

The M. A. C. RECORD.

MICHIGAN STATE AGRICULTURAL COLLEGE.

VOL. 9.

LANSING, MICHIGAN, TUESDAY, JUNE 21, 1904.

No. 39

FOUNTAIN BY CLASS OF 1900.

To the State Board of Agriculture, members of the faculty, students, patrons, and friends of the Michigan Agricultural College, the Class of Nineteen Hundred herewith presents the limestone drinking fountain between Williams Hall and the Library Building, as a memorial of said class, with the earnest wish that the gift may serve to interpret the loyalty and esteem which the members of the class bear their Alma Mater.

Committee of Arrangements,
ELLIS W. RANNEY,
IRMA G. THOMPSON,
C. H. PARKER.

The fountain was officially accepted by the State Board at its meeting on June 22. It is a fitting and useful memorial and M. A. C. hereby expresses its gratitude to the class of 1900. May its members live long and be sources of usefulness in the world.

Y. M. C. A. SECRETARY.

Mr. Bert Wermuth, '02, has finished the first year as secretary of the Y. M. C. A., and leaves for Ann Arbor to study law. He has been a faithful worker, has taken an active interest in the every day life of the students, has assisted them in their work and has been one of them. His influence has always been for the best in life. The Y. M. C. A. work has been unified and strengthened; Bible study has flourished and many a young man has formed a higher ideal. Here is to Mr. Wermuth's success in the future.

Frank R. Hurst, Alma, '04, will be here Sept. 1 to take up the Y. M. C. A. work. He is an athlete and a student and is well known at M. A. C. He will spend the vacation at the Lakeside Summer Conference. During the past year he was president of the Y. M. C. A. at Alma.

HENRY W. GELLER.

It is not often that M. A. C. has the honor of graduating foreign students. This year Henry W. Geller was given the degree of bachelor of science, having successfully completed the regular agricultural course. Mr. Geller came here in 1900 from Focshani, Roumania. He soon learned the English language and worked with great persistency and determination. He represented his society in the oratorical contest and was interested in the general life of the College. Everybody respected him on account of his manly qualities and high ideals.

Mr. Geller expects to return to Roumania about the middle of September to take part in his last military maneuvers, which will take about three months. After this he intends to devote himself to agriculture in connection with the Crown Domain. He has applied

to the Bohemian parliament for an extension of his military furlough for another year in order to work for his master's degree. In case this is not granted he will visit the chief agricultural sections of the U. S. and go by way of San Francisco to inspect the Baron Hirsch lands and colonies in the Argentine Republic. From here he will leave for France and then go to Roumania.

Mr. Geller extends to the M. A. C. faculty, students and friends a hearty farewell and wishes all a prosperous future. He hopes that M. A. C. people visiting Europe will not fail to see Roumania, the country of Carmen Sylva, and become more and more acquainted with the prosperous Roumanian people, known in Roman times as "Felix Ducia."

His address while in the U. S. will be 206 Chamber of Commerce, Chicago, and his Roumanian address will be Focshani. M. A. C. wishes Mr. Geller abundant success and large opportunities for usefulness.

CAPS AND GOWNS.

Caps and gowns were introduced into the United States by a small college at Sewanee, Tenn, some fifty years ago. Since that time the craze has spread throughout the United States till now the custom has become well nigh universal. It was transplanted from Europe and is an attempt to ape European aristocracy. From present indications the high schools of the state will be the next to wear this symbol. Nobody knows what it means unless it is supposed to set men and women apart. The custom undoubtedly goes back to the idea that education means luxury, pomp, a grand march, and is opposed to work. Education is defined in America as the power to be useful, to be of service in the world, to do things.

So far the University of Michigan and the Benton Harbor college are the only Michigan institutions that have succumbed. The nearest M. A. C. comes to it is in the impressive ceremony of the Juniors, known as the "night shirt parade." The laws at the University have also adopted the latter variation.

When America ceases to imitate fads, caps and gowns will be made a thing of the past. Let us hope for the best.

'01.

Married, Arthur H. Hayes and Jeannie Adams Sherrard, at Homer, Michigan. THE RECORD wishes them success and happiness.

'88.

G. L. Teller, chemist of the Columbus Food Laboratory of Chicago, has been elected chemist of the Arkansas Experiment Station. Mr. Teller held this position before leaving for Chicago.

'93.

Mrs. P. B. Woodworth and her two boys are spending the summer at the home of Mrs. O. Clute in St. Louis.

Y. M. C. A. FINANCIAL REPORT.

The resources of the year were as follows:

Faculty Subscriptions....	\$562 50
Student ".....	230 25
Dues from Members.....	200 00
Advertising in Handbook, Directory, etc.,.....	75 66
All Other Sources.....	65 25
	<hr/>
	\$1133 66

RECEIPTS.

Faculty Subscriptions....	\$387 42
Student ".....	217 25
Dues.....	161 50
Advertisements.....	75 66
Other Sources.....	65 25
	<hr/>
	\$907 08

DISBURSEMENTS.

PURPOSE.	Amount Allowed.	Amount Used.	Amount Left.
Social Dept.....	\$25 00	\$18 84	\$6 16
Bible Study Dept.....	38 00	12 74	25 26
Membership Dept.....	10 00	10 00	0 00
Missionary Dept.....	10 00	6 25	3 75
Devotional Dept.....	50 00	42 84	7 16
Conventions.....	75 00	64 01	10 99
State Work.....	25 00	25 00	0 00
National Work.....	10 00	10 00	0 00
General Secretary.....	600 00	450 00	150 00
Janitor.....	16 10	16 10	0 00
Handbook.....	75 00	68 75	6 25
Furniture.....	60 00	45 50	14 50
Printing.....	19 41	19 41	0 00
Dailies and Magazines.....	12 00	12 00	0 00
Electric Lights.....	17 53	17 53	0 00
Miscellaneous.....	47 00	32 55	14 45
Totals.....	\$1070 04	\$832 39	\$237 65

BERT WERMUTH, Gen. Sec'y.

The Michigan postmasters held a very successful convention in Lansing last week. C. B. Collingwood, '85, was elected vice president and H. A. Hopkins, with '91, secretary-treasurer.

The work around the new power house and the tunnel is getting along fairly well with the exception of the foundation for the chimney. Difficulty was expected here but not quite so serious. The soil is quick sand and it has been found almost impossible to make satisfactory progress. The chimney will be circular in form, 125 feet in height and 6 feet in diameter, inside.

G. Masselink gave the commencement address at Fostoria last Friday evening. While going there, the afternoon was spent in company with L. F. Bird, '04, looking over the grounds and buildings of the school for the deaf and dumb at Flint. We were very pleasantly entertained by the instructor in printing and by Mr. Stewart, manager of the football team. The school is doing some excellent work along educational lines and especially in manual training. The grounds are neat and well kept up, the class rooms are well lighted and the samples of work done showed skill and artistic ability. The football team will play a practice game here early in October. The manager claimed that their team would be light this year.

ALUMNI.

'83.

Geo. S. Jenks is manager of the American Sheet and Tin Plate Co. of Pittsburg. He regrets that he is unable to be present at commencement on account of business.

'91.

Pres. K. L. Butterfield of the Rhode Island Agricultural College has a very interesting article on "Recent Progress in Rural Life," in the "Michigan Alumnus." Pres. Butterfield has made this subject a special study and is considered an authority on all rural sociological questions. He is working on a book along this line at present.

'95.

H. R. Parish designs hulls for steamboats. The Mongolia and Manchuria are both on the ocean at present. Just now he is working on the U. S. cruiser, Washington. He has been very successful in his work. The above boats are 600 x 65 x 51-3 in., carry 346 first, 68 second and 1,300 steerage passengers and require a crew of 216. Each boat has a displacement of 26,370 tons.

With '96.

John McPhee has been promoted to warrantee machinist on the New Orleans. He secured this position as a result of a competitive examination. Out of 208 applicants, five passed and Mr. McPhee stood second.

Married, on June 18, E. E. Gallup to Miss Blanche McEwen of Ann Arbor. Mr. Gallup has been taking a course in pedagogy and related subjects during the past year at the university. Congratulations.

'97.

H. A. Dibble is connected with the co-operative association grange store of Allegan. When he next visits M. A. C. he will bring with him Clarence Heck Dibble, who has some idea of entering within the next 20 years.

'01.

H. T. Thomas is in Lansing and is associated with R. E. Olds in the development of the peat industry.

Miss Celia A. Harrison, for one year dietician at the university hospital and later in charge of domestic science in Adrian, has just completed a successful year in Duluth. The *News-Tribune* makes very favorable comment on her work, which has been not only theoretical but also useful.

'02.

Lyman Carrier is at the College this week. He closed a successful year of work in Elyria, Ohio, last week. Next year he will be in Union Academy, Belleville, New York, where he has accepted the science position.

With '03.

Miss Theodora Wardwell has been re-elected domestic science teacher in the Detroit public schools.

THE M. A. C. RECORD.

PUBLISHED EVERY TUESDAY DURING THE
COLLEGE YEAR BY THE
MICHIGAN STATE AGRICULTURAL COLLEGE

EDITORS.

G. MASSELINK, MANAGING EDITOR.

ASSOCIATE EDITORS:

H. N. HORNBECK, '04a.

L. T. CLARK, '04a.

C. D. STERLING, '05m.

BESS K. PADDOCK, '05a.

G. F. TALLADAY, '05a.

R. C. POTTS, '06a.

GRACE BRAHAM, *sp. w.*

E. B. MCKENNA, '06m.

ANNA PICKETT, '04c.

Subscription, - - - 50 cents per year.

Remit by P. O. Money Order, Draft or Registered Letter. Do not send stamps.

Address all subscriptions and advertising matter to the College Secretary, Agricultural College, Mich. Address all contributions to the Managing Editor.

Business Office with Lawrence & Van Buren Printing Co., 122 Ottawa St. E., Lansing, Mich. Entered as second-class mail matter, Lansing, Mich.

This paper is occasionally sent to non subscribers. Such persons need have no hesitation about taking the paper from the post-office, for no charge will be made for it. The only way, however, to secure the paper regularly is to subscribe.

TUESDAY, JUNE 21, 1904.

GLÜCK AUF.

The Junior Annual is dedicated to Dr. Howard Edwards, for fourteen years professor of English Literature and modern languages at M. A. C. "Whatever it may contain of truth or merit, we frankly confess due to his inspiring influence; whatever else it may contain is none of his. * * * We recognize in Professor Edwards the spirit of the true teacher. * * * We have each individually felt that mental and moral stimulus which comes from personal contact with an earnest and well equipped man. We have felt that we could at any time and in any place draw on his full store of culture and knowledge. We therefore make this public acknowledgement of our indebtedness to him."

The alumni of M. A. C. who have had the good fortune to come under Dr. Edwards' influence for the past fourteen years heartily endorse the above sentiments. Education with Dr. Edwards means growth and development along all lines, but especially in the moral and spiritual realms. His influence has been large and we wish for him many more years of usefulness at M. A. C. You can say all you please about technical education, if moral development is lacking it is of small account. Dr. Edwards believes in the new education, and takes advanced ground in the development of the higher life which should be the ultimate end of all educational institutions.

The annual is of superior merit. The junior class is exceedingly strong and has done its work well. Congratulations!

There are many good things in the annual, but those which deserve special mention are articles by Pres. K. L. Butterfield, '91; A. C. Bird, '83; Rav S. Baker, '89, and Prof. G. A. Goodenough, '91. Any one of the above articles is worth the price of the entire volume. The last named has a very technical treatise which will be difficult for the "ag," but which is none the less valuable. Mr. Bird's characterization of Dr. Kedzie contains many fine touches and presents this sturdy pioneer from the standpoint of the student.

The "rubs" are good and fairly well scattered. If you are hit hard, thank God, it is a sign that you are still alive.

