AGRICULTURAL - AND - MECHANICAL

COLLEGE

—OF—

KENTUCKY.

ACT OF MAY 9, 1893.

CAPITAL PRINTING CO., FRANKFORT, KY.

[BY AUTHORITY.]

AGRICULTURAL AND MECHANICAL COLLEGE

OF KENTUCKY.

CHAPTER 198.

AN ACT to provide for the effective management and administration of the Agricultural and Mechanical College of Kentucky.

Be it enacted by the General Assembly of the Commonwealth of Kentucky: § 1. That the government, administration and control of the Agricultural and Mechanical College of Kentucky be, and is hereby, vested in a board of trustees, constituted and appointed as follows:

1. His Excellency, the Governor of Kentucky, who shall be *ex officio* chairman thereof.

2. Fifteen men, discreet, intelligent and prudent, who shall be nominated by the Governor of Kentucky, by and with the advice and consent of the Senate. They shall hold office for six years, five retiring and five being appointed at each regular session of the General Assembly. Said nominations shall be made within fifteen days after the Legislature convenes. Said trustees shall be appointed and distributed as follows, namely: One from each Congressional district outside of the Congressional district in which Lexington is situated, and the remainder from the latter district; but no more than three trustees shall be appointed from the county of Fayette: *Provided*, That no trustee now serving, under an appointment previously made, shall be dis-

placed by the operation of this act before his term of service shall have expired.

3. The president of the college shall be *ex officio* a member of the board of trustees.

§ 2. The board of trustees, when appointed and qualified, shall be a body-corporate, under the corporate name of the Agricultural and Mechanical College of Kentucky, and as a corporation shall have power to sue and be sued, implead and be impleaded, contract and be contracted with, and possess all the immunities, rights, privileges and franchises usually attaching to the governing bodies of educational institutions. They shall have power to receive, hold and administer, on behalf of the institution whose government, administration and control is committed to them, all revenues accruing from all existing or future endowments, appropriations or bequests, by whomsoever made, subject to the conditions attaching thereto; to receive, administer and apply, for and on behalf of said college, all moneys, devises, stocks, bonds, buildings, museums, lands, apparatus, and so forth, and so forth, under the conditions attaching thereto. Said trustees shall have power to determine, from time to time, the number of departments of study or investigation which the college shall comprise within the scope of the organic act of Congress, or acts supplementary thereto, donating land scrip for the endowment of Agricultural and Mechanical Colleges; the relation which each department or group of departments shall sustain to each other and to the whole; to devise, allot and arrange the distributions of departments or groups of departments, with the designation appropriate to each, and to devise the means required for their effective instruction, administration and government. They shall have, also, power to appoint presidents, professors, assistants, tutors and other officers, and to determine the salaries, duties and official relations of each; and shall provide for a definite salary in money attached to all positions created and filled by the board of trustees; and there shall be no additions thereto in the form of fees, perquisites or emoluments of any kind whatever. They shall have full power to suspend or remove at will any of the officers, teachers, professors or agents whom they are authorized by law to appoint, and to do all other acts which may be needful for the welfare of the institution.

§ 3. Said board of trustees shall have power to grant degrees to the alumni of the institution, to prescribe conditions upon which post-graduate honors shall be obtained by its alumni and others, and to confer such honorary degrees, upon the recommendation of the faculty of the institution, as they may think proper.

§ 4. A majority of the whole board shall constitute a quorum for the transaction of business.

§ 5. In the appointment of presidents, professors or instructors, no preference shall be shown to any religious denomination.

§ 6. The board of trustees shall meet in Lexington twice each year, in the president's room in the college, namely: Upon the Tuesday preceding the annual commencement, and upon the second Tuesday in December. In the absence of the Governor the board shall have the power to appoint a chairman *pro tem.* They shall elect annually a secretary, who shall keep a record of their proceedings, and a treasurer, who shall receive and disburse the funds, and a business agent, who shall make all purchases for all departments of the college, and attend to all the business under the direction of the board. Said secretary and treasurer and business agent shall receive for their services a fair compensation; but the treasurer elected under the provisions of this act shall not be a member of the board of trustees or of the faculty of the college, or otherwise an employe of the college or of any of the departments thereof. They shall, at each regular meeting, appoint an executive committee, consisting of five of their number, residing in or near Lexington, including a chairman thereof. Three of whom shall constitute a quorum, and said committee shall choose from their number a chairman *pro tempore*, to act in the absence of the permanent chairman. The executive committee shall be charged with the general administration of the affairs of the college under such by-laws and regulations as shall be prescribed by the board of trustees, and with the execution of measures specially authorized by the board. It shall, at each regular meeting of the trustees, and at each called meeting if required, submit to the board a complete record of its proceedings for the consideration and approval of the board of trustees: *Provided*, That the authority of the board of trustees to revise the acts of the exec u

tive committee shall not extend to the rejection of any valid or authenticated account of money expended under a general or specific authority granted by the board of trustees, and within the sums appropriated by the board for specific or contingent objects at regular or called meetings. The secretary of the board of trustees shall also be secretary of the executive committee and the custodian of the records, and so forth, of the board and of said committee.

§ 7. That the treasurer of said college shall enter into covenant with the Commonwealth of Kentucky, with one or more good sureties bound therein, to be approved by the board of trustees, conditioned for the faithful performance of his duties, and the payment of all moneys that shall come to his hands to his successor in office, or to such person or persons as may be lawfully entitled to receive the same. Any person or persons, including the board of trustees, injured by any breach of this bond, may maintain in the Fayette Circuit Court appropriate action thereon. The said treasurer shall keep an itemized account of receipts and expenditures, and shall pay out no money except on authorization of the board of trustees, given directly or through its executive committee. He shall render to the executive committee monthly statements of receipts and expenditures, and amount on hand, and a full detailed statement, with vouchers, for the information and action of the board of trustees at its regular annual meeting, and at other periods when required.

§ 8. In the case of the death, resignation or refusal to serve of any of the trustees appointed as members of the board on behalf of the State, the remaining trustees shall, at their first meeting thereafter, have power to fill all vacancies occasioned by such death, resignation or refusal to serve; and the person or persons so appointed shall hold their office as trustees during the natural or unexpired terms of the person or persons for whom they are substituted and appointed. Any trustee who shall fail to attend two consecutive meetings, without proper notification to the secretary of the reason therefor, shall thereby vacate his office of trustee, and the board shall fill the vacancy as hereinbefore provided for.

§ 9. All necessary expenses incurred by the trustees in going to, returning from, or while attending the meetings of the

board, shall be met and discharged out of the funds of the institution.

§ 10. That in addition to the regular meetings, called meetings of the board of trustees may also be held. The call for such meeting must be in writing, signed by three or more trustees. The call must also be formally communicated by the secretary to each trustee by mail, at his post-office address, at least fifteen days before the day fixed for the meeting, and must state definitely the object of the meeting; and no business not thus explicitly announced shall be acted on at the called meeting.

§ 11. That the regular collegiate period of the Agricultural and Mechanical College shall be four years, and only those students who pass through that period and attain the prescribed standard of proficiency in the regular course of studies, or those who, having qualified themselves elsewhere, shall be found, after at least one year's attendance in the college, to have attained the prescribed standard of proficiency in the regular course of studies, shall receive a diploma from the college. But a normal department or course of instruction for irregular periods, designed more particularly, but not exclusively, to qualify teachers for common or other schools; and an academy or preparatory department to prepare students for the regular courses of study in the college, shall be established and maintained in connection with the college, each under a competent principal and assistants, and under the general supervision and control of the faculty thereof.

§ 12. That the board of trustees be, and hereby are, empowered to establish proper regulations for the government of the college and the physical training, military or otherwise, of the students, and to authorize the suspension and dismissal of students for neglect or violation of the regulations, or for other conduct prejudicial to the character and welfare of the institution.

§ 13. That the board of trustees shall make to the General Assembly, within the first month of each regular session, a full report of the condition and operation of the college since the date of the preceding report, with such recommendations concerning the college as may be deemed necessary.

§ 14. Each legislative district in the State shall, in consid-

eration of the incomes accruing to the college under "An act for the benefit of the Agricultural and Mechanical College of Kentucky," approved April 29, 1880, be entitled to select and to send to said college each year one properly prepared student, free from all charges for tuition, matriculation fees, room-rent, fuel and lights, and to have all the advantages and privileges of the college and dormitories free, except board. Said students shall be entitled, free of any cost whatever, to the benefits enumerated above, for the term of years necessary to complete the course of study in which he or she matriculates for graduation, or during good behavior. All beneficiaries of the State who continue students for one consecutive collegiate year, or ten months, unless unavoidably prevented, shall also be entitled to their necessary traveling expenses in going to and returning from said college. The selection of the beneficiaries shall be made by the superintendents of common schools in their respective counties, upon competitive examination, on subjects prepared by the faculty of the college, and transmitted to said superintendents before the first day of June of each year: *Provided*, That no standard of admission adopted by the college for admission into the academy shall exclude from the benefits of this act county appointees who have completed the course of study prescribed by law for the common schools of the Commonweath. Said competitive examination shall be open to all persons between the ages of fourteen and twenty-four years. Preference shall be given, other things being equal, to those who have passed with credit through the public school, persons of energy and industry, whose means are small, to aid whom in obtaining a good education this provision is intended. If any representative district contains more than one county, each county so included shall be entitled to select one beneficiary as aforesaid. Said competitive examination shall be held, and the successful competitor appointed, between the first day of June and the first day of August of each year. It shall be the duty of the county superintendent to make known the benefits of this provision to each common school district under his superintendency, with the time and place when and where such competitive examination shall be held. He shall, for this purpose, appoint a board of examiners, whose duty it shall be to conduct the examination.

§ 15. In addition to the foregoing, teachers or persons preparing to teach may be admitted at the rate of not more than four from each county, upon the same conditions, receive the same benefits, and have the same privileges in said college as prescribed in the preceding section. These appointments shall be vested in the county superintendents. Said appointments may be made and certified to the president of the college at any time between the first day of July and the thirty-first day of December of each year.

§ 16. The president shall, on or before the first day of July of each year, have printed and mailed to each county superintendent of common schools of this State at least as many circulars of information relative to said college as there are common school districts in said respective counties. Said circulars shall set forth in full the benefits of methods of admission into, and the probable cost to beneficiaries of said college. The county superintendent of common schools shall have at least one of said circulars posted in the school-house of each common school district in their respective counties during the term of the free school thereof.

§ 17. All acts and parts of acts in conflict with this are hereby repealed.

§ 18. That, as the difference in the cost of travel from different parts of the State practically operates as a difference in advantages offered to different parts of the State, an emergency is declared to exist, and this act shall be in full force and effect from and after its approval by the Governor.

W. M. MOORE,
Speaker of the House of Representatives.

M. C. ALFORD,
President of the Senate.

Approved May 9, 1893.

JOHN YOUNG BROWN, *Governor.*

By the Governor:

JOHN W. HEADLEY,
Secretary of State.

REPORT

—OF THE—

Agricultural and Mechanical College

OF KENTUCKY,

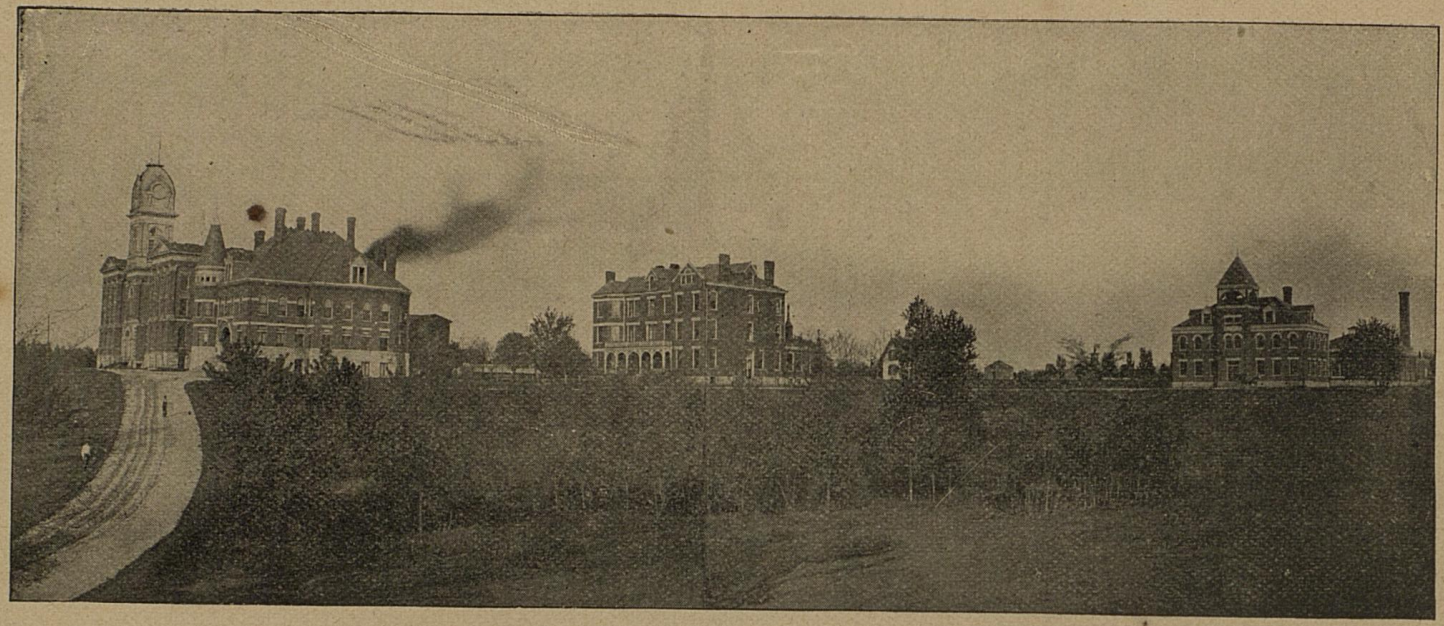
—TO—

GOVERNOR W O. BRADLEY,

For the Period Beginning July 1, 1893, and Ending June 30. 1895.



FRANKFORT, KY.:
PRINTED BY THE CAPITAL PRINTING CO.
1895.



Main Building. Station Building. New Dormitory. Mechanical Hall.

CAMPUS OF STATE COLLEGE OF KENTUCKY.

REPORT

—OF THE—

Agricultural and Mechanical College

OF KENTUCKY,

—TO—

GOVERNOR W O. BRADLEY,

For the Period Beginning July 1, 1893, and Ending June 30. 1895.

FRANKFORT, KY.:
PRINTED BY THE CAPITAL PRINTING CO.
1895.

LEXINGTON, KY., December 23, 1895.

His Excellency, WILLIAM O. BRADLEY, *Governor of Kentucky:*

SIR: The Board of Trustees of the Agricultural and Mechanical College, have the honor to submit to you for the consideration of the General Assembly, the following report of the condition and operation of the College since the last report, a period of two years. Within that period material advance has been made by the College in nearly every department.

The report of the several departments for the last year, herewith transmitted, will serve to indicate what has been, and is being accomplished by them respectively. That some have not shown as much progress in public favor as others, may be ascribed chiefly to the fact that the popular desire has been more in the direction of one branch of training than in another.

The most marked advance has been in the Department of Mechanical Engineering. The demand for education in this branch has been very great during the past few years, and the efforts of its Professors, and the Board of Trustees, to meet this demand, and place the department on a high standard, have been attended with gratifying results.

An important addition to its building and equipment has recently been made, and impressive evidence of the successful working of the department, may be seen in its halls every day, in the actual operation of intricate and perfectly finished machinery, steam engines, electrical apparatus, and various other mechancal devices evolved from the studies and wrought into speaking reality by the hands of the students themselves, from their own mathematical drawings. It will gratify any member of the Legislature to witness these marks of what the College is doing to prepare its students for the marvelous field of mental and physical energy of the age in which we live.

But the observer will err if he shall overlook, in the practical manifestation of the Mechanical Hall, the less striking but not less important training that is in progress in other departments. In each of these the mechanical student, at the appointed hour, may be found under the patient guidance of the appropriate teacher, searching in the field of sciences and the store-house of

literature for the facts and principles which constitute the basis of a thorough education, and yet with all these gratifying evidences of progress there is need of many facilities which the Board has not the means of supplying.

In almost every department additional accommodations and equipments are required: A separate building for the Academy and Normal Department, a library and reading rooms, a museum for specimens in the different branches of natural science, more room for instruction by illustration and experiment in the Scientific Departments, a gymnasium and additional dormitories. Five hundred thousand dollars would not cover the sum that has been and is being allowed to the public colleges of other States by direct appropriation for these indispensable accessories. We can not ask such large appropriations from the General Assembly. Indeed, we think it best that the development shall be gradual, and in order that such a plea may be pursued we earnestly recommend, for the benefit of the College, a tax of one cent on each one hundred dollars of the taxable property of the State, to be used exclusively for the erection and outfit of such additional College structures as the Board of Trustees may deem advisable. A brief examination of the financial condition of the College will suffice to show the necessity for additional means. The revenues consist of

The Federal Fund, amounting to about	$27,000
State Tax, about	32,000
Students' Fees, about	3,000
Other Contingent Sources, about	300
Total	$62,300

The expenditures are kept within the strictest limits of economy. Yet the necessary expenses, including salaries and wages to professors, instructors and other employes, and the various other incidental expenses at the College proper, the Farm and the Experiment Station, amount to about $60,000, and uniformly the small remainder, about $5,000, is consumed in the more necessary improvements which the limited sum will allow. It will be seen, therefore, that additional resources are indispensable for the proper development of the Institution. The amount

employed seems large, but it is small in comparison with the expenses of other prominent colleges of the country, and insignificant in comparison with some of them.

The report of the business agent shows that the State has paid no interest since July, 1894, on $165,000, which it holds for the College from the Congressional donation of 1862, so that, by the time the General Assembly meets, there will be due nearly $15,000. This interest is included in the revenue account of the College, and unless it is promptly paid the expenses can not be met. The cause of the failure to pay this interest seems to be that the bonds issued for the principal were not sold until about two years after their date, and that the coupons for the two years were then cut off. Under these circumstances, the Sinking Fund Commissioners were advised that they could not pay the interest, in the absence of the coupons, without legislative authority. When the land was donated by the Federal Government, from the sale of which this fund was derived, the terms of the donation were, that the State should guarantee the interest upon the proceeds of the sale. Kentucky, like other States securing the donation, accepted the terms, which it can only be necessary to mention in order to procure the proper legislative authority for the payment of the delinquent interest.

Some years ago, in consequence of insufficient means and inadequate space in the college buildings, the Board of Trustees arranged with the Lexington Business College for the instruction of such college students as might desire to matriculate in a commercial course. The report herewith enclosed of a special committee appointed a year ago to investigate this arrangement, presents the facts in detail.

The arrangement was found to work satisfactorily until the present year. At its recent meeting the Board of Trustees ordered a discontinuance of the arrangement at the close of the present college year. Should this useful branch of education again become attractive or make a demand upon the College, it would be in every way desirable to have it taught within the College buildings, and yet there is no possible space that could be assigned to it.

We respectfully refer the General Assembly to the subordinate reports accompanying this paper for information upon

details which it would be superfluous to repeat here, and which we commend to careful consideration.

When it is thoroughly understood that this College stands at the head of the public school system of the State; that its halls are open to every county, under the rules prescribed in its charter; that each county or legislative district may send one pupil each year to the College, free from all charges for tuition, room-rent, fuel and lights, with the privilege of working at reasonable wages for his board and clothes, whenever labor is required in any of the departments; that even the traveling expenses of such students to and from the College are paid if they remain through the session, that each county or district may send also four teachers or persons preparing to teach on the same conditions, and that the College has already assumed a high standing among the similar colleges of the country; when these things are known and appreciated as they should be, it can not be doubted that the Institution will attract a large number of students from districts now poorly supplied, and perhaps not fully alive to the advantages of higher education, and others who now seek a techical training in other States, or seek it not at all. The College is engaged in nothing less than a cordial and earnest co-operation with the other colleges of the State for the cause of education in Kentucky. It would be an act of affectation or ignorance to place a low estimate upon the high standing which those colleges have always held, and the important work which they are still performing. The Agricultural and Mechanical College could not fill their places, nor could they satisfy its mission which, not neglecting the higher walks of literature, aims to embrace a larger field of practical knowledge, and invites a more widespread constituency. For this worthy aspiration, we ask the judicious care of the Executive and the General Assembly, assured that the College will honor the debt, and do its duty well. In confidence, therefore, we submit this to you.

