SALEM, FRIDAY, JULY 28, 1876.

#### GRASSES AND FORAGE PLANTS.

BY PROFESSOR W. J. BEAL.

From the report of the Michigan Board of Agriculture

I am expected to speak of the grasses, one of the largest and most widely distributed families of plants. The subject is one of general interest among all farming communi-

One group of grasses is called "ceresis." They include those producing grains, as wheat, rye, Indian corn, barley, oats, and rile. They constitute a large part of the food of the human race the world over. A much larger number are valuable for meadows, pastures, and lawns. The family is a remarkably natural one, and can be quite easily described by its stems and leaves alone with sufficient accuracy to distinguish if from any other any other family. In brief, the leaves are entire at the edges, parallelyeined, two-ranked, or towed up and down the stein, with the sheath or base of the leaf-plit down on the side opposite the blade. One group of grasses is called "cereals."

Seliges are common on low land, and look much like true grasses, but the stem is usually triangular and the leaves on three sides of the stem instead of on two sides, as in grasses. No sedge is worth cultivating for the firms and the leaves on the sides.

the clovers and the like are not grasses in the lo anical sense, but belong to a very different order of plents, with the peas, beaps, and locust.

PASTURES OF THE BRITISH ISLANDS.

Among all the nations of the earth, none, that I am aware of, has given so much and so careful attention to pastures and mendows as our iriends of the British Isles. Bent is there very high. To be a successful farmer everything must be done to the best advantage of the property of the second of the sterything mass to other to the best advan-tage. Stipshod farming there will not aford a living, as it often does in our newer coun-try. Although they follow out a certain re-tation of crops, are able to give good reasons for such rotations, yet they are nearly if not quite, unanimous in keeping a part of the lerm in permanent pasture or meadow. The

hand."
So carefully have they studied the nature of the different grasses and the soils they are adopted to that the soedsmen, according to demand, sell certain mixtures of grass sends suitable for each geological formation. In laying down land to permanent pasture, M. H. Sutton of Reading, England, in 1861, gives the following list of grasses and clovers, and the quantity of each which he considers "the best possible mixtures for a good medium soil, neither too heavy nor too light. These are all," he says, "of excellent properties; and, coming to maturity at different seasons of the year, are found to produce a permanent and evergreen sward:"

Alopecurus pratensis (meadow fox-tail) ..... Anthoxauthum odoratum (sweet vernal

grass)
Cynosurus cristatus (crested dog's-tail)
Lactylis giomerats (orchard grass)
Pestuca durinscula (hard fescue)
4

Phieum prateuss (timothy)..... Poa prateusis (Kentucky blue-grass, June

Pos trivialis (rough-stalked meadow). 

Trifolium hybridum (Aliske clover).

For a varied soil in Cumberland, Engiand in 1875, Robert Jefferson uses 40 lbs. per acre of the following:
6 lbs. Italian rye-grass.
6 lbs. perennial do.
3 lbs. cocksfoot (orchard grass).

lbs, timothy do. i lb. various-leaved do.

liss, rough stalked meadow grass.

w lox tail

ibs. meado lb, crested dogstail. lb, rib grass. lbs. Alsike clover,

a lbs. white do.

John Shuker of Shropshire, on most ten-cious soil, used 40 lbs. per sere of the foitibs, crested dogstail 2 lbs, mesdow foxtail.

llb. sweet verbal. 4 lbs. cocksfoot. 4 lbs. tall feecus. 4 lbs. timothy. 6 lbs. perennial rye illus, meadowfescue.

ibs. rough stalked meadow grass. 5 lbs, Italian do.

For shaly soils he used 32 hs. per acre of the following: 2 lbs. sweet vernal. 2 lbs, tall fescue.

albs, crested dogstail 4 lbs. white clover. 21bs, meadowleacue. 3 1bs, cockstest. 2 lbs. Alsike do. s lbs. perrennial rve-

lbs, sheep's fescue. 2 lbs. rough stalked meadow-grass.

R. H. Huntley of Coldstream, Engished, in the report of fuls year (1875) says he "laid down three fields to permanent grass by the process known as 'moculation.'" All suc-ceeded duely. With a plow he turned from process Known reeded duely. an old pasture held strips of turf four inches wide. These were cut up with spades into pieces four locaes long. They were put all over the new fields in little holes one toot spart. Then the field was rolled. I have spaine often reeded small pieces of lawn in this way. It is a surer and more rapid way to the transmit of the way. than by using seed for lawns.

PLEMANENT PASTURES.

