

# The Spectrum

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## Effect of Sunlight on Green Plants.

All plant growth is affected more or less by the action of sunlight, whether it be direct or indirect. It exercises two principal influences, one internal, the other external. The first is partly included under the term photosynthesis, or that form of metabolism by which carbon dioxide is decomposed, resulting in the formation of a carbo-hydrate of which sugar is the end product. Light, however, is essential to the construction of organic from inorganic material. A second effect, due to the application of light externally, is that noticed by the general observer and is termed "heliotropism." The leaves and shoots of most green plants bend toward the light while the roots turn from the light and thrive in darkness. The former is called "proheliotropism," the latter, "apheliotropism."

Many experiments illustrate the internal effect of sunlight. One, designated as experiment 43 in McDougal's text on Plant Physiology, shows that the action of light is necessary for photosynthesis. When carried out satisfactorily the experiment proves that, though growth takes place in darkness even more rapidly for a time, than in light, photosynthesis cannot take place without the

action of light. Since that process is essential to life in green plants, light is therefore required for their life processes. The experiment was carried out as follows. Feb. 22nd, two good seeds of corn were weighed and allowed to germinate—March 7th, the young plants were planted in a nutrient solution and one, (the weight of whose seed was .25 grams,) set in the dark room while the other (the wt. of whose seed was .179 grams) was set in the light. Allowed to grow for one week, they presented the following results;

Plant No. 1. (In darkness)—14 centimeters high, of a pale yellow color (chlorotic.)

Plant No. 2. (In light)—4½ centimeters high of a dark green color (normal.)

After three weeks growth the plants were respectively, 8 inches and 5 inches in height, the one in darkness still maintaining its pale yellow coloring while the one in light was of the normal green. Removed from the solution, dried in air and weighed, the results were:

Plant No. 1, weight—.17g.  
(original wt. .25g.)

Plant No. 2, weight—.179g.  
(original wt. .179g.)

Showing no loss of weight from the seed when grown in

light but a loss of .08 grams when grown in darkness.

The cause of the yellow coloring instead of the green in the first plant, is given by Sydney Vines in his thirteenth lecture as the conversion of chlorophyll into the yellow coloring matter called xanthophyll or phylloxanthin, through oxidation. The fundamental nourishing effect of light on all green plants is due to the action of chlorophyll, which is the green coloring matter found in masses within the cell-protoplasm. It is present in all colored plants, though sometimes obscured by other color substances. The chlorophyll spectrum shows seven absorption bands, the different rays acting differently on the substance. The theory of Lommuel and Muller, quoted by Vines, supports the idea that the rays of light absorbed by chlorophyll are converted into a form of energy which acts in the decomposition of carbon-dioxide and water. The function of chlorophyll in the plant, as expressed by Vines in his ninth lecture is—"It absorbs certain rays of light and thus enables the protoplasm, with which it is intimately connected, to avail itself of the radiant energy of the sun's rays, for the construction of organic substance from carbon dioxide and water."

The same author's hypothesis on the construction of sugar from carbon dioxide is, that, when exposed to light, the starch formed in chlorophyll corpuscles is derived, chemically, from carbon dioxide and water.

Seedlings of green plants,

taken from the light, and allowed to grow in the dark for some time, produce instead of green plants, pale yellow ones, similar to the corn plant of the experiment above. Thus throughout the life of the green plant, after germination, the action of light is required to maintain the activity of the chlorophyll.

When exposed to the light green plants absorb carbon dioxide decompose it and evolve oxygen. According to the history of the formation of the substances, Van Mohl was the first to discover starch grains within the chlorophyll corpuscles. After wards, his discovery was proved by others and it was also observed that carbon dioxide is not decomposed when chlorophyll is not present. So there must be some connection between the chlorophyll corpuscles and the decomposition of carbon dioxide as well as in the formation of starch.

After long and careful observations, Sachs came to the conclusion that the existence of starch grains, resulting from the exposure of chlorophyll to light, is due to carbon dioxide and water. Spirogyra gives an illustration of these points. An experiment carried out with some filaments of these plants give the following result: When placed in the dark for twenty-four hours and then tested for starch, none was found, but after being set in sunlight for only a few minutes, starch appeared.