Very respectfully yours,

J. T. GATHRIGHT,
THOMAS H. HINES,
D. C. BUELL, *Committee.*

STATE COLLEGE OF KENTUCKY.

HISTORY.

Agricultural and Mechanical Colleges in the United States owe their origin to an act of Congress, entitled "An act donating public lands to the several States and Territories which may provide colleges for the benefit of agriculture and the mechanic arts," approved July 2, 1862. The amount donated was 30,000 acres for each Representative in the National Congress. Under this allotment Kentucky received 330,000 acres. Several years elapsed before the Commonwealth established an Agricultural and Mechanical College under the act. When established it was not placed upon an independent basis, but was made one of the Colleges of Kentucky University, to which Institution the annual interest of the proceeds of the Congressional Land Grant was to be given for the purpose of carrying on its operations. The land script had meanwhile been sold for fifty cents per acre, and the amount received—$165,000—invested in six per cent. Kentucky State bonds, of which the State became custodian in trust for the College.

The connection with Kentucky University continued till 1878, when the act of 1865, making it one of the Colleges of said University, was repealed, and a commission was appointed to recommend to the Legislature of 1879–80, a plan of organization for an Institution, including the Agricultural and Mechanical College, such as the necessities of the Commonwealth required. The city of Lexington offered to the Commission (which was also authorized to recommend to the General Assembly the place, which, all things considered, offered the best and greatest inducements for the future and permanent location of the College) the City Park, containing fifty-two acres of land, within

the limits of this city, and thirty thousand dollars in city bonds, for the erection of buildings. This offer the county of Fayette supplemented by twenty thousand dollars in county bonds, to be used either for the erection of buildings or for the purchase of land. The offers of the city of Lexington and of the county of Fayette were accepted by the General Assembly.

By the act of incorporation and the amendments thereto, constituting the charter of the Agricultural and Mechanical College of Kentucky, liberal provision is made for educating, free of tuition, the energetic young men of the Commonwealth whose means are limited. The Normal Department, for which provision is also made, is intended to aid in building up the common school system by furnishing properly qualified teachers. This College, with the Associate Departments which will, from time to time, be opened as the means placed at the disposal of the Trustees allow, will, it is hoped, in the not distant future, do a great work in advancing the educational interests of Kentucky. Being entirely undenominational in its character, it appeals with confidence to the people of all creeds and of no creed, and it endeavors in strict conformity with the requirements of its organic law, to afford equal advantages to all, exclusive advantages to none.

OBJECT.

In the act of Congress making provision for the class of colleges to which the State College partly belongs, it is declared "that their leading object shall be, without excluding other scientific and classical studies, and including military tactics, to teach such branches of learning as are related to agriculture and the mechanic arts, in order to promote the liberal and practical education of the industrial classes in the several pursuits and professions in life."

THE NORMAL SCHOOL.

The Normal Department of the State College exists under the authority of Acts of the General Assembly, approved April 23 and April 29, 1880. Section 7 of the first act briefly defines the object for which the Department was established, "but a Normal Department or course of instruction for irregular

periods, designed more particularly, but not exclusively, to qualify teachers for common and other schools, shall be established in connection with the College." The second act provides the necessary endowment to make the Department effective.

The number of students annually enrolled in the Normal School has exceeded expectation. As they come from all parts of the State, and many of them return well prepared for the profession of teaching, they must greatly promote the efficiency of our common schools generally, and demonstrate the wisdom of the General Assembly in providing an inexpensive Normal School, centrally located and easy of access, to keep the State always supplied with well-trained teachers.

THE KENTUCKY AGRICULTURAL EXPERIMENT STATION.

This department of the State College originated in a resolution of the Executive Committee of the Board of Trustees, adopted in September, 1885, when the department was organized and a director appointed. In 1886 the Station was recognized and named by the General Assembly, and in 1887 it and a similar Station in every other State were each endowed by Congress with an annual appropriation of $15,000.

The work of the Station is directed to two objects:

1. To a constant succession of experiments by specialists, in order to learn what application of science will insure the best returns from the farm, the garden, the orchard, the vineyard, the stock yard and the dairy.

2. To the publication of bulletins, announcing such results of the experiments as are found to be valuable to any of our people that seek profit from either of those prime sources of wealth, the soil, the flock or the herd.

Results of experiments have been published in six reports and fifty-three bulletins, and general appreciation of their utility is shown in the fact that, while no bulletin is sent except upon application for it, the mailing list of the station contains more than 11,000 names, and is constantly increasing.

With an ample endowment, a large and commodious building, planned for the purpose, adequate apparatus, a good experi-

mental farm conveniently situated, and seven capable scientists always employed, and in correspondence with other Stations, the Kentucky Agricultural and Experiment Station is not only an important adjunct of the College in the education of students for the leading industrial pursuits, but directly or indirectly, through the wide and continual diffusion of knowledge for the benefit of so large a portion of our population, it is bound to be extremely useful to the Commonwealth at large.

The College has made material advances in several other directions. Until recently the lack of funds prevented the expansion desired. The heavy debt with which the College found itself burdened upon the completion of the buildings erected in 1881–2, was not discharged until 1886. During that period growth was of course impossible.

When relieved of this burden, attention was first given to the development of the agricultural necessities of the Institution. The Experiment Station was established and equipped at a considerable outlay, and with an annual charge thereafter of several thousand dollars for salaries and other expenses. The Hatch Act, passed in 1887, appropriating $15,000 annually for the maintenance of Experiment Stations, relieved the College of the annual expenditure incurred for that purpose, and made possible the erection of a building suitable for the work of the Station. Meanwhile, the necessities for increased accommodations for boarding and lodging students were pressing upon the authorities of the College. These became more urgent in consequence of the largely increased demands for Normal School training after the reorganization of that Department, under Prof. A. L. Peterman, whose zeal and energy gave it new life. The Trustees, accordingly, proceeded to build a new dormitory, which, with its equipment, cost about $13,000. When completed, the aggregate accommodation for students, resident upon the grounds, was nearly doubled, and the benefits of the College to poor young men correspondingly extended.

As yet the Mechanical Department could be said to exist only in name. Some machinery had been purchased, but no systematic instruction had been attempted, or, indeed, was possible. No separate building existed in which mechanical operations could be carried on, and no funds could be spared for the em-

ployment of skilled instructors. But with the passage of the Morrill Act in 1890, a new era of development was entered upon.

The appropriation by the Federal Congress of $15,000 the first year, with an annual increment of $1,000 each year thereafter, until the maximum under the law, viz: $25,000 should be reached, placed at our disposal such a fund as made possible the establishment of a Mechanical Department on a scale commensurate with the requirements of the College. It is true that we were shut up to the necessity of dividing this fund with the colored people of the State, or of opening our doors to their admission. The governing board chose the former alternative.

We receive, therefore, not the whole of the annual appropriation by Congress, but 84½ per cent. of it. Congress provides the application which may be made of this annuity. No part of it can be used for the erection or repair of buildings. It may be used for the payment of professors who give instruction in those branches of learning which are related to Agriculture and the Mechanic Arts. It may be used for the purchase of the material necessary to make instruction effective in those branches of study. It may be used for the purchase of machinery, but it can not be used for purposes other than these. Out of this Federal, as distinguished from the State fund, which accrues from the half-cent tax levied by the State for the benefit of the College, the salaries of any professors engaged in teaching those branches of learning which come within the scope of Federal legislation may be paid. This enabled us to transfer the payment of certain salaries, which had hitherto been paid out of the State Fund, to the Federal fund, and thereby relieve the State fund to that extent, and correspondingly enlarge the fund from which alone it is possible to draw for purposes other than those to which the expenditure of the Federal fund is limited. From the general fund, therefore, it was determined to erect a building for the Mechanical Department, and from the Federal fund to supply the machinery necessary for its equipment. How well this has been accomplished I leave you to learn from the report of Professor Anderson.

We can ~~now~~ confidently ~~claim~~ that in buildings and equipment for instruction in Mechanical Engineering, the Agricultural and Mechanical College of Kentucky is not surpassed by any like institution south of the Ohio river.

State

We can say with equal confidence that no institution in the Country graduates Engineers better prepared to do high class work than we

This is, in some respects, the most important advance which the College has yet made, and it will commend itself to meet the wants of many young men in the Commonwealth, who would otherwise have to go beyond its limits to find the technical education which they require, and which no school in Kentucky has hitherto been able to offer.

The departments of Botany, Geology and Biology have been much enlarged, and the courses of study in each correspondingly extended. For the work done in these departments, I refer to the reports which accompany and are made a part of this report.

The scope of the Department of Anatomy and Physiology has been enlarged so as to bring it into correlation with our expansion in Zoology and Botany, thus making possible, a course of study in Biological science leading to a degree equal to that of any offered by our neighbors in the surrounding States.

These three departments are all in hands of comparatively young men, competent, vigorous, zealous and industrious, eager to make reputation for themselves by building up their respective departments, and bringing them into line with those of advanced workers elsewhere. A comparison of courses of study and schedules of work presented by the Faculty to the Executive Committee, and adopted by them in place of those used, with those which they supersede, will make it manifest that advances have been made along the lines of scientific work in the College.

The work done by the Experiment Station is presented in the report of the Director herewith submitted.

The special benefit accruing to the State from the establishment of its Normal School in connection with the Agricultural and Mechanical College, is, or should be the advantage derived from the division of labor and the co-relation of classes. The special function of a Normal School is to train teachers. It does not teach them what to teach. It assumes the existence of a knowledge of the subject-matter to be taught. It teaches the teacher the best method of teaching what he already himself knows. The function of the Normal School is professional and technical only. Pupils who enter the Normal School, to be

trained as teachers, should know geography, grammar, arithmetic, algebra and physiology and other branches required as qualifications for obtaining a certificate authorizing them to teach in the common schools. If they do not know these, they have no business in the Normal School. If so prepared for entrance, they become the intelligent recipients of the professional training which it is the function of the Normal School to provide. If the pupil, however, be not thus prepared when he comes, he is relegated to the Academy for preparatory instruction. Classes exist in the Academy which provide instruction in geography, grammar, algebra and arithmetic, and into these classes they properly go. Having acquired the necessary preliminary knowlege of the subject-matter in the Academy, they are then admitted to the technical and professional teaching of the Normal School. In other words, the Academy performs the office of a preparatory school for the Normal Department in the same sense that it is a preparatory school for the College.

The condition of the various other departments of study will be made apparent from the reports herewith submitted by the professors in charge.

The Academy, which prepares students for the College classes, is the common feeder of all. Its course of study has been reduced to two years instead of three, by raising the standard of admission.

The subjects taught in the College are the following :

Mathematics, pure and applied.

Physics.

Civil Engineering.

Mechanical Engineering.

Chemistry, Elementary, Advanced, Qualitative Analysis, Quantitative Analysis.

Organic Chemistry.

Agricultural Chemistry.

Mechanics.

Zoology and Entomology.

Botany.

Geology.

Mineralogy.

Anatomy and Physiology.

Horticulture.
Agriculture.
Veterinary Science.
History and Political Economy.
Military Science and Tactics.
Mental Philosophy.
Moral Philosophy.
Logic.
Rhetoric.
English Language and Literature.
Ancient Languages, Latin and Greek.
Modern Languages, French, Spanish, Italian and German.
Normal School Training.

The departments above enumerated form the basis for the following courses of study, each of which leads to a degree:

Agricultural.
Mechanical Engineering.
Civil Engineering.
Scientific (Mathematical).
Scientific (Biological).
Scientific, Chemical.
Classical.
Normal School.

The Veterinary Course does not yet lead to a degree.

The number of professors and instructors, including the officers of the Experiment Station, is thirty, treble the number with which the College began twelve years ago.

The matriculates in the College, the Academy and the Normal School, with those of the Commercial Annex, were, in 1893–'4, 611, and in 1894–'5, 613. The increase in numbers since 1878, the last year of the connection of this College with the Kentucky University, has been, in the main, healthy and steady.

GROUNDS.

The campus of the College consists of fifty-two acres of land, located within the corporate limits of Lexington. The South Limestone street electric car line extends along the greater part of its western border, giving opportunity to reach, in a few minutes, any part of the city. The campus is laid out in

walks, drives and lawns, and is planted with a choice variety of native and exotic trees and shrubs, to which additions are constantly being made. A portion of the land has recently been reserved for a botanical garden, in which will be grown the more desirable native plants, with a view to testing their adaptability to cultivation, and to give increased facilities to students taking agricultural and botanical courses. Two and a half acres, forming the northeast portion of the campus, enclosed and provided with a grand stand, is devoted to field sports of students.

About three-quarters of a mile south of the campus, on the Nicholasville pike, an extension of South Limestone street, is the Experiment Station Farm, consisting of forty-eight and a half acres. Here the field experiments of the Station are conducted, and students have opportunities to witness tests of varieties of field crops, dairy tests, fertilizer tests, fruit spraying tests—in short all the scientific experimentation of a thoroughly equipped and organized Station. The front part of the farm is pasture and orchard. The back portion is divided off into two hundred one-tenth-acre plots for convenience in making crop tests.

BUILDINGS.

The main College building is a structure of stone and brick, 140 feet long and 68 feet wide. It contains the office of the President and the Business Agent, and on the third floor, counting the basement floor as one, is the Chapel, in which each day the students and faculty meet, and in which are held public gatherings and such other meetings as bring together the entire student body. The remaining space in this building is occupied by recitation rooms of the students.

The Station building is a handsome structure, well planned for the object for which it is made. It is 70 feet in length by 54 feet in width, with a tower projection in front and an octagonal projection 18x18 on the north side. The building is two stories high, and has a basement 11 feet from floor to ceiling. The main entrance is on the first floor, on the west side of the building, through an arch-way 15 feet wide. The basement is occupied in part by the Station and in part by the College.

The next floor is devoted to office and laboratory work of the Station, while the upper floor accommodates the College work in Chemistry.

The building devoted to Mechanical Engineering, covers altogether, an area of about 10,897 square feet; is constructed of stone and pressed brick, and is well furnished with modern conveniences for work in this branch of engineering. It contains rooms as follows: recitation room, 34x25; recitation room, 25x23; library and exhibition room, 25x23; offices, 10x12; drawing room, 34x35; engine room, 20x30; tool room, 30x6; wash room 30x10; boiler house, 27x27; wood shop, 80x34; machine shop, 42x35; blacksmith shop, 35x35; foundry, 35x37.

Within the present year an annex has been added to the Mechanical Engineering building just described, which largely increases its capacity. The annex, with its equipment, cost $10,000.

A new brick, two-story building, has been erected and furnished with modern conveniences for work in Veterinary Medicine.

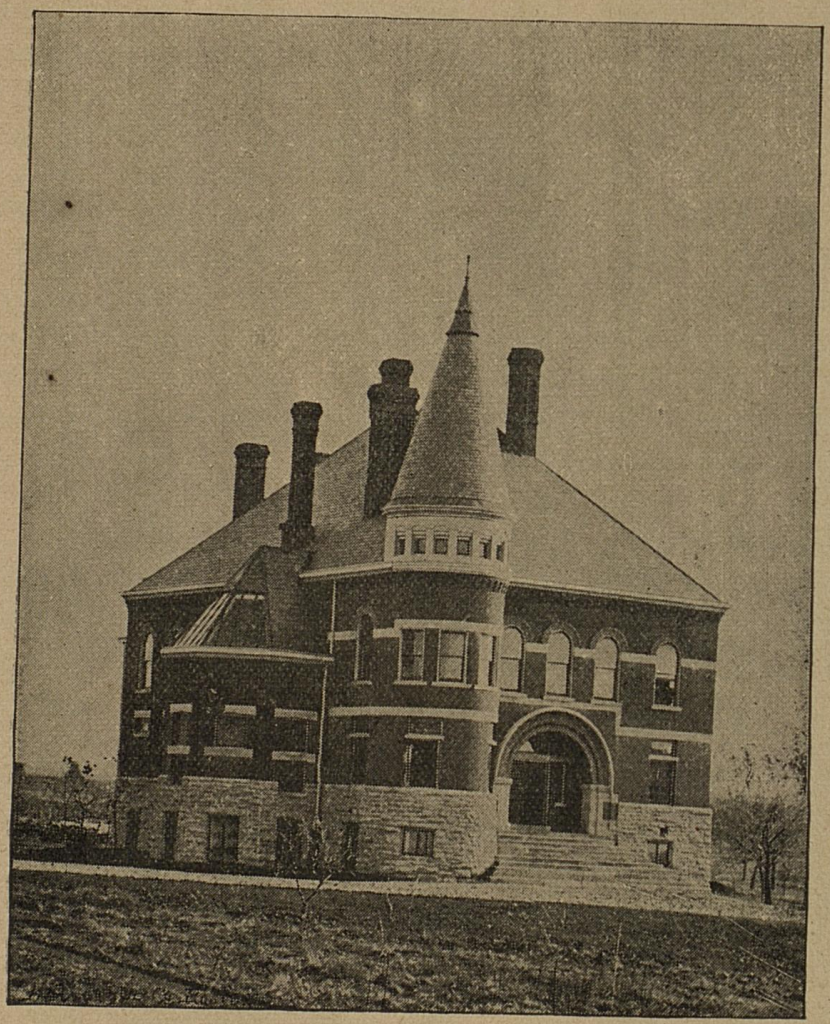
Two large brick Dormitories on the campus afford boarding conveniences for students who wish to lessen expense in this direction. Other buildings on the campus are, a brick dwelling for the President, and a frame cottage, at present occupied by the Commandant.

On the Experiment Farm is a brick dwelling, occupied by the Director of the Station, and the usual farm buildings for the care of tools, the protection of stock and the like.

Respectfully submitted,

JAS. K. PATTERSON.

Development



EXPERIMENT STATION BUILDING.

REPORT

—OF—

KENTUCKY AGRICULTURAL EXPERIMENT STATION.

As heretofore, the Station has limited its lines of work to those which are of the present greatest need to the farmers of the State. With our present funds it is impossible to expand into new lines of work very rapidly. It is hoped, however, that we may be able soon to take up feeding experiments and the dairy problems more extensively.

EQUIPMENT.

There has been added to our equipment a two thousand dollar dairy building, a two thousand dollar green house for the Horticultural Department, and a one thousand dollar insectary for the Entomological Department.

Our large barn at the farm, burned in December, 1893, with all its contents, including eight head of live stock; all our farm machinery; our entire collection of World's Fair specimens; the records of farm experiments at that time, not completed, and the products of our experimental fields stored in the barn.

In place of the burned barn, a storage barn, 45 by 80 feet, and 22 feet high, has been built; also a stable for keeping stock. An entire outfit of new farm machinery has been purchased, and now our equipment is equal to that which we had before the fire.

THE ANALYSIS AND INSPECTION OF COMMERCIAL FERTILIZERS.

The analyses of commercial fertilizers has been continued. This has taken a great portion of the time of one of our chem-

ists. The inspection of fertilizers on sale in the State has been undertaken on quite an extensive scale, with the result that, while it was found that generally the goods on sale were up to the standard, in some instances the brands were so far below samples on file here, that at least gross carelessness should be charged against the manufacturers in the mixing of these goods. The results of this inspection have been published in Bulletin No. 52. In Bulletins Nos. 51, 52 and 56 may be found the analyses of the samples of fertilizers sent by the manufacturers.

CROP TESTS AND FIELD EXPERIMENTS WITH FERTILIZERS.

