORTH DAKOTA; ALABAMA to COLORADO and ARIZONA.

873. *L. linearifolium* Goldie [*L. angustifolium* Michx.]. NARROW-LEAVED PUCCOON.

At Boulder (Rydberg).

ILLINOIS and MANITOBA to BRITISH COLUMBIA; TEXAS to ARIZONA.

874. *L. breviflorum* Engelm. & Gray [*L. albescens* Greene]. SHORT-FLOWERED PUCCOON.

Common on the plains, mesas, and meadows on the lower foothills, 5100-6300 ft. (Daniels, 130).

ARKANSAS to COLORADO; TEXAS to NEW MEXICO and MEXICO.

370. ONOSMODIUM Michx. FALSE GROMWELL.

875. **O. occidentale** Mackenzie. WESTERN FALSE GROMWELL.

Common on the plains and mesas, 5100-6000 ft. (Daniels, 183). Also at Longmont (Rydberg).

MANITOBA to BRITISH COLUMBIA; MISSOURI to TEXAS and UTAH.

371. LYCOPSIS L. BUGLOSS.

876. **L. arvensis** L. SMALL BUGLOSS.

Roadsides near entrance to Boulder Cañon, 5400-5500 ft. (Daniels, 165). Not in Rydberg's Flora.

EUROPE and ASIA, thence to NORTH AMERICA.

Family 96. **VERBENACEAE** St. Hil. Vervain family.

372. VERBENA L. VERVAIN.

877. **V. hastata** L. BLUE VERVAIN.

Along streams in the plains, but ascending Boulder creek for a considerable distance into the foothills, 5100-6500 ft. (Daniels, 579).

NOVA SCOTIA to BRITISH COLUMBIA; FLORIDA to CALIFORNIA.

878. **V. bracteosa** Michx. [*V. rudis* Greene]. LARGE-BRACTED VERVAIN.

Common in waste places, and on the plains, 5100-6000 ft. (Daniels, 2).

MICHIGAN to ALBERTA and BRITISH COLUMBIA; FLORIDA to CALIFORNIA.

878a. **V. bracteosa albiflora** Cockerell. Nov. var. WHITE-FLOWERED LARGE-BRACTED VERVAIN.

Differs from the type in having white flowers. Campus of the University of Colorado, July 15, 1908 (Cockerell).

879. **V. ambrosifolia** Rydb. RAGWEED-LEAVED VERVAIN.

At Boulder, and in Boulder Co. (Rydberg).

SOUTH DAKOTA to COLORADO; TEXAS to ARIZONA and MEXICO.

879½. **V. Canadensis** (L.) Brit. [*V. Aubletia* Jacq.]. COMMON WILD VERBENA.

St. Vrain river (Porter and Coulter).

INDIANA to COLORADO; FLORIDA to NEW MEXICO and MEXICO.

373. PHYLA Lour. FOG-FRUIT.

880. **P. cuneifolia** (Torr.) Greene [*Lippia cuneifolia* Torr.]. WEDGE-LEAVED FOG-FRUIT.

Along the railroad between Boulder and Marshall, and on the sandy shores of Boulder creek for some distance in the foothills, 5300-6200 ft. (Daniels, 406).

SOUTH DAKOTA to WYOMING; TEXAS to ARIZONA and MEXICO.

Family 97. LAMIACEAE. Dead nettle family.

374. TEUCRIUM L. GERMANDER.

881. **T. occidentale** Gray. WESTERN GERMANDER.

Swales in the plains, 5100-5500 ft. (Daniels, 407).

ONTARIO to BRITISH COLUMBIA; PENNSYLVANIA to COLORADO and CALIFORNIA.

375. SCUTELLARIA L. SKULLCAP.

882. **S. galericulta** L. HOODED SKULLCAP.

At Boulder (Rydberg).

NEWFOUNDLAND to ALASKA; NORTH CAROLINA to ARIZONA: EUROPE: ASIA.

883. **S. Brittonii** Porter. BRITTON'S SKULLCAP.

Common on the foothills and mesas, 5700-8000 ft. (Daniels, 146). Also from Eldora to Baltimore (Rydberg). St. Vrain river, as *S. resinosa* Torr. (Porter and Coulter), unless this plant be indeed the next.

WYOMING to COLORADO.

883½. **S. virgulata** A. Nels. [*S. Brittonii virgulata* (A. Nels.) Rydb.]. WAND-LIKE SKULLCAP.

Along streams in mesas, 5700-6000 ft. (Daniels, 33).

WYOMING to COLORADO.

376. NEPETA L. CATNIP. CATMINT.

884. **N. Cataria L. COMMON CATNIP.**

Common in waste places, and following the roads for some distance in the foothills, 5100-8000 ft. (Daniels, 459).

EUROPE and ASIA, thence to NORTH AMERICA.

377. GLECOMA (GLECHOMA) L. GROUND IVY.

885. **G. hederacea L. [*Nepeta Glechoma* Benth.]. GILL-OVER-THE-GROUND.**

At Boulder (Rydberg). Found in Boulder, April, 1905, by Miss Tollie Rudd; a specimen was sent to Dr. Rydberg.

EUROPE and ASIA, thence to NORTH AMERICA.

378. DRACOCEPHALUM L. DRAGON'S-HEAD.

886. **D. parviflorum Nutt. SMALL-FLOWERED DRAGON'S-HEAD.**

Common on the plains and foothills, 5100-8000 ft. (Daniels, 87).

NEW YORK to ALASKA; NEW MEXICO to ARIZONA.

379. PRUNELLA (BRUNELLA) L. SELF-HEAL. HEAL-ALL.

887. **P. (B.) vulgaris L. COMMON SELF-HEAL.**

Common in damp places on the plains, and occasional in remote cañons, 5100-8000 ft. (Daniels, 240).

EUROPE and ASIA, thence to NORTH AMERICA, where northward it is possibly native.

380. LEONURUS L. MOTHERWORT.

888. **L. Cardiaca L. COMMON MOTHERWORT.**

Common in waste places, and following the roads for some distance in the foothills, 5100-8000 ft. (Daniels, 460).

EUROPE and ASIA, thence to NORTH AMERICA.

381. STACHYS L. HEDGE NETTLE.

889. **S. scopulorum Greene. CRAG HEDGE NETTLE.**

In swales in the plains, 5100-5500 ft. (Daniels, 502). Also at Longmont (Rydberg).

MINNESOTA, MACKENZIE and ALBERTA to NEW MEXICO.

382. *SALVIA* L. SAGE.890. *S. lanceolata* Willd. LANCE-LEAVED SAGE.

Common on the plains, 5100-6000 ft. (Daniels, 280).

SOUTH DAKOTA to MONTANA; TEXAS to ARIZONA and MEXICO.

383. *MONARDA* L. HORSEMINT. BERGAMOT.891. *M. menthaefolia* Grah. MINT-LEAVED BERGAMOT.

Common on the plains and foothills, 5100-8000 ft. (Daniels, 955). Also mountains between Sunshine and Ward (Rydberg).

ILLINOIS to MANITOBA and IDAHO; TEXAS to COLORADO.

892. *M. stricta* Wooton. STRICT BERGAMOT.

At Boulder (Rydberg).

WYOMING to NEW MEXICO and ARIZONA.

893. *M. mollis* L. SOFT BERGAMOT.

Common on the plains and foothills, 5100-8000 ft. (Daniels, 222).

MISSOURI to SOUTH DAKOTA and MONTANA; GEORGIA to TEXAS and COLORADO.

894. *M. pectinata* Nutt. [*M. Nuttallii* A. Nels.]. PECTINATE HORSE-MINT.

Abounding in the plains and mesas, 5100-6000 ft. (Daniels, 13). Boulder is the type-locality of *M. Nuttallii* A. Nels.

COLORADO to UTAH; TEXAS to ARIZONA.

895. *M. Ramaleyi* A. Nels. RAMALEY'S HORSE-MINT.

Boulder creek near Boulder, the type locality (Rydberg). COLORADO.

384. *HEDEOMA* Pers. PENNYROYAL.896. *H. hispida* Pursh. HISPID PENNYROYAL.

Common on the plains and mesas, 5100-6000 ft. (Daniels, 195).

COLORADO to UTAH; TEXAS to ARIZONA.

385. LYCOPUS L. WATER HOARHOUND.897. **L. lucidus** Turcz. WESTERN WATER HOARHOUND.

Along ditches and streams, 5100-5400 ft. (Daniels, 783).

MINNESOTA to BRITISH COLUMBIA; MISSOURI to COLORADO and CALIFORNIA.

898. **L. Americannus** Muhl. [*L. sinuatus* Ell. ; *L. Europeus sinuatus* (Ell.) Gray]. AMERICAN WATER HOARHOUND.

Along ditches and streams and in swales, 5100-6000 ft. (Daniels, 508).

NEWFOUNDLAND to BRITISH COLUMBIA; FLORIDA to CALIFORNIA.

386. MENTHA L. MINT.899. **M. spicata** L. [*M. viridis* L.]. SPEARMINT.

Along the Arapahoe Road, 5300-5400 ft. (Daniels, 742).

EUROPE and ASIA, thence to NORTH AMERICA.

900. **M. Penardi** (Briq.) Rydb. [*M. arvensis Penardi* Briq.].

PENARD'S MINT.

Along ditches and streams, 5100-8000 ft. (Daniels, 164).

NEBRASKA to MACKENZIE and BRITISH COLUMBIA; COLORADO to UTAH.

Family 98. SOLANACEAE Pers. Nightshade family.**387. PHYSALIS L. GROUND CHERRY.**901. **P. longifolia** Nutt. [*P. lanceolata laevigata* Gray]. LONG-

LEAVED GROUND CHERRY.

Boulder Cañon, 5600 ft. (Daniels, 153).

IOWA to MONTANA; ARKANSAS to ARIZONA and MEXICO.

902. **P. lanceolata** Michx. PRAIRIE GROUND CHERRY.

Common on the plains and mesas in loose or sandy soils, 5100-6000 ft. (Daniels, 523).

MICHIGAN to WYOMING; SOUTH CAROLINA to ARIZONA and MEXICO.

903. **P. Virginiana** Mill. VIRGINIA GROUND CHERRY.

Cultivated fields and roadsides on the plains, and foothills, appearing like an introduced weed, 5100-8000 ft. (Daniels, 684). Also between Sunshine and Ward (Rydberg).

NEW YORK to MANITOBA and MONTANA; FLORIDA to TEXAS and COLORADO.

904. **P. heterophylla** Nees. CLAMMY GROUND CHERRY.

At Boulder and Longmont (Rydberg).

NEW BRUNSWICK to SASKATCHEWAN; FLORIDA to TEXAS and UTAH.

905. **P. comata** Rydb. HAIRY WESTERN GROUND CHERRY.

Plains and mesas, 5100-6000 ft. (Daniels, 403).

NEBRASKA and COLORADO to TEXAS.

906. **P. rotundata** Rydb. ROUND-LEAVED GROUND CHERRY.

Plains about Boulder, chiefly in loose sands, 5100-5700 ft. (Daniels, 487).

NORTH DAKOTA to COLORADO; TEXAS to NEW MEXICO.

388. **QUINCULA** Raf. PURPLE GROUND CHERRY.

907. **Q. lobata** (Torr.) Raf. [*Physalis lobata* Torr.]. LOBED PURPLE GROUND CHERRY.

At Boulder and Longmont (Rydberg). A few miles north of Boulder, abundant on the Pierre (Cretaceous) shales, May 1906 (Cockerell).

KANSAS to COLORADO; TEXAS to CALIFORNIA and MEXICO.

389. **ANDROCERA** Nutt. BUR NIGHTSHADE.

908. **A. rostrata** (Dunal) Rydb. [*Solanum rostratum* Dunal; *A. lobata* Nutt.]. COMMON BUR NIGHTSHADE.

Common in waste places, 5100-6000 ft. (Daniels, 384). The original host of the Colorado beetle or potato-bug.

NORTH DAKOTA to WYOMING; TEXAS to NEW MEXICO and MEXICO; as an introduced weed throughout the eastern UNITED STATES.

390. **SOLANUM** L. NIGHTSHADE.

909. **S. triflorum** Nutt. THREE-FLOWERED NIGHTSHADE.

Common in yards, waste places, and loose soils on the plains, 5100-6000 ft. (Daniels, 282).

ONTARIO to ALBERTA; KANSAS to ARIZONA.

- 909½. **S. interius** Rydb. INLAND NIGHTSHADE.
Near Boulder (Rydberg).
NEBRASKA to COLORADO; TEXAS to CALIFORNIA.
910. **S. villosum** (Mill.) Lam. [*S. nigrum villosum* Mill.].
VILLOUS NIGHTSHADE.
At Boulder (Rydberg).
WYOMING to BRITISH COLUMBIA; COLORADO to LOWER CALIFORNIA.
- 391. LYCOPERSICON (LYCOPERSICUM)** Mill. TOMATO.
911. **L. Lycopersicum** (L.) Karst. [*Solanum Lycopersicum* L.]. COMMON TOMATO.
Adventitious along the Arapahoe Road, 5300-5400 ft. (Daniels, 791).
SOUTH AMERICA, thence common in cultivation.
- 392. LYCIUM** L. MATRIMONY VINE.
912. **L. vulgare** L. COMMON MATRIMONY VINE.
South of University Campus, Boulder (W. W. Robbins).
Not in Rydberg's Flora.
EUROPE, AFRICA, and ASIA, thence to NORTH AMERICA.
- 393. DATURA** L. THORN-APPLE.
913. **D. Stramonium** L. JIMSON WEED.
Waste places, especially common along railroads, and on creek-sands in Boulder Cañon, 5100-6000 ft. (Daniels, 810).
ASIA, thence cosmopolitan.
914. **D. Tatula** L. PURPLE THORN-APPLE.
Streets of Boulder, 5300-5600 ft. (Daniels, 566). Also at Salina (Ramaley).
SOUTH AMERICA, thence cosmopolitan.
- 394. NICOTIANA** L. TOBACCO.
915. **N. attenuata** Torr. NIGHT-BLOOMING TOBACCO.
Mountains between Sunshine and Ward (Rydberg).
MONTANA to BRITISH COLUMBIA; NEW MEXICO to CALIFORNIA.

Family 99. RHINANTHACEAE St. Hil. Rattle-box family.

395. VERBASCUM L. MULLEN.

916. *V. Thapsus* L. COMMON MULLEN.

Waste places and cultivated grounds, 5100-6000 ft. (Daniels, 457).

EUROPE and ASIA, thence to NORTH AMERICA.

917. *V. Blattaria* L. MOTH MULLEN.