Another illustration of the effect of light on starch formation is presented by experiment No. 57 in McDougal's text,

carried out thus:—A well grown geranium plant about eight inches high is placed in the sunlight, parts of the leaves having been darkened by pinning cork plates on opposite sides of them. The plant is left in this condition for two days when the leaves thus treated are removed and boiled in water to kill the protoplasm. Then the chlorophyl in them is extracted by alcohol and the test for starch made by treating with alcoholic iodine, resulting in a blue coloration of all parts of the leaves except the portions darkened by the cork, which are colorless. Thus it is shown that chlorophyl cannot act in formation of starch when light is strictly excluded.

Light also affects the other colors in plants. Some forms of coleus have dark purple and red leaves when grown in partial shade, but if grown in strong sunlight, they take on a brownish tinge mingled with green.

Two distinct stimuli result from sunlight viz:—1st that from the blue-violet rays, causing heliotropic action, and 2nd, that from the red rays causing theromotropic or heat activity. The lighter rays directly affect all the green parts of the plant especially the stems and leaves, which turn in the direction of the strongest light, or in the position most favorable to the work of internal metabolism.

Light gradually retards rapidity of growth in the plant, but, at the same time promotes a sturdier growth. This has been observed in cell growth. The same kind of cells growing in the shade are longer and

thinner than those growing in the sunlight. The cells of the upper surface of leaves exposed to sunlight, are more plentifully supplied with chlorophyl due to the action of light in building up that substance, for according to Prof. Vines, there is no doubt that light causes the decomposition of chlorophyl. Therefore the substance must be formed with corresponding rapidity. When the light is weak, chlorophyl cannot be formed as rapidly as it is decomposed and the plant loses its color. When the light is too intense, however, there is also an over decomposition of chlorophyl. Thus too strong sunlight and the absence of sunlight are both detrimental to plant growth.

Thus every normal, vigorous green plant requires a certain amount of sunlight, depending upon the nature of the plant, to further the activity of its characteristic cells, promote in them the chemical changes necessary for the production of chlorophyl, the formation of starch and the growth and position of its parts. In fact, the whole metabolic activity of the plant is based upon the agency of sunlight. Though some parts are developed, primarily, in darkness, their further development demands the action of sunlight for complete results.

C. B. BRONSON.

## Agricultural College Athletics.

On May 15 occurred the local field day to determine, who should represent us in the Inter-Collegiate meet to be held in Wahepton June 5th.

The day was an ideal one for athletic sports, moderately warm and still. The track was a little slow but far in advance of its condition a year ago.

All that was lacking to make this home contest one of the closest ever held, was competition. Almost all who entered received a medal and it appeared to an on-looker that our athletes were away and the boys were out for a little tame sport, notwithstanding, a few good records were made by the few athletes present.

Whether it was ordained by providence or was A. C. luck, that our best athletes should be compelled to leave school just before our Field Day meet, we are not able to say, but it was plainly seen that there was the lack of competition and interest which made our home meet a success last year; when Worst, Lamont, Scholander, Milnor and Tucker were here.

The medals given by the different business firms of Fargo and the trustees of the N. D. A. C., are all \$8.00 gold medals, and have to be won two consecutive years by the competitor before becoming his personal property.

The Athletic Association is very grateful indeed to those who have shown their interest by providing so generously for those medals.

The \$10.00 gold medal, given

by the trustees of '96 for the, "Best All Round Athlete," and won last year by Clayton Worst who was absent this spring, was won by F. J. Newman.

The events, winners, and prizes are as follows:

50 yard dash—F. J. Newman, 1st; A. W. Fowler, 2nd; C. G. Warner, 3d.—Medal, S. S. Lyon.

100 yard dash—F. J. Newman, 1st; A. W. Fowler, 2nd; C. G. Warner, 3d.—Medal, M. A. Hagen.

220 yard dash—F. J. Newman, 1st; C. E. Lee, 2nd; A. W. Fowler, 3d.—Medal, Adams Bros.

Mile run—C. E. Lee, 1st; H. Lee, 2nd; H. De Pue, 3d.—Medal, A. G. Lewis.

1 mile bicycle race—P. L. Bottenfield, 1st; W. E. Speare, 2nd.—Medal, de Lendrecie.

220 yard hurdle—H. Lee, 1st; F. J. Newman, 2nd.—Medal, Trustees N. D. A. C.

120 yard hurdle—P. Nordby, 1st.—Medal, Trustees N. D. A. C.

