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PROMISING GRASSES
OF THE NORTHWESTERN TERRITORIES.

JOHN CRAIG.

In this state where corn is king other productions are apt to be neglected, or looked upon as of minor importance when compared with the great staple. Twenty years ago wheat was Iowa's most paying product. In course of time it has given way to corn. Will the soil continue to produce corn indefinitely? Taking this question into consideration every thoughtful farmer will realize the important position which the grasses hold in agriculture, and the importance of selecting the best varieties for green manuring pasturage, and hay. On turning to our present list of grasses we find it very limited in variety. Again all the best ones are of eastern or European origin, introduced from different places and called tame grasses as soon as put under cultivation, though they were once wild grasses and are still such in their native homes. It might be said that the general list of grasses is not a limited one; but the question of local adaptation coming in sifts out so many that it makes the list comparatively limited for particular localities; even our standards clover and timothy do not show perfect adaptation, fall pasturing injuring the former, while the latter is often unprofitable when sown alone and is frequently affected with fungus diseases. The question then arises can we not select from the native grasses of this state, or from the states and territories west and north of our boundaries, the richest pasture lands of America, varieties which will increase the number of our hay and pasture plants.

At the instance of the director and governing board of trustees, a hasty trip was made last August by the writer, through the northern grazing districts of the Rocky Mountain region, for the purpose of collecting seed of the most promising grasses, fruits, shrubs, etc., in fact of any plant which might benefit the agriculture of Iowa.
THE NORTHERN ROCKY MOUNTAIN REGION.

For a full description of this great region I would refer any one interested to Bulletin No. 2, Forestry Division Department of Agriculture, Washington. It can readily be seen that a country with an irregular topographical configuration possesses the best natural conditions, for a much varied flora, as each thousand feet of altitude is sure to mark the highest or lowest limitations of certain plants. As noted by the Director in Bulletin No. 1, the district from which most valuable results were expected, and to which most time was given, lay along the Yellowstone river Montana, through the Kootenai region northern Idaho, the western limit being eastern Washington Territory (where the tempering influence of the Pacific is apparent) and returning south across the arid plains of southern Idaho to Utah, thence by the mountain route to Denver, Colorado, and home by way of Omaha.

Topographical Divisions.

In common parlance the country is divided according to elevation into three principal divisions. 1 Bottom lands; The lower levels along rivers. 2. Bench lands; The more elevated table lands, usually broad belts skirting the foot hills. 3. Mountains proper; or hilly country above the bench lands.

Montana.

To the inexperienced the general appearance of the grasses of this famous grazing land in August is not encouraging. As is generally understood the grasses as they stand in the soil are cured in the sun during summer, the action of the heat retaining and concentrating the constituents of which they are composed. This is true of the buffalo, the bunch, and gramma grasses, as well as some other grasses common to the region. These three kinds are better regarded, as each representing a small group, rather than each being a distinct species.

The bunch grasses are found commonly throughout, most prevalent in the hill country, associated at high elevations with mountain timothy; at lower elevations the poas or blue grass family are abundant. Our blue grass, *(Poa pratensis)* so common in Iowa seems to be native, flourishes in early spring but is not eaten by stock late in summer, as are its neighbors of the bunch grass family. Some of the poas are
found on the bottoms. Still lower and on the bench lands are found the "wheat grasses" "blue joints" or "blue stems" all synonyms of the Agropyrum, also June grass (Koeleria cristata.) Along streams at different elevations are found various members of the red tops, generally rejected by stock where the buffalo and bunch grasses are to be found. Coarse rye and canary grasses are prevalent, widely distributed but not eaten by cattle until other grasses are closely cropped. In the mountainous regions subject to occasional heavy snows, these tall and rigid perennials have saved the lives of many cattle during winters of unusual severity, and should not be despised. Of the cultivated grasses, red clover, alfalfa and timothy have been successfully introduced. Irrigation is necessary to all, especially to the timothy on account of its shallow rooting habit, which is found at times to be a serious defect in Iowa.

IDAHO.

From the great variety of climate of this Territory, and consequent diversity of flora, and from the fact that the northern extension or pan handle—a region interspersed with lakes and rivers, rich in timber and pasture lands—was comparatively new in the botanical field, it was expected to obtain plants of value, and I trust the hope will in a measure be sustained by results.

In this region the mountain parks are usually covered with a rich growth of native grasses. Dewberries, and some fine varieties of ornamental shrubs grow freely.

Southern Idaho more nearly resembles the drier portions of Montana, in aridity and diminished rainfall with a higher average winter and summer temperature. Here irrigation is an absolute essential to successful agricultural operations. Alfalfa is widely and successfully grown.

Travelling westward from the elevated and wooded regions of northern Idaho, the eastern boundary of Washington Territory is soon reached. Here the whole aspect of things was changed, vegetation dry and sere, and I soon found that it was too late to gather grass seeds except in the mountainous districts, and they were too near Pacific influence to expect important results.

Utah in greater part was in like condition (August 27,) and little time was spent here. From Colorado it is hoped to continue the work by way of interchange with those interested
in the same or allied lines of work. Coming through Nebras­
ka September 6th, great fields of native “blue joint.” Andro­
pogon, “cord grass.” Spartina, and “switch grass.” Panicum, 
yet uncut were noted.

Owing to the uneven character of the country causing great 
differences in time of ripening, and the large number of herds 
roaming at will, it is difficult in a limited period of time to 
obtain in quantity seed of any species.