Some of the poetic contributions show real merit. We refer especially to the poems by Dr. Edwards, Prof. Barrows, and Mr. Yapple, though some of the minor poems are by no means to be sneered at.

Many of the sketches are excellent. Take it all in all, we believe it to be the best annual ever produced at M. A. C.

The book contains a total of 224 pages, is handsomely printed on extra heavy enameled paper, by the Lawrence & Van Buren Printing Co., and is bound in black leatherette, with gold embossed stamps on front cover. A fine addition to any library.

COMPARATIVE BOILER TRIALS.

The following summary of results was taken from a thesis prepared by W. S. Merick and S. E. Johnson, Engineering Seniors. The main purpose of the test, among other things, was to determine the saving or expense to the College incident to the new installation of marine boilers Nos. 10 and 11, equipped with Jones' under feed stokers, against the old tubular boilers, hand fired.

It is of interest to note some of the ways in which the saving is made in fuel consumption by the new boilers. The heat lost in the ash under the old boilers is 6.8 per cent of the total heat of the coal, determined by the ratio of the total heat units in the ash to the total heat units in the coal consumed in the long tests, while under the new boilers it is 0.3 per cent, or a difference of 6.5 per cent in favor of the new boilers because of the mechanical firing. Since the efficiency of the new boiler from the data is 75.4 per cent we have a gain of 75.4 per cent of 6.5 per cent or 4.9 per cent more heat from the coal turned into steam. The stokers consuming 6.2 per cent of the steam we have a balance of 1.3 per cent against the stokers. Thus assuming that no other gains in efficiency are made by the stokers and it is probable that all of the 1.3 per cent will be gained in the smoke consumed. It would appear that this was the only saving made by the stokers from the fact that the flue gas analyses are the same in both cases, showing no imperfect combustion and the same excess of air.

The difference in the price of the coals used is 19 per cent, and this coal is 92 per cent. (from the calorific power of the two coals) as effective for heating as the lump, so we gain here 17.5 per cent. in cost. Deduct from this the assumed balance of 1.3 per cent. against the stokers, and we have a saving of 16.2 per cent. made by the stokers and which can be assigned directly to them.

Then also there is the sanitary advantage of smoke consumption, the stoker firing showing no smoke at the chimney unless run at an overload, and then very little, while a dense smoke occurs at each firing with hand fired boilers and lasts for some time. Where the same coal is used in either case the smoke consumption would seem to be practically the only gain with the stokers. See photographs for comparison. The boilers themselves also show

a considerable saving in fuel, for we have a total gain of 27 per cent. in fuel cost (from the difference in cost per 1000 pounds of water evaporated in each case) of which the stoker gains 16.2 per cent. so that the gain attributable to the boilers is 10.8 per cent. The hand firing on these tests was somewhat better than the boilers ordinarily get so that gains in favor of the new boilers would probably be seen in the long run than these tests show.

Another feature of interest is the total saving to the College which would result in an average year, if we assume the same results from the boilers at the Women's Building and Bath House as were obtained from No.'s 5 and 6. The total coal consumed is about 4000 tons, yearly, costing \$12,600 at the prices paid during the winter of 1903-4. A 27 per cent. gain means \$3402 each year.—S. E. JOHNSON and W. S. MERICK.

Prof. Taft arrived from St. Louis on Monday morning. He reports everything as very promising and satisfactory at the Exposition. The attendance is constantly increasing, each week showing an advance of about 60,000 over the previous week. The exhibits are all in place and the weather has been very pleasant. Frequent showers have moderated the temperature and have kept the lawns in fine shape. Mr. Dean is doing well. The agricultural exhibits seem to be drawing the most attention. Prof. Troop, '78, is there as a member of the jury on horticultural awards. Prof. U. P. Hedrick, '93, will judge fruit in August. Prof. C. P. Close, '95, will act in the same capacity later on. H. E. Van Norman, '97, A. Knechtel, '00, and Howard Severance, '04, are also in St. Louis.

S. F. Edwards, for the past five years instructor in bacteriology at M. A. C., leaves to enter Ann Arbor next fall. He will take medicine as a foundation for further work in his chosen science, bacteriology. During his stay at M. A. C. he has been faithful and loyal to the institution, tactful in the handling of students, patient and persistent in the work. Dr. Marshall regrets the loss of Mr. Edwards' services, but congratulates him on his decision to further perfect himself in bacteriology. Mr. Edwards has made many suggestions in regard to the application of the science, and has in this way contributed much to the department. He had entire charge of the work during Dr. Marshall's year of study in Europe. He has written a popu-

lar bulletin on soil bacteriology which will be published in the near future. He has made a host of friends at M. A. C. and all unite in wishing him success in the near future.

On June 22, it was 45 years since Dr. Beal was graduated from the state university. As secretary of the class, he is making strenuous efforts to secure a reunion. Out of 39 who graduated, 23 are living today so far as known. Judge Wilkinson, Judge Fraser and Dr. McGraw, of Detroit, Judge Grant, of Lansing, Rev. W. J. Swift, of North Lansing and Prof. Daniel Satterthwaite, of Adrian, are the Michigan representatives of the class.

Gottlieb Reutter, formerly a popular meat dealer at M. A. C., has again purchased his old shop on Washington Ave., south. He has done all the slaughtering for the college in connection with the meat tests, buys nearly all of the fat stock and has done a large club and private business for several years. The college community will be pleased to hear of his return to business and we are certain that he will get his share of the trade next fall.

The grange lecture bulletin for June is a pamphlet by Dr. Beal on grasses. He dwells on the fact that the study of grasses is usually neglected, gives a description of a typical grass and also of a blade of grass.

"In selecting forage plants the following rank high in many places where they have been tried: Red clover, mammoth clover, alsike clover, orchard grass, tall oat grass, timothy, red top, tall meadow fescue.

"For low lands, red top, fowl meadow grass and alsike clover are unusually good, with a little June grass.

"To investigate independently for the purpose of finding out what new or unfamiliar grasses to grow, try a small patch of each by itself, cut, cure, weigh and feed; consider all points of excellence and defect, and if found worthy, make it one of the six to ten or more species to use in a mixture.

"Not infrequently the remark is made that some grass is hard on the land, therefore some other kind should be grown. As a rule it is safe to grow the grasses which are believed to be hardest on the land; they gather in materials which are most beneficial to animals, which can only appropriate a very small proportion of the good things contained, the rest going into the manure and back onto the field."

The Latest and Best Creation
in ConfectionsWilson's
Bitter Sweets

TRY THEM AT

WILSON'S SUGAR BOWL,

106 Washington Avenue South.

COMMENCEMENT.

The exercises began with the baccalaureate sermon on Sunday, June 19, which was well attended, and ended with the conferring of degrees by Pres. Snyder on Wednesday, June 22. The different events were pleasant and everything passed off successfully. The society reunions were enjoyed by a large number of both active and honorary members. The reception given by President and Mrs. Snyder on Tuesday evening was attended by the seniors and their friends, members of the faculty and their wives, and by numerous Lansing citizens. The rooms were tastefully decorated, the refreshments consisted of ice cream, cake, and punch, the music was good and all got acquainted and had an enjoyable time.

Commencement day opened very auspiciously, especially from the standpoint of weather. The following program was rendered:

Music.

Invocation, Rev. R. Clarence Dodds, D.D.

Vocal Solo, The Skylark, P. A. Schneckler—Miss Maud Staley.

Address, The Making of Our Business, Arthur B. Rogers, (*Agricultural Course*).

Address, The Utilization of Waste, Sidney E. Johnson, (*Mechanical Course*).

Address, The Evolution of Womanhood, Marguerite Barrows, (*Women's Course*).

Piano Solo, Valse Arabesque, Th. Lack, Mr. Neal Perry.

Address, President H. C. White, (Georgia Agricultural and Mechanical College).

Vocal Solo, Two Irish Songs, H. Loehr, Miss Maud Staley.

Conferring of degrees.

The musical selections were well received and deservedly so. The addresses by the members of the graduating class showed careful preparation and were given in a very pleasing way. The orator of the day was Dr. H. C. White of Georgia. His address was scholarly, well delivered, and was accorded undivided attention from start to finish. It has been pronounced by those competent to judge as the best commencement address ever given at M. A. C. It is with pleasure that the RECORD presents it to its readers. The educational future of the South is in safe hands as long as such men as Dr. White take a leading part.

The degree of Bachelor of Science was conferred upon the following: Adelman, Arthur, m, Chesaning. Alger, Archie R., m, Newaygo. Armstrong, Elvine L., w, Okeanos.

Balbach, Edward, m, Grand Rapids.

Baldwin, Robert J., a, Brown City.

Barrows, Marguerite, w, Agricultural College.

Bird, Lewis F., a, Millington.

Brody, Clark L., a, Corey.

Brunger, Clifford I., a, Grand Ledge.

Button, Don B., a, Farmington.

Carleton, William F., m, Hillsdale.

Carter, Albertus R., m, Newaygo.

Clark, Lawrence T., a, Howell.

*Cordley, Bessie E., w, Pickney.

Dodge, Arthur C., m, Lansing.

Flint, Paul N., a, Cement City.

Geller, Henry W., a, Focshani, Roumania.

Gurney, Dayton A., m, Caro.

Hahn, Harvey D., a, Brookfield.

Hornbeck, H. Newton, a, Croton.

Howard, George V., m, Union City.

Johns, Elizabeth, w, Wixom.

Johnson, Sidney E., m, Lansing.

Knickerbocker, Jesse P., m, Clio.

Lee, Jewel, w, Laingsburg.

Loew, Fred A., a, Agricultural College.

Maltby, Robert D., a, Brighton.

Martin, George E., m, Hartford.

McMullen, George S., a, Grand Ledge.

McWethy, Leslie B., a, Traverse City.

Merick, Wendel S., m, Flint.

Millar, Wilson F., m, Ray Center.

Morbeck, George C., a, Ingalls.

Palmer, Jessie K., w, Kalkaska.

Pierce, Paul B., m, Bear Lake.

Prost, Jacob H., a, Lansing.

Robbins, Gerald G., m, Gladwin.

Rogers, Arthur B., a, Caro.

Rosenberry, Alvin A., a, Oak Park, Illinois.

Ross, Henry T., a, Milford.

Sanford, F. Hobart, a, Albion.

Schneider, Henry J., m, Lansing.

Schreiber, Herman, a, Washington, D. C.

Seelye, Elric, A., a, Davison.

Severance, Howard S., a, South Lyon.

Slaght, Gertrude, w, Grand Blanc.

Slaght, Katherine, w, Grand Blanc.

Taber, Melbert, W., m, Oakhill.

Taft, Grace H., w, Agricultural College.

Taylor, Charles B., a, Oxford.

Thompson, William O., a, Indianapolis, Indiana.

Walker, Harry G., Grand Blanc.

White, George W., m, Solon.

Woodbury, Charles G., a, Lansing.

Wright, William J., a, Webberville.

Hahn, Harvey D., a, Brookfield.

Hornbeck, H. Newton, a, Croton.

Howard, George V., m, Union City.

Johns, Elizabeth, w, Wixom.

Johnson, Sidney E., m, Lansing.

Knickerbocker, Jesse P., m, Clio.

Lee, Jewel, w, Laingsburg.

Loew, Fred A., a, Agricultural College.

Maltby, Robert D., a, Brighton.

Martin, George E., m, Hartford.

McMullen, George S., a, Grand Ledge.

McWethy, Leslie B., a, Traverse City.

Merick, Wendel S., m, Flint.

Millar, Wilson F., m, Ray Center.

Morbeck, George C., a, Ingalls.

Palmer, Jessie K., w, Kalkaska.

Pierce, Paul B., m, Bear Lake.

Prost, Jacob H., a, Lansing.

Robbins, Gerald G., m, Gladwin.

Rogers, Arthur B., a, Caro.

Rosenberry, Alvin A., a, Oak Park, Illinois.

Ross, Henry T., a, Milford.

Sanford, F. Hobart, a, Albion.