High Kick—F. G. Benn, 1st; P. Nordby, 2nd.—Medal, Trustees N. D. A. C.

High jump—W. E. Speare, 1st; P. Nordby, 2nd.—Medal, Trustees N. D. A. C.

Hop step and jump—C. O. Follett, 1st; P. Nordby, 2nd.—Medal, McCormick Harvester Co.

Running broad jump—P. Nordby, 1st.—Medal, Thos. Kleinogel.

Pole Vault—C. M. Hall, 1st; F. G. Benn and W. E. Speare tie for 2nd.—Medal, Fargo

Storage & Transfer Co.

Shot put—M. C. Henry, 1st; H. Lee, 2nd; H. Brand, 3d.—Medal, W. D. Allen.

16lb hammer throw—M. C. Henry, 1st; O. Nordby, 2nd.—Medal, Fargo Packing Co.

Class relay race—Freshman Class, 1st, (Gorder, H. Lee, Murphy and Newman.) Senior Prep. Class, 2nd, (De Pue, Drake Bottenfield, Green and Fowler.)

#### LADIES' CONTEST.

50 yard dash—Miss Lizzie Olson, 1st; Miss Damia Peck, 2nd. Time 8.5.

$\frac{1}{4}$  mile bicycle race—Miss Marrie Edwards, 1st; Miss Helen Jewett, 2nd. Time 1.03.

Base ball throw—Miss Damia Peck, 1st; 113 feet 5 inches; Miss Helen Peck, 2nd., 92 feet 4 inches.

#### INTER-COLLEGIATE MEET.

The third annual meet of the North Dakota Inter-Collegiate Association was held in Island Park, at Wahpeton, Saturday June 5. The recent rain had left the track a little soft and the day was not all that could have been desired, but some good records were made. The crowd was small but enthusiastic.

A few of the events need special mention. Patten was set back 3 yards in the 50 yard dash and then rushed Fitzmaurice tremendously for first. In the 200 yard dash Patten lead until within 10 or 15 feet of the tape, but by a mighty effort Fitzmaurice struck the line with a lead of about four inches.

M. C. Henry of the A. C. (in the 16lb hammer throw) was

in a class by himself, and the record made passes some of the eastern Inter-Collegiate records made this year.

The bicycle and relay races were declared off for the lack of time.

The following are the events, winners, and records:

50 yard dash—E. S. Fitzmaurice, U., \* 1st; Bascom, F. C., 2nd; W. E. Patten, W., 3d. Time 5 2-5 seconds.

16lb hammer throw—M. C. Henry A. C., 1st; O. P. Nordby, A. C., 2nd. 102 feet 5 inches.

120 yard hurdle—G. K. Fitzmaurice, U., 1st; W. Pringle, W., 2nd. Time 17 sec.

100 yard dash—W. E. Patten, W., 1st; E. S. Fitzmaurice, U., 2nd; G. A. McDonald, U., 3d. Time 10 3-5 sec.

1 mile run—J. H. Duty, U., 1st; Lamphere, F. C., 2nd; P. D. Norton, U., 3d. Time 5 min. 3 $\frac{3}{4}$  sec.

200 yard dash—E. S. Fitzmaurice, U., 1st; W. E. Patten, W., 2nd; Geo. McDonald, U., 3d. Time 24 sec.

Go as you please high kick—C. L. Worst, A. C., 1st; F. G. Benn, A. C., 2nd; Wrigley, F. C., 3d. 8 feet 9 $\frac{1}{2}$  inches.

Running high jump—W. E. Patten, W., 1st; E. S. Fitzmaurice, U., 2nd; Wrigley, F. C., 3d. 5 feet 3 inches.

Running hop step jump—J. J. Flanagan, U., 1st; Geo. McDonald, U., 2nd. 40 feet 11 inches.

220 yard hurdle race—E. S. Fitzmaurice, U., 1st; G. K. Fitzmaurice, U., 2nd; W. A. Pringle, W., 3d. Time 29 sec.

Running broad jump—C. W. DeGraff, W., 1st; Bascom, F. C., 2nd; W. E. Patten, W., 3d. 19 feet 6 inches.

Pole vault—P. D. Norton, U., 1st; C. D. King, W., 2nd; Best, F. C., 3d. 8 feet 10 inches.