It is the general belief in Great British, so far as I can learn, that permanent pasture when properly managed yields a better qualthen the mixture of heavy seeds sown by itself on the same ground to spread all evenly. If the ground is well prepared, a newly seed-I field will resed no manure for two or three e - namured and otherwise properly attend-

essay for 1838, says: "After 20 years of exterionice I have no besitation in pronouncing sailor replied. 'Please, sir, the black party dones to be pre-eminent above all other massays its a kangaroo.' The heast kept this rice, lest by seeking things that are needless you out things that are necessary.

Peter Cooper becauses U is grounded candidate, and now if the woman suffragists rice, lest by seeking things that are needless you out things that are necessary. Dixon of Cheshire, England, in a prize

when permishency as well as cost are cousidered." He is decidedly in favor of raw, bones, ground and applied in early spring. He cites one case treated with broken bones 70 years previous, where the effect was still very marked. In one case, about 1,000 fbs. of bones to the acre in two years caused the yearly rent of an acre to go from 30 shillings up to 60 shillings, with groater profit to the teflant. He gives other cases, among them a farm of 100 acres on which the farmer expended \$300 sterling worth of bones in a year. The stock formerly kept consisted of 20 cows, and 3 or 4 horses and colts. After treating with bones the fields pastured \$3 colts, and one fourth of the farm in tillage. Similar results were produced on almost ev-

3 colts, and one fourth of the tarm in tillage. Similar results were produced on almost every farm in the neighborhood.

Professor Volcker (Royal Journal of Agriculture, 1888, p. 643) says: "The effects produced by the application of bone-dust to pastures are very variable. On the prorus land of Cheshire and similar soils on the red sandstone formation, the result is very striking. On land which is wet and cold rests on a poor, undrained subsoil bones often pro-

striking. On land which is wet and cold rests on a poor, undrained subsoil, bones often produce no effect. Herecommends, in all cases, a trial on a small scale.

Experiments to be of much value must be kept up for a long time. As Prof. Voelcker says, "Field experiments, in order to be practically useful, should always be tried for a succession of years under as great a variety of conditions as regards soil, time and mode of application, and crops, as possible." nety of conditions as regards soil, time and mode of application, and crops, as possible." This should be continued from year to year according to the same plan as fixed upon in the previous years. Some of the best experiments made, at great expense, in England, were tried for 20 successive years before arriving at satisfactory conclusions.

riving at satisfactory conclusions.
Old postures in England often pet a dressing of 150 bs. of nitrate of sods, or 200 lbs. of guano, or 200 lbs. of superphosphate, sown broadcast on each acre. Such dressings with barnyard manure are often applied until the land produces well.

In a prize essay by Clement Cadel, he caims nauch exportance in the manuring of grass lands,—a most difficult subject. He has seen bones do no good whatever, and he has seen them used with namon-awdyancage.

has seen bones do no good whatever, and he has seen them used with romon-e-widantage. He has seen guano used and produce a splendid crop the same year, and the next year the crop was worse than before the guano was applied. It seems impossible to tell with certainty just which fertilizers will do the best on any soil till they have been tried. Mr. Cadle's rule is this: "In proportion as the land is inclined to grow bonty or stocky grass, inclining to seed, he applies tell wan certainty for the bare been seeded the better it to them. According to their belief and practice, a pasture never becomes very good until it has been seeded six or more years. In their opinion, "it is certainly undesirable to break up tolerably good pastures for the purpose of converting them into arable hand."

So carefully have they studied the nature so carefully have they studied the nature.

Tell wan certainty fill they have been tried. Mr. Cadle's rule is this: "In proportion as the land is inclined to grow benty or socky grass, inclining to seed, he applies ammoniscal manures. If the land produces thick, short, leafy herbage, the phosphatic manures must be applied." After 29 years hand."

So carefully have they studied the nature and the soils they

more certain return than where expended in the growth of wheat.

S. H. Thomson, a prominent farmer of York, also concludes that money used in improving grass land gives a better return than on arable land. He says that "firm-ness and quality cannot be secured with large bulk. For quantity of hay or pasture use guano, nitrate of soda, soot, or other amuse grano, nitrate of soda, soot, or other am-moniacal manure; for quantity use lima or bones; for medium quantity, and quality, use both classes of fertilizers." Coarsely pulverized bones and barnyard manure pro-duce lasting results, often very marked for 20 years. Good barnyard manure is the stand, and and never fails to improve crass lands.

years. Good barnyard manure is the standard, and never fails to improve grass lands. In the report for 1875, Mr. Lawes, the most celebrated English experimenter, says: "The application of bones to grass land is not recommended for general adoption. They appear to be chiefly adapted to the exhausted pastures of certain localities. The same is true with lines. Every man must experiment." He adds: "I am disposed to think that a dressing of dung once in 5 years, and 200 lbs. of nitrate of soda the other 4 and 200 lbs, of nitrate of soda the other 4 years, is about an good an application as can 6 be used." I should resonant and a mixture of fertilizers found to be good, or a rotation

of their use.