Schneider, Henry J., m, Lansing.

Schreiber, Herman, a, Washington, D. C.

Seelye, Elric, A., a, Davison.

Severance, Howard S., a, South Lyon.

Slaght, Gertrude, w, Grand Blanc.

Slaght, Katherine, w, Grand Blanc.

Taber, Melbert, W., m, Oakhill.

Taft, Grace H., w, Agricultural College.

Taylor, Charles B., a, Oxford.

Thompson, William O., a, Indianapolis, Indiana.

Walker, Harry G., Grand Blanc.

White, George W., m, Solon.

Woodbury, Charles G., a, Lansing.

Wright, William J., a, Webberville.

Of these, 27 graduated from the agricultural course, 19 from the mechanical and 9 from the women's.

COMMENCEMENT ADDRESS

BY DR. H. C. WHITE, OF THE AGRICULTURAL AND MECHANICAL COLLEGE OF GEORGIA.

Through the kind courtesy and kind partiality of your distinguished President and Faculty I am honored with the privilege to speak to you today the final words which shall proclaim to the world the augmentation of its ranks of efficient workers by one more file of young Americans, qualified for their labors and stamped with the approval of a custodian of American intellectual honor, an American college. I come to you for the purpose from a far-distant state of our great republic and from a far-distant sister institution of learning. From both—from Georgia, by express personal direction of her chief executive, and from Georgia's University by formal resolution of its faculty—I bring a message of fraternal admiration and esteem; of felicitation upon the happy estate of your great Commonwealth, of cordial wishes for your institution's prosperity and peace.

In coming hither I have been profoundly impressed with the consciousness that I have traversed a length of miles almost as great as that which separates the most widely parted of European capitals, have entered within almost as many autonomous political establishments as

there are states of Europe; have witnessed such variety of productive industry, such number of great cities and such multitudes of busy men as may scarcely be matched by equal time of travel anywhere on earth; but equally impressed that, in my coming, no frontier posts have barred or interrupted my continuous journey, no passport been required to sanction my entering in and my coming out, no lexicon been needed to interpret a varying speech, no armed guard or statute of the law been met to dispute the freedom of my transit.

Differences I have marked, it is true; of physical features of the land, of product of the soil, of climatic character, of minor custom. Myriad monuments I have seen along the way, each emblazoning a record of heroic deed and patriotic sacrifice, and yet recounting differing stories of contrary impulses which led to exhibition of a common bravery in a courageous conflict among those whom they commemorate. The newspapers I have read along my route have told—with large degree of exaggeration, no doubt, and affrighting vehemence of expression which everybody good-naturedly understands and by which nobody is seriously aggrieved—of differing sentiments upon a variety of present public questions among the peoples through which I have passed.

And yet, despite these differences—material or sentimental, past or present, grave or light—which serve but to accentuate essential lack of difference, everywhere, from one end to the other of my journey, I have found indubitable proof that American labor is straining its united energies to make this ample continent a land of plenty; that American statesmen are consecrating their united wisdom to the endeavor to make this great republic a land of law and order; that the American people are standing united and unshaken in their determination to make their common country a land of liberty enlightenment and peace.

And since my coming, fresh from similar scenes to this in a similar institution more than a thousand miles away, stopping en route as honored guest of others, I have come to know, which, indeed, I previously believed, that the American college man, despite his minor differences, is generically and specifically the same, wherever found, whether born and bred beneath the soft, languorous clouds which hang above the Gulf, or under the clear, azure skies which catch their beauty and their witchery from the reflected splendors of the Lakes. The same in cheerful courage, in unquestioning faith, in buoyant hope; believing in his country, believing in himself; ready to do his part in the great business of the world and abundantly able to do a man's full share by reason of his unique and great possession of heredity, environment and opportunity. Most admirable, and cause of great gratification is this similarity in characteristics of the American college youth, in whatever portion of the country trained. Similarity in high ideal, in confident purpose, in self-trust, in desire and determination to achieve for himself and for his people those things which constitute the genuineness of a nation's wealth, a nation's strength, a nation's peace.

Differences, also, there are indeed in the specific character and purpose

of the several American colleges wherein the American College men are trained. In fulfillment of their function some use mainly the agency of letters; some make chief employment of the potent engine of abstract science; some find appropriate instrument in the processes of technical arts; and some, like yours and mine, youngest, but rather lusty and vigorous members of the great family of American colleges, see fitting pabulum for intellectual growth in the great basic industry of the American people. But whatever the process and whatever the immediate method, the ultimate and larger purpose is the same—to train the nation's youth, in unity of purpose, if in diversity of effort to do the nation's work.

It would be entirely proper; it might be profitable; it is quite usual on such occasions, to make some one of the differences to which I have referred the theme of the discourse of this moment. A tempting field is offered me especially in the peculiar characteristics of our land-grant institutions, which differentiate them, in a measure, from other American colleges. I doubt if even those who will be graduated today as chief beneficiaries of the admirable instruction of this great institution, which stands foremost among those of its class, fully appreciate the uniqueness of their position among the intellectual forces of the world. The development and growth in genuine utility of the agricultural colleges of America, both in their departments of instruction—the colleges—and their departments of research—the experiment stations—as factors in education, as factors in productive industry, has been simply amazing; no lesser word is adequate to the description.

The history, in detail, of the great endeavors of the 1st quarter century by which their present great usefulness and sound merit were achieved is most interesting and well worthy the dedication of an hour's thought. The results inspire sentiments of abounding pride and heartiest admiration. The history is worthy perpetual remembrance as a record of the superior wisdom, indomitable energy, patriotic service and philanthropic self-sacrifice of the men who made it. Some part of the utility of their service is known of all men. To the intelligent engagement of the men and women educated in these schools in the productive industries of the nation a large part of the present material prosperity of our country is unquestionably due. The records will attest it. Those (both at home and abroad) who make a business of enquiring into causes in such matters, affirm it. And that alert, keen-sighted, just-minded and discriminating exalted personage, the present President of the United States, has himself declared it in public speech. (Gentlemen, in the event you should consider these remarks as in any way eulogistic of our distinguished Chief Magistrate, and the newspapers should get hold of it, perhaps I ought to say, as a measure of self-protection when I go home that my justification to myself, if any is needed, is found in the fact that, although the political party which produced him was born in Michigan, the mother who produced him was born in Georgia—so we bear an equal share, perhaps, in the praise or blame, whichever it may be.)

But this is not the whole, or even the better part of the services of

*Deceased, June 8, '04.

these institutions. Within the last few years, I limit it to ten, at most, the men sent forth from these colleges have demonstrated, happily, in the centennial season of the immortal sage, the fulfillment of the prophecy of America's greatest philosopher, Emerson, that to the making of the American Scholar, nature would be found no less contributory than books. A pedagogic system, evolved in patience and wisdom in these institutions, wherein the arts, the processes, the phenomena of a great industrial calling which has to do fundamentally with nature, are utilized as material for intellectual training and intellectual growth, is their unique and magnificent contribution to the development of American brain-power, to the production of the American Scholar.

The young gentlemen who will be graduated today are among the first fruits of a unique and successful American endeavor to link American scholarship to American industry. Therefore I have thought it not inappropriate, at this happy season which marks the finish of one more formal period of the labors of all our colleges, to address myself to the consideration of the larger purpose which animates them all, and in which our peculiar group has a share.

Even to one accustomed to regular recurrence of such events, the graduation of a scholar from his school is an occasion of profoundest interest and gives birth to sentiments both glad and sad. Glad, because one more young warrior has been added to the ranks of those who battle for Truth and Learning; sad, because the warrior is as yet untried, and apprehension subdues the enthusiasm of his setting forth.

At such time it is usual, as it is proper, that some veteran from the ranks should be called to speak words of counsel, encouragement and admonition to his younger brothers. Collegiate education has for its primary purpose the making of men—and not alone for the sake of the individual man, but for the sake, also, of humanity at large. One of its fundamental functions is the training of a class—necessarily a relatively small and select class—of accurate observers, correct thinkers, clear reasoners and conscientious workers, to whose custody is to be committed the great body of the world's Learning; the Science of the time; the organized knowledge of the human race; the rational deductions by human intelligence from ages of observation and experience.

But for such a class, constantly recruited and perpetuated, science would be impossible, learning unknown, and wisdom and understanding would vanish from off the face of the earth. And, lacking science and learning, wisdom and understanding, our industries would perish and man sink to the level of brutes.

The value, nay, the absolute necessity to humanity of such a class is attested by the large share of the material accumulations of human labor, both communal and individual, which, not created by them, has yet been set apart and devoted to their culture and perpetuation. The end justifies the means. Racial necessity and fundamental equity demand and justify in every age this peculiar dedication of some part of the racial wealth. It is really an act of racial selfishness, not an unselfish largess to charity. In the individual it is rightly called philanthropy; in the community it comes

nigh to being the highest form of wisdom. Each succeeding age has a right to demand of that preceding, this provision for its welfare.

And, on the other hand, of those who, happily by qualification and merit, are admitted to this select class of the custodians of learning, humanity has a right to demand a recognition of the responsibility of the trust commensurate with the sacrifices through which it was bestowed. The countless rich and hallowed shrines of faith, which point their innumerable spires to heaven; the massive temples of the law; great halls of legislation; ancient academic groves wherein are stored such garnered wealth as may not be measured in the fleeting standards of changing times; great training schools of special science; for sustenance of which the labor of the race as freely given were not erected by and for the exclusive benefit of the priest within the sanctuary, the judge upon the bench, the pleader at the bar, the teacher upon the rostrum, the investigator within the laboratory. No. They are the willing contributions from mankind at large for the sustenance of faith, the preservation of justice, the maintenance of equity, the increase of learning, the prosecution of the search for truth and the perpetual holding fast of so much thereof as may be found.

It is of the essence of true and reciprocal equity that the scholar should of right demand of the world provision for his scholastic training, that the world should of right demand of the scholar that he shall preserve pure and undefiled the learning he may acquire, employ it for the benefit of humanity and transmit it without diminution to succeeding generations. More than that. "The thoughts of men are widened with the process of the suns." Each age must add to the store of science, the organized knowledge, of that which went before. For these additions, of truly valuable and permanent character, the scholars must in the main be held responsible. Every man, and woman too, who has received, even to a limited degree, collegiate training, shares, in a measure and proportionately, these responsibilities of the selectmen of the race. The manner and the extent of meeting the responsibility may vary, it is true. Other preference, indisposition, inaptitude, necessity and oftentimes a higher duty throw many who, otherwise, might and would be glad to devote themselves exclusively to the service of Science (in its highest sense) into the ranks of the material workers and wealth accumulators of the race.

But these may, should, and often do render service as conservators of learning. Among them are those most liberal, wise and earnest in advocacy of the provision of agencies by which science may be preserved. It is curiously true that oftentimes and in many minds, the value of agencies of higher learning is estimated exclusively by the number and character of these, their contributions to the toiling millions who accumulate the material wealth of the community. Undoubtedly these are potent factors in material growth and able leaders in industrial enterprise; and that their influence upon society is enormous for good is beyond dispute; and, if this were all the product, even upon this might be based a conclusive argument for

the maintenance of learning at public charge.

But this is not the whole of the service of science to the state. Of far greater value than accumulated material wealth, great or small, is the rational understanding of the proper uses to which wealth may be put in civilizing, refining and uplifting the human race; in furthering its happiness, peace and joy; in quickening to full enjoyment of their exquisite pleasures the intellectual and spiritual lives of men, possession of which alone gives to man dominion over the other living things of earth and links him alone of all created things to the "Divinity which orders Nature." This is the precious heritage of the ages, compared with which, in value, the accumulated material riches of a modern world are insignificant; this the priceless acquisition of the human race, the sole persistent, indestructible product of countless centuries of mighty labor. To preserve this undiminished for the perpetual service of humanity; to transmit it unimpaired to those who are yet to come is worthy and calls for the dedication of some part of the time, the purpose and the labor of every college man who is conscious of his rightful obligations and honest in desire to meet them.