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The time now approaches when the duties of the present board of editors are about at an end, and in retiring from the field and turning the work over to the new management we have to say—that we wish to thank the patrons of the paper both from an advertising and subscription standpoint, also the contributors for their aid in making the paper a success. In retiring we might say that the journal is now on a good substantial foundation: all debts are paid which have been contracted during the year and some money left in the treasury. We wish the new management success in the work for the ensuing year.

The *Student* still persists in misunderstanding the relation of the N. D. A. C. to the financial and the educational interests of the State. Its June

number attempts to make three points against the Agricultural College, as follows: 1, that a large state appropriation is not necessary in order to secure the federal aid; 2, that N. D. A. C., transcends its legal limits in teaching subjects not strictly technical and not directly bearing upon the agricultural profession; 3, that the University's requirements for admission to the freshman class are two years higher than those of the N. D. A. C., and that the difference in requirements for graduation is still greater.

The report of the Commissioner of Education for 1894-5, from which *Student* quoted, tabulates four incomes to the support of agricultural colleges, viz: first, state appropriations; second, agricultural college lands; third, fees and farm receipts; and, fourth, federal aid, the first three of which are state funds and the fourth a federal fund. *Student* entirely ignores the second and the third of these items and makes its comparison between the first and the fourth, thus leaving out a large and an essential part of the first term of the comparison; from which it may be inferred that the University's curriculum is defective either in arithmetic or in ethics. Now figures, it is said, do not lie, but where liars figure, look out for results. But where all four of these items are taken into account the results are entirely different.

This report shows that for every dollar of federal money given to Agricultural colleges, thirty-three states on an aver-

age expended seventy cents; that sixteen of these states expended more than dollar for dollar; that North Dakota in the same year expended only twenty-one cents for the government dollar; and that Michigan, which *Student* especially cites, expended one dollar and sixty-three cents for every dollar of federal aid.

Furthermore, for the present year, North Dakota, whose legislature *Student* so unjustly attacks, expends only twenty-nine cents for a federal dollar.

According to this report North Dakota expended less than one-third of the average for thirty-three states, and this year expends less than one-half of this average.

Moreover, the *Michigan Agricultural College Record*, June 8, 1897, which *Student* may have upon its exchange list, contains the college secretary's report of the "Cost of the College," in which it appears that the net cost of M. A. C., to that state is more than \$11,000 a year; and that the gross cost, including the expenditure of fees and income on land and not including repairs, is \$50,000 a year, or more than dollar for dollar given by the federal government.

Besides, the statement that the last state appropriation to N. D. A. C., was larger than was necessary to hold the federal aid, implies a serious charge, namely, that the N. D. A. C., authorities have falsified to get a large appropriation. Now the government carefully specifies how the federal money may be expended and sends an

examiner to search the College records each year to see that this money is not misappropriated. Consequently, the College is compelled to say to each legislature how much must come from the State to keep within the government requirements.

Now as to what the N. D. A. C., shall or shall not teach, Article 940 of the Revised Codes of N. D., 1895, interpreted along side of Act of Congress July 2, 1862, was evidently intended to enumerate what must be taught at the Agricultural College and not what may be taught. According to the government act, "the leading object shall be (without excluding other scientific and classical studies and including military tactics) to teach such branches of learning as are related to agriculture and the mechanic arts, in order to promote the *liberal* and practical education of the *industrial* classes in the *several pursuits* and *professions* of life." (The italics are the SPECTRUM'S.) In short, the government saw in 1862 what many now see, and what Secretary Wilson in the *Chicago Record*, June 24, says is true, that "the nearer you get the colleges to the people, the more people you will get into the colleges."

If the entrance and graduation requirements of the University are two or more years higher than those of the N. D. A. C., then the University is to that extent farther removed from the people who support it, and compels the boys and the girls that have no free high school advantages

to expend extra time and money before they can enjoy even the preparatory department of the University. The tendency of universities to raise their requirements for admission, and the attempts of the high schools to span the breach between themselves and the Universities, place them all more and more beyond the reach of the people of moderate means, whom the government doubtless meant to provide for by the act of July 2, 1862. There are many young people who desire more education than the rural and town schools afford and of a somewhat different kind from that afforded by the typical high school and University, — an education partly professional but as liberal in its culture as their time and means will admit. To these the N. D. A. C. opens its doors, relieving them from the heavy requirements of classical studies, yet offering such and many other liberal advantages to all who wish them.