Many tests have been made in these lines. The varietal tests have mostly been made by the Horticultural Division, in charge of Prof. Mathews.

GRASS PLOTS.

Prof. Garman has, under his charge, a very complete test of the different varieties of grasses, clovers and forage plants. These experiments, now under way for four years, are becoming of much interest.

THE USE OF PARIS GREEN TO DESTROY THE TOBACCO WORM.

Paris green is being used to some extent by our tobacco growers to destroy the tobacco worm. The Paris green is mixed with water, and this mixture sprayed on the growing plants. This is very effective and very inexpensive, compared with the method of picking the worms off by hand. It would be used almost universally were it not for the fear that the Paris green would adhere to the mature and cured leaf, and thereby poison the consumer. For the purpose of testing to what extent the Paris green does adhere, Prof. Garman and Prof. Peter have made a number of tests, the results of which may be found in Bulletin No. 53. More extensive experiments in this line will be made the coming year.

STUDY OF METHODS OF ANALYSIS.

The study of methods of analysis occupies a considerable portion of the time of the chemists. Mr. Peter gave almost

his entire time last year to the study of soil analysis. The necessity of such work is self-evident. If a method of soil analysis can be discovered, whereby we can tell the amount of available plant food to a certainty in any soil, a great problem in agricultural science will have been solved, and one which will be of incalculable value to agriculture.

PUBLICATIONS.

The publications of the Station since the last report are as follows:

BULLETIN No. 48—Commercial Fertilizers.
49— I. Destructive Locusts in Kentucky.
II. The Bud-worm of Tobacco.
50— I. Fruit Growing in Kentucky.
II. Notes upon Vegetables.
51—Commercial Fertilizers.
52—Commercial Fertilizers.
I. Official analyses.
II. Analyses of Farmers' Samples and Samples Collected by Deputy Inspectors.
53— I. Spraying for Codling-Moth.
II. The Use of Arsenites on Tobacco.
III. The Use of Bisulphide of Carbon and Hydrocyanic Acid Gas on Low Growing Plants.
54—Notes on Vegetables.
55—Field Experiments with Fertilizers.
1. Corn.
2. Potatoes.
3. Tobacco.
4. Hemp.
56—Analyses of Commercial Fertilizers.
57— I. Wheat Experiments.
II. Oat Experiments.
58—Cut-worms in Kentucky.

I append herewith, a statement of the Farm and Fertilizer accounts.

M. A. SCOVELL, *Director*.

FARM ACCOUNT.

Statement January 1, 1894.

Balance on hand January 1, 1893		$340 10	
Receipts for 1893—			
Milk, cream, etc.	$302 03		
Live stock	25 00		
Farm produce	129 20		
Premiums on cows	110 00		
Horticultural Department sales	79 00		
Rent	300 00		
		$945 23	
			$1,285 33
Expenditures during 1893—			
Ordinary supplies		$96 06	
Feed		289 70	
Repairs		28 20	
Milking, care of cows, etc.		221 50	
			$635 46
Showing a balance on hand of			$649 87

FARM ACCOUNT.

Statement January 1st, 1895.

Balance on hand January 1, 1894		$649 87	
Receipts, 1894—			
Milk and butter	$456 99		
Live stock	252 35		
Farm produce	176 22		
Service fees	35 00		
Keep of horse and cows	107 00		
		1,027 56	
			$1,677 43
Expenditures—			
Ordinary supplies		94 66	
Feed		500 90	
Repairs		148 93	
Milking and care of cows		75 00	
Furnace		270 00	
Cistern		146 75	
Miscellaneous		28 00	
			1,264 24
Balance on hand January 1, 1895			$413 19

FERTILIZER ACCOUNT.

Statement.

October 1, 1893, balance on hand	$2,831 79	
Receipts, 1893–'94	3,585 00	
Receipts, 1894–'95	3,945 00	$10,361 79
Expenditures, 1893–'94	$2,594 99	
Expenditures, 1894–'95	5,179 51	7,774 50
Balance on hand, October 1, 1895		$2,587 29
Moneys appropriated not yet expended—		
For dairy building	$1,482 84	
For insectary	562 05	$2,044 90

FERTILIZER ACCOUNT.

Itemized Receipts.

1893.			
Oct.	2.	Wm. Skene & Co.	$10 00
		Armour & Co.	10 00
	9.	Nolte & Dolch Fertilizer Co.	20 00
	11.	Meridjan Fertilizer Factory	20 00
	13.	J. F. & W. H. Singer	10 00
	16.	Ohio Valley Fertilizing Co.	20 00
		National Fertilizer Co.	15 00
		Armour & Co.	5 00
	20.	Loudenback Fertilizer Co.	5 00
Nov.	2.	Cincinnati Desiccating Co.	175 00
		A. B. Mayer Manufacturing Co.	15 00
	4.	Northwestern Fertilizing Co.	20 00
	7.	Currie Fertilizer Co.	45 00
Dec.	8.	Globe Fertilizer Co.	40 00
		Dunn & Backer	30 00
	21.	Dunn & Backer	10 00
1894.			
Jan.	8.	The Jones Fertilizing Co.	65 00
	13.	Michigan Carbon Works	80 00
	18.	Nolte & Dolch Fertilizer Co.	25 00
Feb.	8.	Dunn & Backer	20 00
	12.	Crocker Fertilizer and Chemical Co.	60 00
	22.	National Fertilizer Co.	5 00
	23.	Loudenback Fertilizer Co.	45 00
		Northwestern Fertilizing Co.	210 00
	26.	Crocker Fertilizer and Chemical Co.	55 00
Mar.	5.	Thompson & Edwards Fertilizer Co.	20 00
	6.	The Jones Fertilizing Co.	75 00
	7.	Jarecki Chemical Co.	15 00

Mar.	9.	Cincinnati Desiccating Co.	$120 00
		Michigan Carbon Works	5 00
	10.	Armour Packing Co.	20 00
	15.	Michigan Carbon Works	50 00
	19.	Northwestern Fertilizing Co.	35 00
		Globe Fertilizer Co.	60 00
	24.	A. D. Adair & McCarty Bros.	15 00
		E. Rauh & Sons	45 00
	27.	Loudenback Fertilizer Co.	5 00
	30.	Crocker Fertilizer and Chemical Co.	30 00
April	2.	National Fertilizer Co.	75 00
	3.	Jarecki Chemical Co.	5 00
	6.	The Jones Fertilizing Co.	20 00
		Wm. Skene & Co.	40 00
		Globe Fertilizer Co.	115 00
	7.	Northwestern Fertilizing Co.	125 00
	11.	National Fertilizer Co.	25 00
	17.	A. D. Adair & McCarty Bros.	5 00
	18.	Michigan Carbon Works	40 00
	19.	Baugh & Sons Co.	20 00
		Michigan Carbon Works	75 00
	23.	The Cleveland Dryer Co.	25 00
	25.	National Fertilizer Co.	35 00
May	2.	Nolte & Dolch Fertilizer Co.	20 00
		Ohio Valley Fertilizing Co.	20 00
	3.	Loudenback Fertilizer Co.	65 00
		Armour & Co.	60 00
	4.	A. B. Mayer Manufacturing Co.	45 00
	5.	Wm. Skene & Co.	40 00
		Chesapeake Guano Co.	20 00
		Detrick Fertilizer and Chemical Co.	60 00
	8.	A. D. Adair & McCarty Bros.	60 00
		Globe Fertilizer Co.	30 00
	10.	John S. Reese & Co., Agents	40 00
	11.	Meridian Fertilizer Factory	20 00
	15.	Cincinnati Desiccating Co.	105 00
	21.	Crocker Fertilizer and Chemical Co.	5 00
	22.	Northwestern Fertilizing Co.	35 00
		Nolte & Dolch Fertilizer Co.	40 00
June	1.	Northwestern Fertilizing Co.	5 00
	7.	A. D. Adair & McCarty Bros.	15 00
	11.	Standard Guano and Chemical Manufacturing Co.	15 00
	13.	Armour & Co.	20 00
		Currie Fertilizer Co.	220 00
		Cleveland Dryer Co.	60 00
	15.	The Jones Fertilizing Co.	5 00
	20.	Detrick Fertilizer and Chemical Co.	20 00

	June 21.	A. D. Adair & McCarty Bros.	$5 00
	July 12.	Cleveland Dryer Co.	30 00
	13.	Nolte & Dolch Fertilizer Co.	35 00
	24.	Cleveland Dryer Co.	10 00
	26.	Michigan Carbon Works	40 00
	Aug. 3.	E. Rauh & Sons	15 00
	20.	Globe Fertilizer Co.	30 00
	Sept. 1.	Mobile Phosphate and Chemical Manufacturing Co.	40 00
	3.	Northwestern Fertilizing Co.	25 00
	6.	Wm. Skene & Co.	10 00
		Thompson & Edwards Fertilizer Co.	20 00
	13.	The Jones Fertilizing Co.	60 00
	15.	Northwestern Fertilizing Co.	20 00
	17.	Standard Guano and Chemical Manufacturing Co.	5 00
	19.	Northwestern Fertilizing Co.	30 00
	21.	Armour & Co.	10 00
	22.	National Fertilizer Co.	25 00
	25.	J. F. & W. H. Singer	20 00
	28.	Standard Guano and Chemical Manufacturing Co.	5 00
	29.	National Fertilizer Co.	10 00
			$3,585 00

Itemized Expenditures.

$120 00	1893.		
5 00	Oct. 2.	H. E. Curtis, salary	$41 66
20 00	3.	Blue Grass Tobacco Co., stems	1 99
50 00		J. M. Byrnes, printing tags	106 00
35 00	31.	H. E. Curtis, salary	41 67
60 00	Nov. 6.	Blue Grass Tobacco Co., stems	18 38
15 00		J. M. Byrnes, printing tags	31 00
45 00	Dec. 1.	H. E. Curtis, salary	41 67
5 00	4.	Blue Grass Tobacco Co., stems	7 64
30 00	30.	H. E Curtis, salary	41 66
75 00	1894.		
5 00	Jan. 2.	Blue Grass Tobacco Co., stems	3 08
20 00	Feb. 1.	H. E. Curtis, salary	41 67
40 00	6.	Blue Grass Tobacco Co., stems	5 35
115 00		J. M. Byrnes, printing tags and bulletin	85 15
125 00	Mar. 1.	H. E. Curtis, salary	41 67
25 00	13.	Blue Grass Tobacco Co., stems	1 50
5 00		J. B. Farley, freight and drayage	9 72
40 00	14.	J. M. Byrnes, printing tags	8 00
20 00	27.	J. B. Farley, freight and drayage	4 00
75 00	28.	H. J. Baker & Bro., fertilizers	47 04
25 00	April 2.	H. E. Curtis, salary	41 66
35 00	11.	The Mapes F. & P. G. Co., fertilizers	125 99
20 00		J. M. Byrnes, printing tags	117 00
20 00			
65 00			
60 00			
45 00			
40 00			
20 00			
60 00			
60 00			
30 00			
40 00			
20 00			
105 00			
5 00			
35 00			
40 00			
5 00			
15 00			
15 00			
20 00			
220 00			
60 00			
5 00			
20 00			

April	12.	H. E. Curtis, extra compensation	$75 00
	16.	V. M. Metcalfe, inspecting fertilizers	110 58
		Adams Express Co., expressage	5 80
May	1.	H. E. Curtis,, salary	41 67
	10.	J. M. Byrnes, printing tags	107 50
		Trans. Print'g Co., printing bulletins, etc.	225 98
		Smith, Watkins & Co., tools and machinery	166 75
		Farley Transfer Co., freight and drayage	3 60
	22.	M. A. Scovell, dairy apparatus, etc	50 00
		Farley Transfer Co., freight and drayage	29 48
		Farley Transfer Co., freight and drayage	22 80
June	1.	H. E. Curtis, salary	41 67
	11.	J. M. Byrnes, printing tags	28 00
		German Kali Works, fertilizer	17 50
		Eimer & Amend, chemicals	15 08
	12.	M. A. Scovell, traveling expenses	37 29
July	2.	H. E. Curtis, salary	41 66
	3.	Blue Grass Tobacco Co., stems	19 02
		J. M. Byrnes, tags and supplies	21 05
Aug.	1.	H. E. Curtis, salary	41 67
		Blue Grass Tobacco Co., stems	9 74
		J. M. Byrnes, printing tags	49 50
Sep.	1.	A. M. Peter, extra compensation	75 00
		H. E. Curtis, salary	41 67
	5.	Trans. Print'g Co., printing bulletin	196 75
		A. M. Peter, traveling expenses	40 00
		J. M. Byrnes, printing tags	37 00
	7.	J. Travis, excavating cellar	16 65
		G. H. Hancock, building chimney	23 65
		J. W. Little, building cellar wall	89 45
	8.	G. H. Hancock, carpenter work	50 00
			$2,594 99

SUMMARY.

Printing bulletins, tags, etc.	$1,012 93
Chemical work	650 00
Fertilizers	257 23
Traveling expenses	77 29
Freight and express	75 38
Inspecting fertilizers	110 58
Dairy apparatus and packing specimens	50 00
Tools, implements and machinery	166 75
Chemical supplies	15 08
Propagating houses	179 75
	$2,594 99

Itemized Receipts.

1894.			
Oct.	5.	Northwestern Fertilizing Co.	$20 00
		Cincinnati Desiccating Co.	65 00
		Loudenback Fertilizer Co..	25 00
		Armour & Co.	10 00
	8.	J. B. Jones.	130 00
	16.	The Jones Fertilizing Co.	5 00
	17.	National Fertilizer Co..	25 00
	18.	National Fertilizer Co..	10 00
Nov.	9.	Globe Fertilizer Co..	85 00
Dec.	8.	Currie Fertilizer Co..	30 00
	18.	A. B. Mayer Manufacturing Co.	15 00
		P. B. Mathiason & Co.	15 00
1895.			
Jan.	1.	Crocker Fertilizer and Chemical Co.	30 00
		S. W. Travers & Co..	125 00
	7.	The Jones Fertilizlng Co.	25 00
	17.	Armour & Co.	90 00
	23.	Crocker Fertilizer and Chemical Co.	70 00
Feb.	2.	Crocker Fertilizer and Chemical Co.	34 00
	4.	Crocker Fertilizer and Chemical Co.	6 00
	7.	Armour & Co.	30 00
	16.	Michigan Carbon Works	20 00
	18.	S. W. Travers & Co.	35 00
	20.	S. Kaufman & Son	20 00
	23.	Loudenback Fertilizer Co.	80 00
	25.	Crocker Fertilizer and Chemical Co.	30 00
		P. B. Mathiason & Co.	30 00
Mar.	1.	Northwestern Fertilizing Co.	195 00
		Michigan Carbon Works	80 00
	5.	J. B. Jones.	90 00
		Ohio Valley Fertilizing Co.	20 00
	6.	National Fertilizer Co.	45 00
	9.	P. B. Mathiason & Co.	10 00
	11.	Northwestern Fertilizing Co.	75 00
		Thompson & Edwards Fertilizer Co.	20 00
	13.	Dunn & Backer.	155 00
	15.	John S. Reese & Co., Agents.	20 00
	18.	The Jones Fertilizing Co.	50 00
		S. W. Travers & Co..	40 00
	20.	National Fertilizer Co.	45 00
	22.	Northwestern Fertilizing Co.	35 00
	25.	Nolte & Bolch, Fertilizer Co..	40 00
	28.	Armour & Co.	10 00
April	2.	Wm. Skene & Co.	40 00
	4.	Crocker Fertilizer and Chemical Co.	15 00
		Armour & Co.	30 00

April	10.	Armour & Co.	$5 00
		Michigan Carbon Works	105 00
	11.	S. W. Travers & Co.	5 00
	12.	Nolte & Dolch Fertilizer Co.	10 00
		Northwestern Fertilizing Co.	10 00
	13.	Cleveland Dryer Co.	90 00
	15.	Cincinnati Desiccating Co.	15 00
	17.	Cincinnati Desiccating Co.	120 00
	19.	Cleveland Dryer Co.	20 00
May	1.	J. B. Jones	60 00
		Northwestern Fertilizing Co.	5 00
	3.	Armour & Co.	5 00
	7.	Wm. Skene & Co.	15 00
	13.	Northwestern Fertilizing Co.	10 00
	14.	Cincinnati Desiccating Co.	55 00
	15.	Globe Fertilizer Co.	210 00
		A. D. Adair & McCarty Bros.	80 00
		Wm. Skene & Co.	5 00
		National Fertilizer Co.	10 00
	20.	Michigan Carbon Works	25 00
	25.	Currie Fertilizer Co.	130 00
June	11.	Michigan Carbon Works	20 00
July	11.	Northwestern Fertilizing Co.	15 00
	15.	Jones Fertilizing Co.	90 00
	18.	Crocker Fertilizer and Chemical Co.	5 00
		Northwestern Fertilizing Co.	15 00
	19.	Crocker Fertilizer and Chemical Co.	40 00
	23.	Jones Fertilizing Co.	10 00
	25.	Michigan Carbon Works	35 00
Aug.	1.	J. B. Jones	50 00
		Hudson & Logan	20 00
	5.	Standard Guano and Chemical Manufacturing Co.	15 00
	8.	Jones Fertilizing Co.	10 00
	10.	Cleveland Dryer Co.	10 00
	14.	Crocker Fertilizer and Chemical Co.	10 00
	15.	Standard Guano and Chemical Manufacturing Co.	10 00
	19.	National Fertilizer Co.	20 00
		Baltimore Guano Co.	20 00
	21.	Standard Guano and Chemical Manufacturing Co.	5 00
	24.	Armour & Co.	10 00
	30.	Armour & Co.	20 00
Sept.	4.	Wm. Skene & Co.	10 00
		R. H. Hoskins	20 00
		J. F. & W. H. Singer	20 00
	9.	A. D. Adair & McCarty Bros.	20 00
		Meridian Fertilizer Factory	20 00
		A. B. Mayer Manufacturing Co.	40 00

$5 00	Sept. 10.	Southwestern Phosphate Co.	$20 00
105 00	11.	Goulding Fertilizer Co.	17 00
5 00	12.	Globe Fertilizer Co.	125 00
10 00		Akin Fertilizer Co.	20 00
10 00	13.	National Fertilizer Co.	15 00
90 00		Ohio Valley Fertilizing Co.	5 00
15 00	16.	Goulding Fertilizer Co.	3 00
120 00		Mobile Phosphate and Chemical Manufacturing Co.	20 00
20 00	18.	National Fertilizer Co.	15 00
60 00	19.	Northwestern Fertilizing Co.	75 00
5 00	26.	Standard Guano and Chemical Manufacturing Co.	5 00
5 00			$3,945 00
15 00			

1894. **Itemized Expenditures.**

10 00	Oct. 1.	H. E. Curtis, salary	$41 66
55 00		Blue Grass Tobacco Co., stems	17 14
210 00		C. W. Mathews, freight, etc.	10 17
80 00		G. B. Sharp, guttering	7 23
5 00		J. T. Jackson, lumber, etc.	171 31
10 00		H. E. Curtis, extra compensation	50 75
25 00	2.	J. M. Byrnes, printing tags	98 00
180 00		Brower, Scott & Frazee, felt lining	3 55
20 00		G. H. Hancock, carpenter work	52 70
15 00		Lockland Lumber Co., lumber	173 23
90 00	3.	Foushee & Co., glass	159 00
5 00	5.	Bush & Son, building tobacco barn	133 00
15 00	Nov. 1.	H. E. Curtis, salary	41 67
40 00	3.	G. Hancock, carpenter work	145 42
10 00	5.	Blue Grass Tobacco Co., stems	12 72
35 00		J. M. Byrnes, printing tags	8 00
50 00		H. E. Curtis, traveling expenses	9 25
20 00	7.	Lexington Brick Co., brick	24 00
15 00		G. B. Sharp, flashing rafters	2 25
10 00	20.	J. D. Carmody, sash lifts, etc.	12 00
10 00		W. P. Wight, tile	13 00
10 00		E. Hippard, ventilating apparatus	22 96
10 00	21.	J. B. Bonta, iron braces	8 62
20 00		Queen City Supply Co., iron	10 04
20 00	24.	G. H. Hancock, carpenter work	48 70
5 00		J. T. Jackson, lumber	130 63
10 00	Dec. 1.	H. E. Curtis, salary	41 67
20 00	3.	Blue Grass Tobacco Co., stems	2 27
10 00	5.	Lexington Plumbing Co., fittings, etc	78 69
20 00	6.	C. W. Mathews, sundry expenses	17 64
20 00		T. A. Hornsey, hardware, etc.	23 83
20 00		Foushee & Co., glass, paints, etc.	48 61
40 00			