True it is that many college men enter upon their life-work after graduation moved by other considerations than the unselfish desire to be of the world's custodians of learning. It is well that it is so. As human nature is, the progress of learning would be, perhaps, impossible if absolute unselfishness were a fundamental requisite for its prosecution. But whatever motive has led a man to enter upon an avocation, which is in any degree an intellectual, or a learned pursuit—and surely, in this day, we may claim so much for agriculture—; whatever the purpose for which he follows it; if he be an honest man he must at least acknowledge the obligation that is upon him to use its learning worthily; to preserve it in all its purity, and, if he cannot add to its store of truth, yet must abstain from polluting it with error. Those who do so much and thus maintain, per force, the established dignity of learning are at least not unworthy an humble place in the ranks of its defenders.

Those who do more and give a portion of their lives and labors unselfishly to the search for truth, its preservation and its propagation, are the great ones of the earth, the leaders among men, the heroes of the race. To such honorable place, all, however humble, may at least aspire, and if they be worthy men, "within whose breasts Divinity hath kindled noble fires of true ambition," for it they will strive. Greatest among their fellows are those who, not content to keep their talent safe and clean within the napkin in which it was received, put out their learning upon an usury to nature, which shall increase it many fold. To add, however little it may be to human knowledge; to increase the sum of learning; to go one step or more beyond the beaten path in quest of truth, this is the grandest intellectual achievement possible to human kind. And yet it is a feat possible, to some in great degree, to some in less, to all to whom even the smallest of the talents have been intrusted. Not only possible, but of the good and faithful servant required.

Happily for you, young gentle-

men, just entering upon your trust, encouragement fast follows admonition. It is a not uncommon but erroneous belief that the progress of human learning has been a series of gigantic strides made by giants without the aid and often despite the labors of the pigmies of average men. Giants there have been among men, and oftentimes one such has been worth a generation of little men, but much more frequently the seeming giant has been but one among his fellow pigmies fortunate in that upon the accretion of their common labor he has laid the touch which gave it final form and made disclosure of its full design. Cheops, surnamed the Great, who laid the capstone on Gizeh's mighty pile was not alone the builder of the pyramid, and, though history associates with it no other name but his, tradition tells marvellous stories of the Herculean labors of the men who hewed and raised the massive blocks which make the giant mass.

And so in the domain of science, the apprehension of those great, immutable laws which have been so fittingly described to be the "thoughts of God," is not discovery in the sense that some unaided intellect has of its power wrung secrets from unwilling Nature and by its searching found out God. Science and the world have suffered grievous hurt in the times agone by such false conceptions of the way to compass truth. Rather the moulding of science, the building up of the great firm body of established eternal truth is by the slow addition to the growing mass of small but precious grains, fit and worthy to form a part thereof; sought for amid what oftentimes seems universal dross; selected, tested, purified, polished and fitted to their proper place, not by skill of individual genius, but by the plodding labor of a host of honest, industrious men. In this labor all may join, especially men of learning, trained to the quest, acquainted with the tests and skilled in the arts which establish the genuineness and purity of the material which may be used.

Some may seek; and all who seek in honesty and diligence will find, some greater grains and others less. Some may dress and purify and polish; and some, the master-workmen, may fit the accepted grains to proper place to fashion forth the symmetric body of perfected truth. But all contribute to the great result and each is worthy honor for the part he bears. Fame and the honorable recognition of his fellow-workers are not the desert and reward of the master-workmen alone, but may be won by meritorious endeavor in any field. In the great pursuit which will probably be followed by many of those to whom I speak today ample opportunity is afforded for exercise of this service. In the great art of agriculture all the sciences find application. He who is so trained in them as to be worthy graduation by his college is no less a scholar than one trained through books and letters for entry into the usually designated "learned professions." His possession of true learning is no smaller; his obligation as a scholar is no less. In many ways he may contribute to the fashioning of the great body of the world's known truth. Indeed, it is doubtful if, for the time, an equal opportunity for great endeavor is offered by any other profession or pursuit. For he who tills the soil to garner crops of blade or grain, or makes provision

for the increase of the cattle upon our hills, has to do with living things; and the subtle processes of that great thing which we call life are still shrouded in a great cloud of mystery, only to be lifted by the combined, persistent efforts of many workers. The lamp of genius may illumine but not dispel it; its essence is of the unknown, and only knowledge will resolve it. And surely no more inspiring quest in search of knowledge is offered any scholar. For truly has our own great poet sung:

"Flower in the crannied wall,
I pluck you out of the crannies;
Hold you here, root and all, in my hand;
Little flower—but if I could understand
What you are, root and all, and all in all,
I should know what God and man is."

Herein lies ready to the hand of every man who follows with intelligence this great pursuit an opportunity to serve Science, in its highest sense, to serve Humanity, to gain renown. The method of the service is not unfamiliar to the man who is college-bred. To observe accurately; to observe persistently; to experiment intelligently and continuously; to record faithfully, and for the purpose there is now provided for his use a number of admirable journals and other appropriate publications; to keep in sympathetic touch with all his fellow-workers, to meet with them in mutual council and to such meetings to bring freely and report truly, without pride, prejudice or bias of opinion, the fruits of his observation and experience. This done and faithfully done and the obscurest farmer on the country-side may rival the most brilliant luminary of any learned profession in his merit to the applause and gratitude of the learned world.

Mr. President, I risk advisedly and willingly, the imputation of academic dreaming in the selection of this address. If our peculiar colleges are to secure and maintain a position in the eyes of the world of equal dignity, acceptability and genuine utility with other institutions, it must be demonstrated that the men we train are designed to be not only bread-winners but brain-users; and if our graduates are to take rank among their fellows as exemplars and leaders in the great onward march of the American people towards happiness, contentment and renown, they must be recognized not only as directors of our industries but as contributors to the highest intellectual achievements of the nation. That we are worthy, that we are fit, I do not for a moment doubt. With their peculiar training our graduates need little spur to an expectation to be among the foremost wealth producers of the people. I have thought it not a waste of this occasion to suggest wherein their probable calling furnishes peculiar inspiration to the intellectual life as well.

And, sir, among all the children of men none enjoy a larger measure of fitness for intellectual achievement and its application to the use of humanity than these young Americans who are going forth from our college halls today. This particular fitness is secured to them in part as a racial heritage and in part because of a certain wise public policy which is distinctively American. If we search deep into the causes of the progress of human kind we find abundant justification for our American racial pride. Stripped of all

accessories and products from it sprung, the one unique, fundamental possession of progressive humanity today, that which has underlain and from which have sprung its great achievements in all lines of human endeavor is an intellectual habit, which we sometimes call "the inductive method of thought" and sometimes, latterly, the "scientific method." It is a process of observation, generalization, induction, deduction. By it science arrives at natural law and has come to an understanding and interpretation of Nature. By it Letters arrives at Spiritual Law and essays, in literature, an interpretation of man. Its application marks the measure of what we call the progress of the world. The habit and its uses are quite familiar to us; and now commonplace indeed, simple and quite general.

And yet, the intellectual power and the intellectual acumen to devise and acquire this intellectual habit have been restricted in the past and are restricted in the present to one only of the races of men—the Aryan—and their lineal descendants. The Semitic people, who drew very near to God and conceived sublime ideals of righteousness, did not possess it; the Assyrian, for all his rigid discipline of his physical powers did not possess it; the Persians and the Arabs, for all the keenness of their intellectual powers; the Egyptian, for all his accuracy of observation of physical and spiritual phenomena; the Hindoo, for all his grandeur of ethical statement, did not possess it, and to the body of true science as interpreter of nature, and of true letters (except, perhaps, the sacred Hebrew books, and despite modern attempts to revivify oriental cults) as interpreter of man, none of them have contributed aught of real and persistent worth. "Lo, all their pomp of yesterday, is one with Nineveh and Tyre."

To the Greeks alone, the first flowering branch of the Aryan race, was the possession given among the peoples of antiquity, and it is which made possible and imperishable Grecian Art, Grecian Letters and Grecian Science, which constitute the preeminent glory of the Greeks among human kind. Rome, even when she sat upon her seven hills and ruled the world, did not possess it, for the Etruscan dominated Roman blood and the Etruscan came to Italy from Northern Africa, and was Semitic in affinity, and the Roman, for all his preeminent genius for organization and government, did not possess the peculiar intellectual acumen needful to this habit and for interpretation of man and nature. Such science as was possessed by the Romans was an inheritance from the Greeks and no Roman or son of Roman has ever formulated a great generalization of science. Such literature as flourished among the Latin peoples was strictly Grecian in character and was the product exclusively of Grecian tutelage, and no purely Latin poet, for all the sweet singers there were among them, has ever added a new tone or a larger compass to the essential harmony of that "choir invisible, whose music is the gladness of the world."

And the Roman Empire has crumbled into dust leaving as its sole intellectual legacy to the world, admirable conceptions of government and jurisprudence, which, we remark in passing, the modern children of its blood seem incompetent

to apply. And only the lineal descendants of this same great Aryan race possess this habit and its consequent power today. Of existing nations the Teutonic peoples are the intellectual descendants of the Greeks, as they are perhaps, also, their nearest racial kindred; to these mainly is committed the present-day possession of the habit and the consequent power of interpretation. It is this which differentiates them, not alone from savage tribes and the unhappy nations coming to be called "decadent," from the swarming hordes of the mystic Orient and the dull lethargic masses of the unimaginative Slav. And it may well be this, perhaps, which predestines them to the physical as well as the intellectual domination of the world. It cannot be accident; it is scarce coincidence; that practically all the great immortals who through intellectual generalizations have interpreted nature; who through spiritual generalizations have interpreted man—the philosophers and the poets—Plato, Aristotle, Newton, Joule and Darwin in science; Homer, Dante (who was not of Roman blood), Shakespeare, Goethe, in letters, are of this same lineage and blood.

Of this great race the American people is no small, no alien, no unworthy part. Foremost in energy; foremost in the sum of its material possessions; foremost in recognition of the true value of such possessions; the freest of living folk to guide its energies as it will, legitimate possessors of a unique racial heritage they shall surely make good the prophecy of their own Emerson "When the sluggish intellect of this continent will look from under its iron lids and fill the postponed expectation of the world with something better than the mere exertions of mechanical skill." Gentlemen this intellectual basis is the real and substantial foundation for our pride in what we sometimes call our Anglo-Saxon purity of blood. It is this which is the secret of a universal and determined attitude (which is frequently misconceived) of my own people of the South in a fearful problem of sociology which confronts them. If, indeed, as a sage philosopher long ago declared, "the essential course of history is the evolution of ethical man," it is this which may give to some of our recent political ventures a sound ethical basis, and it may be no far cry from Plato to the Philippines or from Shakespeare to Panama.

The American people have made wise provision for the full development and abundant fruition of this racial power. When England—one of the foremost of our modern states—finds, latterly, her supremacy among the nations threatened, she makes diligent and interested inquiry among her rivals to fathom the causes of her relative decline. A commission of her distinguished statesmen, men of affairs and educators has recently made a second visit to our shores, seeking the causes of our great prosperity in recent years. Their conclusions have just been given publicity and they find that in the last quarter-century, while England has taxed her energies in the development of the sea-power of her empire, and the nations of Europe given over their best endeavors to increase in their militant strength, America has used bountifully of her great resources in the development of the brain-power of her people, and the "American Peril," which threatens the trade

and industries of the older countries finds ultimate genesis in our American system of public education at public charge—in common school, technical school, college and university—and in the self-reliant character of the American citizen, fostered, as the commission believe, mainly by the universal respect in which public education at local public charge is held.

Truly, the Aryan-descended, English-speaking, self-reliant American college man has cause to regard his Alma Mater with personal affection, manly admiration and patriotic pride. Gratefully, gentlemen, the stranger within your gates, moved to admiration for the many and mighty energies of your great Commonwealth and for the high ideals and wise activities of this institution, recognizes the kinship in purpose, in endeavor, in destiny, from Michigan to Georgia of the American citizen and the American college man.