C. O. FOLLETT.

### Commencement Week.

In a college career there are two occasions especially eventful, the day of graduation and the day marking the close of the freshman year. When President Heath stepped to the front of the stage on the evening of June 19th, he may well have felt proud; for it was a large and intelligent audience which had assembled to hear the annual exercises of his class. Exceptionally fortunate were the class in securing the musical parts. A fine and artistically rendered violin solo

by Miss Clara Forsyth of Fargo was much appreciated, and she responded to an encore. An excellent piano solo was given by Miss Lockwood and was heartily received.

Miss Sikes of Lisbon sang that beautiful lyric of *Longfellow's*, "The Day is Done." Her voice is a rich contralto and her part on the program did much toward making the entertainment a success.

Mr. Heath in his usual pleasing and entertaining manner delivered his address on "Advantages of a College Education."

Messrs. Olsen and Beaton followed with recitations well rendered.

Mr. Newman came next with his oration on "Greece." His power of analysis is strong; his lucid resume of Turkish conquest and the struggles of the Greek for liberty was pleasing indeed. Our revolutionary ancestors had but to contend with a Christian nation while Greece struggles with those who recognize no military law.

"Men are necessarily self-made," said Mr. Buttz of Lisbon in his oration upon the class, "and this is as true of the college men as of any other. The college simply offers educational opportunities. Here is a circumstance and each must be able to grasp it and turn it to his own need." The demand of a twentieth century civilization and the possibilities of the class were outlined at length.

If there be any truth in the maxim, "Well begun is half

done" the class of 1900" is certainly on the highway of success.

The First Annual contest of the Western League of Oratory, held in Fargo, June 4th, 1897, was one of the most prominent events of the school year. In this contest North Dakota and South Dakota, each represented by the two best orators the state could produce, battled for honors. All the orations were very entertaining and highly instructive. The lady orator, Miss Winnifred McVay from South Dakota, by her oration on "Civilization and The Prophet," made a favorable impression on her audience and won many friends. Her style was very pleasing and her delivery showed remarkable talent in this line of work. The oration, "The Negro and the New South," by Mr. K. Arnegard of the U. N. D., showed deep thought and careful preparation. The delivery was easy and the gestures were graceful. Mr. Clay Lawrence, on "The Waning Crescent" and Mr. E. B. Robbins, on "Altruism as a Factor in Civilization," occupied the other two places on the program. The decision of the judges gave Mr. K. Arnegard, of the University of North Dakota, first honors and Miss Winnifred McVay of Mitchel, South Dakota, second honors. On the whole the contest passed off very pleasantly and President Hall is to be congratulated for his successful efforts.

The Second Annual Class Day exercises of the class of '99 were presented in the col-

lege chapel on Monday evening June 21st. The stage decorations consisted of ferns tastefully arranged in masses, while on the wall the class motto, "Deeds not Words," was displayed.

The opening solo, "Sunshine and Shadows" by Miss Matson, showed the player to be on most pleasing and familiar terms with both the piano and the selection.

An invocation by Rev. H. M. Cook was followed by a breezy and lifelike sketch by Josephine Jewett, depicting the experiences of a country school ma'am in one of the little wooden temples of learning that dot the prairies of our state.

A declamation by Jas. Van Kleck, entitled "The Actor's Story," showed the speaker's ability to render a difficult and dramatic selection having but little poetic harmony, in an easy and attractive manner.

The vocal solo by little Miss Franks was one of the events of the evening and furnished a most delightful interval in a serious program.

The study of Carlyle by Lawrence Waldron embraced such a sketch of the subject as to show the influence of the times and conditions upon the great author's life.

Mr. Waldron represented Carlyle as differing from most other men not only in degree but in kind, making a study of his productions on this account more difficult, because of the little opportunity afforded of interesting comparisons with other writers.

The oration, "Monuments," by Peter Nordby showed con-

siderable careful work, and the ability to put familiar thoughts into well-turned, rhetorical sentences that hold the attention of the audience.

Miss Beth Darrow in her piano solo showed a spirit and delicacy of touch that will doubtless bring her into favorable public notice soon.

Mr. Fred Olson in his sketch on "Tramps" gave the classification and earmarks of this interesting division of the genus homo and followed with a number of well timed suggestions as to how the tramp nuisance could be abated.