The English well know the great importance of excellent pasture to fatten cattle. They feed such cattle, while grazing, oil-cake, meal, etc., for a two fold object, namely, to help fatten the cattle, and to help enrich the soil, and so make the pasture better. This is sound doctrine, which we all understand. There are certain well-known truths in regard to manures that are almost axioms; as, "The more abundant the food supptied to beasts, the better the quality and the larger the quantity of manures which is produced;" "Beasts fed on good, nutritious food, give a much more valuable manure than when fed upon indifferent kinds of tood;" the manure of young animals is less valuable than that from maferent kinds of food;" "the manure of young animals is less valuable than that from mature animals, as the young require both organic and horganic food in larger quantities than full-grown beasts, which have only to keep up their weight and condition by the food they eat;" and that the best animal manures for grantly inverse sensits of their nures for general porposes consist of both solid and liquid excrements combined.

#### The Midsummer Heliday Scribner.

The publishers of Scribner's Monthly propose as their special contribution to "the profusion. Inving eligibility and expert their goods to China, glories of the Centennial year," the publication of the most beautiful number of a popular magazine ever issued in the world. The and a half toushels.

In the publishers of Scribner's Monthly property of their goods to China, Japan, South America, and Australia. The annual apple yield is upwards of a million and a half toushels.

In the publishers of Scribner's Monthly proposes as their special contributions to "the profusion. In the propose as their special contribution to "the profusion. In the profusion of the profusion of the profusion of the profusion. In the profusion of the pro ambition is a laudable one, the promise is made in good faith, and the power to fulfill and lead one, coal and limestone, gold and the promise will hardly be doubted by those who have watched the history and progress paints using among the chief samples.

who have wached the history and progress of the Sorthace magazines.

This special number of Socibace's Monthly, which will be entitled "The Midsummer Holiday Number," will comprise one hundred and sixty pages, contributed by the most eminent writers. The illustrations will be profuse in number, and specially notable as specimens of the designor's, engraver's, and printer's arts. All that culture and skill, developed by a fruitful experience. can do to make this number of the magazine structive, will be done. The edition will be 75,000 copies. The contents of the Midsum-mer Holidey number of Scribace will be mer Holidey number of Serbace will be light, as bibliouniner reading generally should be, but some of the contributions will be extraordinary. Mr. Bryan's posm of 500 lines, produced at his advanced age, will fairly dispute the claim to enumence with some of his earlier and best known poems. The Mid-of Scribner's Mo-the 20th of July. The Mid-number Holiday Number acr's Mouthly will be issued about

The origin of the name "Kanparoo" is thus described in a recent work of Mr. F. Buckland: "When Captain Cook first discovered ity of grass or hay than one nexty seeded, and that the quantity does not diminish without any crop, like solution theat. Sometimes the mixture of light seeds is sown, and band. The captain sent a boat's crew ashore. to purchase the animal, and finding on receiving that it was a beast quite new to him. he sent the bosts wain back to ask the natives sars. Most British pastures will grow poor its name. 'What do you call this 'ere ani-of thin and run out, as we say, unless they main said the sailor to the naked native. The pative shock his head and answered . If we continually take off and plan. The native shock his head and answered held, what other result can be expect. 'Kan ga roo,' which mesus, in Australian Manure often goes upon the arable lings, 'I don't understand.' When the sailor returned to the ship the captain said. Well,

#### OREGON AT THE CENTENNIAL.

PHILADELPHIA, June 22d, 1876. ED, FARMER: As I have a few minutes' time, I will send you some extracts from the Philadelphia papers:-what is said of Or-

egon's exhibit at the Centenntal. Mr. A. J. Durar is doing all in his power to have Oregon fully represented. It would be useless for me to try to give you any description of this grand Exhibition; you would have to travel over sixty miles, in the main building, to see all in it.

ured in the United States, and, I might say, the gums, go twice a work take them out, in the world. The tiovernment building is kill the moth and put them back again, keep magnificent, representing all the different this up in the months of April, May, June departments of manufacturing all kinds of and July. fire-arms. The largest cannon on exhibition still another batter way is to have your weighs 115, 100 lbs; weight of ball, 1050 lbs; stands about four feet off the ground, get a it uses, each shot, 200 lbs. of powder.