THE CHRISTIAN CONCEPTION OF GREATNESS.

BACCALAUREATE SERMON BY
PRES. FERGUSON.

Luke 22: 27.

It is a new conception of greatness which Jesus has introduced, "He that is greatest among you let him be as the younger and he that is chief as he that doth serve." This is no isolated statement. The same sentiment is variously expressed and the same expressions are used on various occasions. The only preeminence to be sought is that of service; let the only contention be who shall serve the most.

Here is something within reach of all. Here is a spur to the ambition of the man or woman of least talents or possessions. You or I may be great in service—great with the greatness of Christ. This is the greatness that will last, when thrones and crowns and monuments of marble or bronze and the emblazonry of history and poetry shall have passed away. It makes an impression on a soul that never dies which in turn impressed other souls that never die. Marble will crumble, bronze will tarnish, other great names loom up to secure the glories of the past, but the soul of man is immortal and what is written there is carried forward into the eternities where all earthly glories are forgotten.

This new conception of greatness is advancing in the world. Wherever the gospel goes it goes with it. And although there is much that seems like the dominance of the old worldly spirit even in Christendom and even in the church of Christ, I believe there are signs that the world is yielding to the power of Christ's truth and is coming to consider all things in the light of service to humanity.

Strength has its devotees. We all rise up before the man of giant strength. It sometimes seems as if the whole community were following the man who has an arm like a catapult, or the shoulder of a Hercules. But it is not so. We pay the highest homage after all to the man and not to the brute. We distinguish in the final judgment between Samson, the deliverer, and the mere prize fighter. When the Presbyterian Alliance met in Toronto a dozen years ago there was an excursion to Niagara and many of

the visitors and their friends took part in it. A woman of one of the companies fell through one of the bridges across the Niagara river and caught upon one of the girders and would soon have fallen farther into the rapid stream below. Dr. Ramsay, a Scotch delegate, quickly sprang down and reached her in time to save her from falling further. It was a skillful, heroic act that called forth the applause of all and was recognized by a public introduction to the assembly next day. Perhaps in the athletics of the university he developed that strong arm and that promptness of action. But it was the brave heart and the spirit of service that added nobleness to strength. Men shudder at an act of foolhardiness and glory in an act of heroism like this.

Wealth in the eyes of many is greatness. It certainly means power and influence and great opportunity. And yet apart from high qualities of character, do men highly esteem it in others? Do we look upon a Croesus or a Rothschild with more of admiration than upon the impersonal Bank of England? But when Baron Hirsch, with love for the impoverished, oppressed Jews of Russia, spends millions for their rescue we praise him with one acclaim. When Jay Gould, scarcely purged from the charge of wrecking other men's fortunes, died leaving many millions behind him, the world gave a half-hearted praise to his achievement. But when Helen Gould shows the spirit of sympathy with the nation and the suffering, a nation rises up and calls her blessed. It has come to this that men of wealth are expected to consider the responsibility of wealth, are placed upon their honor with reference to its use in the service of humanity. The very highest human greatness is within the grasp of the man of wealth, if he only enter into the spirit of Jesus which enables him to say, "I am among you as he that serveth."

Military and naval prowess have filled the eye of the world of late. At mention of the names of our heroes men go wild and loud huzzas fill the air. And yet it is not the cause that inspires them with courage as well as the courage itself in our minds when we make the welkin ring with our tumultuous cheers? When we recall Grant, the most illustrious general of the civil war, probably the first thought of him will be his generosity to a defeated foe and his famous sentence—Let us have peace. Not Julius Caesar or Alexander the Great or Napoleon, men who scourged the world but Cromwell and Washington and Lincoln, men who blessed the world as leaders in the cause of liberty are in the thoughts of men today. Who knows the names of the military leaders on either side in the Crimean war, and yet who has not heard the name of Florence Nightingale, the ministering angel of its mangled host and how many have read of Hedley Vicars and Arthur Vaudeleur who stood as bravely for Christ as for the allies!

What makes a nation great? The same as makes a man or woman—mighty service. Wordsworth sang of old England, his country—

"For dearly must we prize thee; we who find
In thee a bulwark for the cause of men."

To our land has been given a like distinction or even a greater, to be not only a bulwark but a

champion of the cause of men. May she never forget it, but be an example to the nations; a magnificent embodiment of the spirit of Christ, who came to serve and to save.

Has it not come to this in this world of ours, where already the regnant forces are Christian, that the Christian conception of greatness has such sway as to make all other ideals subservient to it and every hero in art or literature, in war or peace, in finance or statesmanship must justify his title to greatness by the service he renders to mankind.

THE MAKING OF OUR BUSINESS.

ORATION BY A. B. ROGERS, AGRICULTURAL DEPARTMENT.

Forty-three years ago the first graduate class of a distinctively agricultural college in America gave their commencement exercises at this place. Since then the voices of selected ones have here sounded the annual passing of a new class into life. Many of them have written their names high on the scroll of fame with successful agriculturalists; many are upon the highway of noble achievement; many have plowed their last furrow, sowed their last seed, struck the last note of their life's song, and have gone to mingle with the infinite. With all the enduring accomplishment, unparalleled achievement, and noble service of first generations of these cultured in grateful memory, it is with fear of failure and disaster that I stand to uphold in deserving honor, and to pass on unsullied their splendid records.

But though the past has been prolific of master minds that have to led, studied, and transmitted their fruits to us, yet they have not completed this work, nor more than laid bare the wide expanse of knowledge which is still moving rapidly forward the "advance picket of progress" in the business of agriculture. Every day come new and glittering facts, digged in the fields of scientific agricultural research and stamped in the mints of experience. Each succeeding day locates the business upon a higher plane, unearths some hidden secret of nature, and reminds us that success lies with the rising tide.

Great changes have taken place in the universal conception of, and regard for this business. During its primeval stage it was a more honorable vocation than either trading or mechanic arts. In the dawning day of the Republic we find the "Father of His Country" giving expression to the general esteem for the business by proudly boasting of his vocation as a tiller of the soil. Then came the upheaving times of eighteen twelve and following years, when commerce and manufacturing developed, when the exodus of the rural population to centers took place, when country boys flocked to the cities and towns to fill the mills and offices, when educational institutions for the so-called learned professions were widely built and fostered, and when farming was looked upon as a work which anyone could do without learning. The revolution gathered momentum as it went and the time soon came when agriculture was regarded simply as a means of getting a living, when fathers advised their sons that they

should get an education to lift them above and away from the hard drudgery of the farm, and when to merely insinuate that one was engaged in farming was to invite anger, if not a blackness around the organ of vision.

But the pendulum of social, industrial or religious development often swings to adverse and opposite extremes in the course of time. So we find agriculture now placed in reality, where it has always been in possibility, among the most attractive and uplifting pursuits of man.

This return of sentiment was the direct and inevitable result of certain transforming factors within the business. The failure of crops and the financial distress of eighteen thirty-seven and eight turned the balance of trade against us, caused the importation of millions of dollars' worth of bread-stuffs, and furnished the required stimulus which marked the commencement of active national interest in agriculture. Organizations were formed for the promotion of agricultural interests, fairs were soon instituted through the country, large appropriations were made for the collection and distribution of seed, and above all, the universal mind turned to education in the so-called "Bread and Butter" sciences, as the great panacea for the alarming condition. Industrial schools were vigorously fought for, and rapidly established in the leading states. Michigan in "fifty-four" made provision in her constitution for what became the first agricultural college in America.

We note a number of wonderful agencies that have contributed most towards the changing of agriculture from the unintelligent, haphazard, wasteful and *non-business methods* of our forefathers, to the *exact and economic system* of today. One is the establishment of a national department of agriculture in sixty-two. Another was brought about by the untiring efforts of one whose name is written in letters that shine in the mind of every student in our agricultural colleges, Justin S. Morrill. He in sixty-two introduced his second bill in congress providing for the giving of the public lands to establish colleges of agriculture. At such a time as this, when the plow stood forsaken in the furrow, when the sound of the woodman's ax was stilled, when half a million of the nation's sons had gone to fight for her existence, when thousands of the choicest manhood were daily falling in Confederate dust, when the very sinews of the nation were stretched to preserve its existence in a terrible civil war, and incidentally to rid the country of the most expensive system of labor ever known, human slavery, and on the very day when the proud Union Army under McClellan fled from its bloody defeat on Malvern Hill, Lincoln signed this bill, granting eleven million acres of the public lands for the education of the tillers of the soil. But the government did not stop here. In eighty-seven another bill was passed giving fifteen thousand dollars annually from the national treasury to all states that would conduct an agricultural experiment station. The work of these stations has been so helpful in the building up of agriculture as to warrant larger installments, and a bill to increase this annual gift to thirty thousand is now before congress.

For an example of the fourth agent we note, with absorbing in-

terest, that a few years ago a national graduate school of agriculture was established for advanced work in the summer by agricultural students and professors. But progress did not stop here, indeed it was just now getting down to the solid foundation upon which to build. Men, like our own L. H. Bailey, have realized that that education is wrong which points a farmer boy away from the farm and leaves him with the impression that the greatest and most productive of all industries is the least honorable. And they have introduced instruction in agriculture in the rural schools. True, that it came in by subterfuge at first, under the guise of nature study; but only a few weeks ago a representative committee of the farmers of our state warmly recommended from this platform the teaching of agriculture in our rural schools.

Any treatise on this subject would be incomplete without at least a reference to the influence of machinery. With surprise we note the fact that had Ruth come down to our harvest fields during Jackson's term of office, she would have been as familiar with the tools used in harvesting the grain as she was with those used in the fields of Boaz over thirty-one centuries before. Now a bushel of wheat represents but ten cents' worth of labor. The creations of machinery of production and transportation has transformed our national life. The markets of the world have been laid at our doors. The antipodes have become our neighbors. These creations have increased the power utilized from our natural forces from five million-horse power in the time of "Watt," to one hundred and fifty million horse-power at the close of the 19th century. The power now produced annually from coal in the United States is more than all the male adults could produce, working ten hours a day for a century, and who will venture to prognosticate the future of economic production.

Shall I name another agent that has filled no small function in the making of this business? I refer to the health and aesthetic aspects of rural life. The man on the farm is closely associated with nature and her forces. He breathes the purest air God has supplied. What pleasure it is to him who knows something of nature's forces, just to arrange the material setting these forces in motion and have the wonderful transformations take place while he sleeps, or goes to the city. Then let him walk forth on one of our beautiful spring mornings in the woods and fields, watching the herds quietly feeding upon the growing green; let him see the bees industriously gathering nectar from the flowers just springing into new bloom, and unconsciously cross-fertilizing the plants; let him hear the song of the meadow lark and the ripple of the water in the confluents beneath his feet; let him see the playful squirrel and chipmunk scampering among the newly growing branches; let him fill his lungs full of the living unadulterated air, and if he be a true student of nature, or what not, his very soul will be filled with pleasure and admiration.

These numerous agencies working together in unison and true harmony have taken agriculture from its desultory, unintelligent, haphazard and primitive condition of half a century ago, and made it a "Business," a "Business" second to

none in the catalog of modern businesses.

The distinguishing characteristics of a modern business are these: intelligent management, scientific application, conformity to natural, physical and economic law, and specialization into various departments and divisions for the promotion of expertness in the simple and detailed operations. In agriculture we now have all these characteristics embodied in a wonderful specialization. Agriculture is now divided into general farming, dairy and livestock farming; it includes horticulture, which is specialized into many branches of fruit growing; including pomology, vegetable gardening, winter hot house farming, landscape gardening, viticulture, floriculture, apiculture and others, each of which requires its special training before promising any measure of success.