1895.			
Jan.	2.	H. E. Curtis, salary	$41 66
		Hitchings & Co., ventilating apparatus	23 62
		C. W. Mathews, sundry expenses	7 17
	7.	Lexington Plumbing Co., heating contract	500 00
Feb.	1.	H. E. Curtis, salary	41 67
	4.	J. M. Byrnes, printing bulletin, &c.	239 90
	13.	Farley Transfer Co., freight and drayage	11 90
Mar.	1.	H. E. Curtis, salary	41 67
	4.	Trans. Print'g Co., printing tags	10 50
		J. M. Byrnes, fasteners and printing tags	91 05
April	1.	H. E. Curtis, salary	41 66
		Trans. Print'g Co., printing tags	69 40
		Farley Transfer Co., freight and drayage	5 05
		Blue Grass Tobacco Co., stems	3 15
	12.	Farley Transfer Co., freight and drayage	11 09
	23.	Farley Transfer Co., freight and drayage	5 72
May	1.	H. E. Curtis, salary	41 67
		Currie Fertilizer Co., ground tobacco	10 00
		Leslie Combs, tobacco stems	78 86
		Mapes F. & P. G. Co., fertilizers	81 33
		Trans. Print'g Co., printing tags	26 80
	7.	Friedr. Gloystein, fertilizer	30 00
	17.	Standard Oil Co., gasoline	44 38
	23.	Farley Transfer Co., freight and drayage	9 07
June	1.	H. E. Curtis, salary	41 67
		M. A. Scovell, Director, labor, May	277 16
		Trans. Print'g Co., printing tags	11 44
	3.	Blue Grass Tobacco Co., stems	14 67
		Lexington Plumbing Co., balance heating contract	116 00
		J. M. Byrnes, printing bulletin, etc.	145 45
	29.	H. E. Curtis, salary	41 66
		H. L. Rowe, plans dairy building	47 05
July	1.	M. A. Scovell, Director, labor, June	204 80
	2.	M. A. Scovell, Director, traveling expenses	17 55
		Trans. Print'g Co., printing tags, etc.	2 30
	6.	Farley Transfer Co., freight on lumber	6 59
	9.	Farley Transfer Co., freight on glass	5 40
	16.	Barron, Boyle & Co., glass for insectary	71 00
		Lockland Lumber Co., lumber	123 95
	26.	J. E. Leonard, stone work	90 00
Aug.	1.	H. E. Curtis, salary	41 67
	6.	Blue Grass Tobacco Co., stems	5 32
	16.	T. Sheehan, rebuilding foundation insectary	50 00
Sept.	2.	H. E. Curtis, salary	58 33
	3.	Trans. Print'g Co., printing tags	37 65
		Blue Grass Tobacco Co., stems	9 75

Sept.	3.	J. M. Byrnes, printing Fertilizer Bulletin No. 56	$112 00
	4.	F. Bush & Son, first payment on dairy building	220 11
	21.	Tandy & Byrd, brick work on insectary	91 00
	28.	F. Bush & Son, second payment dairy building	250 00
			$5,179 51

SUMMARY.

Printing bulletins, tags, etc.	$852 45
Chemical work	567 41
Fertilizers	285 21
Traveling expenses	26 80
Freight and express	42 83
Labor	461 96
Light	44 38
Tobacco barn	133 00
Propagating houses	1,810 37
Dairy building	517 16
Insectary	437 94
	$5,179 51

A. & M. COLLEGE,
LEXINGTON, KY., November 17, 1895.

President JAMES K. PATTERSON:

DEAR SIR: In compliance with your request, I have the honor to submit the following statement of the organization of the Academy, and a summary of the work done, and the results obtained for the two years ending June 6th, 1895:

Sections 11 and 14 of the charter require the College to take up and carry on the work completed in the common schools. For this purpose it provides that: "An Academy or Preparatory Department, to prepare students for the regular courses of study in the College, shall be established and maintained in connection with the College, under a competent principal and assistants, and under the general supervision and control of the faculty thereof: *Provided*, That no standard of admission adopted by the College for admission into the Academy shall exclude from the benefits of this act county appointees who have completed the course of study prescribed by law for the common schools of the Commonwealth."

In accordance with the foregoing, the Board of Trustees has appointed a Principal and three assistants, and approved the following courses of study:

I. SCIENTIFIC, AGRICULTURAL AND ENGINEERING COURSE.

First Year—Arithmetic through percentage, Robinson's Higher; Algebra, Wentworth's Higher to Chapter XI; Political and Descriptive Geography, Butler's Complete; History of the United States, Eggleston; English Grammar, Patterson's Advanced.

Second Year—Arithmetic completed, Robinson's Higher; Algebra, Wentworth's Higher to Chapter XXII; Elementary Physics, Gage; Physical Geography, Maury; General History, Anderson; Rhetoric, Williams; Synonyms, Graham; Shopwork.

II. CLASSICAL AND NORMAL COURSE.

First Year—Latin Grammar, McCabe's Bingham, Scudder's Gradatim; White's Beginner's Greek Book; Arithmetic through percentage, Robinson's Higher; Algebra, Wentworth's Higher to Chapter XI; Political and Descriptive Geography, Butler's Complete; English Grammar, Patterson's Advanced.

Second Year—Latin Grammar continued; Cæsar (Kelsey's); Virgil and Latin Exercises; Greek Grammar continued; Xenophon's Anabasis (Kelsey's); Homer's Iliad; Arithmetic Completed, Robinson's Higher; Algebra, Wentworth's Higher to Chapter XXII; Elementary Physics, Gage; Rhetoric, Williams; Synonyms, Graham.

ENROLLMENT FOR	1893–'94.	1894–'95.
Total enrollment	115	92
Number of males	95	80
Number of females	20	12
Number of new students	56	48
Number of former students	59	44
Number of counties in the State represented	31	32
Number of students from the city	46	20
Number of students from Fayette county	14	23
Number of students from other parts of the State	53	47
Number of students from other States	2	2
Number of students present at the final examination	90	56
Number of irregular, normal and College students taught in the Academy	12	6

CLASSIFICATION.

Number of first year students	59	46
Number of second year students	56	46
Number of scientific students	55	41
Number of classical students	40	26
Number of mechanical engineering students	10	15
Number of civil engineering students	5	3
Number of normal students	5	5
Number of agricultural students		1
Number of veterinary students		1

All students matriculated in the Academy are required to select and pursue one of the prescribed courses of study.

A fair knowledge of arithmetic to percentage is the standard of admission and ability to enter the second year algebra, the standard of classification.

The following tables show the subjects and the classes taught, the number of pupils assigned to each class, the average daily attendance, the number present at the final examination, the number who passed in each class, and by whom each class was instructed :

Subjects.	1893–94 Classes.	Total Number Enrolled . .	Average Daily Attendance.	Number Examined . . .	Number Passed	Instructor.
	First Year—					
Arithmetic—	Section 1. . .	28	21.5	21	14	W. K. Patterson.
	" 2. . .	21	14.3	16	9	V. E. Muncy.
	" 3. . .	21	17.3	19	13	J. L. Logan.
Algebra—	" 1. . .	20	17 6	15	10	W. K. Patterson.
	" 2. . .	36	27.0	28	11	V. E. Muncy.
English Grammar—	" 1. . .	28	22.5	23	21	V. E. Muncy.
	" 2. . .	24	18.1	18	5	J. M. Davis.
	" 3. . .	17	12.8	14	3	Mrs. Blackburn.
Latin Grammar—	Not divided .	30	24.0	19	13	R. L. Blanton.
Greek Grammar—	" "	12	. . .	10	10	J. H. Neville.
General History—	" "	15	11.1	10	4	V. E. Muncy.
United States History—	" "	17	16.5	17	6	Mrs. Blackburn.
Geography—	" "	19	16.6	15	14	Mrs. Blackburn.
	Second Year—					
Arithmetic—	Section 1. . .	21	18.9	19	10	J. L. Logan.
	" 2. . .	20	19.0	20	14	J. M. Davis.
Algebra—	" 1. . .	24	20.5	20	15	W. K. Patterson.
	" 2. . .	23	18 7	18	12	J. M. Davis.
	" 3. . .	23	15.9	15	4	J. L. Logan.
History—	" 1. . .	22	18.6	15	6	J. L. Logan.
	" 2. . .	21	17.5	15	7	J. M. Davis.
Rhetoric—	Not divided .	29	23.0	20	15	J. L. Logan.
Cæsar and Virgil—	" "	14	. . .	12	6	R. L. Blanton.
Cicero and Livy—	" "	2	. .	2	2	R. L. Blanton.
Physical Geography—	" "	32	30.0	31	27	J. M. Davis.
Elementary Physics—	" "	33	29.0	24	11	J. M. Davis.
Shop Work—	" "	7	. . .	7	7	J. R. Johnson.

Subjects.	1894–95 Classes.	Total Number Enrolled. .	Average Daily Attendance.	Number Examined. . . .	Number Passed.	Instructor.
	First Year—					
Arithmetic—	Section 1. . .	21	15.9	12	9	V. E. Muncy.
	" 2. . .	21	16.5	14	5	J. M. Davis.
Algebra—	" 1. . .	29	22.0	15	8	J. M. Davis.
	" 2. . .	17	13.6	10	6	J. L. Logan.
English Grammar—	" 1. . .	27	20.7	16	4	J. M. Davis.
	" 2. . .	27	20.6	16	10	V. E. Muncy.
Latin Grammar—	" 1. . .	11	. . .	2	2	R. L. Blanton.
	" 2. . .	16	. . .	8	6	J. H. Neville.
Greek Grammar—	Not divided .	3	. .	3	2	J. H. Neville.
Geography—	" "	31	28.0	27	19	R. N. Roark and Mrs. Blackburn.
United States History—	" "	28	24.4	. .	18	Mrs. Blackburn.
	Second Year—					
Arithmetic—	Section 1. . .	15	13.6	12	11	V. E. Muncy.
	" 2. . .	22	20.3	20	7	V. E. Muncy.
Algebra—	" 1. . .	16	13.0	10	7	W. K. Patterson.
	" 2. . .	18	13.5	10	6	J. L. Logan.
	" 3. . .	16	13.0	10	10	V. E. Muncy.
Physics—	" 1. . .	21	. . .	20	14	M. L. Pence.
	" 2. . .	22	. . .	19	14	M. L. Pence.
Rhetoric—	" 1. . .	17	12.9	12	12	W. K. Patterson.
	" 2. . .	19	14.9	10	10	J. L. Logan.
Physical Geography—	Not divided .	29	16.5	25	20	J. L. Logan.
History—	" "	25	18.6	17	9	J. L. Logan.
Cæsar and Virgil—	" "	7	. . .	5	4	R. L. Blanton.
Shop Work—	" "	6	. . .	. .	1	J. R. Johnson.

In addition to the class work already indicated, I gave general and special direction and supervision to the work of the Department. Monthly reports, showing class standing, merits or demerits for same, and attendance, were mailed to the parent or guardian of each pupil.

Until a separate building is provided for our use, I do not think the present organization and discipline of the Department can be materially improved.

No student is admitted who does not pass a satisfactory examination, and our class demerit system rapidly works out those who fail to profit by our instruction.

Section 14 of the charter provides: "The selection of the

beneficiaries shall be made by the superintendents of common schools in their respective counties, upon competitive examination, on subjects prepared by the faculty of the college, and transmitted to said superintendents before the first day of June of each year.

"Preference shall be given, other things being equal, to those who have passed with credit through the public schools, persons of energy and industry, whose means are small, to aid whom in obtaining a good education this provision is intended. It shall be the duty of the county superintendent to make known the benefits of this provision to each school district under his superintendency, with the time and place, when and where such competitive examination shall be held. He shall, for this purpose, appoint a board of examiners, whose duty it shall be to conduct the examination."

In but few counties of the State has the above provision been complied with, either in letter or in spirit.

Our standard for the admission of county appointees is the completion of the common school course. If this were rigidly adhered to, but few could, by examination, validate their appointments.

Respectfully,

W. K. PATTERSON,
Principal of the Academy.

LEXINGTON, KY., November 12, 1895.

President JAMES K. PATTERSON, *State College, Lexington, Ky.:*

DEAR SIR: In compliance with your request, I submit to you the following statement concerning the Department of English in the State College of Kentucky. Year before last the number of students enrolled in my classes (exclusive of the Academy) was 83. The number of students enrolled last year (exclusive of the Academy) was 87. The number enrolled this session to this date (exclusive of the Academy) is 66. This number will be increased, however, by the addition of new names after the Christmas holidays.

The text-book used by the Freshman Class is "Swinton's Studies in English Literature." The course consists in studies

of masterpieces of English Literature, selected from Shakespeare, Milton, Bacon, Burke, Emerson, Longfellow, Webster, and other great writers, English and American. In addition to this course of study, frequent exercises in English composition are required from each member of this class.

The Sophomore class, for the years 1893–'94–'95, studied, during the first term, the History of English Literature, and during the last term an advanced course in Rhetoric. This class at the present time is engaged in the study of the History of English Literature, together with the study of some of the works of the great masters, both of prose and poetry.

The Senior Class pursues a course in Mental Philosophy during the first term, and a course in Logic and Ethics during the second term. The text-books used, are "Jevon's Logic," "Hamilton's Metaphysics" and "Hopkins' Outline Study of Man" and "Lectures on Moral Science."

Permit me to congratulate you on the matter of general interest. I have never known a better spirit to prevail in the Faculty of our College than at present. There is clearly manifest a new and devoted loyalty to the College, and a disposition to give you and the Board of Trustees the most cordial support in your persistent and arduous effort to make the State College of Kentucky a seat of learning of the highest order.

Respectfully,

JOHN SHACKLEFORD,

Professor of English Literature.

LEXINGTON, KY., November 26th, 1895.

President JAMES K. PATTERSON, *State College of Kentucky, Lexington, Ky:*

MY DEAR SIR: I have the honor to herewith submit to you the report of the Department of Mechanical Engineering, of the State College of Kentucky, for two years ending June, 1895.

Yours truly,

F. PAUL ANDERSON.

The following constitutes the Faculty of Instruction in the Department of Mechanical Engineering:

J. K. PATTERSON, PH. D., President,
Professor of History, Political Economy and Metaphysics.

F. PAUL ANDERSON, M. E., Dean,
Professor of Mechanical Engineering.

(Arranged in order of seniority.)

JOHN SHACKLEFORD, A. M.,
Professor of English Language and Literature.

JAS. G. WHITE, A. M,
Professor of Mathematics and Astronomy.

J. H. KASTLE, PH. D.,
Professor of Chemistry.

M. L. PENCE, M. S.,
Professor of Physics.

J. P. NELSON, C. E., M. E.,
Professor of Civil Engineering.

J. H. WELLS, M. E.,
Assistant Professor of Mechanical Engineering.

J. R. JOHNSON, B. M. E.,
Instructor in Shop Work and Drawing.

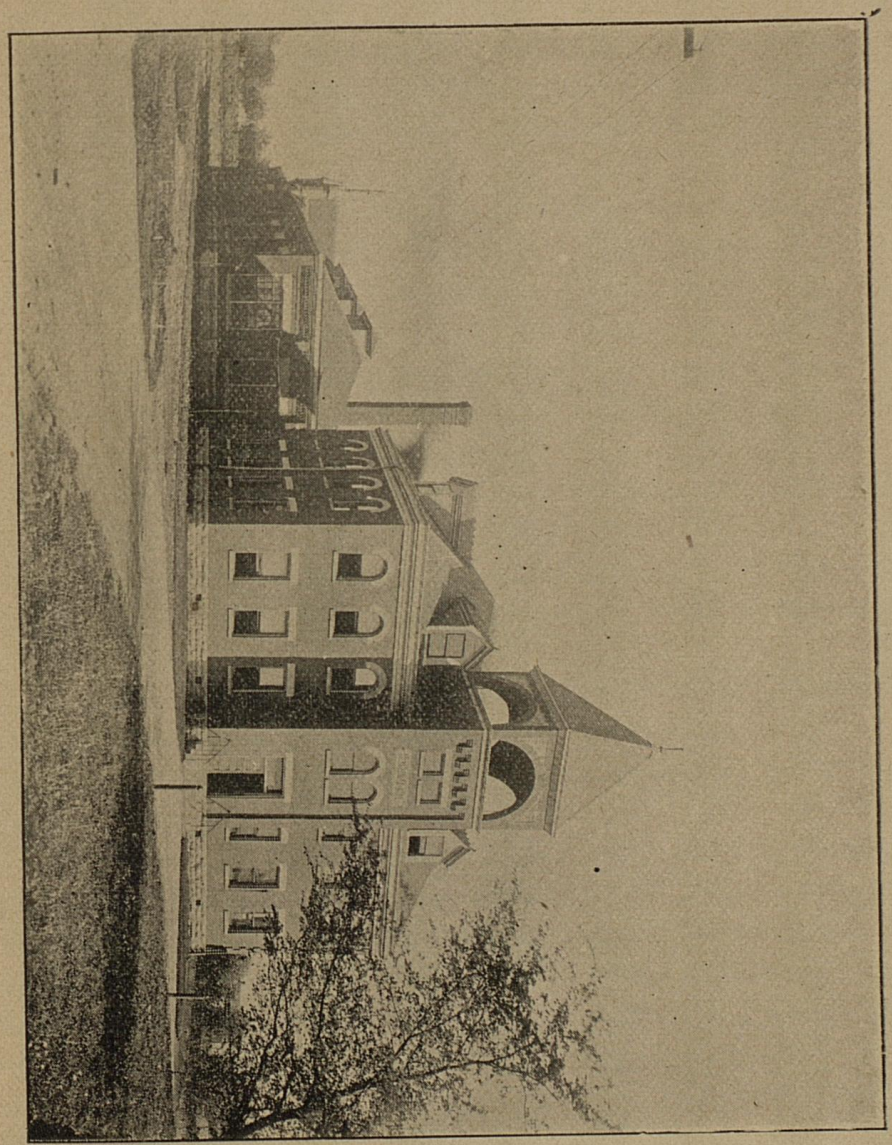
S. M. SWIGERT, Capt. 2d Cav., U. S. A.,
Professor of Military Science.

ASSISTANTS.

JOSEPH DICKER,
Instructor in Foundry.

GEORGE PEEK,
Engineer.

in the



MECHANICAL HALL.

COURSE IN MECHANICAL ENGINEERING.

Preparing young men for positions of responsibility and trust in the mechanical engineering world by giving them a training, both theoretical and practical, is the object of this course. The practical work extends over a period of two years, and includes the most important principles and operations in bench work in wood, wood turning, pattern making, foundry work, iron and steel forging, and hand and machine work in metal.

The theoretical work during the first two years consists of a thorough training in English, Chemistry, Mathematics, Physics and Drawing, and during the last two years the fundamental principles of boiler, machine and engine design are taken up. By a careful solution of practical problems the student becomes familiar with the processes carried on by the operators and designers of successful machine plants.

The course in mechanical engineering involves three separate lines of work:

1. *Steam Engineering*, the object of which is to give that training necessary to fit men to be operators and designers of steam machinery.

2. *Chemical Engineering*, intended especially to give that knowledge requisite for the successful operation of iron and steel plants, and the analysis of iron, steel, coals and refractory substances.

3. *Electrical Engineering*, in which the theory, design, building and operation of dynamos and motors is predominant.