The following are a few of the grasses of which seed has 
been gathered, and of the greater number arrangements have 
been made to obtain more. Many of the kinds may not at 
first appear promising, but it is hoped that with good culti­ 
vation, followed by careful selection of plants and seed, bene­ 
ficial results may be reached.

Agropyrum glaucum, commonly called “wheat grass” 
“blue stem” or “blue joint.” This is indigenous to Iowa, 
most prevalent in the northwestern part, is one of the finest 
looking, and most highly prized grasses of Montana and 
Idaho, growing from two to three feet in height on upper 
bench land where it seems to be perfectly at home. In some 
localities it has been cultivated by settlers, with satisfactory 
results, the quality of the hay produced is unsurpassed. 
Closely allied to quack grass it has the same rooting habit, 
and its tendency to weaken after a few cuttings, is remedied 
by breaking the creeping root-stocks with a light harrow. 
Other species as a divergens and a tenerim grow in clumps 
and have less value.

Alopecurus pratensis var alpestris, “Mountain timothy.” 
In northern Idaho this is one of the principal mountain 
grasses in the less arid and exposed situations. Under favor­ 
able circumstances it grows from three to four feet in height; 
is distinguished from timothy by its shorter, thicker head and 
more leafy habit. Arrangements have been made by which 
it is hoped to obtain seed in sufficient quantity to give this 
grass a fair trial.

Ammophila longifolia. This was found more or less abun­ 
dant on bottom lands of the Yellowstone, eastern Montana. 
Three to four feet high, has strong running root-stocks. 
Leaves long, and when mature inclined to be woody. Like 
other coarse grasses it is not eaten by stock until the lower 
growing sorts are cropped close, but it is esteemed as a valua­ 
ble addition to the winter forage. Its value as hay, if cut in 
the right season is yet to be determined.
Bouteloa racemosa. "Tall gramma grass." Is distributed throughout Iowa. Very abundant along the Missouri River near Mandan, Dakota. Culms are slender, with few leaves. As a dry soil pasture grass it may have some value.

Bromus breviaristatus. Brome grass. At a point in the mountains near Bozeman, Montana, about 6000 feet elevation this grass was very abundant often associated with cultivated timothy though not considered of equal value. Three to four feet high, leafy, having a number of nodding spikes somewhat resembling oats, and not unlike the cultivated Brome grass. (Bromus schraederi.) Cut green it makes a large quantity of medium quality hay.

Cinna arundinacea. Wood reed grass. This I found growing freely, in the Gallatin Valley Montana, near the head waters of the Missouri, reaches a height of from four to seven feet, on rich moist bottom land. Has numerous long and broad leaves. Stem strong and reed-like, as a whole not unlike wild red top with which it was associated. Roots strong and creeping. It would seem to be worthy of cultivation on wet lands.

Deyeuxia. "Wild red tops" or "bent grasses" Seeds of three forms of this genus were collected in small quantities and later will be reported specifically. They are deep rooted plants of leafy habit with slender culms. Along Pack River Kootenai County Idaho, they grow abundantly, often occurring in very dry and sandy situations.

Festuca scabrella. "Great bunch grass." Writing of this grass Prof. F. L. Scribner of the Department of Agriculture says: "It is one of the characteristic grasses of the country (referring to Montana.) On the mountain slopes and foothills it is the prevailing species, constituting one of the most valuable forage plants of the winter range." Cut for hay it makes a large quantity of best quality. Grows about three feet high. Like orchard grass it should prove valuable for mixed seeding.

Muhlenbergia comata. Is common throughout the Rocky Mountains. Like many grasses of this region it has creeping root-stocks, is found frequently in dry sandy situations, resists drouth well and furnishes a quantity of soft leafy fodder. At Glendive Montana, it forms an important part of the wild hay crop. Seed was not ripe at the time of my visit August 2nd. It was also very abundant in the pineries of northern Idaho.
**Panicum virgatum.** "Switch grass." This grass and its varieties were seen in Dakota, Montana, Idaho and Colorado. The glaucous varieties of Dakota and Colorado are lower growing, more leafy, and found on drier soils. The true switch grass is native to this State, but here seems to prefer a moist situation. A quantity of seed was collected last fall and it will receive a careful trial.

No. 42. This forage plant was collected in the mountainous regions of northern Idaho. I give my field book number of this grass, which I have not yet determined specifically. In general appearance it resembles the "great bunch grass" growing at about the same or higher elevation, but more leafy and finer in texture. In very dry, rocky and exposed situations it seemed perfectly adapted making a large amount of grazing material of good quality. From its natural habit it would seem to be a promising dry land grass. It will be carefully tested; other specimens and more seed to be received later.

**MISCELLANEOUS.**

At various points in Montana and Idaho, other forage plants were noted chiefly belonging to the pea, or bean family, as wild pea, lupins, vetches, etc., but none of them very highly prized except the wild pea (*Hosackia Purshiana*), which at points in northwestern Dakota, and Canton, Montana, was looked upon as a valuable addition to the forage plants on the cattle ranges.

In the line of shrubs and trees, seed of three species of rose, five of spiraea, also sample lots of black thorn, wild cherry, June berry and a number of conifers were collected. In connection I might add that plants and seed of a very fine variety of the black berry, or what is commonly known as the dew berry, were collected and will be tested. A plentiful supply of these large sweet berries, picked from the vines at noon August 18, gave me the best dessert I had at any time on the trip. It would seem highly probable that by cultivation and selection, something of value in this line might be obtained.

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