Along Union Pacific Railroad, near Boulder, 5200-5400 ft. (Daniels, 677).

EUROPE and ASIA, thence to NORTH AMERICA.

396. LINARIA Mill. TOAD-FLAX.

918. *L. Canadensis* (L.) Dumont. CANADA TOAD-FLAX.

Common on the mesas in pine groves south of the Chautauqua grounds, 5700-6000 ft. (Daniels, 179).

NOVA SCOTIA to WASHINGTON; FLORIDA to CALIFORNIA: CENTRAL AMERICA: SOUTH AMERICA.

397. COLLINSIA Nutt. INNOCENCE.

919. *C. tenella* (Pursh) Piper [*C. parviflora* Dougl.] LITTLE BLUE-EYED MARY.

Shady springs and cañons in the foothills and gulches in the mesas, 5700-9000 ft. (Daniels, 267). Also at Ward (Rydberg). St. Vrain's Cañon (Coulter in Wabash College Herb.).

ONTARIO to BRITISH COLUMBIA; MICHIGAN to ARIZONA and CALIFORNIA.

398. SCROPHULARIA L. FIGWORT.

920. *S. occidentalis* (Rydb.) Bickn. [*S. nodosa occidentalis* Rydb.]. WESTERN FIGWORT.

Cañons, common, 5700-8600 ft. (Daniels, 127).

NORTH DAKOTA to WASHINGTON; OKLAHOMA to CALIFORNIA.

399. PENTSTEMON Soland. BEARD-TONGUE.

921. *P. oreophilus* Rydb. MOUNTAIN BEARD-TONGUE.

Common on the foothills and mountains, 6500-10000 ft.

(Daniels, 213). Also from Eldora to Baltimore (Rydberg).

COLORADO.

922. *P. alpinus* Torr. [*P. glaber alpinus* Gray; *P. riparius* A. Nels.]. ALPINE BEARD-TONGUE.

Common on the foothills and mountains, 6000-10000 ft. (Daniels, 214). Also at Ward (Rydberg).

COLORADO to WYOMING.

923. *P. unilateralis* Rydb. ONE-SIDED BEARD-TONGUE.

Common throughout in open places, 5300-8600 ft. (Daniels, 7). Also from Eldora to Baltimore (Rydberg).

WYOMING to NEW MEXICO.

924. *P. secundiflorus* Benth. SHARP-LEAVED BEARD-TONGUE.

Common throughout in open situations, 5100-8600 ft. (Daniels, 8).

WYOMING to NEW MEXICO.

925. *P. glaucus* Graham. GLAUCOUS BEARD-TONGUE.

Mountains south of Ward (Rydberg).

WYOMING to UTAH; COLORADO to ARIZONA.

925a. *P. glaucus stenosepalus* Gray. NARROW-SEPALLED BEARD-TONGUE.

Arapahoe Peak at timberline, 11000 ft. (Daniels, 936). Also Eldora to Baltimore (Rydberg). Redrock lake 10100 ft. (Ramaley and Robbins).

Range of the type, but strictly alpine.

926. *P. gracilis* Nutt. SLENDER BEARD-TONGUE.

Common on the plains, mesas, and lower foothills, 5100-8000 ft. (Daniels, 22).

MANITOBA to SASKATCHEWAN; TEXAS to COLORADO.

927. *P. humilis* Nutt. LOW BEARD-TONGUE.

Common throughout in open places, 5100-9200 (Ward) ft. (Daniels, 177). Also Eldora to Baltimore (Rydberg).

MONTANA and ALBERTA to COLORADO and NEVADA.

928. *P. Rydbergii* A. Nels. [*P. erosus* Rydb.]. RYDBERG'S BEARD-TONGUE.

Eldora to Baltimore (Rydberg).

WYOMING and WASHINGTON to COLORADO.

928½. **P. procerus** Dougl. TALL BEARD-TONGUE.

Redrock lake, 10100 ft. (Ramaley and Robbins).

SASKATCHEWAN to BRITISH COLUMBIA; COLORADO to CALIFORNIA.

400. CHIONOPHILA Benth. SNOW-FLOWER.

929. **C. Jamesii** Benth. JAMES'S SNOW-FLOWER.

Arapahoe Peak above timberline, growing usually near the snow, 11500-13500 ft. (Daniels, 911).

WYOMING to COLORADO.

401. MIMULUS L. MONKEY FLOWER.

930. **M. Langsdorfii** Sims. LANGSDORF'S MONKEY FLOWER.

Between Sunshine and Ward (Rydberg).

ASSINIBOIA to ALASKA; NEW MEXICO to CALIFORNIA and MEXICO.

930a. **M. Langsdorfii minor** (A. Nels.) Cockerell. Nov. comb.

[*M. minor* A. Nelson]. SMALL LANGSDORF'S MONKEY FLOWER.

Near Boulder, the type locality (A. Nelson).

COLORADO.

931. **M. puberulus** Greene. PUBERULENT MONKEY FLOWER.

Subalpine bogs along streams, Eldora, 8600 ft. (Daniels, 853).

COLORADO.

932. **M. Hallii** Greene. HALL'S MONKEY FLOWER.

Moist banks of stream at foot of Flagstaff Hill, 5700-6000 ft. (Daniels, 25).

COLORADO.

933. **M. Geyeri** Torr. [*M. Jamesii* T. & G.] GEYER'S MONKEY FLOWER.

Along streams and irrigation ditches, 5100-7000 ft. (Daniels, 904).

MICHIGAN to NORTH DAKOTA; ILLINOIS to COLORADO.

934. **M. floribundus** Dougl. MANY-FLOWERED MONKEY FLOWER.

Common in wet sands along streams and ditches, 5100-8000 ft. (Daniels, 247). Also mountains between Sunshine and Ward (Rydberg).

MONTANA to BRITISH COLUMBIA; ARIZONA to CALIFORNIA.

402. **LIMOSELLA** L. MUDWORT.

935. **L. aquatica** L. AQUATIC MUDWORT.

In shallow water at the margins of Owen's lake, and also Glacier lake, 5200-9000 ft. (Daniels, 662).

Cosmopolitan in cold and alpine situations.

403. **GRATIOLA** L. HEDGE HYSSOP.

936. **G. Virginiana** L. CLAMMY HEDGE HYSSOP.

Limose places along streams and irrigation ditches, 5100-5800 ft. (Daniels, 377). Marshall lake (W. W. Robbins).

QUEBEC to BRITISH COLUMBIA; FLORIDA to CALIFORNIA.

404. **VERONICA** L. SPEEDWELL. BROOKLIME.

937. **V. Americana** Schwein. AMERICAN BROOKLIME.

In springs and shallow streams, 5100-8000 ft. (Daniels, 70).

ANTICOSTI to ALASKA; PENNSYLVANIA to CALIFORNIA.

938. **V. Wormskjoldii** R. & S. WORMSKJOLD'S SPEEDWELL.

Arapahoe Peak above timberline, 11000-12000 ft. (Daniels, 927). Redrock lake, 10100 ft. (Ramaley and Robbins).

GREENLAND to ALASKA; NEW HAMPSHIRE to COLORADO and CALIFORNIA.

939. **V. serpyllifolia** L. THYME-LEAVED SPEEDWELL.

Aspen bogs at Eldora, 8600 ft. (Daniels, 869). Also at Caribou (Rydberg).

COSMOPOLITAN, except AFRICA and AUSTRALIA.

940. **V. Xalapensis** H. B. K. XALAPA SPEEDWELL.

Common in limose places, 5100-8000 ft. (Daniels, 577). Young's *V. peregrina* from the forests about Boulder is doubtless this plant.

SASKATCHEWAN to BRITISH COLUMBIA; TEXAS to CALIFORNIA.

941. **V. agrestis** L. FIELD SPEEDWELL.

Boulder, April, 1905 (Chas. Sellers). Not in Rydberg's Flora.

EUROPE and ASIA, thence to NORTH AMERICA.

942. **V. Byzantina** (Sibth. & Smith) B. S. P. [*V. Buxbaumii* Tenore]. BYZANTINE SPEEDWELL.

At Boulder (Rydberg).

EUROPE and ASIA, thence to NORTH AMERICA.

405. BESSEYA Rydb.

943. **B. alpina** (Gray) Rydb. [*Synthyris alpina* Gray]. ALPINE SYNTHYRIS.

Massif de l' Arapahoe (Rydberg).

WYOMING to COLORADO.

406. GERARDIA L. PURPLE FALSE FOXGLOVE.

944. **G. Besseyana** Britton. BESSEY'S PURPLE FALSE FOXGLOVE.

Along irrigation ditches, Arapahoe Road, 5200-5400 ft. (Daniels, 789). Also at Longmont (Rydberg).

IOWA to WYOMING; LOUISIANA to COLORADO.

407. CASTILLEJA Mutis. PAINTED CUP. INDIAN PINK. PAINT BRUSH.

945. **C. linariaefolia** Benth. TOAD-FLAX-LEAVED PAINTED CUP.

Very common on the foothills and mountain slopes, and occasional on the higher mesas, 5800-9000 ft. (Daniels, 538). Also North Boulder Peak (Rydberg).

WYOMING to NEW MEXICO, CALIFORNIA and MEXICO

945a. **C. linariaefolia filiformis** Daniels. Nov. var. FILLFORM TOAD-FLAX-LEAVED PAINTED CUP.

Plant dwarf, 1-2¼ decimetres high, stem purplish, villous at the base, leaves filiform, 1 mm. wide, 3-4¼ cm. long, the lower with an occasional lobe or two; flowers few with cleft bracts, the lower of which are green, the upper crimson, these and the flowers puberulent, rather than villous as in the type.

Barren ridges between Sugarloaf Mountain and Glacier Lake, 8700-9200 ft. (Daniels, 976).

946. **C. Crista-galli** Rydb. COCKSCOMB PAINTED CUP.

Eldora to Baltimore (Rydberg).

MONTANA to COLORADO.

947. **C. cognata** Greene. YELLOW PAINTED CUP.

North slopes of Green Mountain; rare, 7000 ft. (Daniels, 975). Prof. T. D. A. Cockerell suggests that this plant is probably a hybrid of *C. linariaefolia* Benth. and *C. sulphurea* Rydb.

COLORADO.

948. **C. integra** Gray. ENTIRE-LEAVED PAINTED CUP.

Abundant throughout, except on the alpine summits; on the plains occurring principally on banks and ridges, 5600-9000 ft. (Daniels, 169). Also from Eldora to Baltimore (Rydberg).

COLORADO to NEW MEXICO, ARIZONA and MEXICO.

948½. **C. rhexifolia** Rydb. RHEXIA-LEAVED PAINTED CUP.

Redrock lake, 10100 ft. (Ramaley and Robbins).

ALBERTA and ALASKA to COLORADO.

949. **C. confusa** Greene. CONFUSED PAINTED CUP.

Subalpine meadows, but a few plants were also found on a high bank in the mesas at base of the Flat-irons, 5800-10000 ft. (Daniels, 959). Also at Silver lake and north of Nederland (Ramaley); and from Eldora to Baltimore (Rydberg).

WYOMING to COLORADO.

950. **C. Arapahoensis** Daniels. Nov. spec. ARAPAHOE PAINTED CUP.

Perennial, the tufted stems, 2-2½ dm. high, curved at the base, smooth or slightly pubescent below, sparingly villous with white hairs above; basal leaves short, purplish, obtusely spatulate, 8-10 mm. long, about 3 mm. wide; lower stem-leaves, as well as the leaves of the sterile shoots narrowly linear 2½-3¾ cm. long, 3-5 mm. wide, acuminate, 3-ribbed, puberulent; thence the leaves increase progressively in width to the inflorescence, where they are from ½-1 cm. wide, lan-

ceolate acuminate, slightly-clasping at the base, entire, the uppermost pubescent, or somewhat villous on the midribs and margins, three-ribbed, the leaf-traces visible as prominent ridges on the stem; bracts of the inflorescence relatively broad, the lowermost 1-1¼ cm. broad, about 2 cm. long, subacute; the uppermost shorter and relatively broader, obtuse or rounded at the apex; some of the bracts occasionally notched toward the apices, or slightly lobed on each side; the margins and veins somewhat villous; the bracts, as well as the uppermost leaves rosy-pink; calyx with four nearly equal subacute lobes, the sinus of the lateral lobes shallow; calyx rosy-pink, villous; corolla exserted, 2½ cm. long, glabrous, or slightly puberulent above, the tip of the galea rosy pink, which is thrice the length of the slightly incurved lip; the upper pair of stamens more or less extruded from the galea; capsule black-purple 4-5 mm. long, oblong, abruptly acutish.

Wet tundras, above timberline, Arapahoe Peak, Sept. 1, 1906, 11000-12000 ft. (Daniels, 910).

951. *C. lauta* A. Nels. [*C. oreopola subintegra* Fernald]. SUB-ENTIRE PAINTED CUP.

Near Fourth of July Mine (Ramaley and Robbins).
MONTANA and OREGON to COLORADO.

952. *C. lancifolia* Rydb. LANCE-LEAVED PAINTED CUP.

Mountains between Sunshine and Ward (Rydberg).
ALASKA to OREGON, MONTANA and COLORADO.

953. *C. occidentalis* Torr. [*C. pallida occidentalis* (Torr.) Gray]. WESTERN PAINTED CUP.

Above timberline, Arapahoe Peak, 11000-13000 ft. (Daniels, 884), where also collected by Ramaley & Robbins. Also at Ward (Rydberg). A dwarf alpine form (about 1 dm. high) occurs on the higher altitudes of Arapahoe Peak.

ALBERTA and BRITISH COLUMBIA to COLORADO.

954. *C. sulphurea* Rydb. SULPHUR PAINTED CUP.

Subalpine mountain-slopes and valleys at Eldora and Glacier Lake, 8500-10000 ft. (Daniels, 623). Also at Ward (Rydberg).

SOUTH DAKOTA to WYOMING; COLORADO to UTAH.

408. ORTHOCARPUS Nutt.

955. *O. luteus* Nutt. YELLOW ORTHOCARPUS.

Abundant on the plains and mesas, 5100-6000 ft. (Daniels, 352). Also between Sunshine and Ward (Rydberg).

SASKATCHEWAN to WASHINGTON; COLORADO to NEVADA.

409. ELEPHANTELLA Rydb. LITTLE RED ELEPHANT.

956. *E. Groenlandica* (Retz.) Rydb. [*Pedicularis Groenlandica* Retz.]. GREENLAND LITTLE RED ELEPHANT.