During the Freshman and Sophomore years the work for all students in the Mechanical Engineering Course is identical, but during the Junior and Senior years a student is granted the privilege of electing one of the three lines of work indicated above.

The course of study in Mechanical Engineering, extending over a period of four years, leads to the Degree B. M. E. (Bachelor Mechanical Engineering). The advanced degree of Mechanical Engineer may be obtained by resident students in one year after taking the degree of B. M. E. from the State College of Kentucky or any other institution of equal requirements, having

successfully carried on work laid down, passed a satisfactory examination, and presented an acceptable thesis. Advanced degree may also be taken in three years after obtaining the degree B. M. E., provided the student has been engaged during the period of two years in practical engineering work, passes a satisfactory examination at the College, and presents an acceptable thesis.

FRESHMAN YEAR.

Almost at the very beginning of a student's career in the course he is put upon practical pattern building. The work along theoretical and practical lines is divided as follows:

Technical Instruction—Twenty-six weeks, three hours per week.

(*a*). Recitations on the forms of wood-working tools and the cutting and peculiarities of timber.

(*b*). Lectures on the operation of the various forms of wood-working machinery.

(*c*). Lectures on pattern-making, molding and casting.

Mechanical Drawing—Seventeen weeks, six hours a week, and nineteen weeks, ten hours a week.

This drawing includes free-hand sketches, drawing from copies and model, using parts of machines in the Mechanical Laboratories as models.

Shop Work—Thirty-six weeks, twelve hours a week.

(*a*). Bench work in wood, including exercises in the following operations: Planing, sawing, rabbeting, plowing, notching, splicing, mortising, tenoning, dove tailing, framing, paneling, and the general use of carpenter's tools.

(*b*). Wood turning, involving the various principles of lathe work in wood.

(*c*). Pattern-making, giving the student discipline in the construction of patterns for foundry work.

(*d*). Foundry work, including the various operations of molding, core-making, and the melting of iron and brass.

English—Thirty-six weeks, five hours per week.

Geometry—Seventeen weeks, five hours per week.

Trigonometry—Nineteen weeks, five hours per week.

SOPHOMORE YEAR.

Work of a practical character in the Sophomore year involves iron and steel forging, and a thorough course in machine-shop practice. The time for theoretical work is indicated below.

Technical Instruction—Sixteen weeks, one hour per week.

(*a*). Lectures on the handling of iron and steel in forging, and the methods of tempering and annealing steel.

(*b*). Lectures on modern machine-shop practice.

Mechanical Drawing—Sixteen weeks, four hours per week; thirty-six weeks, five hours per week.

(*a*). Drawing the parts of machines and complete machines to scale.

(*b*). Exercise in tinting and shading.

Shop Work—Thirty-six weeks, twelve hours per week.

(*a*). Exercise in iron and steel forging.

(*b*). Exercise in vise-work in metal.

(*c*). General machine work, including screw cutting, drilling, planing, and the milling of iron, brass and steel.

Descriptive Geometry—Nineteen weeks, five hours per week.

Physics—Thirty-six weeks, five hours per week.

Solid Geometry—Ten weeks, five hours per week.

Analytical Geometry—Nineteen weeks, five hours per week.

Higher Algebra—Seven weeks, five hours per week.

Chemistry—Nineteen weeks, five hours per week.

JUNIOR YEAR.

Work in the laboratory during the Junior year consists in superintending the construction of machines in the shops, and designing new appliances. The studies occupy the following amounts of time:

Kinematics—Seventeen weeks, five hours per week. Under this head are studied the velocity ratios in various motions, construction of gears, cams, quick return motions, straight line motions, epicyclic trains, parallel motions, and the manner of designing trains of mechanism.

Mechanical Drawing—Thirty-six weeks, ten hours per week. The work done during the year consists in the design of ma-

chines to do certain specific work, and the making of detail drawings of machines used in actual construction in the laboratories.

Metallurgy—Nineteen weeks, three hours per week. The above includes the study of fuels and refractory substances, and the processes employed in puddling iron and making steel.

Chemical Laboratory—Seventeen weeks, six hours per week.

Analytical Mechanics—Nineteen weeks, five hours per week.

Strength of Materials—Nineteen weeks, five hours per week.

Heat—Seventeen weeks, five hours per week.

Physical Laboratory—Seventeen weeks, six hours per week.

Magnetism and Electricity—Nineteen weeks, five hours per week.

SENIOR YEAR.

The student, for four months of the Senior year, devotes his laboratory hour to designing new machinery and in making tests of engines, boilers, belts, fuels and materials of construction. The other five months are devoted to the preparation of a thesis. Studies pursued are the following:

Thermo-dynamics—Twenty-six weeks, five hours per week.

This work consists of a study of the laws of Thermo-dynamics, thermal capacities and the application of Thermo-dynamics to the steam engine.

Steam Boilers—Seventeen weeks, five hours per week.

A study of the various commercial steam boilers, consumption of fuel, incrustation, determining the horse power of boilers, boiler tests, the design of boilers for efficiency and economy, and the methods of power transmission.

Valve Gearing—Seventeen weeks, five hours per week.

The study of various forms of standard engine valves and metheds of designing.

Mechanical Drawing—Seventeen weeks, ten hours per week.

This consists in working out practical designs of boilers and steam engine valves.

Engine and Machine Design—Fifteen weeks, five hours per week.

A study of the modern methods of designing engines and machines for strength as well as motion.

Experimental Engineering—Fifteen weeks, ten hours per week.

Includes a study of the indicator, making engine, boiler, belt, and materials of construction tests.

Political Economy—Fifteen weeks, five hours per week.

Theory and Practice of Photography—Seventeen weeks, five hours per week.

History—Twenty weeks, five hours per week.

Dynamometers and Measurement of Power—Twelve weeks, five hours per week.

Dynamo Electric Machinery—Nineteen weeks, five hours per week.

Thesis Work—Nineteen weeks, twelve hours per week.

Every student, before he attains the degree of B. M. E., must present a satisfactory thesis on some new design of a machine, or an original investigation.

The greater part of the second term of the senior year is given to the preparation of this thesis. The subjects for theses are assigned to the students by the Professor of Mechanical Engineering, and the completed theses are kept on file with the College records, that they may serve as reference for future investigators.

EQUIPMENT.

Mechanical Hall, erected especially for engineering purposes, is well adapted to this kind of work. The building is constructed of pressed brick, with stone trimmings; covers a floor area of 11,000 square feet; is heated by steam and lighted by 150 incandescent and four arc lights. The electrical plant is located in the building, and is part of the mechanical engineering equipment.

During each year new tools and machines are added, but the following gives roughly the present equipment for practical work:

The three recitation rooms are well supplied with modern appliances for efficient class-room work.

The drawing-rooms contain drawing tables, drawing-boards, curves, scales, tee-squares, and other special drawing apparatus to accommodate sixty students.

The engine room contains a 10-inch by 24-inch Hamilton-Corliss non-condensing engine and an 8-5 kilowatt Edison compound dynamo with amperemeter, resistance-box and volt meter, so that the dynamo may be used for experimental purposes.

The wood shop contains twenty benches, with complete set of wood working tools, thirteen wood turning lathes, each with complete set of turning chisels, band sawing machine, universal wood worker, fret saw, grind stone and universal trimmer.

The foundry contains a 30 inch cupola furnace, with a capacity of a ton of metal per hour, brass furnace, twelve complete sets of moulder's tools, twelve benches; also ladles, clamps, core room, core oven, pattern rack, and the tools employed in a practical foundry.

The blacksmith shop contains a 10-inch steel pressure blower, twelve forges, twelve anvils, three blacksmith vises, an emery grinder, and twelve complete sets of blacksmith tools for carrying on all kinds of iron and steel forging.

The machine shop contains six lathes, one milling machine, one self-feed drill, one planer, one shaper, one emery grinder, one universal grinding machine, one milling cutter grinder, one hand-feed drill, and twelve iron vises, and benches for vise work in metal.

The testing laboratory is equipped with a 100,000-pound Riehle testing machine, a pair of Crosby indicators, a Corliss engine, used exclusively for experimental work, a 51-horse power water tube boiler, a Riehle-Yale extensometer, a 1,000-pound U. S. standard Riehle Bros.' cement testing machine, and instruments for measurement of all dimensions.

The tool room is supplied with a fine assortment of superior tools for work in iron, steel, brass and wood, and contains such stock and supplies as may be used in constructions in the Mechanical Laboratories named above.

The wash room contains lockers for sixty-five students, and is supplied with marble basins and closets.

The boiler house contains a 51-horse power Babcock and Wilcox water-tube boiler and a Dean Bros. No. 3 steam pump.

CHEMICAL COURSE OF MECHANICAL ENGINEERING.

Having in Kentucky such an abundance of mineral products, and knowing the commercial working of the same to be of such

paramount importance, it has been deemed advisable to so enlarge this course of mechanical engineering as to include the chemical study and technology of fuels, iron and steel refractory substances, and such other mineral substances as are found within the borders of the State.

COURSE OF STUDY.

A course of study, having this for its object, has recently been established, and is now offered to the young men of this State. The course extends over a period of four years, and leads to the degree of B. M. E. (Bachelor of Mechanical Engineering). It has for its object to prepare young men to become intelligent engineers. As in the other two courses of mechanical engineering, the studies included in the first years are Mathematics, Physics, English, mechanical drawing and designing, and shop work in wood and iron. During the last two years, however, special work in chemistry is begun. This work consists in the study of elementary chemistry, metallurgy, analysis of iron and steel and useful alloys, qualitative and quantitative, theory and practice of photography, concluded by the special study and investigation of some problem in applied chemistry, the satisfactory completion and publicaton of which is necessary to graduation.

In addition to the special work in chemistry, the following supplemental studies in Mathematics, Physics and engineering are required: Calculus, Analytical Mechanics, Kinematics, physical laboratory work upon heat and electricity, thermo-dynamics, strength of materials, engine design, etc., etc.

LABORATORIES AND EQUIPMENT.

The lecture room and laboratories, qualitative and quantitative, occupy the entire second floor of the Experiment Station building. These several rooms are exceedingly well adapted to their purpose, and are among the best constructed and most handsomely furnished of any in the College.

The qualitative laboratory contains three very large working tables, each of which can easily accommodate ten students. The quantitative laboratory is also well equipped with tables, hoods, water, gas, electricity, etc., and has desk room for at

chines to do certain specific work, and the making of detail drawings of machines used in actual construction in the laboratories.

Metallurgy—Nineteen weeks, three hours per week. The above includes the study of fuels and refractory substances, and the processes employed in puddling iron and making steel.

Chemical Laboratory—Seventeen weeks, six hours per week.

Analytical Mechanics—Nineteen weeks, five hours per week.

Strength of Materials—Nineteen weeks, five hours per week.

Heat—Seventeen weeks, five hours per week.

Physical Laboratory—Seventeen weeks, six hours per week.

Magnetism and Electricity—Nineteen weeks, five hours per week.

SENIOR YEAR.

The student, for four months of the Senior year, devotes his laboratory hour to designing new machinery and in making tests of engines, boilers, belts, fuels and materials of construction. The other five months are devoted to the preparation of a thesis. Studies pursued are the following:

Thermo-dynamics—Twenty-six weeks, five hours per week.

This work consists of a study of the laws of Thermo-dynamics, thermal capacities and the application of Thermo-dynamics to the steam engine.

Steam Boilers—Seventeen weeks, five hours per week.

A study of the various commercial steam boilers, consumption of fuel, incrustation, determining the horse power of boilers, boiler tests, the design of boilers for efficiency and economy, and the methods of power transmission.

Valve Gearing—Seventeen weeks, five hours per week.

The study of various forms of standard engine valves and metheds of designing.

Mechanical Drawing—Seventeen weeks, ten hours per week.

This consists in working out practical designs of boilers and steam engine valves.

Engine and Machine Design—Fifteen weeks, five hours per week.

A study of the modern methods of designing engines and machines for strength as well as motion.

Experimental Engineering—Fifteen weeks, ten hours per week.

Includes a study of the indicator, making engine, boiler, belt, and materials of construction tests.

Political Economy—Fifteen weeks, five hours per week.

Theory and Practice of Photography—Seventeen weeks, five hours per week.

History—Twenty weeks, five hours per week.

Dynamometers and Measurement of Power—Twelve weeks, five hours per week.

Dynamo Electric Machinery—Nineteen weeks, five hours per week.

Thesis Work—Nineteen weeks, twelve hours per week.

Every student, before he attains the degree of B. M. E., must present a satisfactory thesis on some new design of a machine, or an original investigation.

The greater part of the second term of the senior year is given to the preparation of this thesis. The subjects for theses are assigned to the students by the Professor of Mechanical Engineering, and the completed theses are kept on file with the College records, that they may serve as reference for future investigators.

EQUIPMENT.

Mechanical Hall, erected especially for engineering purposes, is well adapted to this kind of work. The building is constructed of pressed brick, with stone trimmings; covers a floor area of 11,000 square feet; is heated by steam and lighted by 150 incandescent and four arc lights. The electrical plant is located in the building, and is part of the mechanical engineering equipment.

During each year new tools and machines are added, but the following gives roughly the present equipment for practical work:

The three recitation rooms are well supplied with modern appliances for efficient class-room work.

The drawing-rooms contain drawing tables, drawing-boards, curves, scales, tee-squares, and other special drawing apparatus to accommodate sixty students.

The engine room contains a 10-inch by 24-inch Hamilton-Corliss non-condensing engine and an 8-5 kilowatt Edison compound dynamo with amperemeter, resistance-box and volt meter, so that the dynamo may be used for experimental purposes.

The wood shop contains twenty benches, with complete set of wood working tools, thirteen wood turning lathes, each with complete set of turning chisels, band sawing machine, universal wood worker, fret saw, grind stone and universal trimmer.

The foundry contains a 30 inch cupola furnace, with a capacity of a ton of metal per hour, brass furnace, twelve complete sets of moulder's tools, twelve benches; also ladles, clamps, core room, core oven, pattern rack, and the tools employed in a practical foundry.

The blacksmith shop contains a 10-inch steel pressure blower, twelve forges, twelve anvils, three blacksmith vises, an emery grinder, and twelve complete sets of blacksmith tools for carrying on all kinds of iron and steel forging.

The machine shop contains six lathes, one milling machine, one self-feed drill, one planer, one shaper, one emery grinder, one universal grinding machine, one milling cutter grinder, one hand-feed drill, and twelve iron vises, and benches for vise work in metal.

The testing laboratory is equipped with a 100,000-pound Riehle testing machine, a pair of Crosby indicators, a Corliss engine, used exclusively for experimental work, a 51-horse power water tube boiler, a Riehle-Yale extensometer, a 1,000-pound U. S. standard Riehle Bros.' cement testing machine, and instruments for measurement of all dimensions.

The tool room is supplied with a fine assortment of superior tools for work in iron, steel, brass and wood, and contains such stock and supplies as may be used in constructions in the Mechanical Laboratories named above.

The wash room contains lockers for sixty-five students, and is supplied with marble basins and closets.

The boiler house contains a 51-horse power Babcock and Wilcox water-tube boiler and a Dean Bros. No. 3 steam pump.

CHEMICAL COURSE OF MECHANICAL ENGINEERING.

Having in Kentucky such an abundance of mineral products, and knowing the commercial working of the same to be of such

paramount importance, it has been deemed advisable to so enlarge this course of mechanical engineering as to include the chemical study and technology of fuels, iron and steel refractory substances, and such other mineral substances as are found within the borders of the State.

COURSE OF STUDY.

A course of study, having this for its object, has recently been established, and is now offered to the young men of this State. The course extends over a period of four years, and leads to the degree of B. M. E. (Bachelor of Mechanical Engineering). It has for its object to prepare young men to become intelligent engineers. As in the other two courses of mechanical engineering, the studies included in the first years are Mathematics, Physics, English, mechanical drawing and designing, and shop work in wood and iron. During the last two years, however, special work in chemistry is begun. This work consists in the study of elementary chemistry, metallurgy, analysis of iron and steel and useful alloys, qualitative and quantitative, theory and practice of photography, concluded by the special study and investigation of some problem in applied chemistry, the satisfactory completion and publicaton of which is necessary to graduation.

In addition to the special work in chemistry, the following supplemental studies in Mathematics, Physics and engineering are required: Calculus, Analytical Mechanics, Kinematics, physical laboratory work upon heat and electricity, thermo-dynamics, strength of materials, engine design, etc., etc.

LABORATORIES AND EQUIPMENT.

The lecture room and laboratories, qualitative and quantitative, occupy the entire second floor of the Experiment Station building. These several rooms are exceedingly well adapted to their purpose, and are among the best constructed and most handsomely furnished of any in the College.

The qualitative laboratory contains three very large working tables, each of which can easily accommodate ten students. The quantitative laboratory is also well equipped with tables, hoods, water, gas, electricity, etc., and has desk room for at

least fourteen students in all. The lecture room is well lighted and heated, and beautifully furnished and commodious, having a seating capacity of about seventy-five. Besides the laboratories and lecture room, there are several other smaller rooms on the same floor, set aside for the use of the chemical department, an instructor's office, a balance room and a store room.

APPARATUS.

The department is well equipped with the commoner forms of chemical apparatus and chemicals. In addition to these, it owns several of the more expensive pieces of apparatus, such as several exceedingly delicate balances for analytical work, a grand model Bunsen & Kirchoff spectroscope; platinum apparatus; a complete outfit for electro-plating; vapor density apparatus; a glass model ice machine, etc., etc. This, of course, will be added to from time to time, as the needs of the department demand and the resources of the institution permit. As it is now, however, the equipment is such as to readily permit the student to obtain, at first hand, a good working knowledge of chemical science.

ELECTRICAL COURSE OF MECHANICAL ENGINEERING.

Mechanical engineers of this age should be capable of operating and designing electrical machinery. To meet the demand of the times a course of study has been arranged to give the requisite training along electrical lines.

The studies pursued constitute largely those appearing in the steam engineering course. The work embraces practical dynamo building in the mechanical laboratories, designing dynamos and motors, a study of the operation and equipment of electric lighting and power stations, and the methods of testing the efficiency of dynamos and motors in connection with engines and boilers.

More time is devoted to work of an electrical character in the physical laboratory.

The courses in Heat, Kinematics, Thermo-dynamics, Valve Gearing, Engine Design and Dynamometers and Measurement of Power, laid down in the Steam Engineering branch of

Mechanical Engineering, are shortened, and subjects pertaining to Magnetism and Electricity, alternating currents and lighting and power plants are substituted. General machine design is shortened, and special attention is given to the design of motors, electrical appliances, electric light apparatus and dynamos.

The thesis required for graduation is of an electrical character, either a design or an investigation of existing machines.

The electrical course of study leads to the degree of B. M. E., (Bachelor of Mechanical Engineering.)

WORK ACCOMPLISHED—1893-94 AND 1894-95.

No feature of a technical school is more important than that which gives the student in designing an opportunity to see the building of machines after his own designs. It is the plan of the School of Mechanical Engineering to build each year at least two complete machines from students' designs, besides the construction of the usual exercises in manual training.

During the year 1893-94, in the School of Mechanical Engineering, fifty-seven students were instructed; over 150 new designs were completed by the young men; a sixty-light incandescent dynamo, a speed lathe and a Justice hammer, weighing 1,300 pounds, were built in the laboratories.

The above machines included the drawings, patterns, castings, forgings and machine work.

Considerable work was accomplished in the testing laboratory. Irons, steels, bricks, stone, belts, steam gages, thermometers, engines, fuels and boilers were tested.

In the forge shop a six incandescent light chandelier was constructed.

The graduating class of 1894 was composed of Messrs. J. T. Faig, U. A. Garred, N. A. Newton, and A. C. Norman.

The first three men prepared a thesis on the "Calorific Properties of Kentucky Coals." The investigations involved a chemical analysis, a steam test, and a determination in a Barrus' calorimeter to find the total heat of combustion of the various coals submitted.

Mr. A. C. Norman prepared for a thesis the design of a

25-horse power engine, to be used for experimental valve setting purposes.