James Whitcolm Riley's genius did not suffer from the treatment that Miss Helen Jewett gave his "Frost is on the Pumpkin."

The program closed with a vocal solo by Mrs. Homer Cook that was highly appreciated as her decidedly masterful renditions deserve to be.

The program on the whole, though more devoid of light and humorous features than class programs generally are, was well received even to the extent that made the rain shower that saluted the returning guests of little comparative consequence. C. W.

The Third Annual Program of the class of '98 was given in the college chapel Tuesday evening June 22. This was the last of the class programs for the year and was a decided success.

The chapel was handsomely decorated for the occasion, and although the freshmen and sophomores had displayed considerable taste in decorating, yet that of Tuesday even-

ing surpassed any previous design. The scene presented was that of a New England rural home.

High up on the clean white walls hung vines of different kinds, trailing their drooping branches around the class motto, "Constantia et Virtute," while from the floor rose banks of ferns, the whole gradually sloping down to the valley like rostrum. On the right of the valley was an old well, over which hung "The Old Oaken Bucket," as rustic in appearance as the original. The whole presented a picturesque and pleasing scene.

Notwithstanding the unfavorable weather, there was a large audience, and promptly at half past eight the members taking part on the program took their seats on the rostrum, the young ladies arrayed in white and the gentlemen dressed in the usual black.

The first part on the program was a piano solo by Miss Matson, followed by an invocation by Rev. Day, after which Miss Carrie Bronson delivered an oration entitled "A Type of Psychological Eccentricity." In this she contrasted the customs and manners of European countries with those of the United States. The subject was well treated and delivered in an easy manner.

Following this came a scientific article on "The Products of the Distillation of Coal" by Clarence Follett. This paper showed the many practical uses to which the gaseous products of coal are now being put.

Then came a vocal solo by

Mr. Ashelman which was well rendered.

The recitation, "The Whistling Regiment," given by Miss Angela Gibson, was delivered in her usual attractive manner.

Bernard Meinecke's paper on "The Evolution of Colleges and Education," was very interesting and up to date.

Miss Lottie Wall's instrumental solo was well appreciated and was followed by a very interesting paper on Elizabeth Stuart Phelps, by Miss Anna Small.

Ferdinand Benn's oration on "Daniel Webster" was highly instructive and delivered in his usual graceful manner.

The program closed with a highly appreciated vocal solo by Miss Florence Henderson.

After the close of the pro-

gram the class with about thirty invited guests repaired to the Dormitory to enjoy a class banquet. The rooms were decorated beautifully and Mrs. Holderman did everything in her power to make the evening pleasant.

Cards containing the words "Class Banquet" printed on them and tied at one corner with a bow of class colored ribbon served as a souvenir and name cards. After the elegant supper, Mr. F. G. Benn occupied the chair as toast master and proceeded to further the enjoyment of the evening by proposing the following interesting toasts.

The Faculty—Hugh McGuigan.

Class of '98—Prof. E. S. Keene.

### Local Happenings.

Lock your tandems.

Prof. Waldron spent June 8 and 9 in Wahpeton.

Military drill is made optional with the seniors—hereafter.

C. E. Lee delivered an oration on "Farm Life" in chapel on June 4th.

W. C. Albrant, a former student, visited the departments recently.

On account of disagreement the regular Athenian-Philo banquet was not held this year.

Hereafter the senior class will recommend the non-commissioned officers in Cadet Co. A.

C. L. Worst participated in

the inter-collegiate field day sports at Wahpeton and did admirably well without training.

Some of the juniors who were to give orations in the chapel this term failed to present themselves.

U. S. Army Inspector visited Co. A on Wednesday May 26, and reports favorably at Wasington, D. C.

Miss Gibson gave vent to some expressions of oratory from the chapel rostrum on Friday June 11th.

It seems as though a spirit of mischief lurks around the dormitory, with a particular appetite for apples, bananas, and strawberries. Recently it

deliberately appropriated three boxes of small but a very fine variety of strawberries.

The motion, that the freshman, sophomores, and juniors give a joint program was soon downed by the faculty.

The sentiments recently voiced by Rev. Gifford before the students on the subject of "Liberty" will certainly not soon be forgotten.

Company A has received a beautiful silk flag. There will be competition drill for Color Guard—at the beginning of next term.