Subalpine meadows at Eldora, thence to Arapahoe Peak above timberline, 8500-12000 ft. (Daniels, 625). Also from Eldora to Baltimore (Rydberg); Ward (Cockerell).

GREENLAND and HUDSON BAY to BRITISH COLUMBIA; LABRADOR to NEW MEXICO and CALIFORNIA.

410. PEDICULARIS L. LOUSEWORT.

957. *P. racemosa* Dougl. RACEMOSE LOUSEWORT.

Eldora to Baltimore (Rydberg). Redrock lake, 10100 ft. (Ramaley and Robbins).

MONTANA to BRITISH COLUMBIA; COLORADO to CALIFORNIA.

958. *P. Parryi* Gray. PARRY'S LOUSEWORT.

Above timberline, Arapahoe Peak, 11000-12000 ft. (Daniels, 1023). Redrock lake, 10100 ft. (Ramaley & Robbins).

WYOMING to COLORADO and UTAH.

959. *P. Grayi* A. Nels. [*P. procera* Gray]. GRAY'S LOUSEWORT.

Subalpine slopes at Eldora, 8500-10000 ft. (Daniels, 644). Also at Ward (Cockerell).

WYOMING to COLORADO.

960. *P. scopulorum* Gray. CRAG LOUSEWORT.

Above timberline, Arapahoe Peak, 11000-12000 ft. (Daniels, 882). Redrock lake, 10100 ft (Ramaley and Robbins).

COLORADO.

Family 100. **PINGUICULACEAE.** Dumort. **Butterwort family.**

411. UTRICULARIA L. BLADDERWORT.

961. **U. vulgaris L. COMMON BLADDERWORT.**

Cold marsh near Long's Peak (Porter & Coulter).

NORTH AMERICA: EUROPE: ASIA.

Family 101. **OROBANCHACEAE.** Lindl. **Broom-rape family.**

412. THALESIA Raf. CANCER-ROOT.

962. **T. fasciculata (Nutt.) Britton [*Aphyllon fasciculatum* (Nutt.) Gray]. CLUSTERED CANCER-ROOT.**

Plains, mesas and foothills, 5100-8000 ft. (Daniels, 18). All the plants collected were parasitic on the roots of *Psoralea tenuiflora* Pursh. My plants, as also some collected by Prof. Cockerell north of Boulder, have larger calyx lobes (5-6 mm.) than is usual in eastern plants.

INDIANA TO YUKON; COLORADO TO CALIFORNIA and MEXICO.

962a. **T. fasciculata lutea (Parry) Britton. YELLOW CLUSTERED CANCER-ROOT.**

Boulder (W. P. Cockerell).

Range of the type?

Order 39. **PLANTAGINALES.**

Family 102. **PLANTAGINACEAE.** Lindl. **Plantain family.**

413. PLANTAGO L. PLANTAIN.

963. **P. major L. COMMON PLANTAIN.**

Waste places and along ditches, 5100-6000 ft. (Daniels, 675).

Cosmopolitan.

964. **P. lanceolata L. ENGLISH PLANTAIN. RIBGRASS.**

Waste places and roadsides, 5100-6000 ft. (Daniels, 793).

EUROPE and ASIA, now cosmopolitan.

965. **P. Purshii R. & S. [*P. Patagonica gnaphalioides* (Nutt.) Gray]. PURSH'S PLANTAIN.**

Common on the plains, 5100-6000 ft. (Daniels, 494).

ONTARIO to BRITISH COLUMBIA; MISSOURI and TEXAS to ARIZONA and MEXICO.

Order 40. RUBIALES.

Family 103. RUBIACEAE. Juss. Madder family.

414. GALIUM L. BEDSTRAW.

966. *G. Vaillantii* DC. [*G. Aparine Vaillantii* Koch]. VAILLANT'S BEDSTRAW.

In gulches and cañons, mainly in the shade, 5100-8000 ft. (Daniels, 120).

MONTANA and BRITISH COLUMBIA to MEXICO.

967. *G. boreale* L. NORTHERN BEDSTRAW.

Common on the mesas, foothills and mountainsides, 5600-8600 ft. (Daniels, 89). Also between Sunshine and Ward (Rydberg).

QUEBEC to ALASKA; NEW JERSEY to CALIFORNIA: EUROPE: ASIA.

968. *G. flaviflorum* Heller. YELLOW-FLOWERED BEDSTRAW.

In gulches at base of the Flat-irons, 5700-6000 ft. (Daniels, 499).

COLORADO to NEW MEXICO.

969. *G. triflorum* Michx. FRAGRANT BEDSTRAW.

Cañons of the foothills, 6000-8000 ft. (Daniels, 466).

NEWFOUNDLAND to ALASKA; ALABAMA to CALIFORNIA.

Family 104. CAPRIFOLIACEAE. Vent. Honeysuckle family.

415. SAMBUCUS L. ELDER.

970. *S. microbotrys* Rydb. SMALL-BERRIED ELDER.

Slopes at Ward, 9200 ft. (Daniels, 306). Also between Sunshine and Ward (Rydberg); Spencer Mountain at Eldora; Silver lake; foot of Long's Peak; Redrock lake, west of Ward (Ramaley).

SOUTH DAKOTA to WYOMING; COLORADO to ARIZONA.

971. *S. melanocarpa* Gray. BLACK-BERRIED ELDER.
Sugarloaf Mountain and North Boulder creek (Ramaley).
ALBERTA to IDAHO, COLORADO and OREGON.

416. *VIBURNUM* L. ARROWWOOD.

972. *V. pauciflorum* Pylaie. HIGH-BUSH CRANBERRY.
Sugarloaf Mountain (Ramaley).
LABRADOR to ALASKA; PENNSYLVANIA to COLORADO and
ALASKA.

973. *V. Lentago* L. SHEEPBERRY. NANNYBERRY.
Gulch south of Boulder (Rydberg). Also Bluebell Cañon,
if indeed the locality is not the same (Ramaley).
MAINE to MANITOBA; GEORGIA to COLORADO.

417. *LINNAEA* Gron. TWIN-FLOWER.

974. *L. Americana* Forbes. AMERICAN TWIN-FLOWER.
South Boulder Peak (Rydberg). Also Magnolia; Eldora;
Spencer Mountain at Eldora; foot of Arapahoe Peak; hill
south of Ward (Ramaley).
GREENLAND to ALASKA; NEW JERSEY and MICHIGAN to COL-
ORADO and UTAH.

418. *SYMPHORICARPOS* Juss. SNOW-BERRY.

975. *S. occidentalis* Hook. WESTERN SNOW-BERRY.
Abundant on the higher mesas and foothills, 5700-8000 ft.
(Daniels, 94). Also between Sunshine and Ward (Rydberg).
South Boulder creek (Ramaley).
MACKENZIE to BRITISH COLUMBIA; MICHIGAN and MIS-
SOURI to COLORADO.

976. *S. vaccinioides* Rydb. HUCKLEBERRY INDIAN CURRANT.
Sugarloaf; foot of Long's Peak (Ramaley).
MONTANA to WASHINGTON; COLORADO to NEVADA.

977. *S. oreophilus* Gray. MOUNTAIN INDIAN CURRANT.
Eldora to Baltimore (Rydberg).
COLORADO to UTAH; NEW MEXICO to ARIZONA.

419. *DISTEGIA* Raf. FLY-HONEYSUCKLE.

978. *D. involucrata* (Richards.) Cockerell [*Lonicera involucrata* (Richards.) Banks]. INVOLUCRED FLY-HONEY-SUCKLE.

Common in cool, deep cañons, 6500-9000 ft. (Daniels, 340). Also from Eldora to Baltimore and in the mountains between Sunshine and Ward (Rydberg): Allen's Park; Eldora; Spencer Mountain; Redrock lake; Ward (Ramaley).

QUEBEC to ALASKA; MICHIGAN to CALIFORNIA and MEXICO.

Family 105. ADOXACEAE. Fritch. Moschatel family.

420. *ADOXA* L. MOSCHATEL.

979. *A. Moschatellina* L. MUSK-ROOT.

Boulder Cañon (Rydberg).

ARCTIC AMERICA to WISCONSIN and COLORADO: EUROPE: ASIA.

Order 41. CAMPANULALES.

Family 106. CUCURBITACEAE. Juss. Gourd family.

421. *MICRAMPELIS* Raf. BALSAM APPLE.

980. *M. lobata* (Michx.) Greene [*Echinocystis lobata* (Michx.) T. & G.]. WILD BALSAM APPLE.

Fence-rows and waste places, 5100-6000 ft. (Daniels, 743). MAINE to MONTANA; VIRGINIA to COLORADO.

Family 107. CAMPANULACEAE. Juss. Bellflower family.

422. *CAMPANULA* L. BELLFLOWER. HAREBELL. BLUEBELL.

981. *C. uniflora* L. ARCTIC HAREBELL.

Arapahoe Peak above timberline, 11000-12000 ft. (Daniels, 938).

Arctic-alpine in the NORTHERN HEMISPHERE.

982. *C. Parryi* Gray. PARRY'S HAREBELL.

Foothills and mountain slopes, 6500-9000 ft. (Daniels, 101).

Also from Eldora to Baltimore (Rydberg).

WYOMING to UTAH; NEW MEXICO to ARIZONA.

983. *C. petiolata* DC. WESTERN BLUEBELL.

Abundant throughout, 5100-9000 ft. (Daniels, 27). Red-rock lake, 10100 ft. (Ramaley & Robbins).

MACKENZIE to WASHINGTON; NEW MEXICO to UTAH.

423. *SPECULARIA* Heist. VENUS'S LOOKING-GLASS.

984. *S. perfoliata* (L.) A. D C. [*Legouzia perfoliata* (L.) Britton]. COMMON VENUS'S LOOKING-GLASS.

Common on the plains, mesas and foothills, 5100-8000 ft. (Daniels, 56).

MAINE and ONTARIO to BRITISH COLUMBIA; FLORIDA to ARIZONA and OREGON; MEXICO.

985. *S. leptocarpa* (Nutt.) Gray [*Legouzia leptocarpa* (Nutt.) Britton]. WESTERN VENUS'S LOOKING-GLASS.

Mesas at foot of the Flat-irons, 5600-6000 ft. (Daniels, 192).

MISSOURI to MONTANA; TEXAS to COLORADO.

Family 108. LOBELIACEAE. Dumort. Lobelia family.

424. *LOBELIA* L. LOBELIA.

986. *L. syphilitica Ludoviciana* A. D C. LOUISIANA GREAT BLUE LOBELIA.

Along ditches and streams in the plains, 5100-5600 ft. (Daniels, 784).

LOUISIANA and SOUTH DAKOTA to COLORADO.

Order 42. VALERIANALES.

Family 109. VALERIANACEAE. Batsch. Valerian family.

425. *VALERIANA* L. VALERIAN.

987. *V. ceratophylla* (Hook.) Piper [*V. edulis* Nutt.]. EDBLE VALERIAN.

Subalpine meadows at Eldora, 8500-9000 ft. (Daniels, 626).

IDAHO to MONTANA; COLORADO to UTAH.

Order 43. CARDUALES.

Family 110. AMBROSIAACEAE. Reich. Ragweed family.

426. IVA L. MARSH-ELDER.

988. *I. xanthiifolia* (Fresen.) Nutt. BURWEED MARSH-ELDER.

Common on the plains along streams, and in waste places, and following the larger streams several miles into the foothills and mountains, 5100-7000 ft. (Daniels, 821). Also in Sunset Cañon (Rydberg).

MICHIGAN and SASKATCHEWAN to WASHINGTON; NEBRASKA to NEW MEXICO.

989. *I. axillaris* Pursh. SMALL-FLOWERED MARSH-ELDER.

Railroads and waste places, 5100-6000 ft. (Daniels, 832).

SASKATCHEWAN to BRITISH COLUMBIA; OKLAHOMA to CALIFORNIA.

427. AMBROSIA L. RAGWEED.

990. *A. trifida* L. GREAT RAGWEED. HORSE-CANE.

Common along streams and in low waste places, 5100-6000 ft. (Daniels, 378).

QUEBEC to ASSINIBOIA; FLORIDA to COLORADO.

990a. *A. trifida integrifolia* (Muhl.) T. & G. ENTIRE-LEAVED RAGWEED.

With the preceding (Daniels, 596).

Range of the type?

991. *A. artemisiaefolia* L. COMMON RAGWEED.

Waste places and fields, 5100-6000 ft. (Daniels, 520).

NOVA SCOTIA to BRITISH COLUMBIA; FLORIDA to COLORADO.

992. *A. psilostachya* DC. WESTERN RAGWEED.

On the plains, especially along railroads, 5100-6000 ft. (Daniels, 516). Also at Lyons (Rydberg).

MICHIGAN to SASKATCHEWAN and IDAHO; LOUISIANA to CALIFORNIA and MEXICO.

428. GAERTNERIA Med.

993. *G. tomentosa* (Nutt.) Heller [*Franseria discolor* Nutt.].

WOOLLY GAERTNERIA.

Along railroads in the plains, 5100-5400 ft. (Daniels, 510).
SOUTH DAKOTA to WYOMING; KANSAS to NEW MEXICO.

429. **XANTHIUM** L. COCKLEBUR.

994. **X. commune** Britton. COMMON COCKLEBUR.

Along streams and in waste places, 5100-6000 ft. (Daniels, 695).

QUEBEC and NEW YORK to UTAH and ARIZONA.

Family III. **CARDUACEAE**. Necker. Thistle family.430. **EUPATORIUM** L. THOROUGHWORT.

995. **E. maculatum** L. SPOTTED JOE-PYE WEED.

Springy gulch at foot of Flagstaff Hill, 5800-6000 ft. (Daniels, 801).

NEW YORK to BRITISH COLUMBIA; KENTUCKY to NEW MEXICO.

431. **KUHNIA** L.

995½. **K. Hitchcockii** A. Nels. HITCHCOCK'S KUHNIA.

Marshall, collected by E. Bethel, (J. C. Arthur, in *Mycologia*, Nov., 1909, p. 233). Host of a fungus, *Puccinia Kuhniae* Schw.

KANSAS to COLORADO.

996. **K. glutinosa** Ell. [*K. eupatorioides corymbulosa* T. & G.].
STICKY KUHNIA.

Frequent on the plains, mesas, and lower foothills, 5100-6500 ft. (Daniels, 686).

ILLINOIS to MONTANA; KENTUCKY to COLORADO.

997. **K. Gooddingii** A. Nels. GOODDING'S KUHNIA.

Plains and mesas, 5100-6000 ft. (Daniels, 727). The type is from West Dry Creek, Larimer County, Colorado.

COLORADO to TEXAS and ARIZONA.