During 1894–'95, in the mechanical laboratories, a 25-horse power slide valve engine was constructed after the designs of Mr. A. C. Norman, of the class of 1894; a sensitive drill, after the design of Mr. J. I. Lyle, was built; a number of models for use in kinematics were completed, after designs by members of the class of 1896. The above machines included drawings, patterns, castings, forgings and machine work.

Considerable work was carried on in the testing laboratory, including physical tests of irons, steels, building stones, belting, cements. In the chemical laboratory a large number of coals were analyzed, and results put into practical shape for the steam engineer.

Messrs. J. I. Bryan and J. M. Downing were members of the graduating class of 1895, from the mechanical engineering department. Mr. Bryan submitted a thesis on the design of an "Automatic Cut-off Governor," to be applied to a plain slide valve engine, also the modification of a plain slide valve into a Polonceau valve. Mr. Downing presented a thesis on "The Design of an Automatic Cut-off Vertical Compound Engine of 40-horse power."

The regular work, theoretical and practical, was carried on, and many special appliances were built according to the students' designs.

RECOMMENDATIONS.

I respectfully submit the following recommendations for the consideration of the Board of Trustees:

First. That the Board of Trustees appeal to the State Legislature for an appropriation of $20,000 (twenty thousand dollars) for the purpose of erecting an experimental engineering laboratory, to be devoted to steam and electrical engineering.

Second. That the Board of Trustees appeal to the State Legislature for an appropriation of $40,000 (forty thousand dollars), to be used for the equipment of an experimental laboratory, devoted to steam and electrical engineering.

It has been demonstrated in the older States that the encouragement of high grade schools of technology has been a great factor in the material development of the State.

Kentucky is possessed of a wealth of iron, coal and timber that should be developed by her own sons, and the best way to accomplish this is to equip her young men with a knowledge of manufacturing, which fundamentally depends upon a familiarity with steam and electrical machinery. The State College of Kentucky is well prepared to do creditable work in instruction along the lines of machine design and manual training, but the facilities for doing high grade work in experimental engineering are very limited.

Kentucky has taken rank with the best engineering schools of the South, and with material aid from the State Legislature, she will be able to draw students liberally from her own State and fit them for a life of usefulness in the profession of mechanical and electrical engineering. In the last five years many of our older States have expended for mechanical engineering alone, over $200,000 (two hundred thousand dollars), and if Kentucky expects to do creditable work in this new field, she must amply equip the department of mechanical engineering in her State College.

Steam and electrical laboratories require almost a fortune to equip, each piece of apparatus is expensive, and a large number of individual pieces of apparatus are required to do efficient work. Since the establishment of the department in 1891, great interest has been shown in mechanical engineering by a large number of Kentucky boys, and all the graduates from the department of mechanical engineering have shown themselves capable, and without a single exception all are earning good salaries.

I respectfully and earnestly appeal to you to secure special appropriations for the department of Mechanical Engineering from the State Legislature during their next session. I believe you realize the importance of the work and the degree of success the department has already attained.

Yours respectfully,

F. PAUL ANDERSON.

Dean of the School of Mechanical Engineering.

LEXINGTON, KY., November 29th, 1895.

President JAMES K. PATTERSON :

DEAR SIR : In compliance with your request I hereby submit the following report of the Chemical Department of the State College of Kentucky for the two years ending June, 1895.

HISTORICAL.

The Chemical Department was one of the first to be organized after the establishment of the Institution. It was placed in charge of Dr. Robert Peter, under whose care and guidance it continued until 1887, when he resigned the position. Dr. E. H. Von Schweinitz was at once appointed to fill the vacancy thus created by the resignation of Dr. Peter. He held the position during the collegiate year 1887-88, when he also resigned, and the present writer was appointed.

LOCATION AND EQUIPMENT.

For several years the Chemical Laboratories and lecture-rooms occupied the eastern part of the main College building. In September, 1889, however, the Experiment Station building having been compteted, the apparatus and equipment were removed from the old laboratories in the main building to more suitable and beautiful rooms on the second floor of the Experiment Station building. The lecture rooms and laboratories, qualitative and quantitative, of the Chemical Department, are exceedingly well adapted to their purpose, and are among the best constructed and most handsomely furnished of any of the rooms of the College. The qualitative laboratory is also well equipped with tables, hoods, water, gas and electricity, and has desk room for fourteen students. The lecture room is well lighted and heated, and is beautifully furnished and commodious, having a seating capacity of about seventy-five. Besides the laboratories and lecture room there are several smaller rooms on the same floor which have been set aside for the use of the Chemical Department, viz : A balance room, an instructor's office and a store-room.

APPARATUS AND CHEMICALS.

The department is well equipped with the commoner forms of chemical apparatus and chemicals. In addition to these it owns several of the more expensive pieces of apparatus, such as several exceedingly delicate balances for analytical work; a great model Bunsen and Kirchoff Spectroscpoe; platinum apparatus; a complete outfit for electro-plating; a vapor density apparatus; a glass model in machine, etc., etc.

INSTRUCTION.

Instruction in chemistry is provided for in each of the several courses of study offered by the College, but in order to prepare men and women for practical work in chemistry, pure and applied, and with the view of preparing still others for the study of medicine, pharmacy, or the further study of one of the natural sciences, a chemical course has recently been established and offered by the College. The following subjects are included in this course of study:

Chemistry.
Mathematics.
English.
French.
German.
Physiology.
Botany.
Zoology.
Physics.
Mental Philosophy and Logic.
History and Political Economy.
Geology.

So that, while this course of study has for its object thorough training in chemistry, it affords the student a good liberal education as well. Instruction in chemistry proper includes the following subjects:

Lectures and recitations on the chemistry of the non-metals.
Laboratory work on the non-metals.
Qualitative and quantitative and analysis.

Lectures on theoretical and organic chemistry.
Laboratory work in organic chemistry.
Advanced laboratory work—chemical research.
Lectures on current chemical literature.

ENROLLMENT.

During the collegiate year 1893–'4 sixty-five (65) students received instruction in this department of the College, and during the year 1894–'95 eighty-seven (87) were enrolled in this department. Of this number several are taking the regular chemical course, and several others are special students in chemistry.

RESULTS.

It has been the aim of the department to make chemical study as thorough and as advantageous and interesting to the student as possible. The results of this policy, as measured by the number of students, regular and special, who have taken work in chemistry, and as measured also by the number of those among the students of the department who have afterwards taken high rank in some of our greatest universities and medical colleges, have been encouraging to a high degree.

The ultimate success of any school of natural science, however, is not to be measured by these standards alone, but also by its original contributions to the thought and literature of which it is an exponent. The aim, therefore, has been, and is, to make the Chemical Department, not only a school for instruction in the several branches of chemistry, but a center of chemical thought as well. With what success this idea has been carried out may be judged of by the fact that, during the last seven years, the department has made the following contributions to chemical literature:

On the separation of copper and cadmium, J. H. Kastle.

On the decomposition of silver chloracetate, considered in the light of Ostivald's Theory of Affinity, J. H. Kastle and B. C. Keiser.

On the compositions of the salts of chloral and bromo acetic acid, J. H. Kastle.

On the color of salts in solution, J. H. Kastle.

On the action of benzine sulphonic acid on potassium iodide (a new class of periodides), J. H. Kastle and H. H. Hill.

On the action of oxalic acid on phosphates, silicates and soils, J. H. Kastle, Paul Murrill and W. J. Calvert.

Diazobenzene aniline chloride, J. H. Kastle and B. C. Keiser.

On the saponification of the ethers of the sulphonic acids by alcohols, J. H. Kastle and Paul Murrill.

On the determination of the affinities of acids colorimetrically by means of potassium dichromate, J. H. Kastle and B. C. Keiser.

These investigations represent the advanced work which is being done in the department. Apart from their scientific value, they indicate that something more is being done here in chemistry than merely teaching the rudiments of the science; and they are fast winning for the department and the College a favorable recognition among the greater schools of this country. All the more is this true, in that no such work has ever been attempted in any of the other Colleges of our Commonwealth.

Respectfully submitted,

[Signed.] JO. H. KASTLE,
Professor of Chemistry.

A. & M. COLLEGE OF KENTUCKY,
DEPARTMENT OF ANATOMY AND PHYSIOLOGY,
LEXINGTON, KY., December 14, 1895.

President J. K. PATTERSON:

DEAR SIR: In compliance with your request, I herewith submit a report of the Department of Anatomy and Physiology.

I have but few changes to report to you from this department.

What may be termed the advanced class, *i. e.*, that class extending through both terms, has been continued as in the past. This class is composed of the pupils matriculating in the scientific (mathematical and chemical), biological and agricultural courses, all leading to the degree of B. S.; the normal course leading to the degree of B. Ped. and the veterinary course.

Those taking the classical course leading to the degree of A. B. are required to take but one term, this in the Freshman

year, at the third hour. Normal pupils have been permitted to enter this class in place of the ten weeks' classes that are organized for their benefit during the same term. The ten weeks' classes are intended as a review, it being supposed that those entering these classes have some previous knowledge of the subject.

I have seen no reason for changing the method of instruction, that of lectures, demonstrations and recitations. My plan of teaching has been to require a study of the topic as given in the text-book, followed by lectures. The pupil is required to take notes; the notes are copied in a suitable note-book, and inspected by me at various times during the year. In this way I am enabled to make corrections. Neatness in writing, correct spelling, etc., is required. While this involves a great deal of extra work on my part, I have been fully repaid by the increased interest taken and better results obtained.

My lectures are illustrated with the lantern, and with drawings upon the board. These drawings are copied by the pupil from the board, and again copied in their note-books.

In many instances the drawing is crude, but I find it a very efficient method of instruction.

While I fully appreciate the value of lectures, and I endeavor to give them the benefit of many hours of reading and study of the latest text-books and journals of Physiology, Bacteriology and Medicine, I do not depend upon their acquiring a thorough knowledge of the subject in this way. There are many ways of drilling them on the subject-matter that are suggested to the teacher that can best be appreciated in the class-room. Specimens are exhibited in connection with each lesson where it is possible to obtain them. My opportunities for Physiological experiment and original research are of course limited. With the laboratory facilities, which we hope to have in the near future, this class of work, that is of so much interest to the pupils, will be fully demonstrated.

At the close of each year a special course of lectures is delivered on hygiene. A long and varied experience in the practice of medicine gives me the opportunity of explaining the cause, course and treatment of diseases and their prevention.

As you well know this department is equipped with models, microscopes, charts, etc. We have a complete Auzou man (life size), enlarged models of the ear and eye (complete and vertical sections), side of face, larynx, hand, etc. We have skeletons in full, articulated and disarticulated, in sections, etc. To this equipment I last year added a set of anatomical lantern slides, illustrating the macroscopical and microscopical appearance of the organs and tissues. I may justly claim the new stereopticon lantern, that has been of such great service to the entire College, as belonging to this department.

During the session of 1893–'94, the advanced class consisted of eight females and twenty-four males. The first Normal class was composed of five females and twenty-five males. Twenty-three of these were taking the Classical course, and were required to take the second ten-weeks. The second Normal class consisted of twelve females and twelve males. During the present session of 1895–'96, the advanced class is composed of seven females and twenty males, and the third hour class of eight females and twelve males.

The practical side of my work has borne most gratifying results where my pupils have entered medical schools or have been applicants for positions as teachers.

Respectfully,

[Signed.] J. W. PRYOR, M. D.,
Professor of Anatomy and Physiology.

LEXINGTON, KY., December 4, 1895.

JAMES K. PATTERSON, *President of A. & M. College of Kentucky:*

MY DEAR SIR: In compliance with your request for a report of the work done by students of this College in Mathematics and Astronomy during the past two years, I desire to submit the following:

The work in elementary mathematics, i. e., in Arithmetic and Elementary Algebra, is under the instruction and direction of Prof. W. K. Patterson, Principal of our Academy, and will, I presume, be reported to you by him.

For admission to the Freshman class I require a thorough knowledge of Arithmetic and Algebra through quadratic equation.

In the Freshman year the student takes Higher Algebra, Plane Geometry and Plane Trigonometry, giving five (5) hours a week for half ($\frac{1}{2}$) the school year to Algebra; five (5) hours per week for about three-fifths ($\frac{3}{5}$) of the year to Plane Geometry, and five (5) hours per week for the remaining two fifths ($\frac{2}{5}$) of the year to Plane Geometry.

In the Sophomore year the student has Solid Geometry, Conic Sections and Analytical Geometry, giving five (5) hours per week for half the year to Geometry and Conic Sections, and five (5) hours per week for half ($\frac{1}{2}$) the year to Analytical Geometry.

In the Junior students have five (5) hours per week for half ($\frac{1}{2}$) the year in Calculus.

Seniors give five (5) hours per week for half ($\frac{1}{2}$) the year to the study of Theoretical Astronomy.

The results obtained by the great majority of my students in these various branches during the last two years have been in the main satisfactory. The number of students in the several branches are as follows:

SESSION 1893–'4.

	Males.	Females.	Total.
Freshman—			
Algebra	23	20	43
Plane Geometry	38	18	56
Plane Trigonometry	37	16	53
Sophomore—			
Solid Geometry and Conic Sections	16	6	22
Analytical Geometry	18	11	29
Junior—			
Calculus	8	0	8
Senior—			
Astronomy	11	6	17

SESSION 1894–'5.

	Males.	Females.	Total
Freshman—			
Algebra	52	17	69
Plane Geometry	52	19	71
Plane Trigonometry	47	16	63
Sophomore—			
Solid Geometry and Conics	25	11	36
Analytical Geometry	26	12	38
Junior—			
Calculus	8	0	8
Senior—			
Astronomy	7	6	13

From the figures given above, it is evident that nearly all of my classes are large, requiring two or three sections for each of the Freshman studies.

For session 1895–'6, my classes do not differ essentially from corresponding classes for previous sessions.

Respectfully yours,

[Signed.] JAS. G. WHITE,

Professor of Mathematics and Astronomy.

LEXINGTON, KY., November 1, 1895.

To the President:

SIR: I have the honor to submit the following report of the work of the Department of Civil Engineering:

The purpose of this course of study is to instruct students in the principles of the science of civil engineering in its various branches, and, as far as possible, to illustrate these principles by applying them to such problems as occur in both field and office work. Moreover, an effort is made to so conduct the course of instruction in all the classes that the result may not be merely satisfactory technical training and consequent preparation for the profession of a civil engineer, but also the education of the student, so that he can be somewhat ready for whatever duty his life's work may put upon him. One of the foremost teachers in technical training has said that the only tenable plea for the present development of that branch of college work is "the value of technical training to those who do *not* enter technical professions." It is not enough that students are taught to do well some one thing. To be what it should be, his course of study and of training must be "an education that educates." It is the mental development of the student which is aimed at in the work of this department, and the results of this work are such as to warrant the belief that this course pursued will bring to the student large returns in the education in him of those quantities which tend to secure for him success in whatever calling he may follow.

The demand for highly trained engineers in all of the branches of that profession is constantly growing. The development of municipalities and of their proper physical ordering calls for the employment of competent city engineers. The demand for

buildings conducted upon scientific lines, so that space may be economized while stability is not sacrificed, exacts in the architect high engineering skill. The economical maintenance of railways offers an opportunity to many educated men.

An ever increasing effort to better the highways of our country, is forcing upon county officers the necessity of employing engineers to take charge of the construction and maintenance of their roads, and, more especially, of the erection of county bridges. There are some reasons why a constant demand will exist for skilled civil engineers. A civil engineer is a professional man, and not a skilled mechanic. His profession ranks with that of the lawyer and of the physician. It is one of the learned professions. Its emoulments are as sure, and as worth the striving after, as are those of its kindred callings. It takes patience and perseverance to win the high prizes in this profession even as in the rest. Here, as elsewhere, results of high value are seen only when the graduate has passed through a novitiate, not infrequently full of trying circumstances, and when he has proven himself to be a "civil engineer" by right of his own highly trained and innate powers. The great engineer is he who treats his profession as a calling, as a profession, and not as a handicraft.

The work in this course of study, is briefly described as follows:

FRESHMAN YEAR.

English and mathematics, through Plane Trigonometry, are studied this year. In purely technical work, draughting is taught during the first term for the purpose of giving the student skill in the use of instruments, and in making right line drawings according to the best methods. Models in architecture and in engineering subjects are followed. The student is shown how structures are represented on paper, and he learns to make plans for builders to follow. During the second term plane surveying is taught with practice in the field. Surveys are made and are platted in the office. All work is done as though it was designed for practical use.

SOPHOMORE YEAR.

Mathematics is pursued through Analytical Geometry. During the first term, two hours are devoted to theoretical and practical Physics. Railway location is studied and plats are made of surveys. The second term Chemistry is studied. Descriptive Geometry and structural designs are taught in the technical course. The latter subject is designed to instruct the student in the forms and manufacture of implements and machines used in railway building maintenance, such as track tools, track equipment, etc. Field work in making surveys, locations and simple triangulation, is practiced as the weather permits. In this work the ordinary field instrument, such as transit, lens, compass, solar attachment, plane table with necessary rods, chains and other apparatus are used.

JUNIOR YEAR.

Mathematics is completed through the Calculus. The first term is spent in the study of civil engineering as generally set forth in such text-books as Wheeler's and Mahan's, with supplementary reading in the current literature of the profession, and with notes given by the Professor. Structures are studied after the theory of Graphical Statics. Bridges and roofs are examined for stresses. Work in finding meridian time and latitude by celestial observation is done.

During the second term attention is devoted to electricity and magnetism applied to practical purposes. Strength of Materials is studied, both in theory and by the use of testing machines. The various building materials are tested for strength, and the results are examined for the purpose of deriving the proper constants. Analytical Mechanics, with especial reference to the subject of statics is taught, using the methods of the Calculus. A course in Economic Geology is given. During the entire Junior year attention is paid to structural designs and draughting in connection therewith. Details are studied by means of the best methods practiced by our leading structural builders, such as the King Bridge Company, Edge Moore Bridge Co., and

in minor bridge companies who have kindly given to this department valuable plans of work actually done.

SENIOR YEAR.

History and Political Economy occupy one hour daily during this year. The rest of the time is devoted to the study of bridges and other structures, Hydraulic Engineering, Sanitary Engineering, a short course in Architecture, Stereotomy and Astronomy.

Opportunity will be offered this year for the differentiation of studies, so that a student can fit himself for any line of work should he so desire to do.

In conclusion, I beg leave to call your attention to the needs of the department for its proper development. The present accommodations are seriously inadequate. Under existing circumstances, work of different kinds has to be conducted in the same room at the same time.

One room is occupied constantly for six hours, which is recognized to-day to be in violation of the laws of Hygiene. Ample room is needed for properly demonstrating the practical parts of this work with proper apparatus. We need for this work full sized numbers of properly designed structures, with a suitable supply of machines and in the daily work of engineer building and maintaining railways. We should have such models in stone cutting, topography, geodesy, bridge and track details, roofs and hydraulic apparatus as are now being used by other schools of civil engineering. It would be highly valuable could the means be forthcoming for the erection of a building, equipped with proper laboratories for civil engineering work.

I ask your earnest attention to this matter. The expenditure of $20,000 for this work would give to the Department of Civil Engineering such immediate accommodation and apparatus as the importance of this study demands.

Respectfully submitted,

[Signed.] J. P. NELSON.

LEXINGTON, KY., November 18, 1895.

President Patterson:

DEAR SIR: The report of the Department of Geology and Zoology for the fall term of 1895 is as follows:

The union of the Departments of Zoology and Geology under one head, necessitated a complete rearrangement of the schedule.

For the present term instruction is now being given in the following branches:

Zoology	18 students.
Advanced Geology	2 students.
Physiography	10 students.
Post Graduates.	
In Biology.	1 student.
In Geology	1 student.
These two latter are candidates for the M. S. Degree.	
Total number of students receiving instruction in this Department	32

Besides the above I have been meeting twice a week in geology a class of city school teachers, thirty-five in all. Under their auspices Frederick Wright, of Oberlin, was secured to deliver two lectures upon geological subjects. These two lectures were open to the public.