This specialization has greatly accelerated progress in all directions. Under it our breeds of cattle have increased from three well known breeds in 1870 to seventeen; our breeds of sheep have increased from five to fourteen in the same time; horses from one to eleven, swine from three to eleven breeds, with all of which a man must be familiar before he can lay any claim to expertness in animal husbandry.

The packing houses in connection with the stock industry have multiplied from a few wasteful ones in 1870 to upwards of 920 economic ones, with a capital of two hundred million dollars and an annual output valued at three quarters of a billion dollars, thus affording the largest possible price to the meat producers. Twice as many animals are now slaughtered each year in the city of Chicago alone as there are in the state of Michigan, and American chilled meats, rather than the old salt meats, now figure largely in the world's supply.

The educated gardner is getting more from his small truck patch than the uneducated farmer from his broad fields; the educated stock breeder ofefn gets more for a single animal than his education cost him, and the man trained in fruit growing has given us all of our superior varieties of fruit and he clears a small fortune from a ten-acre plot in a single season.

Because of competition, the greatest builder, of any business, intensified by refrigerator cars and rapid transit, the peculiar economic advantages of sections have been greatly utilized. Vast areas in sections of the West and Southwest are given up exclusively to the production of but one or two varieties of apples, or but one variety of strawberries; others to nothing but peaches or cherries; while some produce nothing but prunes in train loads, and still the building up and specialization, based upon scientific application, goes forward. The accumulating knowledge from all these fields is strewn nation wide by thousands of newspapers, journals and magazines.

Thus it is that the "business" of agriculture has been a "business of businesses," a science of sciences, and an art of arts. To all possessing energy and capacity it offers a splendid field for labor and remuneration. It offers comforts, conveniences and luxuries which were formerly enjoyed only by kings and princes. True, there are great and unlimited problems for solution, many of them yet beyond our vision, but to him

who has here prepared himself to work them out will come the splendid opportunities of the future, and the name of a "master builder in the business."

THE UTILIZATION OF WASTE.

S. E. JOHNSON, MECHANICAL COURSE.

The past thirty years have witnessed a revolution in the industrial world. They have been years of rapid progress, in which the demands of the consuming world have brought about a competition in the producing world which made impossible the following up of old methods, and rendered imperative that economy which is seen in the utilization of material and energy which before was wasted, partly because of a lack of demand for the products evolved, but almost entirely because of a lack of knowledge of the scientific application of the forces of nature. The producer, in his efforts to arrive at the most nearly perfect means of economically handling these waste products has called to his assistance the engineer, the chemist, the physicist, the scientist in almost every branch, and has considered no price excessive if it brought to him that which he sought. Governments and corporations, in their efforts to develop commerce and industry have spared no expense in overcoming apparently insurmountable obstacles.

The question of the removal of the accumulating sands from the mouth of the Mississippi river was a serious problem, involving the life of New Orleans as a seaport, and indeed to a large extent the cotton industry of the central south, and vast sums were expended in efforts to deepen the channel by dredging but without avail. Eads evolved in his mind the plan to utilize the waste energy of the immense volume of water by narrowing the channel and so increasing the velocity to such an extent as to wash out the accumulation by natural means and the problem was solved.

A large part of the Louisiana Purchase territory is of surprising richness but the climate is so dry that a few decades ago it was known only as a desert. But the agricultural scientist, co-operating with the engineer, has taken in hand this waste, and by turning aside the waters of rivers which hitherto flowed at will to the sea, has transformed this desert into one of the richest farming portions of the Union.

An impetus was given to cotton raising when a means was discovered of utilizing the seed which previous to this time was not merely a worthless refuse but a menacing breeder of noxious germs. Now the seed is an important item in the valuation of the cotton crop.

When kerosene first came into use there was a reckless waste of the remaining constituents of the petroleum. Petroleum is composed of a large number of hydrocarbons, of which, because of lack of refining methods, but the one constituent was utilized. Now the petroleum products are numerous, exceeding in value the original product sought.

We might go on citing example after example in every branch of the industrial world, but it is in the engineering industries that the highest perfection has been reached in the disposition of apparently worthless refuse and the turning of this

material into valuable assets.

In the cleaning of a large city there accumulates a vast amount of refuse, the disposition of which is a serious question, for if left exposed to the open air it is almost certain to breed disease germs. But the engineer has taken up the problem with the result that this is no longer a source of expense and annoyance, but in many cases of actual profit. Exhaustive tests have shown that this refuse has about one-fourth the heating value of coal, and that in a properly constructed furnace it can be made to generate steam for power and heating purposes. In many of the cities of Europe a large part of the expense of lighting is met by this utilization of the waste.

A study of the metallurgical working of iron and steel in a blast furnace plant is of intense interest when we consider the wonderful manner in which all the products are made to work together to the one end, the production of cheap metal. The ore, as it comes from the mines, is dumped into the top of the blast furnace, with now and then a load of coke and one of flux. This mixture slowly descends from the comparatively cool upper portion of the furnace to the intensely hot portion where the iron loses its nature as an ore and is resolved into the iron of the pig and the formerly worthless slag. But for the production of the intense heat an air blast is necessary. The air enters near the bottom of the furnace, combining with the carbon of the coke to form carbonic acid gas, losing part of its oxygen as it ascends and finally emerging from the top of the furnace a mixture of gases, twenty-five per cent. of which is carbon monoxide which still has the capacity of uniting with oxygen and producing two-thirds the heat of the original coke.

The former method was to allow this gas to escape into the open air, thereby not only wasting much valuable material, but polluting the surrounding air to such an extent as to often render it unfit to breathe. Now such methods are not to be thought of. The gas, as it comes from the upper part of the furnace, is conducted to the regenerative stoves, where, in burning it heats a checker-work of brick to a white heat. The air blast, on its way to the furnace must pass through this stove and is heated to such a high temperature that it is unnecessary for the heating to be done in the furnace itself and we increase the economy and capacity of the furnace many times. More of this gas is produced than can be made use of in the regenerative stoves, so a portion goes as fuel for the fires under the boilers to generate steam for running the blowing engines. If there be a still further excess it may be piped away and used for other manufacturing purposes or be used to generate the lighting current.

The gas carries with it from the furnace a fine dust of iron ore, which must be removed before the gas is burned. This dust is collected, pressed into bricks and returned with the other ore to the furnace. The apparently worthless slag, coming white hot from the furnace, passes over a stream of cold water which breaks it up into minute particles, and this goes to the cement factory to be made into Portland cement.

For the intelligent application of scientific knowledge to the determination of the unseen losses and the means of overcoming them, probably

the steam generating plant offers some of the best opportunities to be found anywhere in the world of engineering. The all important article, heat, has such a faculty of working its way out here and there and losing itself in the outer air that every precaution must be taken to avoid such losses. The coal pile is the heat pile, a loss of twenty-five percent of the heat means a loss of just that much of the coal cost, yet a steam boiler is doing good service if it does not allow more than this much of the heat to pass by to the chimney. To take up and return to us a portion of this waste heat there has been devised the economizer, a nest of tubes about which pass the hot gases on their way to the chimney. On the inside the water fed to the boiler flows and takes up the heat as it passes along. The exhaust steam thrown away by the pumps may be passed through a feed water heater and give a large part of its heat to the water before this water passes through the economizer or reaches the boiler.

In the grade of coal used, too, there is the opportunity of further economical results. At the mouth of every coal mine there has been accumulating an ever increasing quantity of finely divided, refuse coal, as valuable as any other as far as its heat content is concerned, but almost valueless because ordinarily it cannot be made to give up this heat. But with a knowledge of combustion applied in the mechanical stoker it parts with this heat more readily and efficiently than any other coal, and now the piles of refuse are disappearing.

If our steam generating plant be one in which the steam is used for both power and heating we are in a position to obtain our power very cheaply. A large office building or our own College campus may have the electric current for its lighting generated, and the steam after passing through the engine still has left nine-tenths of its heat; may have its own steam pumps and less than one-twentieth of the heat is taken from the steam. But this steam, after doing all this work, is passed through the heating pipes and gives up every unit of its heat for a useful purpose instead of wasting it in exhaust steam thrown away.

The field for improvement in the utilization of waste has not been covered nor nearly covered by the engineers of the past and present. Problems, more complex in appearance, possibly more simple in actual solution than any which have been solved, are perplexing the minds of the engineers of today. The conversion of the heat of coal directly into power without the intervention of the steam boiler with its losses and the steam engine with its losses; the manufacture of the lignite so plentiful in the middle west into a practicable steam producer, and the making of commercially valuable peat fuel in our own state; the possibility of working the poorer ores of iron to take the place of the fast disappearing ores of the present rich mines; the utilization of the vast amount of energy being lost in the numerous isolated waterfalls of this country and the efficient and safe transmission of this energy to cities and towns to be used for heating, lighting and power, are some of the problems on which the future generation will work. Their solution is certain, and to the man who will apply himself to working them out the possibilities are alluring.

THE EVOLUTION OF WOMANHOOD.

MARGUERITE BARROWS, WOMEN'S COURSE.

In order to fully understand the position held by woman in the world today and to predict with any degree of certainty the possibilities of the future, it is necessary to gain some idea of the history and development of womanhood through all the ages.

Because of the differing conditions of each time and people, advancement has varied, sometimes being so slow as hardly to be noticeable at all and at other times progressing by great leaps, but today as we look back over the records of the past we find that, surely and certainly, step by step woman has worked her way to the front.

At some time in the history of the people of every nation woman certainly existed merely as man's slave—a chattel to be bought and sold at her master's will. Then all the toil and drudgery for the necessities of life fell upon her and she had no existence except as subject to another's will. Man seemed convinced that she was an inferior being and should neither expect or hope to be more than his servant or slave.

But this was merely a state of barbarism which could not and did not exist long among those, who, through holding intercourse with others, were subject to the influences and varying conditions round about them. And so at this lowest point possible in the history of womanhood, development naturally began and with development, progress.

From slavery to the position of independence held today is a great stride in woman's evolution but one which, when examined in connection with its causes and followed out through the different stages of history, appears to have taken place perfectly naturally and by regular steps.

Civilization had not advanced far and education hardly at all before men passed to the other extreme and seemed to believe that woman's main use in the world was to amuse and please him. In this situation she was, of course, subject to his will and in so far as virtually his slave, but even this condition was a considerable advance over the degraded menial position previously held. She had as yet no rights, civil or social, but only her accomplishments, if such a name could be applied to what were really but crude attempts at playing, singing, and reciting; these, however, certainly showed some degree of intellectual activity which must have been entirely lacking in the earlier slavery. Such was woman's first step in advancement, she as yet had no individual existence, had neither the right nor ambition to act or think for herself, she was but a toy or a plaything in the hands of a superior.

From this time on, although the changes were not abrupt, still womanhood steadily advanced; more attention was paid to her general culture and more liberty of thought and action gradually developed.

So during the Middle Ages we find woman at the second stage in development honored and respected by man, a factor of no small importance in the prevailing system of feudalism, but still with restricted

physical liberty and with no recognizable civil rights; an individual now but under the power and direction of man, merely his ward. From this position of partial liberty in thought and action, what could be more natural than the desire and struggle to be placed on a plane of entire equality with the other sex? And so the final step toward which woman is advancing is that of an independent equal.

But before we consider the present status of womanhood, let us look for a moment at the exterior conditions and changes which have made possible this almost phenomenal progress in her development. It is to Christianity that much of this progress is due; in Christ's teachings we find the beginnings of many of the doctrines which have since advanced and become nearly universal and have finally given to woman the eminence she holds today. The great principle of Christ's teaching, the equality of man and woman, was far in advance of the former ideas regarding woman's position.

The minds of the people at that time were not prepared to accept the doctrine in its broadest sense, but it materially benefited woman's position then and prepared the world for what was to come in later years. Formerly woman had not entered much into the thoughts of man, and this accounted, in great part, for her degraded position, but with the advent of Christianity arguments and discussions arose on all sides, and the question of woman's rights and privileges was brought before all, and as a result the women of the Christian church were allowed more freedom, physical, intellectual and social, than had ever been theirs before. The greatest and broadest of all Christ's social teachings was that of the brotherhood of man, and through this arose the principle of individualism, which has had such great influence on the history of the world in the past.