GEORGE S. DOWNING.

OBLIGON'S DISPLAY. Oregon's exhibit in Agricultural Hall. Section I., No. 22, is one of the fullest and lest of the Western State displays. Har firsts and agricultural products grow to an introduces size and in great abundance, as the

is heat from the butt. They have specimens of shingles, thirty inches wide, cut from a single sprice or white time, that yielded 100 000 shingles and while the, that yields the less and most or unrestal of the woods displayed are the slider varieties, which, when dressed and polished, resemble the variegated marbles used for table tops and other ornamental articles of furniums. A centre table, made entirely of the alder wood is especially admired. has the appearance of being chiselled out

The cereals grow to a prolligious height in es than half the time they consume in coming to maturity in this latitude. For instance wheat that was raised in 10 days yielded 30 bushels to the acre, and two successive crops could be grown in a season. The straw of this wheat grew to the height of nearly 7 leet; but this is not extraordinary in a countries that the satisfactors are the strayed and the native strain of the strayed and the native strain of the satisfactors are strained and the satisfactors are strained as the satisfactors are str leet; but this is not extraordinary in a country where timothy and clover and the native grasses attain a height of over five feet. Oregon is a great grass country; the bunch grass, to which the farmers drive their stock to pasture, grows in free and inexhaustible profusion, on almost limitless meadows, and its rich, nutritious qualities are seen in the fattest herds and flocks of which the country can bosst.

The wool samples show that in Oregon

The wool samples show that in Oregon they know how to keep the dogs down to a minimum, while sheep are brought up to the maximum in every particular. A case of cosswoid staple, of thirteen months' growth, is fourteen inches long and of a fine silky texture.

The growing of flax was a mere experiment, a few years ago, and though not as general yet as it would be profitable to make it, they turn out a me of the finest growth that any part of the world ever produced. So long and superior is the quality, that it has been exported to Ireland's linen mills, where it is found to rival the linest Irish thread. Samples are shown which measure Samples are shown which measure

The isheries of Oraçon are noted for the finest salmon and trout, and there is a small mountain of canned salmon in the exhibit which came from the Columbia river. So immense is the catch of salmon, that a firm of canners real ze over a million of collars annually, from the export of this juscious field.

fish.

There is a complete display of game, of which Oregon has an exhaustless abundance. The wind ducks and gress are numbered by millions in that land, and barners suffer terribly from their depredations among the grain crops. Swans, grouse, pheasants and quail are equally numerous. Elk, dear, bears, sougars, and sometimes the hon, are frequently encountered by the humers.

The prodigious fertility of the soil renders

The prodigious fertility of the soil renders.

The prodigious fertility of the soil renders
Oregonone of the greatest producing States
in America. A year's growth of trees or
plants is not measured by inches, but by
feet, and some energy and apple trees of a
year's growth, that is shown in the fruit
collection, measure eight feet from the roots.

collection, measure sight feet from the roots.

There is a large showing of dried fruits—
apples, pears, and plicins—which grow to a
great size, and the tites bear such heavy
crops that they are regularly propped up to
sustain the weight. Pears, plums, cherries,
and prones of a super or quality, together
with all the smaller failes, grew in wildest
profusion. Drying slaphfishments are numerous, and expert their goods to Chins,
Japan, South America, and Australia. The
annual annie vield is unwards of a million

All the expenses on this section being taken random, make a sair representation of ation or the slightest interepresentation.

### PATRONS OF HUSBANDRY.

#### In Memoriam.

At a regular meeting of Chebalem Grauge. No. 22, P. of H., held July 8th, 1876, the following resolutions were adopted :

providence, it has pleased our Heavenly Fa ther to remove from our midst our worthy broker C. C. Ketchum; therefore, Ressived, That we bereby tender our heart-felt sympathy to the bereaved tamily in their

es of a kind husband and father. Resolved. That we tender our thanks to the East Portland Grange for the brotherly L. C. Linichum.

i. W. Hangen, D. C. Atkin, Committee.

agriculture is carried on according to natural laws scientifically demonstrated and until honesty and justice rule the nations of the

### THE APIARY.

## An Easy Way to Get Rid of the Bee

SPELIVAN, IND., June 25, 1876. I see in the columns of the Spirit of Ar-Length of the 25th May, wanting information. I am in the business, have been at it for the past three years, have tried some of the patent hives, but can find nothing of any value, I want he old fashioned hive of plank two feet long and ten by twelve square to Agricultural Hall is nearly as large, and esten the moth, ge un elder six inches long Machinery Hall is the grandest of all: you split through the center, get the pith out, can see every thing made that is manufact- turn the hotlow down on the beach under

half berrel, all is about half full of water; put a piece of board across; just above the water light a small oil lamp; light and set in the barrel, and the miller will go to the light and get to the water and drown, never let them be relibed in the months of May or lune. If you can get the Italian buckwheat inthernae size and in great abundance, as the specimens all attest. As a sample of her trees a section of one is shown which was ent from the red cedar, which grows in great abundance. The tree grew to the height of 225 feet, and measured at the center of its height 22 feet, and measured at the center of its shown is from the fir tree, a variety that also abounds in the State, which measured 15 feet a inches in diameter at a distance of 188 feet from the butt. times this Spring; they are half breeds. S.