The need of more commodious quarters for the Natural History Department still exists, and it is all the more urgent since the fusion of the Departments of Geology and Zoology. It is exceedingly difficult to attempt to carry on laboratory work in two different buildings. The present expansion of the zoological and geological collections make it absolutely impossible to accommodate them in any single class room in the Station or main building, and there still remains much material unpacked which could be used for purposes of instruction, provided there was room to display it.

Respectfully submitted,

[Signed.] ARTHUR M. MILLER.

A BRIEF REPORT OF THE DEPARTMENT OF GREEK AND LATIN AND OF HISTORY IN THE STATE COLLEGE OF KENTUCKY, NOVEMBER 1, 1895.

Classes.	No. of Students.
1. In Latin Grammar	28
2. In Cæsar and Virgil	21
3. In Cicero	12
4. In Livy	2
5. In Horace	12
6. In Tacitus	3
7. In Greek Grammar	6
8. In Xenophon	3
9. In Homer	1
10. In Greek Drama	3
11. In History	21
Number of students in Latin	78
Number of students in Greek	13
Number of students in History	21

The number of students in Greek and Latin is greater than it has ever been at this stage of the session, and it will no doubt be increased at the beginning of the second term.

Number of students in Greek and Latin, 1894–'5	118
Number of students in Greek and Latin, 1893–'4	138

Our students are regular in attendance and ordinary in proficiency.

[Signed.] John H. Neville,
Professor of Greek and Latin and Acting Professor of History.
Robert L. Blanton,
Assistant Professor of Greek and Latin.

Lexington, Ky., Nov. 18, 1895.

James K. Patterson, Ph. D.,
President State College of Kentucky:

Dear Sir: In response to your request, I submit the following report of the department of modern languages for the period during which I have been in charge of it (since September, 1894).

COURSE OF STUDIES.

Instruction has been given in the following subjects:

1. German—An elementary course in German and easy reading, and a more advanced one in composition and literature, each of one year's duration, five hours a week.

Scientific and conversational German, an advanced class for those who wish to devote a third year to this language, two hours a week.

2. French—This, as German, is taught in a biennial course, those who so desire, receiving special instruction in advanced French.

3. Spanish—Introductory lessons in this language have been given and are again offered this year to students who have done satisfactory work in French.

ENROLLMENT.

The number of students enrolled in the different classes for the collegiate years of 1894–'95 and 1895–'96, is shown in the following table:

	1894–95.			1895–96.		
	German.	French.	Spanish.	German.	French.	Spanish.
Elementary . . .	14	15	2	29	19	Not yet known.
Intermediate . .	7	6	. . . .	6	6	1
Advanced	4	1	. . . .	6	1	. . . . .
Total	25	22	2	41	26	?

Two graduate students, besides have chosen German and French, respectively, as their major studies toward the degree of M. A., while three take German as a minor study in post-graduate work.

RECOMMENDATIONS.

It having been felt as a serious inconvenience, especially of the instruction of the more advanced classes, that this department possesses no books of reference, I would respectfully

recommend the formation of a library containing the principal German and French classics, and the works of good modern authors. Such a collection of books is probably more needed in this department than any other; for only by continual reference to original works can the advanced student be trained to understand any one period of literature, any particular author, or to do any original work.

Considering the fact that a knowledge of modern languages is an indispensable requisite for advanced work in any scientific branch, that it can be turned to good account in many lines of business, and that all earnest students, therefore, come to appreciate it more and more, we hope that it may soon be found advisable to enlarge this department by the appointment of another instructor. This will enable us to offer a number of additional studies, which would no doubt prove valuable to those who aspire to a more thorough knowledge of modern languages and their literature.

Respectfully submitted,

[Signed.] P. WERNICKE.

LEXINGTON, KY., November 16th, 1895.

President JAMES K. PATTERSON:

DEAR SIR: In accordance with your request, I submit herewith a report of the Department of Botany and Horticulture for the past year.

The attendance has been about the same as that of the year before, and as great as can be accommodated in the present quarters of the department. The incoming class in Botany last January numbered thirty-three, and in the second term's work, beginning in September, thirteen.

The first term was, as heretofore, devoted to a consideration of the flowering plants, and I am pleased to report that the number of this class, especially during the present term, have exhibited an exceptional interest and diligence in their work.

The plan of instruction for the present term has included the study of a number of groups of related plants, especially plants of economic importance, with a view to fixing in the mind of the student a clearer idea of the important facts concerning the

relationship of plants. It has included also a special study and preparation of an essay by each student upon some important economic order of plants. Considerable time has been devoted further to the large orders of composite grasses, sedges and ferns. For the remainder of the term it is proposed to use the compound microscope in studying the minute anatomy of the higher plants, and in gaining an elementary knowledge of a few of the most important types of the lower forms of vegetable life. Instruction has also been given during the year to small classes in plant physiology and in horticulture.

The equipment of the department, through the liberality of the Board of Trustees, is constantly improving, and in some directions, especially in microscopes and accessories for students' use, it is now quite equal in character to that of the larger colleges and universities. The chief needs now are enlarged collections of books, herbarium and illustrative material, and microscopes of higher power, together with other apparatus for advanced instruction in the study of the lower forms of plant life, a demand for which is steadily growing in our Institution among those who propose to follow the profession of teaching, medicine, etc.

Finally, the need of enlarged quarters, which this department, in common with the other departments of natural history, has long hoped for, still continues to force itself upon my attention. Every class of beginners has crowded the botanical laboratory to its utmost capacity, and to such an extent as to preclude, at times, the employment of the best methods of instruction, and the fullest use of our apparatus.

It is earnestly hoped that this need may be supplied in the near future by the erection of a suitable building for the use of this cognate departments of scientific instruction.

Respectfully submitted,

[Signed.] C. W. MATHEWS,

Professor of Botany and Horticulture.

LEXINGTON, KY., November 29, 1895.

President JAMES K. PATTERSON, *State College of Kentucky*:

DEAR SIR: I beg leave to submit the following report of the Department of Physics:

This department, as you know, was but recently organized. This is the second year of its existence. Instruction, however, in elementary classes has been given to classes since the establishment of the College, first, in addition to his regular duties, by the Professor of Chemistry, and then by the Professor of Civil Engineering. After the organization and development of the Department of Mechanical Engineering, and of other departments of scientific work, it became evident, and, in fact, urgent, that more time and attention should be given by the students in these departments to the study of physics, and that provision should be made for them to do so. Accordingly, the Board of Trustees, at its regular meeting in June, 1894, established the Department of Physics of the State College. At the same time the present incumbent was elected to the Chair of Physics, and a liberal appropriation was made to provide for the wants of the new department.

Two adjacent rooms in the main College building have been fitted and furnished for the work in physics. The lecture room is 18 feet by 44 feet, and will comfortably seat fifty or more students. It has the necessary lecture table, with gas, water and drainage, and is arranged to be used at pleasure as a dark room. The laboratory is 24 feet by 30 feet. It is well furnished with cases for apparatus, tables, water, instruments for use in experimentation, and has twenty-four spaces at the table for individual work, each with gas and drawers.

The following shows briefly but accurately the work that is being done in this department.

PREPARATORY.

Second term—Recitations, with experiments, one hour daily. Text-book: Gage's introduction to Physical Science.

SOPHOMORE YEAR.

First term—Lectures illustrated by experiments, with recitations, one hour daily. This course embraces the subject of general proprieties of matter, dynamics, sound, heat, lights, electricity and magnetism, and is intended to give the student a general knowledge of physical phenomena and of physical

laws, and to prepare him for the practical work which accompanies and follows the course. Text-book: Gage's Principles of Physics, (2) Physical Laboratory, one hour daily (for engineering students), experiments in the subjects of the lecture course. Text-book: Gage's Laboratory Manual and Note-book.

Second term—Physical Laboratory one and one-half hours daily, experiments in the subjects of the lecture course. The students in engineering do not take this term's work. Text-book: Gage's Laboratory Manual and Note-book.

JUNIOR YEAR.

First term—Physical Laboratory, one hour daily; lectures, recitations and experiments in heat. Text-book: Wright's Heat.

Second term—Physical Laboratory, one to two hours daily; lectures, recitations and experiments in magnetism and electricity. Text-book: Poyser's Advanced Magnetism and Electricity.

Much importance is attached to the work in the Laboratory. Each student is furnished with necessary apparatus, and must keep a systematic account of all his work, giving data and results of each experiment. The work is both qualitative and quantitative.

In Physics for 1894–'95, the

Enrollment summation of College classes was	30	
Number of different individuals in these classes was		26
Enrollment summation of preparatory classes was	57	
Number of different individuals in these classes was		53
Total summation of all classes was	87	
Total number of different individuals was		79

In Physics for 1895–'96, at present the

Enrollment summation of College classes is	72	
Number of different individuals in these classes is		50

The names of thirty-five preparatory students and about thirty five college students will be enrolled during the second term, making the total class summation about one hundred and forty for this year.

Respectfully yours,

[Signed.] M. L. PENCE.

REPORT OF THE NORMAL DEPARTMENT (PEDAGOGY) OF KENTUCKY STATE COLLEGE, FROM SEPTEMBER, 1894, TO DECEMBER, 1895.

I. Statistics for the College Year 1894-'95—

Number of applicants for matriculation before the holidays	67
Number of applicants for matriculation after the holidays	68
Total number of applicants during the year	135
Number of applicants accepted before the holidays	54
Number of applicants accepted after the holidays	64
Total number of applicants accepted during the year	118
Total number of males	70
Total number of females	48
Average age of pupils	20¾
Number of pupils who had taught	67

II. Statistics from September to December, 1895—

Number of applicants to date (December 1)	45
Number of matriculates to date	40
Number of males	17
Number of females	23
Average age of pupils	19⅔
Number who had taught	13

III. Remarks and Suggestions—

The following courses are now sustained:

The County Certificate Course, which includes a review of all the common school branches and a thorough drill in the theory and practice of teaching, and the object of which is to prepare students for passing successfully a county examination.

The State Certificate Course, which includes the four ad- advanced branches of English literature, higher arithmetic, psychology and algebra.

The State Diploma Course, which includes, in addition to the four branches just mentioned, elementary physics, elementary Latin and plane geometry.

The Professional Course, leading to the professional degree of Bachelor of Pedagogy. This course is almost identical with the Scientific Course, except that Latin and pedagogy have been substituted for the modern languages other than English.

It will be seen that these courses provide for the thorough

preparation of teachers, and those who look forward to teaching, according to the laws recently passed, affording teachers in the State wider opportunities in the matter of certification. It is hoped that the Normal Department may be able to provide for the thorough training of the State's teachers in everything that the State requires to be taught in the public schools. In the courses, as laid down, a student can fit himself or herself for securing any grade of certificate, from the lowest grade county certificate to a State diploma; and, in addition, in the four years' professional course, can prepare for teaching in any grade of High School or College. It is hoped that every means may be used to bring the work of this department to the attention of all young men and women over the State that are wanting to fit themselves for the high service of teaching.

From the statistics above given, it will be seen that there are about as many young ladies as gentlemen who will avail themselves of the opportunities here afforded. This State provides, by law, for the free lodging of appointed students. This liberal provision is inoperative in the case of young ladies, since there is no home for ladies, under the direction of the College. It is hoped that this serious lack will be pressed upon the attention of the Legislature, and that that honorable body may take action, such as will enable the ladies, who are appointed to the Normal Department, to attend as cheaply as the young men now do.

Very respectfully submitted,

R. N. ROARK,

Dean, Department of Pedagogy.

[Extract from minutes of Board of Trustees of the A. & M. College, June 6, 1894.]

On motion, the following report of Committee, consisting of Messrs. J. T. Gathright, Phil Bird and A. P. Gooding, was adopted:

LEXINGTON, KY., June 6, 1894.

To the Board of Trustees:

Your Committee, to whom was referred the duty of inquiring into and reporting the facts concerning the connection existing between the Agricultural and Mechanical College of Kentucky and the Lexington Business College, beg to report that it met

with the principal officers of these two institutions, and, after careful inquiry, find the following to be the facts referred to:

Soon after the separation of the A. & M. College from the Kentucky University and its establishment as a separate College an effort was made to make book-keeping in all its branches one of the departments of the A. & M. College, and to this end a competent professor was employed, but after several years' trial it was found that not enough students wanted to take this course to justify its continuance as a separate branch. It was then taught in connection with other branches by one of the professors, who, owing to the limited number of students and limited accommodation in the buildings and resources of the College, could give but one hour a day to this branch of education. About this time a gentleman who proposed opening a Business College in Lexington made to the Executive Committee of this Board a proposition, which was accepted on January 11, 1889, and the order of the Committee entered in accord therewith, and which was afterwards approved by the Board of Trustees.

Under this proposition, the branches relating to business taught by the gentleman making the proposition, were to be recognized as a department of the State College, but the College was not to be responsible for the maintenance of this department beyond the payment of a limited sum, which entitled the students of the State College to free tuition in this department in book-keeping, commercial law, banking, etc. Further provision was made that any student of the State College could take any or all the technical branches taught in this department at two-thirds of the regular charges, and also that the students of this department should have the right to take any of the branches taught in the College upon the payment of two-thirds of the regular tuition charges. It was further provided that the students of this department should be amenable to the regulations and discipline of the College. The whole arrangement to be terminated upon three months' notice given by either party to the agreement.

When the present Lexington Business College was organized, its charter gave it authority to buy out and pay for, by an issue of its stock, the interest of the gentleman who owned and had operated this department, together with its effects and good

will. The A. & M. College owned no interest in this department beyond having the contract existing with it carried out, nor did any one connected with the State A. & M. College have any interest therein. The entire department belonging to one man, who sold and transferred his entire interest to the Lexington Business College, and along with his other assets, was the agreement with the Board of Trustees of the A. & M. College for the teaching of its students in book-keeping, etc., free of charge to the students, and under such terms as made the teaching of these branches much less expensive to the A. & M. College, than if they had been taught in the College itself, especially in view of the want of room in the A. & M. College buildings, which want still exists.

The connection of the President of the College with the management of the Lexington Business College having been made the subject of special criticism, your committee made inquiry into this as a part of their duty, and find that, with much reluctance, the President took two shares of the Business College stock. This qualified him to act as director of that college, by which he would be enabled to know its full workings, and whether the students from the A. & M. College were receiving what the contract contemplated. It was eminently proper for some representative of the A. & M. College to be connected in this way with the Business College, and we find no fault therewith, but, on the contrary, approve same.

Your committee respectfully ask that, in view of the many misleading publications in the newspapers of the State concerning this matter, that this report be incorporated in the next Report to the General Assembly.

For the detailed statement and terms of the agreement, which it is not necessary to report in full here, you are referred to pages 70 and 71 of the book issued in 1890 by Judge Geo. B. Kinkead, entitled "Legislation, Federal and State, in Relation to the Agricultural and Mechanical College of Kentucky, and Regulations Governing Same."

Correct copy:

By V. E. MUNCY,
Secretary Board of Trustees.

LEXINGTON, KY., December 10, 1895.

President JAMES K. PATTERSON:

MY DEAR SIR: Herewith I hand to you the report of the finances of the Agricultural and Mechanical College of Kentucky from July 1, 1893, to July 1, 1895.

The vouchers, showing every item of expenditure, are in the College safe, and can be inspected by any person authorized to examine them.

Yours truly,

[Signed.] JAMES G. WHITE,

Business Agent of the A. & M. College of Kentucky.

RECEIPTS AND EXPENDITURES OF THE A. & M. COLLEGE OF KENTUCKY FROM JULY 1ST, 1893, TO JULY 1ST, 1894.

From State taxes	$33,548 45
From U. S. Fund of 1862	9,900 00
From U. S. Fund of 1890	16,245 00
From students' fees	2,518 76
From rents	250 00
From interest on bank deposit	300 40
From sources (including $3,000 insurance on burned barn)	3,147 24
Total	$65,909 85
Balance in Treasury July 1st, 1893	1,191 35
Total amount in Treasury from July 1st, 1893, to July 1st, 1894	$67,101 20
Total amount expended from July 1st, 1893, to July 1st, 1894	63,705 94
Balance July 1st, 1894	$3,395 26

EXPENSES CLASSIFIED.

For advertising	$1,117 17
For Department of Botany	619 80
For Department of Chemistry	660 14
For Department of Civil Engineering	291 62
For Department of Geology	148 70
For Department of Mechanical Engineering	2,734 63
For Department of Military Science	288 51
For Department of Normal Instruction	188 44
For Department of Physics	751 48
For Department of Physiology	131 27
For Department of Veterinary Instruction	450 01
For Department of Zoology	385 28

For fuel and light	$2,962 86
For insurance	663 53
For miscellanies	807 12
For postage	388 82
For repairs and improvements	2,268 72
For salaries of professors and other instructors	39,030 02
For salaries of employes	5,426 90
For stationery and printing	530 11
For students' labor	1,186 68
For students' traveling expenses	332 04
For traveling expenses	225 07
For trustees' meetings	246 83
For water	118 10
For coal test	499 95
For Veterinary Building	1,246 14
Total	$63,705 94

RECEIPTS AND EXPENDITURES OF THE A. & M. COLLEGE OF KENTUCKY FROM JULY 1ST, 1894, TO JULY 1ST, 1895.

From State taxes	$31,955 75
From U. S. fund of 1862	4,950 00
From U. S. fund of 1890	17,100 00
From students' fees	2,433 79
From rents	401 00
From interest on bank deposits	297 22
From other sources	86 07
Total	$57,223 83
Balance in Treasury July 1st, 1894	3,395 26
Total amount in Treasury from July 1st, 1894, to July 1st, 1895	$60,619 09
Total amount expended from July 1st, 1894, to July 1st, 1895	59,435 37
Balance in Treasury July 1st, 1895	$1,183 72

EXPENSES CLASSIFIED.

For advertising	$274 99
For Department of Botany	591 28
For Department of Chemistry	636 25
For Department of Civil Engineering	314 96
For Department of Geology	278 60
For Department of Mechanical Engineering	2,167 53
For Department of Military Instruction	172 65

For Department of Normal Instruction	$116 82
For Department of Physics	1,378 15
For Department of Physiology	46 91
For Department of Veterinary Instruction	82 45
For Department of Zoology	461 57
For fuel and light	2,621 39
For insurance	196 03
For miscellanies	667 95
For postage	249 40
For repairs and improvements	2,297 22
For salaries of professors and other instructors	36,227 68
For salaries of employes	5,171 54
For stationery and printing	188 15
For students' labor	1,361 75
For students' traveling expenses	575 08
For students' fees returned	67 75
For traveling	211 72
For trustees' meetings	388 02
For water	139 53
For inspection of dormitories	300 00
For rebuilding of barn	2,250 00
Total	$59,435 37

BY-LAWS

OF THE

AGRICULTURAL AND MECHANICAL COLLEGE

OF KENTUCKY,

REGULATING THE ORDER OF BUSINESS OF THE BOARD OF TRUSTEES, AND DEFINING THE FUNCTIONS OF THE EXECUTIVE COMMITTEE, OF THE BOARD OF CONTROL OF THE EXPERIMENT STATION AND OF VARIOUS OFFICERS OF THE INSTITUTION.

LEXINGTON, KY.:
TRANSYLVANIA PRINTING CO.,
1895.

LEXINGTON, KY., July 24, 1895.

At a regular meeting of the Board of Trustees held June 5, 1894, "Messrs. J. T. Gathright, D. H. James, and D. C. Buell, were appointed a Committee to draft suitable Regulations and Rules for the government of the meetings of the Board and the guidance of the Executive Committee."

At the regular meeting of the Board held December 11, 1894, the Committee above mentioned submitted the following report which was adopted.

V. E. MUNCY,
Secretary, Board of Trustees.

BY-LAWS.

The following by-laws are hereby adopted by the Board of Trustees for regulating the order of business of the Board, and the functions of the Executive Committee, the Board of control of the Experiment Station, and various officers of the Agricultural and Mechanical College of Kentucky.