Knowing of the general diffusion of ignorance and superstition before and during the first of the Christian era, and knowing that this doctrine, giving almost unlimited rights to the individual, was directly opposed to the teachings of the political world of that time, we cannot wonder that the general acceptance of this philosophy was slow. It was only after the great revolution in thought and the general re-awakening, brought about by the Renaissance that it became universally acknowledged that some advantages and privileges were due each person.

The great philosophers and educators especially realized this truth, and so arose the doctrine of universal education. Fenelon first applied this principle to women and declared that they needed education and training as well as men. His idea was soon taken up by others and theories were advanced from which we trace many of the liberal ideas concerning woman's educational and political rights today.

In the 16th Century by the teachings of Melancthon, Neander Rabelais and other great educators, the prosecution of science as a study was first emphasized. The interest thus awakened has come down through all the following centuries with steadily increasing vigor, and today when the spirit of scientific investigation is at its height, it would be almost impossible to name one phase of human activity which has not been greatly benefited through its

methods. But nowhere has this increase in activity been so startlingly evident as in the home.

The advance of science in the past fifty years has wrought a revolution in domestic affairs. Much of the drudgery and monotony of housekeeping has been done away with by the improved devices for saving time and strength, and as a result the women of the latter part of the 19th Century have been and those of the 20th Century will be more capable of fulfilling their duties as wife and mother.

So we see that womanhood has not been advanced by sentiment and romance, but has passed through a natural evolution based on Christianity, philosophy and science.

Only a small part of this evolution has been accomplished as yet among the countries of the far east, for where Christianity and science exist in infancy we expect to find womanhood in a corresponding stage. But today the teachings of science and Christianity are being carried to all parts of the world and if we may judge by what has been done in the past fifty years, it will not be long before the women of the Orient will take their places in the world side by side with their western sisters.

But even in countries where woman's advance has been greatest and where she holds the highest position today, it cannot be said that she is entirely independent. Yet in nearly all these countries woman is man's equal in some things and the opportunities are fast opening for her further advance.

Today woman's social freedom seems to be nearly at its height. Practically all occupations and professions are now open to her, while scarcely half a century ago women who wished to be self-supporting must either teach or work in the factory. All other occupations were closed to her and it was universally believed that she owed service to man instead of to herself. But today this has been almost entirely changed and the whole world admires, respects and encourages the independent self-supporting woman.

The advance in educational lines in the past century has been marvellous indeed. Sixty years ago there was not a woman's college in existence but today there are institutions for the instruction and education of women in every country and new schools are being formed daily. The highest institutions of the land are now open to women and they may stand on the platforms of the greatest universities in the world and receive degrees which were formerly only bestowed upon men.

Great movements are now on foot in Europe and America to open the field of politics and civil life to women and it is along this line that most is expected in the coming century. The platform of the International Woman's Suffrage League declares that "Men and women are born equal, free and independent members of society and that the natural relationship of the sexes is one of reciprocity and common effort."

Susan B. Anthony says in this connection: "The day will come when man will recognize woman as his peer not only at the fireside but in the councils of the nation." It seems that the time is not far distant when we will see the fulfillment of this prophecy.

Further advancement for woman must come but along what lines we

cannot say. We know that through education the highest possibilities are attainable, so it would seem that the ideal future woman will be most readily developed through the uplifting tendencies of her education, an education which should surely emphasize not alone woman as an independent equal with man but woman in her own sphere as the true home-maker.

And then we may hope for the time when woman will be worthy to accept the prophecy of Lowell when he said:

"Yet sets she not her soul so steadily
Above, that she forgets her ties to earth,
But her whole thought would almost seem
to be
How to make glad one lonely human
hearth.
For she unto herself hath builded high
A home serene wherein to lay her head,
Earth's noblest thing a woman perfected."

Miss Georgiana Lambert of Niles, visited her brother, J. R. Lambert, '06, during commencement week.

Director Brewer and Harry Moon left for Chicago last Saturday. They attended the Chicago-Princeton meet and then left for St. Louis where Mr. Moon will compete in the national track events. Representatives will be present from all the leading colleges and universities in the U. S. Mr. Moon will enter the 100-yards, 220, and broad jump. He may also try the 440. M. A. C. wishes him success.

Pres. Snyder gave the address of welcome to the State Music Teachers' Association at their meeting in Lansing, June 21-23. A goodly number visited the College on Thursday, and after being escorted about the grounds were entertained at the Women's building where light refreshments were served. Mrs. F. S. Kedzie has taken a very active part in this association.

C. A. Mosier has accepted a position with the O. & W. Thum Co. of Grand Rapids as investigator of a peach-tree borer control. He will experiment with a preparation for the prevention of borers this summer in the Michigan peach belt. Mr. Mosier has been here this year doing special work in horticulture and entomology. He has had a great deal of experience in handling orchards and combatting pests. Here is to his success.

The latest addition to the village property lying near the College, is the plat of "College Heights," owned by Chace Newman and wife. This plat adjoins Oakwood on the west, and lies directly opposite the district school property to the north, and consists of nine slightly and desirable lots. It is laid out with the view of taking advantage of the naturally pleasing landscape effects of that vicinity. Mr. Roy J. Robb, with '97, and Mr. Newman were the surveyors.

Mrs. Mae M. Gingles leaves M. A. C. this year to do advanced work in Columbia University. She has had full charge of the Domestic Art Department at M. A. C. during the past year, and has made the work a success in every way. The exhibitions of dressmaking and millinery work were especially fine and drew forth much favorable criticism. Her work in connection with farmers' institutes was of more than ordinary merit. That she will make her future still more successful is not doubted by any of her friends.

NORTON'S RANGES!



The Easy Line to Use

Take it EARLY in the SPRING, and avoid that tired feeling which surely comes unless you have a

MARQUAT OR LINCOLN.

CHAS. M. NORTON,
111 Washington Ave S.

Furniture...

Headquarters

COMPLETE LINE OF FURNITURE FOR STUDENTS' ROOMS

Canvas Cots at 95c. Woven Wire Cots at \$1.50. Woven Wire Springs at \$1.50, \$2.00, and \$2.50. Mattresses at \$2.00, \$2.50 and \$3.00. Tables at \$1.50 and \$1.35. Chairs at 50c up.

All goods delivered to your room free.

M. J. & B. M. Buck.



This Cut represents one of the many

New Styles in Men's Hats

which we now offer for your inspection. Nothing but latest styles and best qualities find place here. Same applies to our neckwear and cap stock—they are up-to-date in every respect. Student patronage solicited.

ELGIN MIFFLIN

THE JEWETT & KNAPP STORE

Lansing's Low Priced Reliable Store

Every Department full of New Spring and Summer Goods.

New Dress Goods, Silks, Laces, Gloves, Hosiery, Underwear, Silk and Cotton Shirt Waists, Muslin Underwear, Dress and Walking Skirts, Tailor Made Suits, and Jackets.

We also carry a Complete Stock of Lace Curtains and Draperies.

Jewett & Knapp,

222, 224 Washington Ave. S.

Lansing, Mich.



The

Ideal Oxford

If You Seek exclusive styles, also Oxfords possessing graceful outlines, comfort and wear, COME HERE!

A Patent Colt Oxford Tuxedo Last
Price \$3.50 a pair, all sizes.

C. D. WOODBURY, HOLLISTER BLOCK.

ABOUT THE CAMPUS.

J. L. Thomas, a member of the class of '05, will be employed in the botanic garden this summer.

Mrs. F. Robison and daughter Floy are visiting in Milan. Mrs. Robison's sister is seriously ill.

6,000 plants have been sold to the State for use on the grounds about the capitol building.

Miss Norma L. Gilchrist, sister of Miss Gilchrist, will graduate from Wellesley College next week Tuesday.

Jas. Satterlee has a complete set of the "Bubble," a student's journal published in 1868, May 20 to October 24.

W. O. Thompson will leave for Dexter, Mich., to take charge of the dairy work on the farm belonging to Prof. H. W. Mumford.

Improvements are made in the botanic garden from time to time. An effort is now being made to have all the paths covered with grass.

Mr. and Mrs. J. H. Allen, of Pochontas, Iowa, are visiting their sister, Miss Gilchrist. Mrs. Allen will stay till after commencement.

Covering strawberries did not have the desirable effect at the College. They are inferior in color, poorer in quality and later in maturing.

Instructor Harza will leave M. A. C. at the close of the present college year. He has been here two years, coming from the South Dakota Agricultural College. His teaching has been successful and we wish him well in his future work.

A. G. Craig has been elected instructor in horticulture for next year. He has had charge of the gardens this spring and has been very successful.

The Knights Templars visited M. A. C. in large numbers last Tuesday and Wednesday. They held a convention in Lansing and gave some very fine drills.

The Horticultural Club elected officers for the fall term as follows: J. E. Schaefer, president; L. D. Bushnell, vice president; M. J. Dorsey, secretary.

H. M. Howe is with the Churchill Lumber Co., of Alpena. He rejoices in the prosperity of M. A. C., and makes special mention of the field-day victory.

About 300 ladies accompanied the Knights Templars at their recent convention. They were served luncheon in the gymnasium at the Women's Building at 3 o'clock.

Sororian officers for next fall term are: Pres., Bessie Phillips; Vice Pres., Alida Alexander; Sec., Winnie Tyler; Treas., Carrie Anspach; RECORD Editor, Calla Krental.

Arrangements are in progress for a series of tennis games between the M. A. C. and Albion faculties. The games will be played the last of this week or the first of next.

The greenhouse contains an English variety of cucumbers in which the fruit often reaches an extraordinary length. The longest one so far measured 20 inches. The fruit is of good quality.

Prof. Vedder has designed a bridge for the Leady Park extension of the City Electric Railway. He has also been called on several times lately to survey curves and do other engineering work.

Prof. Smith was at Chatham last week. He reports everything in fine shape at the station. Spring is early in the upper peninsula. The wheat along the way up is about one-quarter of a crop.

H. S. Reed and P. H. Edmonds of the chemical department are taking work in the summer session of the University of Wisconsin. They have built sail boats and will make a trip down the Mississippi during August, taking in the St. Louis Exposition.

The Juniors in domestic science had a unique examination last week. Each one had to prepare a meal, consisting of three articles of food, for either a convalescent or a sick person. After this was done, each one wrote out the food values of the articles and gave full explanation as to the scientific principles involved.

The spirit manifested by the students in the engineering department has been very good during the past year. All have worked hard and have been uniformly successful. The seniors have made a good record. One feature of the work has been that every one has worked up to the last minute. There has been no shirking.

The young women doing millinery work under the direction of Mrs. Gingles and Miss St. John

gave an exhibition Saturday, June 11. The hats were very fine and showed excellent taste as well as neatness of execution. The young women did all the work, even to the arranging of the straw for the shape. A great many were present and expressed themselves as much pleased.

The officers of the Athletic Association for next year are as follows: President, A. J. Anderson; vice-president, J. E. Schafer; secretary, H. S. Hunt; treasurer, C. I. Auten; track manager, Bruce McAlpine; baseball manager, Rasmus Rasmussen; tennis manager, K. B. Stevens; assistant football manager, J. O'Gara; M. I. A. director, A. J. Anderson.

The department of bacteriology is busily engaged in the preparation of two additional bulletins on the associative action of bacteria in milk. This will make four bulletins on this subject. The first two have been accepted by the *Centralblatt* of Germany. The first one appeared in Vol. 11, Nos. 24 and 25. The *Centralblatt* is published in Jena and is one of the best German publications along bacteriological lines.