Miss Prof. Senn was suddenly called home to Enterprize, Kansas, on account of the death of her sister, Lyda, who was a student here last winter.

Pres. Worst, Prof. Kaufman and Prof. Shepperd attended the Dairymen's Convention at Jamestown on Wednesday and Thursday June 16 and 17.

At the last board meeting C. M. Hall was granted a leave of absence for 9 months. He will leave Oct. 1st, for Johns Hopkins University, Baltimore.

A stock scoring contest was held on the Tanner farm on Saturday June 12th. Out of six contestants, J. A. Davis received 1st prize and C. E. Lee second.

The Drama "Pocahontas," under the auspices of the athletic association, was given on Monday evening May 31st, and it was a grand success. The proceeds were about \$25.

The inter-state oratorical contest was held in the congre-

gational church on Friday evening June 4th. K.O. Arnegard of U. N. D. carried off the honors. Our work during the past year in the line of oratory has not been entirely in vain. North Dakota has set a good mark and we hope that next year's orators may do as well if not better.

At the regular business meeting on June 10th, the Philomathian Literary society elected the following officers for the ensuing term: Pres. Helen Jewett; Vice Pres. C. W. Buttz; Secretary, Robert Olson; Treas. C. O. Follett; Member at large, C. B. Bronson.

The Freshman program June 19th:

Invocation.....  
Violin Solo.... Miss Clara Forsyth  
Pres. Address..... T. H. Heath  
Recitation..... F. H. Beaton  
Vocal Solo..... Miss Maude Sykes  
Recitation..... N. R. Olson  
Oration..... F. J. Newman  
Piano Solo.. Miss Luella Lockwood  
The Class..... C. W. Buttz

The junior program during commencement week was as follows:

Piano Solo..... Miss Ora Matson  
Invocation..... Rev. Day  
Vocal Solo..... Mr. Ashelman  
Oration, "A Type of Psychological Eccentricity". Carrie Bronson  
Scientific Paper, "The Products of the Distillation of coal"...  
..... C. Follett  
Recitation, "The Whistling Regiment"..... Angela Gibson  
Paper, "Evolution of Colleges and Education".. Bernard Meincke  
Instrumental Solo. Miss Lottie Wall  
Literary Paper, "Elizabeth Stuart Phelps"..... Annie Small  
Oration, "Daniel Webster".....  
..... Ferdinand Benn  
Vocal Solo.....  
..... Miss Florence Henderson.

Athletics.

[Continued from page 5.]

Putting 16 pound shot--J. J. Flannagan, U., 1st; Wrigley, F. C., 2nd. 36 feet 11 inches.

\* Abbreviations--U., University of North Dakota; F. C., Fargo College; W., Red River Valley University; A. C., Agricultural College.

The timers were James Poiveil, of Wahpeton, and J. H. Campbell, of Minneapolis.

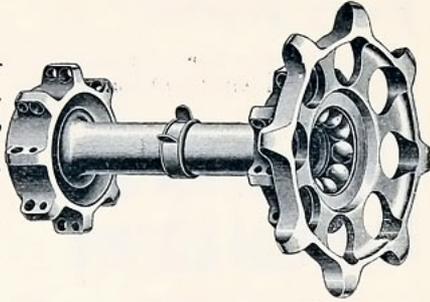
The judges were Keefe, of Moorhead, and Prof R. M. Black and Rev. L. V. Schermerhorn, of Wahpeton.

Prof. McArdle, of Fargo, was referee, and E. A. Aspinwall, of Wahpeton, starter.

About fifty students from Fargo went down Saturday morning on the G. N. train, to participate in or witness the contests.

Wahpeton extended a very cordial invitation for the visitors to remain over night and attend a banquet in the evening, but as arrangements had previously been made to return on the 5 o'clock train it was impossible to accept the invitation.

As the Spectrum is the only medium through which we can inform the public of, the rules and regulations of the "Girl's Domestic" we must announce that reception hours are from 7 to 9 on Friday evenings. As this rule has been seriously taken advantage of it becomes our painful duty to awaken, to a fuller employment, of the time while enjoying these weekly outings.



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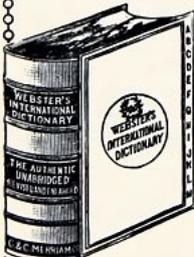
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