#### Bees Dying.

A California exchange says: Late swarms of bees along the Sacramento river are dying off for the want of food. So large a portion of the land is covered with water, and so litthe nors is to be found at this time, that they fall to find enough house to support themselves and feed their young, and the little busy bees are actually dying of starvation. The month of June in this section is the hardest month on bees in the year generally; but this month the present year in this vicinity bids fitir to be particularly severe on account of the large area of land covered by water that usualty affords about all the bloom of the month.

#### Astor, Vanderbilt and Stewart.

Of the three great millionaires, there is not probably any remarkable difference in their estates. Astor's has the most land, and is of the most uncertain value. Stewart's investments in real estate wore not distinguished by his usual sagacity, and the worth of a large part of his property must depend on its management. It remains to be seen whether Judge Hilton can buy and sell dry goods like his late client. Vanderbilt's estate is in the best shape. If settled up to-day, it would, doubtless, be the most valuable of the three, and Astor's the less valuable. Asior had the most land. Stewart the most dry goods, Vanderbilt has the most cash and the best investments.

Concerning their capacities, Astor's capacity consisted merely in keeping and hoarding-he was a common man with a strong grip. Siewart had an enormous talent for dealing in dry goods-he understood the business by instinct. Vanderbilt is a financial genius, who would have made an immonse fortune anywhere under any circumstances. None of them have been commendable, for all have been selfish, grasping, resolutely moreonary. Astor cared for his near relatives merely; Stewart, who had no kinsfolk but his wife, liked a few friends: Vanderbilt loves one man slone, and his name is Vanderbilt.

Few people comprehend the magnitude of the war in Dakota. Father Mesplie is well posted on the ludian tribes, and gives the Idaho Statesman the following estimate of their numbers: He puts the Sioux down at 60,000; the Crows at 15,000; Blackfeet, 20,000; Utes or Utaha, 35,000; and in addition there are the Brule, Ogolisila, Minusconjon, Yanctonnais, Unepapa, Two Kettles, San Acres and Santoo bands. Some of the Crows and some others who live around the reservation are friendly, but many who pretend friendship will gather arms and ammunition for their tribes. He says they are in strong alliance with each other to carry on this wer, although, when they have no common enemy to tight, they fight each other; but now they are united [against what they consider a common enemy and will turn out all their warriors, and they will number at least 10,000, and the Father says it is likely to be the most formidable and bloody Indian war in the history of our governmen. They are well armed and will light to the death whenever they are cornered.

The San Francisco Post's Philadelphia cor Whereas, in the manifes stions of divine respondent says: "Oregon's exhibit of native products is attracting universal attention at the Centennial, and the department assigned the State is constantly thronged. Her wool, woods, minerals and cereals, are especially noticeable, and redound greatize to the good fame of the country. For wheel love and kindness manifested in taking raising and (vegetable producing, Oregon harge of the remains of our worthy brother cannot be excelled. Oregon " builded" belter than she know, when she selected A. J. Dulur commissioner of the Exhibition for that State, and, luckity, Mr. Defer is in every way worthy of the position, he holds, Nearly 2,000 Grangers are now educating and will do the State nucls hone. Laying the people in the arts and sciences, and all all jealousies siside, we rejotes to see our things pertaining to the use of man. Wus sister State coming forward for the public there ever such a university before on this recognition to which she is plainly entitled, earth with so many pupils and every pupil a and hope that the dattering or cumstances to tenmer. Let the good order prosper until which we have alimied, will make her citzensjig renewed cuterprist, and loftier de Sign.

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The school year consists of three terms, beginning respectively on the first Wednesday of September, December, and March.
In the University the inition is \$45 per year, and in the Academy \$30 per year-psyable per term in advance.

ndvabee.

Board can be had at from \$3 to \$4 ner week.
Examinations for admission will be held on 8
tember 1st, at 9 a.m., at the Cologe.

Per further information, address the President or
any other members of the Faculty.

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