On Tuesday evening, June 14, a reception was given to the seniors by Miss Gilchrist, dean of the woman's department. It was a very unique affair and was well attended. Pres. and Mrs. Snyder, Miss Lyford, Mrs. Gilchrist, Miss Cramer, Mrs. Allen, assisted in receiving. Refreshments were served by several students in domestic science department. All had a very pleasant time.

ALUMNI AT COMMENCEMENT.

Mr. and Mrs. W. K. Prudden, '78, Lansing.
Mrs. Mary C. Mayo, '88, Manhattan, Kansas.
B. A. Holden, '91, Lansing.
L. H. Van Wormer, '95, Lansing.
Clay Tallman, '95, Ann Arbor.
John Nellist with '96, Grand Rapids.
Nancy Mac Arthur, with '96, Ann Arbor.
Mr. and Mrs. E. D. Sanderson, '97, Texas.
Lucy Monroe, with '98, Grand Rapids.
Bertha Holdsworth, with '98, Portland, Oregon.
Mr. and Mrs. H. A. Hagadorn, '98, Schenectady, N. Y.
T. H. Libbey with '99.
E. W. Ranney, '00, Belding.
Irma G. Thompson, '00, South Haven.
M. L. Ireland, '01, Washington, D. C.
Fleta Paddock, '01, Saginaw.
Alice M. Gunn, '01, Iron Mountain.
Celia Harrison, '01, Superior, Wis.
R. R. Carr, with '01, Pittsburg, Pa.
S. L. Christensen, with '01, Scotdale, Pa.
Lyman Carrier, '02, Elyria, Ohio.
Gordon Tower, '02, Washington, D. C.
M. B. Stephens, '02, Big Rapids.
T. G. Phillips, '02, Bay City.
W. S. Palmer, '02, Kalkaska.
N. B. Horton, '02, Fruit Ridge.
Harriet Farrand, '02, Ann Arbor.
E. D. Searing and wife, '02, Ft. Collins, Colo.
Frances Farrand, with '02, Jackson.
Alice Hadley, '03, Fenton.
E. S. Harrison, '03, Paw Paw.
R. L. Yates, '03, Dayton, Ohio.
J. G. Moore, '03, Detroit.
S. B. Hartman, '03, Athens.
Burr Hess, '03, Napoleon.
Edna Smith, '03, Grand Rapids.
Chas. B. Rose, with '03, Detroit.
Mary Ross Reynolds, with '03, Chicago.
Hannah Bach, with '03, Sebe-waig.
John B. Strange, with '03, Grand Ledge.
Frances Sly, with '03.
Don Skeels, with '04, Washington, D. C.
Clara Dye, with '03, Springport.
Merritt Willitts, with '04, East Orange, N. J.
Harriet Moore, with '05, St. Clair.
Blanch Covell, with '05, Whitehall.
Wm. Toan, with '05, Olivet.
Fred Calkins, with '05, Battle Creek.
Nina Fox, with '05, East Tawas.
Geo. Pardee, Sp. '03, Three Oaks.

'95.

Walter Goodenough was married to Elizabeth Woodruff, at New York City last week. Mr. Goodenough is engaged in the engineering business. His many M. A. C. friends extend congratulations.

'86.

The Chicago Record-Herald recently contained a cut of J. B. Cotton, who seconded the nomination of Roosevelt for president. His speech is reported to have been eloquent and to have created consider-

able enthusiasm. Among the others who made seconding speeches were senator Beveridge of Indiana, and Ex-Governor Bradley of Kentucky. Pretty swift company for "Joe."

'03.

E. S. Good has been appointed instructor in animal husbandry, college of agriculture, and investigator in animal husbandry of the experiment station, University of Illinois. His salary has received a liberal increase. Good!

With '05.

Fred Shotwell visited M. A. C. recently. He is now a traveling salesman, enjoys his work and is apparently doing well.

Wm. M. Gokay who has been teaching school at Nashville, Mich., sailed June 22 for Manila, P. I., to accept a government position.

With '06.

Alvin Sansburn is working with a United States Lake Survey party on the east shore of Manitoulin Island. The remainder of the summer will be spent along the west shore of Lake Huron from Cheboygan south.

'04.

Mr. L. F. Bird surprised his M. A. C. friends by returning to college on Monday accompanied by his wife. The marriage took place on Saturday, June 18, at Millington. The RECORD extends congratulations.

The Annual Banquet of Tau Beta Pi was held in the fraternity rooms last Thursday evening. Besides the active membership there were present Professors Weil and Holdsworth and Messrs. Smith and Gower, of Lansing. The following officers were elected for the ensuing year: Pres., H. S. Hunt; vice pres., W. P. Robinson; corresponding secretary, Bruce McAlpine; recording secretary and treasurer, Geo. Nichols. An interesting souvenir received by the chapter is a neat little calf bound program of the Annual Banquet of New York and New Jersey chapters. Among names of note on this program are those of Prof. Hutton, of Columbia University and William Kent, of Stevens Institute. The association has done valuable work during the past year in the stimulation of students and alumni to better scholarship.



BASE BALL GOODS!

OF ALL KINDS NOW IN STOCK.

We shall make every effort to keep in stock just what you want.

J. H. LARRABEE,

325 Washington Ave. S. LANSING.

It's Record shows it to be

THE POLICY HOLDERS' COMPANY

The Mutual Benefit Life Insurance Co.,

OF NEWARK, N. J.

CHAS. B. COLLINGWOOD, District Manager,

Agricultural College.

Lansing Office, 100 Hollister Block.

WHEN IN NEED OF PRINTING AT BOTTOM PRICES

Correspond with
Lawrence & Van Buren
Printing Co.,
122 Ottawa St. E. Lansing, Mich.

DIRECTORY

LANSING BUSINESS and PROFESSIONAL MEN

The names in this Directory, as well as those of all our other advertisers, are of reliable parties. We hope that the faculty and students will take pains to patronize those who patronize us.

BARBERS.

M. A. C. BARBER SHOP, Rooms in New Bath House. H. A. Sias, Propr.

BOOKS AND STATIONERY.

A. M. EMERY, 116 Wash. Ave. N. Books, Fine Stationery, Engraved Calling Cards, Fountain Pens, Pictures, Frames. Fine Framing a Specialty. New store. New Stock.

CITY BOOK STORE, Fountain Pens, Drafting Tools, Stationery, Cards Engraved, Pocket Books, Card Cases and Bibles. Tennis, Football and Baseball goods. Crotty Bros., 206 Wash. Ave. N.

BOOK BINDERS

GEO. G. BLUDEAU & CO.—Bookbinders Account book makers, paper ruling, library and fine art bindings, file boxes, map mounting, albums, pocket books, etc. Citizens phone No. 56. 109 Wash. Ave. N.

WAGENVOORD & CO.—Bookbinders, Blank-book Makers, Library and Art Bindings, Albums, Pocketbooks, Map Mountings, etc. Back numbers of magazines and periodicals supplied. Bell phone 378. 109 Washington Ave. South.

BOOTS AND SHOES.

C. D. WOODBURY.—Boots and Shoes. We shoe the students. See ad.

CONFECTIONERY.

ONLY the best candies at the "Sugar Bowl," Washington Ave. S.

CLOTHING.

BUY your Dry Goods and Clothing, Hats, Caps and Furnishing Goods at H. KOSITCHEK & BROS., 113 Washington Ave. N., and 210 Washington Ave. S.

LOUIS BECK.—Clothier, Gents' Furnishings, Hats and Caps. 112 Washington Ave. North.

CROCKERY AND GLASSWARE.

H. H. LARNED.—China, Glass and Lamps. 105 Washington Ave. S.

DENTISTS.

A. F. GORDON, D. D. S. M. A. C. '91, U. of M. '91. 218 Washington Ave. S. Phone, Citizens 802.

J. E. STOFFER, D. D. S. Office 105 Washington Ave. S. Former M. A. C. student.

R. W. MORSE, D. D. S. Hollister Block, Room 517. Citizens Phone 52, Bell Phone 396.

N. H. MOORE, D. D. S. Office 411-13 Hollister Building, Lansing, Mich. Citizens phone 475.

DRUGGISTS.

ROUSER'S CAPITAL DRUG STORE. Up to date. Corner store. Opposite Hollister Block.

ROBINSON DRUG CO., successors to Alsdorf & Son, Drugs and Druggists' Sundries. 102 Washington Ave. N.

DRY GOODS.

THE JEWETT & KNAPP STORE. Dry Goods. 223-224 Washington Ave. S.

ELECTRICAL SUPPLIES.

CAPITOL ELECTRIC CO. Electrical Supplies, Telegraph Instruments and Telephones. 321 Wash. Ave. S.

ALL MEATS . . .

May look alike to you, but there is a very great difference in the quality we handle and that sold by some other markets. We handle none but the very best. Like the pudding, the proof of good meats is in the eating. A trial will convince you that you ought to trade with us.

We make daily trips to the College. BOTH PHONES. Careful attention given to phone orders.

A. C. ROLLER,

Successor to GOTTLIEB REUTER,
Washington Ave. South.

FURNISHING GOODS.

ELGIN MIFFLIN.—Ladies' and Gentlemen's Furnishing Goods. See ad.

FURNITURE DEALERS.

M. J. & B. M. BUCK.—Furniture. Cor. Washington Avenue and Ionia Street. See ad.

HACK AND BAGGAGE LINES.

ORDER your hacks for parties at Carr's Hack Line. Livery in connection. 410 Washington Ave. N.

HARDWARE, STOVES AND TINWARE.

NORTON'S HARDWARE—General Hardware, Stoves, Tinware, Graniteware, Cutlery, etc. 111 Washington Ave. South. See ad.

INSURANCE.

THE DYER-JENISON-BARRY CO., LTD., (Incorporated) Hollister Block. All kinds of the best insurance. Strongest agency in city.

JEWELERS.

CHAS. A. PIELLA, Jeweler and Optician, 121 Washington Ave. N., Lansing, Mich.

MANICURE AND HAIRDRESSING.

MRS. O. T. CASE—Manicure and Hairdressing Parlors. Masquerade Wigs for Rent. Switches made of cut hair or combings. New 'phone 118. 222½ Washington Ave. S., up stairs.

MERCHANT TAILORS.

JOHN HERRMANN'S SONS, 218 Washington Avenue N.

WOODBURY & SAVAGE.—Tailors. Student trade solicited. Opposite Hotel Downey, North.

MUSIC, PIANOS, ETC.

GRINNELL BROS. Pianos, Organs and everything in the line of music. 219 Washington Ave. N.

OCULISTS.

CHAS. G. JENKINS, M. D.—Diseases of Eye, Ear, Nose and Throat. Hours, 9 to 12 a. m., and 2 to 5 p. m. Citizens Phone No. 1030. 224 Washington Ave. South.

PHOTOGRAPHS.

C. E. WALTER, M. A. C. I make Photographs; Landscapes, Buildings, Interiors, Flash-lights, Lantern Slides, Transparencies, Medallions and Stereoscopic Views. Developing and Printing for Amateurs. Views for sale.

PHYSICIANS.

J. W. HAGADORN, M. D.—Office hours, 11 to 12 A. M., 2 to 4 and 7 to 8 P. M. Office at 212 Washington Avenue S.; home 219 Capitol Ave.

DR. H. W. LANDON. Office and residence, M. A. C. Office hours from 7 to 8:30 a. m., and 12:30 to 2, and 6:30 to 8 p. m. Sunday office hours 4 to 5 and 7 to 8 p. m. Now phone 1560.

DR. OSCAR H. BRUEGEL. Hours 9 to 11 a. m.; 2 to 4 and 7 to 8 p. m. Agricultural College, Mich. Citizens phone 1502.

PLUMBERS.

SHIELDS & LEADLEY. Plumbing and Heating. 300 Wash. Ave. N., Lansing. Both Phones.

SPORTING GOODS.

J. H. LARRABEE. Base Ball Goods, Foot Ball Goods, Tennis, Golf, Guns, Ammunition and Fishing Tackle. 325 Wash. Ave. S.