432. **COLEOSANTHUS** Cass. BRICKELLIA.

998. **C. minor** (Gray) Daniels. Nov. comb. [*Brickellia grandiflora minor* Gray; *C. umbellatus* Greene; *C. congestus* A. Nels.]. UMBELLATE BRICKELLIA.

Common on the foothills and mountains, 5800-10000 ft.

(Daniels, 551). Also mountains between Sunshine and Ward (Rydberg).

WYOMING to NEW MEXICO and ARIZONA.

999. **C. albicaulis** Rydb. WHITE-STEMMED BRICKELLIA.

Among rocks and in rocky cañons in the foothills, 6000-8500 ft. (Daniels, 822).

COLORADO to NEW MEXICO and UTAH.

433. LACINIARIA Hill. BLAZING-STAR. BUTTON-SNAKEROOT.

1000. **L. punctata** (Hook.) Kuntze [*Liatris punctata* Hook.].

DOTTED BLAZING-STAR.

Abundant on the plains, mesas, and meadows on the foothills and mountains, 5100-9000 ft. (Daniels, 615). Also in the mountains between Sunshine and Ward (Rydberg). Very variable; an extreme form, gathered in alkali flats near Boulder lake, (Daniels, 768) simulates *L. acidota* (Engelm. & Gray) Kuntze.

IOWA to SASKATCHEWAN and MONTANA; TEXAS to ARIZONA.

1001. **L. ligulistylis** A. Nels. PURPLE-BRACTED BLAZING-STAR.

Bear Cañon, 7000 ft. (Daniels, 758).

SASKATCHEWAN to COLORADO.

434. GUTIERREZIA Lag.

1002. **G. longifolia** Greene. LONG-LEAVED GUTIERREZIA.

Common on the plains and mesas, 5100-6000 ft. (Daniels, 595).

COLORADO to NEW MEXICO and UTAH.

1003. **G. scoparia** Rydb. BROOM GUTIERREZIA.

Plains and mesas, 5100-6000 ft. (Daniels, 984).

WYOMING to COLORADO.

435. GRINDELIA Willd. GUM PLANT.

1004. **G. Texana** Scheele. TEXAN GUM PLANT.

Lower Boulder Cañon (Rydberg).

TEXAS to NEW MEXICO and COLORADO.

1005. **G. serrulata** Rydb. SERRULATE GUM PLANT.

Very abundant on the plains, mesas, and foothills, 5100-7000 ft. (Daniels, 385).

WYOMING to COLORADO.

1005a. *G. serrulata* Rydb. × *G. perennis* A. Nels.

Plants apparently intermediate between this species and the next were found on the plains in Boulder (Daniels, 837).

1006. *G. perennis* A. Nels. PERENNIAL GUM PLANT.

Plains, mesas, and foothills, 5100-7000 ft. (Daniels, 836).

SASKATCHEWAN to IDAHO and COLORADO.

1007. *G. erecta* A. Nels. ERECT GUM PLANT.

Mountains between Sunshine and Ward (Rydberg).

WYOMING to COLORADO.

1008. *G. subalpina* Greene. SUBALPINE GUM PLANT.

Common at Eldora, 8500-10000 ft. (Daniels, 845). Also at Boulder (Rydberg).

WYOMING to COLORADO.

1009. *G. Eldorae* Daniels, Nov. sp. ELDORA GUM PLANT.

Plant glabrous, apparently biennial, 3 dm. tall, branched from, or near the base, the secondary branches 1-2 headed; radical and lower cauline leaves oblanceolate, 3-6 cm. long, slender-petioled, remotely toothed or incised; upper cauline leaves, linear or narrowly oblanceolate, small and bract-like, slightly toothed, subentire, or entire, 1-3 cm. long, 5-8 mm. wide; heads copiously glutinous, 1-1½ cm. broad; bracts numerous, narrow, the tips squarrose-spreading; rays numerous, 1-3 mm. wide, barbules of the pappus plainly obvious.

Eldora, 8500-8700 ft. (Daniels, 859).

Plant near *G. subalpina* Greene, but differing in its smaller, narrower and less prominently toothed or entire leaves, and especially in its smaller heads, which are only about one-half as broad.

436. CHRYSOPSIS Nutt. GOLDEN ASTER.

1010. *C. hirsutissima* Greene. HAIRIEST GOLDEN ASTER.

Plains between Boulder and Marshall along railroad, 5400 ft. (Daniels, 1024).

NORTH DAKOTA to SASKATCHEWAN; COLORADO to ARIZONA.
1010½. *C. foliosa* Nutt. LEAFY GOLDEN ASTER.

Redrock lake, 10100 ft. (Ramaley and Robbins).

MINNESOTA to WASHINGTON; KANSAS to COLORADO.

1011. *C. caudata* Rydb. CAUDATE GOLDEN ASTER.

Mesas, foothills, and mountain slopes, common, 5700-9000 ft. (Daniels, 356).

COLORADO.

1012. *C. villosa* (Pursh) Nutt. VILLOUS GOLDEN ASTER.

Abundant on the plains and foothills, 5100-8000 ft. (Daniels, 1).

MINNESOTA to IDAHO; TEXAS to NEW MEXICO.

1013. *C. amplifolia* Rydb. AMPLE-LEAVED GOLDEN ASTER.

Foothills and mountain slopes, 6000-8000 ft. (Daniels, 687).
Also at Ward, and Longmont (Rydb.).

COLORADO.

1014. *C. Bakeri* Greene [*C. incana* Greene; *C. compacta* Greene]. BAKER'S GOLDEN ASTER.

Mountainsides at Eldora, 8500-9000 ft. (Daniels, 862). A plant was gathered in Gregory Cañon, which appears intermediate between this and the preceding.

MONTANA and IDAHO to NEW MEXICO.

1015. *C. arida* A. Nels. ARID GOLDEN ASTER.

Boulder (Rydb.).

KANSAS to MONTANA; NEW MEXICO to ARIZONA.

1016. *C. resinolens* A. Nels. RESINOUS GOLDEN ASTER.

Plains and foothills, 5100-7000 ft. (Daniels, 293).

WYOMING to COLORADO.

1016a. *C. resinolens obtusata* A. Nels. OBTUSE-LEAVED RESINOUS GOLDEN ASTER.

Foot of the Flat-irons, and mountainsides at Eldora, 6000-9000 ft. (Daniels, 809). Also mountains between Sunshine and Ward (Rydberg).

Range of the type, but usually at higher altitudes.

1017. *C. hispida* (Hook.) Nutt. [*C. villosa hispida* Gray].

HISPID GOLDEN ASTER.

Plains about Boulder, 5100-6000 ft. (Daniels, 831).

SASKATCHEWAN to ALBERTA; NEW MEXICO to ARIZONA.

1018. **C. Cooperi** A. Nels. COOPER'S GOLDEN ASTER.

Long's Peak near timberline, the type locality, (A. Nels).
COLORADO.

437. CHRYSOTHAMNUS Nutt. RABBIT-BRUSH.

1019. **C. Parryi** (Gray) Greene [*Bigelovia Parryi* Gray].

PARRY'S RABBIT-BRUSH.

Subalpine valley at Eldora, 8700 ft. (Daniels, 866).

WYOMING to COLORADO.

1020. **C. graveolens** (Nutt.) Greene [*C. nauseosus graveolens* (Nutt.) Piper]. HEAVY-SCENTED RABBIT-BRUSH.

Mesa south of the Chautauqua grounds, Boulder, (Ramaley).

NEBRASKA to MONTANA; NEW MEXICO to UTAH.

1021. **C. pulcherrimus** A. Nels. FAIREST RABBIT-BRUSH.

Alkali flat east of Boulder near Owen's lake, 5200-5300 ft. (Daniels, 663).

MONTANA to COLORADO.

1021a. **C. pulcherrimus fasciculatus** A. Nels. FASCICULATE RABBIT-BRUSH.

Boulder creek, the type locality (A. Nels.).

1022. **C. elegans** Greene. HANDSOME RABBIT-BRUSH.

Subalpine valley at Eldora, 8700 ft. (Daniels, 867).

COLORADO.

438. SIDERANTHUS Nutt. STAR-FLOWER.

1023. **S. annuus** Rydb. ANNUAL STAR-FLOWER.

Arapahoe Road east of Boulder, 5300 ft. (Daniels, 726).

NEBRASKA and COLORADO to TEXAS.

1024. **S. spinulosus** (Pursh) Sweet [*Aplopappus spinulosus* (Pursh) DC.]. SPINULOSE STAR-FLOWER.

Frequent on the plains, 5100-5700 ft. (Daniels, 473).

MINNESOTA to SASKATCHEWAN and MONTANA; TEXAS to ARIZONA.

439. PYRROCOMA Nutt.

1025. **P. crocea** (Gray) Greene [*A. croceus* Gray]. YELLOW

PYRROCOMA.

Boulder (Rydb.).

WYOMING TO NEW MEXICO and ARIZONA.

440. **OREOCHRYSUM** Rydb. MOUNTAIN GOLD.1026. **O. Parryi** (Gray) Rydb. [*Aplopappus Parryi* Gray].

PARRY'S MOUNTAIN GOLD.

Slopes of Green Mt.; common in the mountains at Eldora, ascending on Arapahoe Peak to the timberline, 7000-11000 ft. (Daniels, 752). Also mountains between Sunshine and Ward (Rydb.).

WYOMING TO NEW MEXICO and ARIZONA. .

441. **TONESTUS** A. Nels.

1027. **T. pygmaeus** (T. & G.) A. Nels. [*Aplopappus pygmaeus* (T. & G.) Gray; *Macronema pygmaeum* (T. & G.) Greene]. PYGMY TONESTUS.

Arapahoe Peak above timberline, 11000-12000 ft. (Daniels, 917).

WYOMING TO COLORADO.

442. **SOLIDAGO** L. GOLDEN ROD.

1028. **S. decumbens** Greene [*S. humilis nana* Gray]. DECUMBENT GOLDEN ROD.

Barren ridges at Glacier lake, and above timberline on Arapahoe Peak, 9000-12000 ft. (Daniels, 641).

WYOMING TO COLORADO.

1028a. **S. decumbens minuscens** A. Nels. DWARF DECUMBENT GOLDEN ROD.

Redrock lake, 10100 ft. (Ramaley and Robbins).

Range of the type.

1029. **S. oreophila** Rydb. [*S. humilis Pattersonii* Gandoger].

MOUNTAIN-LOVING GOLDEN ROD.

Abundant on the foothills and mountains, 6000-11000 ft. (Daniels, 529). Also between Sunshine and Ward (Rydb.).

MACKENZIE TO COLORADO.

1030. **S. dilatata** A. Nels. OPEN-TOPPED GOLDEN ROD.

Mountains between Sunshine and Ward (Rydberg). According to A. Nelson authentic specimens have been found from the type locality only, Yellowstone Park.

WYOMING to COLORADO.

1031. *S. pallida* (Porter) Rydb. [*S. speciosa pallida* Porter].

PALE GOLDEN ROD.

Mesa at foot of Flagstaff Hill, 5700-6000 ft. (Daniels, 802). Also Lower Boulder Cañon (Rydberg).

NORTH DAKOTA and NEBRASKA to COLORADO.

1032. *S. viscidula* Rydb. VISCID GOLDEN ROD.

High mesas, foothills, and mountains, 5900-8600 ft. (Daniels, 375).

COLORADO.

1033. *S. glaberrima* Martens. SMOOTHEST GOLDEN ROD.

Common on the plains and foothills, 5100-8000 ft. (Daniels, 616).

MICHIGAN to ALBERTA and IDAHO; MISSOURI to TEXAS and ARIZONA.

1034. *S. concinna* A. Nels. [*S. Missouriensis extraria* Gray].

STOUT MISSOURI GOLDEN ROD.

Plains and foothills, 5100-8000 ft. (Daniels, 977).

ALBERTA to BRITISH COLUMBIA and COLORADO.

1035. *S. Pitcheri* Nutt. PITCHER'S GOLDEN ROD.

Along ditches and streams in the plains, 5100-6000 ft. (Daniels, 505).

MINNESOTA to WASHINGTON; ARKANSAS to COLORADO.

1036. *S. polyphylla* Rydb. MANY-LEAVED GOLDEN ROD.

Along streams in the foothills, especially frequent in Gregory Cañon, 6000-8000 ft. (Daniels, 823).

BRITISH COLUMBIA and WASHINGTON to NEW MEXICO.

1037. *S. Canadensis* L. COMMON GOLDEN ROD.

Boulder Cañon near Falls, 7000 ft. (Daniels, 557).

LABRADOR to MACKENZIE; FLORIDA to COLORADO.

1038. *S. gilvocanescens* Rydb. [*S. Canadensis gilvocanescens*

Rydb.]. YELLOWISH-GRAY GOLDEN ROD.

Alkali flats and dry plains about Boulder lake and Owen's lake, 5100-5300 ft. (Daniels, 782).

MINNESOTA TO NORTH DAKOTA; NEBRASKA TO COLORADO.

1039. *S. nana* Nutt. DWARF GOLDEN ROD.

Dry slopes of Green Mountain, 6000-8100 ft. (Daniels, 825). An allied form occurs on the plains.

MONTANA TO COLORADO and ARIZONA.

1040. *S. pulcherrima* A. Nels. PRETTIEST GOLDEN ROD.

Common on the plains about Boulder, 5100-6000 ft. (Daniels, 983). Also mountains between Sunshine and Ward (Rydberg).

MINNESOTA TO NORTH DAKOTA; COLORADO TO ARIZONA.

1041. *S. radulina* Rydb. HARSH-LEAVED GOLDEN ROD.

Plains, mesas, foothills and mountains, frequent, 5600-8000 ft. (Daniels, 753). Also at Meadow Park (Rydberg).

COLORADO TO UTAH.

1042. *S. trinervata* Greene. THREE-NERVED GOLDEN ROD.

Boulder Cañon, ascending at least as far as the Falls, 5500-7000 ft. (Daniels, 553).

SOUTH DAKOTA TO WYOMING; COLORADO TO ARIZONA.

1043. *S. mollis* Bartl. [*S. nemoralis incana* Gray]. HOARY GOLDEN ROD.

Mesas at foot of the Flat-irons, and foothills along Boulder Cañon, 5500-8000 ft. (Daniels, 574).

NORTH DAKOTA TO MONTANA; TEXAS TO COLORADO.

443. OLIGONEURON Small.

1044. *O. canescens* Rydb. [*Solidago rigida humilis* Porter]. HOARY STIFF GOLDEN ROD.

Common on the plains, 5100-6000 ft. (Daniels, 781).

SASKATCHEWAN TO MONTANA; NEBRASKA TO COLORADO.

444. TOWNSENDIA Hook.

1045. *T. grandiflora* Nutt. LARGE-FLOWERED TOWNSENDIA.

Common in rough hilly places throughout, 5100-8600 ft. (Daniels, 41).

SOUTH DAKOTA to WYOMING; OKLAHOMA to COLORADO.

1046. **T. exscapa** (Richardson) Porter [*T. sericea* Hook.].

SILKY TOWNSENDIA.

Common at Boulder (Cockerell).

SASKATCHEWAN to MONTANA; TEXAS to NEW MEXICO.

445. EUCEPHALUS Nutt.

1047. **E. Engelmannii** (Gray) Greene [*Aster Engelmannii* Gray]. ENGELMANN'S ASTER.

In cañons about Eldora, 8500-10000 ft. (Daniels, 841).

MONTANA to BRITISH COLUMBIA; COLORADO to WASHINGTON.

1048. **E. glaucus** Nutt. [*Aster glaucus* (Nutt.) T. & G.].

GLAUCOUS ASTER.

Hills adjoining Boulder Cañon, and on the slopes of Green Mountain, local, 6000-8000 ft. (Daniels, 569). Also mountains between Sunshine and Ward (Rydberg).

WYOMING to COLORADO and UTAH.

446. ASTER L. STARWORT.

1049. **A. Underwoodii** Rydb. UNDERWOOD'S ASTER.

Cañons and mountain sides at Eldora, 8500-10000 ft. (Daniels, 1025). Also Eldora to Baltimore (Rydberg).

WYOMING to COLORADO.

1050. **A. Nelsonii** Greene. NELSON'S ASTER.

Subalpine valley at Eldora, 8600-8700 ft. (Daniels, 861).

WYOMING to COLORADO.

1051. **A. violaceus** Greene. VIOLET ASTER.

Cañons at Eldora, 8600-8700 ft. (Daniels, 554).

COLORADO.

1052. **A. exiguus** (Fern.) Rydb. [*A. ciliatus* Muhl.] CILIATE ASTER.

Common on the plains and foothills, 5100-7000 ft. (Daniels, 999). Also in Sunset Cañon (Rydberg).

VERMONT to WASHINGTON; PENNSYLVANIA to ARIZONA and MEXICO.

1053. *A. crassulus* Rydb. THICKISH ASTER.

Sunset Cañon; common on the plains, 5100-8000 ft. (Daniels, 720).

NORTH DAKOTA to IDAHO; COLORADO to CALIFORNIA. (?)

1054. *A. polycephalus* Rydb. MANY-HEADED ASTER.

Common on the plains and foothills, 5100-7000 ft. (Daniels, 1000).

ALBERTA to NEBRASKA; TEXAS to ARIZONA.

1055. *A. commutatus* Gray [*A. incanopilosus* (Lindl.) Sheldon]. WHITE PRAIRIE ASTER.

Common on the plains and foothills, 5100-7000 ft. (Daniels, 717).

MINNESOTA to WYOMING; KANSAS to NEVADA.

1056. *A. laevis* L. SMOOTH ASTER.

Cañons and wooded slopes on the foothills, 5800-8000 ft. (Daniels, 685).

ONTARIO to SASKATCHEWAN; LOUISIANA to NEW MEXICO.

1057. *A. Porteri* Gray. PORTER'S ASTER.

Abundant throughout, 5100-10000 ft. (Daniels, 697). Also mountains between Sunshine and Ward (Rydberg). Very variable; an extreme form, only 1-1½ dm., high, was collected on bare ridges at Glacier lake.

COLORADO.

1058. *A. laetevirens* Greene. LIGHT-GREEN-LEAVED ASTER.

Cañons at Eldora, 8600-8700 ft. (Daniels, 858).

COLORADO and WYOMING.

1059. *A. coerulescens* DC. [*A. salicifolius coerulescens* (DC.) Gray]. CAERULEAN ASTER.

Swales in the plains, 5100-6000 ft. (Daniels, 995).

WYOMING to TEXAS.

1060. *A. Osterhoutii* Rydb. OSTERHOUT'S ASTER.

About lakes and swales and along ditches in the plains, 5100-6000 ft. (Daniels, 779).

COLORADO.

1061. **A. adscendens** Lindl. ASCENDING ASTER.
Mountains between Sunshine and Ward (Rydberg).
ASSINIBOIA to COLORADO and NEVADA.
1062. **A. Andrewsii** A. Nels. ANDREWS'S ASTER.
Near Eldora, 9500 ft., the type locality (Nelson).
COLORADO.
1063. **A. Eatonii** (Gray) Howell [*A. foliaceus Eatonii* Gray;
Brachyactis hybrida Greene]. EATON'S ASTER.
Banks of Boulder creek, 5400 ft. (Daniels, 592).
MONTANA to BRITISH COLUMBIA; COLORADO to CALIFORNIA.

447. MACHAERANTHERA Nees.

1064. **M. Bigelovii** (Gray) Greene [*Aster Bigelovii* Gray].
BIGELOW'S ASTER.
Common on the plains and foothills, 5100-7000 ft. (Daniels,
724).
COLORADO to NEW MEXICO.
- 1064½. **M. varians** Greene. VARYING ASTER.
Redrock lake, 10100 ft. (Ramaley and Robbins).
COLORADO to NEW MEXICO.

1065. **M. coronopifolia** (Nutt.) A. Nels. WART-CRESS-LEAVED
ASTER.
Eldora, 8600 ft. (Daniels, 1026).
SOUTH DAKOTA to MONTANA; TEXAS to ARIZONA.

1066. **M. aspera** Greene. HARSH ASTER.
High slopes of Green Mountain, 7500-8100 ft. (Daniels,
209). Also mountains between Sunshine and Ward (Ryd-
berg).
COLORADO.

1067. **M. Pattersonii** (Gray) Greene [*Aster Pattersonii* Gray].
PATTERSON'S ASTER.
Caribou (Rydberg).
COLORADO.

448. ERIGERON L. FLEABANE.

1068. **E. lonchophyllus** Hook. LANCE-LEAVED FLEABANE.

- Subalpine bogs at Eldora, 8500-9000 ft. (Daniels, 856).
SASKATCHEWAN to MONTANA; COLORADO to NEVADA.
1069. *E. minor* (Hook.) Rydb. SMALLER FLEABANE.
Aspen bogs at Eldora, 8500-9000 ft. (Daniels, 1027).
SASKATCHEWAN to BRITISH COLUMBIA; COLORADO to UTAH.
1070. *E. jucundus* Greene [*E. acris debilis* Gray; *E. debilis* Rydb.]. PLEASANT FLEABANE.
Massif de l' Arapahoe, and Eldora to Baltimore (Rydberg).
HUDSON BAY to BRITISH COLUMBIA; COLORADO to UTAH.
1071. *E. pinnatisectus* (Gray) A. Nels. [*E. compositus pinnatisectus* Gray]. PINNATE FLEABANE.
South of Ward (Rydberg).
WYOMING to COLORADO.
1072. *E. compositus* Pursh. COMPOSITE FLEABANE.
Mountains between Sunshine and Ward (Rydberg). Long's Peak (Porter & Coulter; Coulter in Wabash College Herb.).
MONTANA to YUKON; COLORADO to WASHINGTON.
1073. *E. multifidus* Rydb. MULTIFID FLEABANE.
Ridges at Glacier lake, 8600-9000 ft. (Daniels, 307). Also from Eldora to Baltimore (Rydberg). Sugarloaf Mountain (Cockerell).
ASSINIBOIA to BRITISH COLUMBIA; COLORADO to CALIFORNIA.
1074. *E. trifidus* Hook. [*E. compositus trifidus* (Hook.) Gray]. THREE-PARTED FLEABANE.
Mountains about Ward, 9000-9500 ft. (Daniels, 757).
ALBERTA and BRITISH COLUMBIA to COLORADO.
1075. *E. melanocephalus* A. Nels. [*E. oreocharis* Greene]. BLACK-HEADED FLEABANE.
Wet tundras, Arapahoe Peak above timberline, 11000-12000 ft. (Daniels, 898). Also at Caribou (Rydberg).
WYOMING to COLORADO.
1076. *E. simplex* Greene [*E. uniflorus* Auct.]. SIMPLE FLEABANE.
Wet tundras, Arapahoe Peak above timberline, 11000-12000

ft. (Daniels, 1008).

LABRADOR and ARCTIC AMERICA to ALASKA; COLORADO to CALIFORNIA: EUROPE.

1077. *E. leucotrichus* Rydb. WHITE-HAIRED FLEABANE.

Above timberline, Arapahoe Peak, 11000-12000 ft. (Daniels, 875). Also at Caribou (Rydberg). Probably to be united with the preceding, of which it seems but a larger form.

WYOMING to COLORADO.

1078. *E. glandulosus* Porter. GLANDULAR FLEABANE.

High and bare ridges above Sunset between Sugarloaf Mountain and Glacier lake, 8500-9000 ft. (Daniels, 642). Also Boulder Cañon (Porter and Coulter).

WYOMING to COLORADO.

1078½. *E. pumilus* Nutt. SMALL FLEABANE.

St. Vrain creek (Coulter in Wabash College Herb.).

NORTH DAKOTA to WASHINGTON; KANSAS to UTAH.

1079. *E. salsuginosus* (Richardson) Gray. BROAD-RAYED FLEABANE.

Along Arapahoe Trail to Arapahoe Peak above timberline, 9000-1200 ft. (Daniels, 873). Redrock lake, 10100 ft. Ramaley & Robbins).

ALBERTA to ALASKA; COLORADO to CALIFORNIA.

1079a. *E. salsuginosus glacialis* (Nutt.) Gray. ICE FLEABANE.

At Caribou (Rydberg). Redrock lake, 10100 ft. (Ramaley and Robbins).

WYOMING to NEW MEXICO and UTAH.

1080. *E. superbus* Greene. SUPERB FLEABANE.

Rich slopes of Green Mountain, 7000-8100 ft. (Daniels, 973). Also mountains between Sunshine and Ward (Rydberg).

COLORADO.

1081. *E. salicinus* Rydb. WILLOW FLEABANE.

Boulder Cañon on the hill slopes, 5700 ft. (Daniels, 288).

COLORADO.

1082. *E. macranthus* Nutt. LARGE-FLOWERED FLEABANE.

Common in the foothills and mountains, 6500-10000 ft. (Daniels, 472). Also at Sunset, and from Eldora to Baltimore (Rydberg).

MONTANA to BRITISH COLUMBIA; COLORADO and UTAH to OREGON.

1082a. *E. macranthus mirus* A. Nelson. WONDERFUL FLEABANE.

Boulder County, the type locality (Nelson).

1083. *E. speciosus* D C. SHOWY FLEABANE.

Mountains between Sunshine and Ward (Rydberg).

MONTANA to WASHINGTON; COLORADO and UTAH to OREGON.

1084. *E. subtrinervis* Rydb. THREE-NERVED FLEABANE.

Mountainsides at Eldora, 8500-9000 ft. (Daniels, 646).

SOUTH DAKOTA and WYOMING to NEW MEXICO.

1085. *E. eximius* Greene. CHOICE FLEABANE.

Boulder Cañon above the Falls and on mountainsides at Eldora, 7000-9000 ft. (Daniels, 860). Also from Eldora to Baltimore (Rydberg).

COLORADO.

1086. *E. Smithii* Rydb. SMITH'S FLEABANE.

Subalpine meadows at Eldora, 8500-9000 ft. (Daniels, 865).

COLORADO.

1087. *E. ramosus* (Walt.) B. S. P. [*E. strigosus* Muhl.].

COMMON FLEABANE.

Fields and waste places on the plains, 5100-6000 ft. (Daniels, 570).

NOVA SCOTIA to BRITISH COLUMBIA; FLORIDA to CALIFORNIA.

1088. *E. Bellidastrum* Nutt. DAISY FLEABANE.

Mesas at foot of Flat-irons, 5700-6000 ft. (Daniels, 691).

SOUTH DAKOTA to WYOMING; KANSAS to ARIZONA.

1089. *E. divergens* T. & G. DIVERGENT FLEABANE.

Plains and mesas about Boulder and Marshall, 5100-6000 ft. (Daniels, 435).

NEBRASKA to WASHINGTON; TEXAS to CALIFORNIA.

1090. **E. flagellaris** Gray [*E. stolonifer* Greene]. STOLONIFEROUS FLEABANE.

Abundant on the plains, 5100-6000 ft. (Daniels, 3).

SOUTH DAKOTA to WYOMING; NEW MEXICO to UTAH.

448½. **WYOMINGIA** A. Nels. MOUNTAIN DAISY.

1091. **W. cana** (Gray). A. Nels. [*Erigeron canus* Gray]. HOARY MOUNTAIN DAISY.

Sunset Cañon (Rydberg).

SOUTH DAKOTA to WYOMING; NEBRASKA to NEW MEXICO.

449. **LEPTILON** Raf. HORSEWEED.

1092. **L. Canadense** (L.) Britton [*Erigeron Canadensis* L.]. COMMON HORSEWEED.

Fields and waste places, common, 5100-8000 ft. (Daniels, 585).

NORTH AMERICA, thence spreading throughout the world.

1092a. **L. Canadense pusillum** (Nutt.) Daniels. Nov. comb. [*Erigeron pusillus* Nutt.]. DWARF HORSEWEED.

The common form of the foothills, ½-1 dm. high, and but few-flowered, 6000-8000 ft. (Daniels, 694).

450. **ANTENNARIA** Gaertn. EVERLASTING. CAT'S-FOOT.

1093. **A. media** Greene. MEDIUM CAT'S-FOOT.

Arapahoe Peak above timberline, 11000-12000 ft. (Daniels, 1005).

MONTANA to BRITISH COLUMBIA; COLORADO to CALIFORNIA.

1094. **A. umbrinella** Rydb. UMBER CAT'S-FOOT.

Arapahoe Peak above timberline, 11000-12000 ft. (Daniels, 932).

MONTANA and IDAHO to COLORADO.

1095. **A. concinna** E. Nels.

Alpine forest at Ward, 9000-9300 ft. (Daniels, 304).

COLORADO to UTAH.

1096. *A. rosea* (D. C. Eaton) Greene. ROSY CAT'S-FOOT.

Common throughout the foothills and mountains, and descending to the mesas and plains along gulches, 5700-9000 ft. (Daniels, 775). Also North Boulder Peak and from Eldora to Baltimore (Rydberg).

ALBERTA to YUKON; COLORADO to CALIFORNIA.

1097. *A. imbricata* E. Nels. IMBRICATE CAT'S-FOOT.

At timberline, Arapahoe Peak, 10500-11000 ft. (Daniels, 934).

MONTANA to COLORADO and UTAH.

1098. *A. corymbosa* A. Nels. [*A. nardina* Greene]. CORYMBED CAT'S-FOOT.

Alpine forest at Ward, 9000-9300 ft. (Daniels, 305).

MONTANA and OREGON to COLORADO.

1099. *A. parvifolia* Nutt. [*A. formosa* Greene; *A. microphylla* Rydb.]. SMALL-LEAVED CAT'S-FOOT.

Common on barren knolls throughout, 5100-10000 ft. (Daniels, 702).

SASKATCHEWAN to BRITISH COLUMBIA; NEBRASKA to NEW MEXICO.

1100. *A. oxyphylla* Greene. SHARP-LEAVED CAT'S-FOOT.

Common on the mesas, foothills, and mountains, 5700-10000 ft. (Daniels, 115).

SOUTH DAKOTA to MONTANA; NEBRASKA to COLORADO.

1101. *A. aprica* Greene. SUNNY CAT'S-FOOT.

Mountains at Ward, a dwarf form, 4 cm. high, 9000-9300 ft. (Daniels, 1028). Also Eldora to Baltimore (Rydberg). Piper, however, Cont. U. S. Nat. Herb. 11, 605, makes this species identical with *A. parvifolia* Nutt.

SOUTH DAKOTA to ALBERTA; NEW MEXICO to UTAH.

1102. *A. marginata* Greene. MARGINATE CAT'S-FOOT.

Foothills along Boulder Cañon, 6500-8000 ft. (Daniels, 1029). The plants have leaves glabrous and bright green

above.

COLORADO to NEW MEXICO and ARIZONA.

1103. *A. pulcherrima* (Hook.) Greene [*A. Carpathica pulcherrima* Hook.]. FAIREST CAT'S-FOOT.

Long's Peak (Porter & Coulter).

SASKATCHEWAN and YUKON to WASHINGTON and COLORADO.

1104. *A. anaphaloides* Rydb. FALSE PEARLY EVERLASTING.
Massif de l' Arapahoe (Rydberg).

MONTANA and OREGON to CALIFORNIA.

451. ANAPHALIS D C. PEARLY EVERLASTING.

1105. *A. subalpina* (Gray) Rydb. [*A. margaritacea subalpina* Gray]. SUBALPINE PEARLY EVERLASTING.

Common throughout the foothills and mountains, 6000-10000 ft. (Daniels, 552). Also between Sunshine and Ward (Rydberg).

SOUTH DAKOTA to BRITISH COLUMBIA; COLORADO to CALIFORNIA.

452. GNAPHALIUM L. CUDWEED.

1106. *G. Wrightii* Gray. WRIGHT'S CUDWEED.

Boulder Cañon near Falls, 7400 ft. (Daniels, 1030). Also Meadow Park and at Lyons (Rydberg).

COLORADO and NEW MEXICO to CALIFORNIA and MEXICO.

1107. *G. sulphurescens* Rydb. SULPHURESCENT CUDWEED.
Boulder (Rydberg).

WYOMING to WASHINGTON; TEXAS to NEW MEXICO.

1108. *G. palustre* Nutt. MARSH CUDWEED.

Aspen bogs at Glacier lake, 9000 ft. (Daniels, 711).

MONTANA to BRITISH COLUMBIA; COLORADO to CALIFORNIA.

453. GYMNOLOMIA H. B. K.

1109. *G. multiflora* (Nutt.) B. & H. MANY-FLOWERED GYMNOLOMIA.

Boulder Cañon near the Falls, at Eldora, and in Sunset Cañon, 6000-10000 ft. (Daniels, 565). Also between Sunshine

and Ward (Rydberg).

MONTANA to NEVADA; NEW MEXICO to ARIZONA.

454. RUDBECKIA L. CONE-FLOWER.

III 0. *R. flava* Moore. YELLOW CONE-FLOWER.

On the plains and foothills, 5100-8000 ft. (Daniels, 428).

NORTH DAKOTA and WYOMING to COLORADO.

III 1. *R. laciniata* L. GRAY-HEADED CONE-FLOWER.

GOLDEN GLOW.

Common along streams, 5100-9500 ft. (Daniels, 561).

QUEBEC to IDAHO; FLORIDA to ARIZONA.

455. RATIBIDA Raf.

III 12. *R. columnaris* (Sims) D. Don [*Lepachys columnaris* (Sims) T. & G.]. LONG-HEADED CONE-FLOWER.

Abundant on the plains and mesas, 5100-6000 ft. (Daniels, 21).

SASKATCHEWAN to BRITISH COLUMBIA; TENNESSEE to TEXAS, ARIZONA and MEXICO.

III 2a. *R. columnaris pulcherrima* (D C.) D. Don. BROWN LONG-HEADED CONE-FLOWER.

With the type but much less frequent, 5100-6000 ft. (Daniels, 201).

Range of the type.

456. WYETHIA Nutt.

III 3. *W. amplexicaulis* Nutt. CLASPING-LEAVED WYETHIA.

Arapahoe Pass (Rydberg).

MONTANA to BRITISH COLUMBIA; COLORADO to NEVADA.

457. HELIANTHUS L. SUNFLOWER.

III 4. *H. lenticularis* Dougl. COMMON SUNFLOWER.

Plains, mesas and lower foothills, especially in denuded soils, 5100-7000 ft. (Daniels, 400).

NORTH DAKOTA to IDAHO; TEXAS to ARIZONA.

III 4a. *H. lenticularis coronatus* Cockerell. RED-STREAKED SUNFLOWER.

Found by Mrs. T. D. A. Cockerell near her home in Boulder.

1115. *H. petiolaris* Nutt. PETIOLED SUNFLOWER.

Common in waste places and denuded soils throughout except in the alpine region, 5100-9500 ft. (Daniels, 67). Also from Eldora to Baltimore (Rydberg).

MINNESOTA and SASKATCHEWAN to OREGON; TEXAS to CALIFORNIA.

1115a. *H. petiolaris phenax* Cockerell.

Boulder, the type locality (Cockerell).

1116. *H. subrhomboides* Rydb. SUBRHOMBOID SUNFLOWER.

Locally frequent on the mesas fronting the Flat-irons, 5700-6000 ft. (Daniels, 656).

MANITOBA to MONTANA; NEBRASKA to COLORADO.

1117. *H. pumilus* Nutt. DWARF SUNFLOWER.

Abundant on the plains, mesas, and foothills, 5100-7500 ft. (Daniels, 59).

WYOMING and COLORADO.

1118. *H. grosse-serratus* Martens. COARSELY TOOTHED SUNFLOWER.

Lowlands and stream-flats in the plains, 5100-5400 ft. (Daniels, 670).

NEW YORK to WYOMING; PENNSYLVANIA to TEXAS and COLORADO.

1119. *H. fascicularia* Greene [*H. giganteus Utahensis* D. C.

Eaton; *H. Utahensis* A. Nelson]. UTAH SUNFLOWER.

Boulder (Rydberg).

ASSINIBOIA to ALBERTA; COLORADO to ARIZONA.

458. *HELIANTHELLA* T. & G.1120. *H. quinquenervis* Gray. FIVE-RIBBED FALSE SUNFLOWER.

In cañons and on rich mountain slopes at Eldora and along the Arapahoe Trail, 8600-10000 ft. (Daniels, 843). Also Eldora to Baltimore (Rydberg).

SOUTH DAKOTA to IDAHO and COLORADO.

459. *VERBESINA* L. CROWNBEARD.1121. *V. exauriculata* (Rob. & Greenm.) Cockerell [*Verbesina*

encelioides exauriculata Rob. & Greenm.; *Ximenesia exauriculata* (Rob. & Greenm.) Rydb.]. WESTERN CROWNBEARD.

Boulder (Rydberg). In great abundance near Lafayette (Cockerell).

MONTANA to TEXAS and ARIZONA.

460. BIDENS L. BUR-MARIGOLD.

1122. *B. vulgata* Greene. COMMON STICKTIGHTS.

Along ditches and in low grounds, 5100-5500 ft. (Daniels, 788).

ONTARIO to BRITISH COLUMBIA; NORTH CAROLINA to CALIFORNIA.

1123. *B. glaucescens* Greene. GLAUCESENT BUR-MARIGOLD.

Along ditches and streams and in swales, 5100-5500 ft. (Daniels, 667). Hardly glaucescent as it occurs about Boulder.

SASKATCHEWAN to MONTANA; KANSAS to COLORADO.

1123½. *B. tenuisecta* Gray. WESTERN SPANISH NEEDLES.

Marshall lake (W. W. Robbins).

COLORADO to IDAHO; TEXAS to ARIZONA and MEXICO.

461. THELESERMA Less.

1124. *T. gracile* Gray. SLENDER THELESERMA.

Common on the plains and mesas, and occurring also on the open mountain slopes, 5100-9000 ft. (Daniels, 233). Also between Sunshine and Ward (Rydberg).

NEBRASKA to COLORADO; MISSOURI and TEXAS to ARIZONA.

462. PICRADENIOPSIS Rydb.

1125. *P. oppositifolia* (Nutt.) Rydb. [*Bahia oppositifolia* Nutt.]. OPPOSITE-LEAVED BAHIA.

Boulder (Rydberg).

SOUTH DAKOTA to MONTANA; TEXAS to ARIZONA.

463. BAHIA Lag.

1126. *B. dissecta* (Gray) Britton [*B. chrysanthemoides* Gray].

FINE-LEAVED BAHIA.

Infrequent along cañons, 6000-9000 ft. (Daniels, 719). Also

mountains between Sunshine and Ward (Rydberg).

WYOMING to NEW MEXICO and ARIZONA.

464. TETRANEURIS Greene.

1127. **T. lanigera** Daniels, Nov. nom. [*Actinella lanata* Nutt., 1841; not Pursh, 1814; *Tetraneuris lanata* (Nutt.) Greene]. WOOLLY ACTINELLA.

Barren ridges between Sunset and Glacier lake, 7000-9000 ft. (Daniels, 643), Redrock lake, 10100 ft. (Ramaley and Robbins). Pursh's *A. lanata* equals *Eriophyllum lanatum* (Pursh) Forbes, a plant of the Pacific coast, hence a new name is necessary for Nuttall's plant. If *Actinea* Juss. should replace *Tetraneuris* Greene (as the new Gray's Manual maintains), our plant becomes *Actinea lanigera* Daniels.

WYOMING and COLORADO.

465. RYDBERGIA Greene.

1128. **R. grandiflora** (T. & G.) Greene [*Actinella grandiflora* T. & G.]. LARGE-FLOWERED RYDBERGIA.

Arapahoe Peak above timberline, 10500-13500 ft. (Daniels, 878). Also mountains south of Ward (Rydberg).

MONTANA to NEW MEXICO and CALIFORNIA.

466. HELENIUM L. SNEEZEWEED.

1129. **H. montanum** Nutt. MOUNTAIN SNEEZEWEED.

Along ditches and streams in the plains east of Boulder, 5100-5400 ft. (Daniels, 780).

MINNESOTA and SASKATCHEWAN to WASHINGTON; MISSISSIPPI to COLORADO.

467. GAILLARDIA Foug.

1130. **G. aristata** Pursh. AWNED GAILLARDIA.

Common on the plains, mesas and foothills, 5100-8000 ft. (Daniels, 37).

SASKATCHEWAN to BRITISH COLUMBIA; COLORADO to OREGON.

468. BOEBERA Willd.

1131. **B. papposa** (Vent.) Rydb. [*Dysodia chrysanthemoides* Lag.]. FETID MARIGOLD.

Roadsides, waste places and sandy stream flats, 5100-7000 ft. (Daniels, 594). Also at Lyons (Rydberg).

OHIO to MONTANA; ARKANSAS to ARIZONA and MEXICO.

469. ANTHEMIS L. MAYWEED.

1132. **A. Cotula** L. COMMON MAYWEED.

Yards and waste places, 5100-6000 ft. (Daniels, 593).

EUROPE, thence to NORTH AMERICA.

470. ACHILLEA L. YARROW.

1133. **A. lanulosa** Nutt. [*A. Millefolium lanulosa* (Nutt.) Piper]. WOOLLY YARROW.

Open grounds throughout, 5100-9000 ft. (Daniels, 360). Also mountains between Sunshine and Ward (Rydberg).

ONTARIO to YUKON; OKLAHOMA to CALIFORNIA and MEXICO.

470½. CHRYSANTHEMUM L. OXEYE DAISY.

- 1133½. **C. Leucanthemum** L. COMMON OXEYE DAISY.

Bluebird Mine, in quantity, 1910 (Miss Pearl Turner).

EUROPE, thence to NORTH AMERICA.

471. ARTEMISIA L. WORMWOOD. SAGE-BRUSH. MUGWORT.

1134. **A. dracunculoides** Pursh. PRAIRIE MUGWORT.

Abundant on the plains, mesas and foothills, 5100-8000 ft. (Daniels, 833).

MONTANA to IDAHO; TEXAS to CALIFORNIA.

1135. **A. Scouleriana** (Besser) Rydb. [*A. desertorum Scouleriana* Besser]. SCOULER'S SAGE.

Gregory Cañon and adjacent mesas and foothills, 5600-8000 ft. (Daniels, 612).

BRITISH COLUMBIA to COLORADO.

1136. **A. Forwoodii** S. Wats. FORWOOD'S SAGE.

Abundant on the plains, mesas, and foothills, 5100-7500 ft. (Daniels, 992).

ASSINIBOIA to MONTANA and NEW MEXICO.

1137. *A. spithamea* Pursh. ALPINE MUGWORT.

Arapahoe Peak above timberline, 11000-12500 ft. (Daniels, 920).

LABRADOR to ALASKA and COLORADO.

1138. *A. frigida* Willd. BARRENS SAGE.

Common in dry open places throughout, 5100-10000 ft. (Daniels, 451).

HUDSON BAY to ALASKA; TEXAS to UTAH.

1139. *A. scopulorum* Gray. ROCKY MOUNTAIN SAGE.

Mountains south of Ward (Rydberg).

WYOMING to COLORADO and UTAH.

1140. *A. biennis* Willd. BIENNIAL WORMWOOD.

Boulder Cañon at Eldora, 8600 ft. (Daniels, 846).

NOVA SCOTIA to MACKENZIE; PENNSYLVANIA to CALIFORNIA.

1141. *A. saxicola* Rydb. [*A. Chamissoniana saxatilis* Besser].

ROCK SAGE.

Long's Peak (Rydberg).

WYOMING to COLORADO.

1142. *A. silvicola* Osterh. SYLVAN SAGE.

Subalpine slopes and valleys at Eldora, 8600 ft. (Daniels, 996).

COLORADO to NEW MEXICO.

1143. *A. gnaphalodes* Nutt. CUDWEED SAGE.

Common on the plains, mesas, foothills, and lower mountain slopes, 5100-9000 ft. (Daniels, 755). The original spelling of the specific name is as above, though the word should have been *gnaphalioides*.

NORTH DAKOTA to WYOMING; ARKANSAS to COLORADO; naturalized eastward to NEW YORK and ONTARIO.

1144. *A. Brittonii* Rydb. BRITTON'S SAGE.

Plains, mesas, and foothills, 5100-8000 ft. (Daniels, 967).

COLORADO to UTAH.

1145. *A. diversifolia* Rydb. DIVERSE-LEAVED SAGE.

Valleys in the foothills, 6000-8000 ft. (Daniels, 966).

IDAHO to BRITISH COLUMBIA; COLORADO to WASHINGTON.
 1146. **A. tridentata** Nutt. COMMON SAGE-BRUSH.

Barren mountain slopes near Bluebird Mine, between Glacier lake and Eldora, 8500-9500 ft. (Daniels).

NEBRASKA and MONTANA to BRITISH COLUMBIA; COLORADO to CALIFORNIA.

472. PETASITES Tourn. SWEET COLTSFOOT.

1147. **P. sagittata** (Pursh) Gray. ARROW-LEAVED SWEET COLTSFOOT.

Eldora to Baltimore (Rydberg). Eldora lake, May, 1910 (W. W. Robbins).

LABRADOR to ALASKA; MINNESOTA to COLORADO.

473. ARNICA L. ARNICA.

1148. **A. platyphylla** A. Nels. BROAD-LEAVED ARNICA.

Arapahoe Trail just below timberline on Arapahoe Peak, 9000-10500 ft. (Daniels, 948).

MONTANA and IDAHO to COLORADO.

1149. **A. pumila** Rydb. [*A. parvifolia* Greene]. DWARF ARNICA.

Gregory Cañon, 6600 ft. (Daniels, 903).

WYOMING to COLORADO and UTAH.

1150. **A. cordifolia** Hook. HEART-LEAVED ARNICA.

In the wooded region throughout, 6000-11000 ft. (Daniels, 270). Also Eldora to Baltimore; between Sunshine and Ward; and Massif de l' Arapahoe (Rydberg).

MONTANA to BRITISH COLUMBIA; COLORADO to CALIFORNIA.

1151. **A. Rydbergii** Greene. RYDBERG'S ARNICA.

Eldora to Baltimore (Rydberg).

MONTANA to COLORADO.

1152. **A. subplumosa** Greene [*A. Chamissonis longinodosa* A. Nels.]. SUBPLUMOSE ARNICA.

Boulder Cañon above the Falls, 7000-8000 ft. (Daniels, 537).

MONTANA to COLORADO.

1153. **A. pedunculata** Rydb. PEDUNCLED ARNICA.

Under pines in the mesas south of the Chautauqua grounds,

5800-6000 ft. (Daniels, 176). Gulch south of Boulder (Rydberg).

NORTH DAKOTA to WASHINGTON; COLORADO to CALIFORNIA.

1153½. *A. monocephala*. Rydb. SINGLE-HEADED ARNICA.

Long's Peak (Porter & Coulter).

MONTANA and IDAHO to COLORADO.

1154. *A. Parryi* Gray [*A. eradiata* (Gray) Heller]. PARRY'S ARNICA.

Arapahoe Trail just below timberline, Arapahoe Peak, thence well toward Eldora, 9000-10500 ft. (Daniels, 946). Also at Caribou (Rydberg).

MONTANA to BRITISH COLUMBIA; COLORADO to WASHINGTON.

474. **SENECIO** L. GROUNDSEL.

1155. *S. scopulinus* Greene [*S. Bigelovii Hallii* Gray]. HALL'S GROUNDSEL.

Subalpine meadows at Eldora, 8600 ft. (Daniels, 624).

WYOMING to COLORADO.

1156. *S. chloranthus* Greene. GREEN-FLOWERED GROUNDSEL.

Subalpine bogs at Eldora, 8600 ft. (Daniels, 990).

COLORADO.

1157. *S. pudicus* Greene. BASHFUL GROUNDSEL.

Along Boulder Cañon, and at Eldora, 7000-10000 ft. (Daniels, 547). Also between Sunshine and Ward (Rydberg).

COLORADO.

1158. *S. carthamoides* Greene. ALPINE GROUNDSEL.

Arapahoe Peak above timberline, 10500-11000 ft. (Daniels, 943).

WYOMING to COLORADO.

1159. *S. blitoides* Greene. BLITE GROUNDSEL.

Arapahoe Peak above timberline, 10500-12000 ft. (Daniels, 1006).

COLORADO.

1160. *S. triangularis* Hook. TRIANGULAR-LEAVED GROUNDSEL.

Common in subalpine bogs and along stream banks at El-

dora, and ascending to timberline, Arapahoe Peak, 8600-11000 ft. (Daniels, 635). Also between Sunshine and Ward (Rydberg).

ALBERTA to ALASKA; COLORADO to CALIFORNIA.

1161. *S. admirabilis* Greene. ADMIRABLE GROUNDSEL.

Subalpine bogs at Eldora, 8600 ft. (Daniels, 650).

WYOMING to COLORADO.

1162. *S. lapathifolium* Greene. LAPATHUS-LEAVED GROUNDSEL.

High slope near snow above Bloomerville, 9000-10000 ft. (Daniels, 315).

COLORADO.

1163. *S. crassulus* Gray. THICKISH GROUNDSEL.

Above timberline, Arapahoe Peak, 10500-11000 ft. (Daniels, 945). Also at Ward; and Eldora to Baltimore (Rydberg).

MONTANA to IDAHO; COLORADO to UTAH.

1164. *S. rapifolius* Nutt. TURNIP-LEAVED GROUNDSEL.

Boulder Cañon near Falls, 7000-8000 ft. (Daniels, 543).

SOUTH DAKOTA to IDAHO and COLORADO.

1165. *S. hydrophilus* Nutt. WATER-LOVING GROUNDSEL.

Alpine valley near snow above Bloomerville, 9000-10000 ft. (Daniels, 319).

MONTANA to COLORADO and NEVADA.

1166. *S. Hookeri* Gray. HOOKER'S GROUNDSEL.

Eldora to Baltimore (Rydberg).

ALBERTA and BRITISH COLUMBIA to COLORADO.

1166½. *S. Columbianus* Greene. COLUMBIAN GROUNDSEL.

Middle Boulder Cañon 9000 ft. (Coulter in Wabash College Herb.).

This is, in part at least, the *S. lugens Parryi* Eaton of Porter & Coulter.

SASKATCHEWAN to ALASKA; MINNESOTA to COLORADO.

1167. *S. perplexus* A. Nels. PERPLEXING GROUNDSEL.

North slope of Flagstaff Hill, 6000 ft. (Daniels, 148). Plant too old, the basal leaves gone, perhaps *S. dispar* A. Nels.

Redrock lake, 10100 ft. (Ramaley & Robbins). Middle Boulder Cañon (Porter & Coulter in Wabash College Herb.).

Also from Eldora to Baltimore, and at Boulder (Rydberg).

WYOMING and IDAHO to COLORADO.

1168. *S. atratus* Greene [*S. lugens foliosus* Gray]. LEAFY GROUNDSEL.

Arapahoe Trail just below timberline, Arapahoe Peak, thence to Eldora, 8600-10500 ft. (Daniels, 947). Also at Ward; between Sunshine and Ward; and Eldora to Baltimore (Rydberg).

COLORADO.

1169. *S. Purshianus* Nutt. PURSH'S GROUNDSEL.

Redrock lake 10100 ft. (Ramaley & Robbins).

SASKATCHEWAN to BRITISH COLUMBIA; TEXAS to UTAH.

1170. *S. Harbourii* Rydb. HARBOUR'S GROUNDSEL.

Mountains south of Ward, the type locality, and between Sunshine and Ward (Rydberg).

COLORADO.

1171. *S. Plattensis* Nutt. PLATTE RAGWORT.

Common on the plains and mesas, 5100-6000 ft. (Daniels, 36).

ONTARIO to SOUTH DAKOTA; MISSOURI and TEXAS to COLORADO.

1172. *S. salicinus* Rydb. WILLOW RAGWORT.

Foothills about Boulder, 6000-7000 ft. (Daniels, 1031).

COLORADO.

1173. *S. Nelsonii* Rydb. [*S. rosulatus* Rydb.]. NELSON'S RAGWORT.

Exceedingly abundant throughout, and occurring in a maze of forms so confluent that any segregation seems impossible, 5100-11000 ft. (Daniels, 210). Also at Caribou; and between Sunshine and Ward (Rydberg).

COLORADO.

1174. *S. Fendleri* Gray. FENDLER'S RAGWORT.

Plains and foothills about Boulder, 5600-8000 ft. (Daniels, 10).

COLORADO to UTAH and NEW MEXICO.

1175. *S. lanatifolius* Osterh. [*S. Fendleri lanatus* Osterh.].
WOOLLY-LEAVED RAGWORT.

Barren ridges, Glacier lake to Eldora, 8500-9000 ft. (Daniels, 218). Basal leaves very crisp.

COLORADO.

1176. *S. Balsamitae* Muhl. [*S. aureus Balsamitae* (Muhl.)
T. & G.; *S. flavulus* Greene; *S. flavovirens* Rydb. in part].

NARROW-LEAVED GOLDEN SQUAW-WEED.

Long's Peak (Porter & Coulter).

QUEBEC to MARYLAND northwestward across the continent.

1177. *S. longipetiolatus* Rydb. LONG-PETIOLED RAGWORT.

Plains at Boulder, uncommon, 5600 ft. (Daniels, 61).

WYOMING to COLORADO.

1178. *S. crocatus* Rydb. [*S. aureus croceus* Gray; *S. dimorphophyllus* Greene; *S. heterodoxus* Greene]. SAFFRON RAGWORT.

Arapahoe Peak above timberline, and at Eldora, 8600-12000 ft. (Daniels, 870). Also on Long's Peak (Rydberg).

WYOMING to COLORADO.

1179. *S. cymbalariodes* Nutt. [*S. aureus borealis* T. & G.].
NORTHERN GOLDEN RAGWORT.

Subalpine meadows at Glacier lake, 9000 ft. (Daniels, 705).

MACKENZIE to COLORADO and UTAH.

1180. *S. pseudoreus* Rydb. FALSE GOLDEN RAGWORT.

Long's Peak (Rydberg).

MACKENZIE to BRITISH COLUMBIA; NEW MEXICO to NEVADA.

1180½. *S. mutabilis* Greene [*S. aurellus* Rydb.]. MUTABLE RAGWORT.

Redrock lake, 10100 ft. (Ramaley & Robbins).

COLORADO.

1181. *S. ambrosioides* Rydb. RAGWEEDLIKE GROUNDSEL.

Common in the mountainous region, 7000-10000 ft. (Daniels, 629). Also at Ward (Rydberg).

NORTH DAKOTA to MONTANA; NEW MEXICO to ARIZONA.

1182. **S. Riddellii** T. & G. [*S. filifolius Fremontii* T. & G.].

RIDDELL'S GROUNDSEL.

Frequent on the plains about Boulder, 5100-6000 ft. (Daniels, 481).

NEBRASKA to COLORADO; TEXAS to NEW MEXICO.

1183. **S. multicapitatus** Rydb. MANY-HEADED GROUNDSEL.

Plains about Boulder, 5600 ft. (Daniels, 401).

COLORADO to NEW MEXICO and ARIZONA.

1184. **S. spartioides** T. & G. BROOM-LIKE GROUNDSEL.

Along Boulder Cañon road, 5500 ft. (Daniels, 804). Also mountains between Sunshine and Ward (Rydberg).

NEBRASKA to WYOMING; TEXAS to ARIZONA.

475. **CIRSIUM** Hill. THISTLE.

1185. **C. Parryi** (Gray), Cockerell. Nov. comb. [*Cnicus Parryi* Gray; *Carduus Parryi* (Gray) Greene]. PARRY'S THISTLE.

Boulder (Rydberg).

COLORADO to NEW MEXICO and UTAH.

1186. **C. scopulorum** (Greene) Cockerell. Nov. comb. [*Cnicus eriocephalus* Gray; *Carduus scopulorum* Greene].

CRAIG THISTLE.

Arapahoe Peak above timberline, 10500-12000 ft. (Daniels, 887). Also at Ward (Rydberg).

COLORADO.

1187. **C. griseum** (Rydb.) Cockerell. Nov. comb. [*Carduus griseus* Rydb.]. GRAY THISTLE.

Ward (Rydberg).

COLORADO.

1188. **C. Americanum** (Gray), Daniels. Nov. comb. [*Cnicus Americanus* Gray; *Carduus Centaureae* Rydb.; *Cirsium*

Centaureae (Rydb.) Cockerell. Nov. comb.]. KNAPWEED THISTLE.

Common in the foothills and mountains, 6000-10000 ft. (Daniels, 442). Also mountains between Sunshine and Ward (Rydberg).

WYOMING to COLORADO.

1188a. *C. Americanum* (Gray), Daniels. *C. griseum* (Rydb.) Cockerell.

Ward (Rydberg).

1188½. *C. acaulescens* (Gray) Daniels; Nov. comb. *C. Americanum* (Gray) Daniels.

Plains and foothills near Boulder (Rydberg).

1189. *C. erosum* (Rydb.) Cockerell. Nov. comb. [*Carduus erosus* Rydb.]. EROSE-BRACTED THISTLE.

Boulder Cañon, 7000-7500 ft. (Daniels, 1032). Bracts merely erose, otherwise like the preceding.

COLORADO.

1190. *C. Coloradense* (Rydb.) Cockerell. Nov. comb. [*Carduus Coloradensis* Rydb.]. COLORADO THISTLE.

Subalpine valley at Eldora, and frequent along the Arapahoe Trail, 8600-10000 ft. (Daniels, 855).

COLORADO.

1191. *C. Plattense* (Rydb.) Cockerell. Nov. comb. [*Carduus Plattensis* Rydb.]. PLATTE THISTLE.

Plains about Boulder, 5100-6000 ft. (Daniels, 63).

NEBRASKA to COLORADO.

1192. *C. undulatum* (Nutt.) Spreng. [*Cnicus undulatus* (Nutt.) Gray; *Carduus undulatus* Nutt.].

Common on the plains, 5100-6000 ft. (Daniels, 673).

MICHIGAN to ASSINIBOIA and MONTANA; TEXAS to UTAH.

1193. *C. megacephalum* (Nutt.) Cockerell. Nov. comb. [*Cnicus undulatus megacephalus* (Nutt.) Gray; *Carduus megacephalus* Nutt.]. LARGE-HEADED THISTLE.

Plains about Boulder, 5100-6000 ft. (Daniels, 986).

SOUTH DAKOTA to IDAHO; MISSOURI to TEXAS and COLORADO.

1194. **C. ochrocentrum** Gray [*Cnicus ochrocentrus* Gray; *Carduus ochrocentrus* (Gray) Greene]. YELLOW-SPINED THISTLE.

Plains, 5100-6000 ft. (Daniels, 1033).

NEBRASKA to COLORADO; TEXAS to ARIZONA.

476. CENTAUREA L. STAR THISTLE.

1195. **C. Cyanus** L. BLUEBOTTLE. CORNFLOWER. BACHELOR'S BUTTON.

Escaped into roadsides and streets about Boulder, 5300-5600 ft. (Daniels, 140).

EUROPE, thence to NORTH AMERICA.

Family 112. CICHORIACEAE. Reich. Chicory family.

477. PTILORIA Raf.

1196. **P. ramosa** Rydb. BRANCHING PTILORIA.

Boulder (Rydberg).

NEBRASKA and MONTANA to COLORADO.

1197. **P. pauciflora** (Torr.) Raf. [*Stephanomeria runcinata* Nutt.]. FEW-FLOWERED PTILORIA.

Plains about Boulder, 5100-6000 ft. (Daniels, 475). Also between Sunshine and Ward (Rydberg).

COLORADO to NEVADA; TEXAS to ARIZONA.

478. TRAGOPOGON L. SALSIFY.

1198. **T. pratensis** L. YELLOW GOAT'S-BEARD.

Boulder Cañon road and about Boulder, 5100-7000 ft. (Daniels, 559).

EUROPE, thence to NORTH AMERICA.

1199. **T. porrifolius** L. SALSIFY. OYSTER PLANT.

Common about Boulder, 5100-6000 ft. (Daniels, 17).

EUROPE, thence to NORTH AMERICA.

- 1199a. **T. porrifolius** L. × **T. pratensis** L.

Aurora St., Boulder (Cockerell).

479. CICHORIUM L. CHICORY.1200. **C. Intybus L. COMMON CHICORY.**

Along roadsides and in waste places, 5100-5600 ft. (Daniels, 1034).

EUROPE, thence to NORTH AMERICA.

480. LYGODESMIA D. Don.1201. **L. grandiflora T. & G. LARGE-FLOWERED LYGODESMIA.**

Roadside at entrance to Boulder Cañon and along the streets in Boulder, 5300-5600 ft. (Daniels, 166).

WYOMING to IDAHO; COLORADO to ARIZONA.

1201½. **L. juncea (Pursh) D. Don. RUSH-LIKE LYGODESMIA.**

Common about Boulder (Ramaley).

MINNESOTA to SASKATCHEWAN and ALBERTA; MISSOURI to NEW MEXICO.

481. CREPIS L. HAWK'S-BEARD.1202. **C. petiolata Rydb. PETIOLED HAWK'S-BEARD.**

Gregory Cañon, and aspen bogs at Glacier lake, 6800-9000 ft. (Daniels, 351). Redrock lake, 10100 ft. (Ramaley & Robbins).

WYOMING and COLORADO.

1202½. **C. glaucella Rydb. GLAUDESCENT HAWK'S-BEARD.**

Redrock lake, 10100 ft. (Ramaley & Robbins).

MONTANA to COLORADO.

1202¾. **S. perplexa Rydb. PERPLEXING HAWK'S-BEARD.**

Redrock lake, 10100 ft. (Ramaley & Robbins).

NORTH DAKOTA and ALBERTA to NEBRASKA and COLORADO.

1203. **C. runcinata (James) T. & G. RUNCINATE HAWK'S-BEARD.**

Ward, 9200 ft. (Cockerell).

NORTH DAKOTA and ALBERTA to COLORADO.

1204. **C. denticulata Rydb. TOOTHED HAWK'S-BEARD.**

Aspen bog at Glacier lake, 3500-9000 ft. (Daniels, 706).

WYOMING to COLORADO and UTAH.

1205. **C. angustata** Rydb. NARROW-LEAVED HAWK'S-BEARD.
North slope of Flagstaff Hill along Boulder Cañon, 6000 ft.
(Daniels, 147).

MONTANA to WASHINGTON; COLORADO to OREGON.

1206. **C. occidentalis** Nutt. WESTERN HAWK'S-BEARD.
Boulder (Rydberg).

MONTANA to WASHINGTON; COLORADO to CALIFORNIA.

1207. **C. alpicola** (Rydb.) A. Nels. ALPINE HAWK'S-BEARD
Long's Peak, 11000 ft., the type locality (Nelson).

ROCKY MOUNTAINS.

482. HIERACIUM L. HAWKWEED.

1208. **H. gracile** Hook. SLENDER HAWKWEED.

At and above timberline under dwarfed spruce, Arapahoe
Peak, Colo., 10000-12000 ft. (Daniels, 871). Also at Caribou
(Rydberg).

MONTANA and ALASKA to COLORADO and CALIFORNIA.

1209. **H. albiflorum** Hook. WHITE-FLOWERED HAWKWEED.

Wooded banks, Bear Cañon, and other deep cañons in the
foothills, 6000-8000 ft. (Daniels, 750). Also mountains be-
tween Sunshine and Ward (Rydberg).

YUKON to COLORADO and CALIFORNIA.

1210. **H. Fendleri** Schultz Bip. FENDLER'S HAWKWEED.

Under pines, east slope of Flagstaff Hill, 6000-7000 ft. (Dan-
iels, 215).

SOUTH DAKOTA to NEW MEXICO and ARIZONA.

482½. NOTHOCALAIS Greene.

1210½. **N. cuspidata** (Pursh) Greene [*Troximon cuspidatum*
Pursh]. CUSPIDATE TROXIMON.

St. Vrain Cañon (Coulter in Wabash College Herb.).

ILLINOIS to SOUTH DAKOTA; MISSOURI to COLORADO.

483. AGOSERIS Raf.

1211. **A. agrestis** Osterh. FIELD AGOSERIS.

Common on the foothills and mountains, 6000-9000 ft. (Dan-
iels, 1035).

COLORADO

1212. **A. Leontodon** Rydb. DANDELION AGOSERIS.
Mountainsides at Eldora, 8600-10000 ft. (Daniels, 991).
SOUTH DAKOTA to MONTANA, COLORADO to ARIZONA.
1213. **A. glauca** (Nutt.) Greene [*Troximon glaucum* Nutt.].
GLAUCOUS AGOSERIS.
Abundant on the plains, 5100-6000 ft. (Daniels, 20).
SASKATCHEWAN to WASHINGTON; COLORADO to UTAH.
1214. **A. parviflora** (Nutt.) Dietr. [*Troximon glaucum parviflorum* (Nutt.) Gray]. SMALL-FLOWERED AGOSERIS.
Frequent about Boulder, and in meadows and grassy bogs at Eldora, 5100-8600 ft. (Daniels, 622).
NORTH DAKOTA to ALBERTA and COLORADO.
1215. **A. laciniata** (Nutt.) Greene [*Stylosanthus laciniatus* Nutt.]. CUT-LEAVED AGOSERIS.
Boulder (Rydberg).
WYOMING to IDAHO; COLORADO to CALIFORNIA.
1216. **A. humilis** Rydb. LOW AGOSERIS.
Bogs at Eldora, 8600-9000 ft. (Daniels, 633).
WYOMING to COLORADO.
1217. **A. rostrata** Rydb. BEAKED AGOSERIS.
Abundant on the mesas and foothills, 5700-9000 ft. (Daniels, 232). Also mountains between Sunshine and Ward (Rydberg). A plant was gathered in Gregory Cañon, which bore two heads of flowers.
COLORADO.

484. **TARAXACUM** Hall. DANDELION.

1218. **T. Taraxacum** (L.) Karst. [*T. officinale* Weber]. COMMON DANDELION.
Common in fields and along roadsides, 5100-7000 ft. (Daniels, 261). Ward, 9200 ft. (Cockerell).
EUROPE, thence to NORTH AMERICA.
- 1218½. **T. montanum** Nutt. MOUNTAIN DANDELION.
Redrock lake, 10100 ft. (Ramaley & Robbins).
MONTANA to COLORADO.

485. **LACTUCA** L. LETTUCE.

1219. **L. integrata** (Gren. & Godr.) A. Nels. [*L. virosa* Auct., not L.] PRICKLY LETTUCE.
Common in waste places, 5100-6000 ft. (Daniels, 653).
EUROPE, thence to NORTH AMERICA.
1220. **L. Canadensis** L. COMMON WILD LETTUCE.
Boulder Cañon, and along other streams in the foothills, 6000-7000 ft. (Daniels, 564).
NOVA SCOTIA to SASKATCHEWAN; FLORIDA to COLORADO.
1221. **L. Ludoviciana** (Nutt.) DC. LOUISIANA LETTUCE.
Between Sunshine and Ward (Rydberg).
NORTH CAROLINA to MISSOURI and COLORADO and TEXAS.
1222. **L. pulchella** (Pursh) DC. SHOWY LETTUCE.
Plains about Boulder, 5100-6000 ft. (Daniels, 399).
SASKATCHEWAN to WASHINGTON; MISSOURI to CALIFORNIA.
1223. **L. spicata** (Lam.) Hitchc. [*L. leucophaea* Gray].
COMMON BLUE LETTUCE.
Sunset Cañon, 6300 ft. (Daniels, 982). Also Boulder (Rydberg).
NEWFOUNDLAND to MANITOBA; NORTH CAROLINA to COLORADO.

486. **SONCHUS** L. SOW-THISTLE.

1224. **S. arvensis** L. FIELD SOW-THISTLE.
Waste places in Boulder, 5300-5600 ft. (Daniels, 1036).
EUROPE, thence to NORTH AMERICA.
1225. **S. asper** (L.) Hill. HARSH SOW-THISTLE.
Boulder Cañon road, and Gregory Cañon road, 5600-6000 ft. (Daniels, 458).
EUROPE, thence to NORTH AMERICA.

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APPENDIX A.

Tidestrom in the Am. Midl. Nat. 2, 35, has described as a new species this aspen under the name of *P. aurea* Tidestrom, with the remark that it forms forests throughout Colorado, Utah, and adjoining territory. But the differences relied upon to separate it from Michaux's species seem to me to be at most varietal, and hence I prefer to call the Colorado tree *P. tremuloides aurea* (Tidestrom) Daniels. See page 98.

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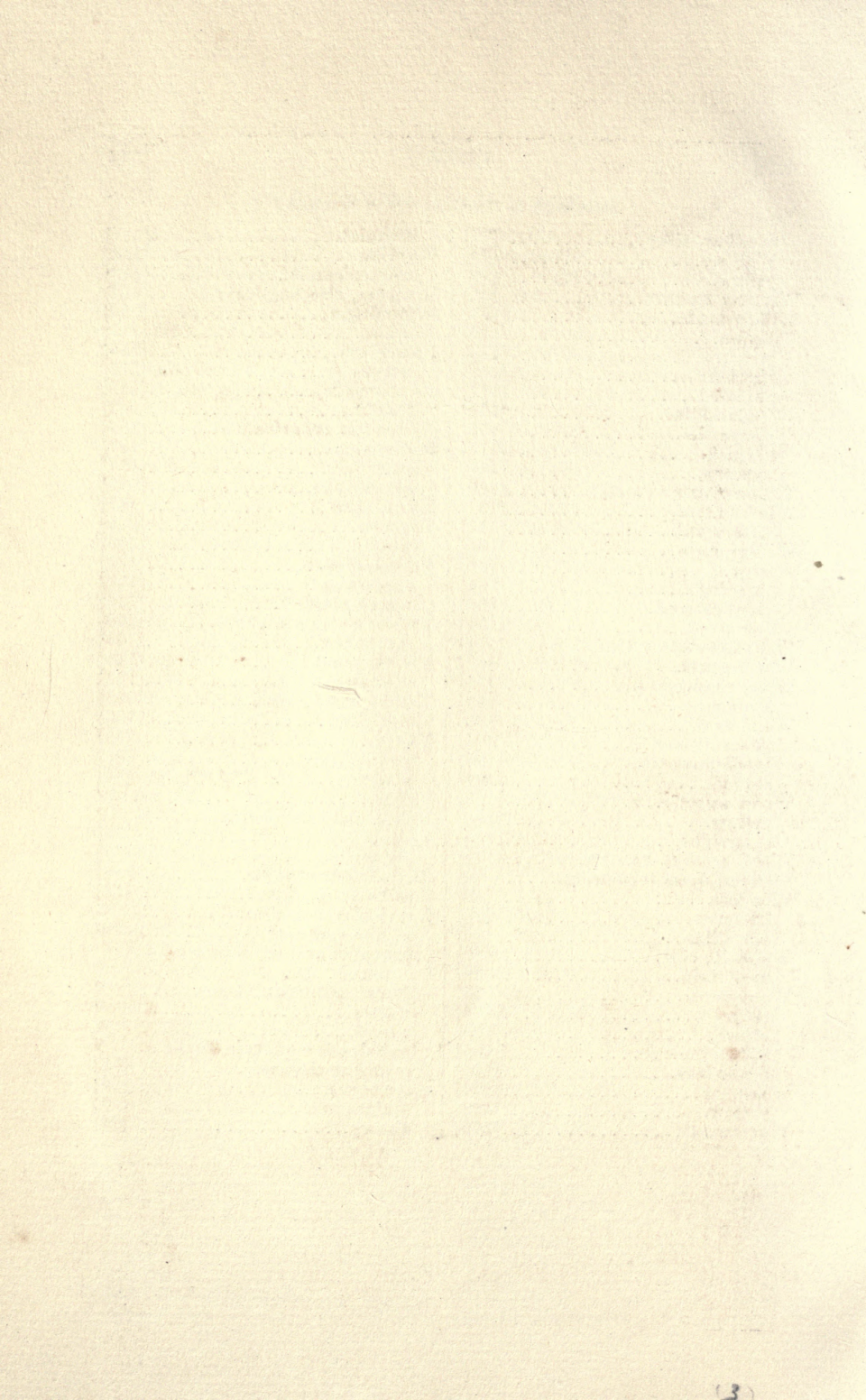
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