I. It will be the duty of the President of the College to prepare for the consideration and action of the Board of Trustees at its regular annual meeting in June of each year, a report, accompanied by the reports and estimates of the Treasurer, Business Agent, and the several officers having charge of departments or special objects of the College, setting forth the amount of the funds on hand from the previous year, including the unexpended appropriations, the estimated income and total means available for the ensuing year, and the specific sums required for the various expenses of the College for the same period. In this estimate of expenses will be included, under the head of "*contingencies*," a sum not exceeding $1,500 to be employed under the direction of the Executive Committee, solely for accidental and unforseeable damage to buildings or outfit, or other pressing

emergencies that could not be anticipated; and whenever the contingent fund thus appropriated is found to be insufficient to meet an existing emergency, a special meeting of the Board will immediately be called to provide for the case. This report of the President shall set forth such facts in the experience of the previous year, and such recommendations for the future as he may deem of importance to the welfare of the College. The report shall be submitted through the Executive Committee in due time before the meeting of the Board of Trustees, and the Committee will add such further facts and recommendations as it may deem proper, for the consideration of the Board.

II. The regular meetings of the Board of Trustees shall be held, as required by law, on the Tuesday next preceding the annual commencement in June, and on the second Tuesday of December of each year. In the absence of the Governor of the State, *ex-officio* Chairman of the Board, a Chairman *pro tempore* shall be elected, to continue in office until the next regular meeting.

III. At the meetings of the Board of Trustees, the following order of business will be observed as nearly as practicable:

1. The meeting shall be called to order by the last elected Chairman, or in his absence by the Secretary of the Board, and a new Chairman shall then be elected.

2. Calling of the roll, and noting of the present and absent members, and announcement by the Chairman, of a quorum or no quorum.

3. Appointment by the Chairman of the standing committees herein prescribed. The Secretary of the Board shall make in advance for the information of each particular Committee, a copy of the regulation defining its duties, on which he shall write the names of the particular Committeemen as they are appointed, and then deliver it to the Chairman of the particular Committee.

4. Reading of the minutes of the last preceding meeting of the Board and approval, if not already approved.

5. Reading of the minutes of the Executive Committee since the last meeting of the Board, and action thereon.

6. Reading of the report of the President and action thereon.

7. Report of Treasurer (to be read if required) and action thereon.

8. Report of Business Agent (to be read if required) and action thereon.

9. Reading of minutes of the Board of Control of the Experiment Station since the last meeting of the Board of Trustees. and action thereon.

10. Unfinished business from previous meeting of the Board of Trustees.

11. Current Committee reports, including the appropriation budget, and action thereon.

12. Election of Secretary, Treasurer, Business Agent, Executive Committee, and Board of Control of Experiment Station.

13. Election to fill vacancies if any in the College, including Experiment Station.

All elections by the Board of Trustees shall be by ballot

14. Election of Trustees.

15. New business.

16. Reading and approval of minutes.

17. Adjournment.

IV. At each regular meeting of the Board of Trustees the Chairman shall appoint the following standing committees, consisting of three members each, to-wit:

1. Committee on the report of the President of the college.

2. Committee on finance.

3. Committee on appropriations.

4. Committee on buildings and grounds of college proper.

5. Committee on Experiment Station.

6. Committee on salaries.

7. Committee on internal expansion.

8. Committee on military instruction and college discipline.

V. It will be the duty of the committee on the President's report, to point out such facts and suggestions as may seem to call for special action, and recommend the reference of the various subjects to the appropriate standing committees, respectively, or to Special Committees.

VI. It will be the duty of the committee on finance to investigate the financial condition of the college and Experiment Station, their sources of income and objects of expenditure; and to devise such means of augmentation, and point out such objects of reform as may seem practicable and advisable for increasing the one and curtailing the other.

VII. It will be the duty of the committee on appropriations to consider the objects to be provided for, and the estimates presented for the various departments; to make in each such modifications as the merits of the case may suggest, and the available means may require; and to see that the various items are properly described and tabulated, for the consideration of the Board.

VIII. It will be the duty of the committee on college buildings and grounds, to ascertain by inspection and inquiry the condition of the college buildings and grounds, and their adaptation to the purposes for which they are intended; and to specify such repairs as may be necessary, and recommend such additions and improvements as the interests of the college may require, with the estimated cost of the proposed improvement in each case.

IX. It will be the duty of the committee on the Experiment Station to ascertain by inspection and investigation, its condition and system of management, and to recommend such improvements in the facilities, and such modification in the methods as may seem to be advisable and practicable.

X. It will be the duty of the committee on salaries to take into consideration the amount and character of the work pertaining to the several positions, especially the subordinate positions, the sufficiency or excessiveness, and the relative equity, of the existing compensation, and to recommend such modifications as may seem proper. Provided, however, that except for special reason no salary shall be altered or changed except at the end of each period of five years.

XI. It will be the duty of the committee on internal expansion to visit the college from time to time in order to ascertain the condition of the several departments, with a view to the enlargement or curtailment of courses of study, or the establishment of new ones, and to report upon the economic and financial import of the changes proposed.

XII. It will be the duty of the committee on military instruction and college discipline to investigate from time to time the condition of the military organization and the instruction given the military corps, the discipline of the students generally, and of those resident upon the grounds particularly, to report negligence or laxity of administration and to suggest means by which instruction in military science and college discipline may be rendered more effective.

These specified duties of the several standing committees may be amplified or curtailed in any case, at the discretion of the Board of Trustees.

XIII. In accordance with the terms of the law, the Executive Committee is charged "with the general administration of the affairs of the college under such by-laws and regulations as shall be prescribed by the Board of Trustees, and with the execution of measures specially authorized by the Board."

XIV. It will be the duty of the Executive Committee to exercise a general supervision and control of the affairs of the college, under the regulations and orders of

the Board of Trustees. It may attend recitations, and inspect any department or function of the college, to see that the duties of the various officers and employes are faithfully and efficiently performed, that discipline and good order are maintained and the regulations enforced, and that the persons and means employed in the various capacities are necessary and proper for the efficient conduct of the college; and it may point out to the President or other executive officer any faults that should be corrected; but except as herein provided, it can make no suspension, addition or alteration of any sort in the established regulations and order of instruction and government, that function belonging exclusively to the Board of Trustees. The committee shall also carefully scrutinize all current requisitions for the various departments, to make sure that the things asked for are necessary, and have been authorized by the appropriations or orders of the Board of Trustees, and do not exceed the sums appropriated by the Board.

XV. Unless otherwise specially provided by the Board of Trustees, the Executive Committee may control the employment and discharge of the various mechanics and laborers required and employed by the day or month, and authorized by the Board, for the service of the college and Experiment Station.

XVI. For flagrant cause affecting immediately the honor and welfare of the college, the Executive Committee may suspend from his function, for the final action of the Board of Trustees, any officer or employe of the college or Experiment Station, and pending such suspension, the pay of the person suspended shall also be suspended, or cease altogether, as the Board of Trustees in acting upon the question involved many subsequently decide.

XVII. In case of the interruption of the functions of any professor, teacher, or other officer of the college, whether by sickness, death, resignation or other cause, occurring

between the meetings of the Board of Trustees, the duties of the position shall if practicable be temporarily performed by some other officer of the college designated by the President. This arrangement may be continued, with the approval of the Executive Committee, until the next meeting of the Board of Trustees; but if the deficiency cannot be so provided for, the Executive Committee may employ temporarily a suitable person for the vacant place until the next meeting of the Board, except in the case of a vacancy in the presidency of the college, or the directorship of the Experiment Station, or any full professorship, in which case a special meeting of the Board shall immediately be called. A special meeting of the Board shall also be immediately called, in case of a permanent interruption of the functions of the Treasurer, Secretary, or Business Agent: *Provided, however*, That if such interruption or supension from duties of any officer or Professor by the Executive Committee shall occur within one month of the regular meeting of the Board, the Executive Committee, may, as herein before provided, make temporary provision for such case until the regular meeting of the Board.

XVIII. All accounts of moneys belonging to the college, received or due, from whatever source, shall be subject to the scrutiny of the Executive Committee, and all sums appropriated by the Board of Trustees for the expenses of the college or the Experiment Station, shall come under the supervision and guardianship of the Committee. The authorized expenses of the college Trustees, and all proper accounts for salaries and wages already authorized by the Board of Trustees, may be paid when due out of the proper appropriations of the Board in the manner prescribed, without the intervention of the Executive Committee, but all other expenses shall only be paid from time to time with the approval of the committee, upon itemized requisitions submitted through the Business Agent and signed by the President of the

college, and any sum appropriated by the Board for discretionary objects which, in the interval of meetings of the Board, may prove to be unneccessary or inexpedient, may be retained by the Executive Committee. All sums remaining on hand at the end of the accounting year in May or June from any appropriation for the previous year shall be returned to the general fund for further disposition.

XIX. As a general rule, supplies required for the use of the college or Experiment Station shall be purchased from the lowest bidder on sealed proposals. In the absence of a specific rule on this point, the Executive Committee may determine the precise manner in which the rule shall be employed, and in what cases it may be omitted.

XX. The Executive Committee shall meet monthly on such stated day as it may by resolution permanently adopt. It shall keep a full record of its proceedings, and submit the record to the Board of Trustees at each regular meeting of the Board, and at special meetings when required, for the consideration and action of the Board. The committee will adopt such rules of proceeding as it may deem proper in the conduct of its business. It will also hold such special meetings as it may deem necessary.

The rules and duties prescribed in this paragrah for the Executive Committee, will also govern the meetings and duties of the Board of Control of the Experiment Station.

Report of

James K. Patterson, President,

of

Agricultural and Mechanical College of Kentucky

To the Board of Trustees,

May 31, 1899.

Published by Order of the Board.

VEACH PR. LEXINGTON.

REPORT OF PRESIDENT PATTERSON.

Gentlemen of the Board of Trustees of the Agricultural and Mechanical College of Kentucky:

I have the honor to submit to you to-day my annual report on the Agricultural and Mechanical College of Kentucky. The year just closing has been the most prosperous in the history of the College. Its matriculation list reaches four hundred and eighty. This does not take into account many who entered provisionally and after a short time withdrew. The increased attendance I ascribe to two causes, viz: The improved financial condition of the people of the Commonwealth and the effective canvass made in Western Kentucky last year by an agent of the College.

Acting under the authority of the Board, I have again placed an agent in the field with instructions to visit the section of country traversed by the L. & N. Railroad and some of its branches. If a suitable man can be found to do like work in Eastern Kentucky I will have that part of the State visited also.

The general health of our student community has compared very favorably with that of preceding years. While there has been some sickness, principally measles and grippe, there has happily been no consequent mortality. We endeavor to give such attention to sanitary precautions as circumstances enable us to do. Persons attacked by infectious diseases are at once quarantined, and so remain until danger is past.

The reports of heads of departments and deans of courses of study show satisfactory work done. Better results could be obtained if our recitation rooms were larger and our equipment more ample.

The deficit of last year has been reduced fully one-half, and is likely to be wholly extinguished by the end of the next fiscal year. I desire, however, to impress upon the Board the necessity of economy in appropriations for the forthcoming year. The estimates of receipts and expenditures which will be submitted to you have been framed upon the most careful consideration. The appropriations for the service of the several departments have been cut down to the minimum compatible with efficiency. The salaries

of professors and assistants should remain as they are except in the two or three cases wherein they have not reached the maximum provided for by the action of the board in December, 1893, or by special agreement when appointed. Our salaries are liberal as compared with those of other colleges in Kentucky, but not too liberal for efficient service.

All our balances hereafter should be, as far as possible, devoted to internal expansion, especially in the enlargement of the the equipment of existing laboratories, the establishment of new ones, and in supplying the necessary means for making instruction effective.

By the act of the Legislature removing the geological museum to this college and the transfer therewith of the Inspector of Mines and his assistant, and the provision contained in the act that after the expiration of the term of service of the present inspector and his assistant their successors shall be appointed by the Board of Trustees, a school of Mines will thereby be created in conformity with the terms of the act and under the management and control of the college.

The school of Mines will be established in 1900. This will require money for its equipment. It behooves us then to accumulate if possible a fund for this purpose, and this is an additional reason for the most rigorous economy.

As the members of the board are aware, I was unable to obtain last year from the War Department the detail of an army officer as instructor in military tactics and commandant of cadets.

The Board authorized me to make the best arrangement possible for this purpose at a moderate salary. I employed M. B. Jones, an alumnus of the college and a man of character and ability, uniting with his duties as commandant those of assistant in mathematics on a salary of $700. The results of the year's work have been entirely satisfactory. We have never had a better drilled corps, and the discipline of the dormitories has been the best we have ever had since the organization of the college. At the outset there was some friction, due partly to the heritage of disorganization inherited from his predecessor, but during the latter half of the year there has been the utmost harmony between Major Jones and his officers, and through the latter half between him and the battalion. This happy result is due to two causes,

viz: The compensation allowed officers and to the organization of the latter into a body with Major Jones as chairman and known as the military council. This body sustains the same relation to the college that the special faculties do to their respective courses of study. They meet bi-monthly, discuss matters pertaining to the efficiency of the corps and keep records of their proceedings. I advise that this body obtain official recognition from the Board, and that their proceedings be submitted henceforward to the Board as the records of the other subordinate faculties of the college are.

I again applied to the War Department for a detail, but have been advised that no detail can be made while the unsettled conditions in the Philippines last. I therefore recommend that Major Jones be re-appointed as commandant of cadets and assistant in Mathematics. His services in the latter relation have been entirely satisfactory. This appointment, with the assistance already provided for, and with that subsequently referred to will meet all the requirements of the Department of Mathematics effectively and economically. Professor White informs me that his services as assistant in mathematics have been very efficient and entirely satisfactory.

The establishment of a few fellowships as a reward of proficiency in the departments for which they were created has been productive of good results. The emoluments, though relatively small, have excited ambition. They enable students who are desirous of doing post-graduate work for the master's degree, to remain at the college for this purpose. The system also provides efficient and well trained assistance in the departments to which they are attached at relatively small outlay to the college. I respectfully recommend that three more fellowships be created in addition to the three already authorized, viz: One in Modern Languages, one in Mathematics or Ancient Languages as may be deemed expedient, and one in Civil Engineering. I know of no better stimulus to good undergraduate work than the reward thus given, and of no more economic method of providing assistance for the respective departments in which these honors are awarded. They are tenable for one year and the value of the fellowship is $150. For those who are preparing to teach the value of the

fellowship can scarcely be over-estimated, both as regard the experience in teaching and the prestige and distinction conferred.

I recommend that the Principal of the Academy and his staff of assistants constitute a subordinate Faculty with monthly meetings and a record of their proceedings, which record shall be submitted to the Board of Trustees at their regular meetings.

From the report of the committee on internal expansion the necessity for additional accommodations will be apparent, with the exception of the comparatively inexpensive addition asked for by Profs. Anderson and Brooks, it will be impossible for the College for some time to provide out of its exising income the additional buildings required. The only alternative left is an appeal to the Legislature for money. I suggest that a committee of this Board be appointed to present in conjunction with the President a statement of the wants of the College and to solicit and work for an appropriation for this purpose. The buildings most urgently needed are:

1. A building which will provide the necessary space and appliances for a first class gymnasium. This might also include, on the ground floor, space for a drill hall with military offices, and in the upper story space for society rooms and rooms for the Young Men's Christian Association. For these purposes $25,000 would suffice.

2. A building tor the accommodation of the Normal School and for the Academy conjointly. Suitable quarters could be provided for Normal School work and for the Academy in a building costing $25,000. These are urgent needs and might be met by judicious and persistent pressure on the Legislature.

Inasmuch as we are now nearing the end of a century a brief retrospect may not be inappropriate. It is sometimes the part of prudence to look backward as well as forward, in order that from the experience of the past an intelligent forecast may be formed for the future. For this purpose I append the following epitome of the origin and growth of the institution:

DEVELOPMENT

The Growth of the College from Year to Year is Shown in the Following Summary:

1862. To establish and endow a College, chiefly for instruction in Agricultural and Mechanic Arts, an act of Congress

apportioned to each State, for each of its Senators and Representatives in Congress, 30,000 acres of the public land.

1865. The General Assembly of Kentucky having accepted the State's portion under the conditions prescribed, established the Agricultural and Mechanical College, making it one of the Colleges of Kentucky University, then recently united with Transylvania University and located at Lexington, citizens of Lexington and its vicinity donating $100,000 to the Curators of the University to buy a site for the College. The General Assembly having authorized the Commissioners of the Sinking Fund to sell the 30,000 acres apportioned to Kentucky, by the mismanagement of the Commissioners' agent the State realized for its land only $165,000.

1866. The College opens with a President, four professors and a commandant.

1878. Dissatisfied with the management of the College by the Curators, who were engaged in a long factional strife, the General Assembly severed the connection with the University and appointed a commission to re-locate the College, to provide for its continuance in operation till re-located, and to prepare a "plan for a first class university." Kentucky University claiming and retaining the former site of the College, the sole property left the College after the severance was an income of $9,900 derived from the land grant.

1880. The city of Lexington offered the city park of fifty-two acres as a new site for the College, and also $30,000 in bonds, and the county of Fayette offering $20,000 besides, the General Assembly ratified the selection of the site made by a majority of the Commission, and located the College permanently in Lexington.

1880. To provide teachers for the common schools of the State and for other schools, the General Assembly added to the College a Normal Department, which should admit, besides other students, one from each representative district every year free of tuition.

1880. To further endow the College and to enable it to purchase apparatus, machinery, implements and a library; to maintain the Normal Department and to defray other necessary expenses, the General Assembly imposed a tax of one-half cent on each one hundred dollars of the assessed value of all property in the State liable to taxation for State revenue and belonging to its white inhabitants.

1880. The Classical and Normal Departments and Academy added.

1882. The College building, the first Dormitory and the President's house completed.

1885. The Commandant's house reconstructed.

1887. To enlarge by experiments and to diffuse the knowledge of agriculture, an act of Congress established, under the direction of the Agricultural and Mechanical College in each State, an Agricultural Experiment Station, appropriating for its support $15,000 per annum.

1887. The Department of Civil Engineering established, an experimental farm of forty-eight acres purchased, and the College greenhouse built.

1889. The Experiment Station building completed.

1890. The second Dormitory completed.

1890. For "the more complete endowment" of Agricultural and Mechanical Colleges an act of Congress appropriated to each State $15,000 for the year ending June 30, 1890, and the same sum with an increase of $1,000 per annum for ten years. after which the maximum of $25,000 should continue without change. Of the amount thus annually appropriated the College receives 85 per cent and the school of the colored people at Frankfort 15 per cent.

1891. The Department of Mechanical Engineering established.

1892. The Mechanical building and workshops completed.

1894. Greenhouses for the Experiment Station built.

1895. The annex to the Mechanical Building and the Insectarium for the Station built.

1897. The Department of Electrical Engineering established. Additions made to the greenhouses and Insectarium.

1898. The building for Natural Science completed.

Increase of Property. The property of the College is estimated to be worth $500,000 more than it was eighteen years ago.

Increase of Teachers. Before 1880 the College had six professors; it now has sixteen professors and eight assistants.

Increase of Courses. Before 1880 the College offered a single course of study leading to a degree; it now offers eight.

Increase of Graduates. No fact more distinctly marks the growth of the College than the increase in the number of its graduates. More students were graduated in 1897 than were graduated in the first seventeen years, and more in the last five years than in the first twenty-seven years.

I have thus advented to the growth of the College somewhat in detail because its rapid advance is but imperfectly known to even some of our governing board. With these facts behind us we should bestir ourselves to give it such additional expansion as the demands of the public require. By united effort, by keeping

it before the public in its results and possibilities we shall best accomplish the end for which it was established.

My service with the College dates from the day when it first opened its doors, viz: September, 1866. Since 1869 I have been its President—a longer term of service in that capacity than that of any President of any College founded under the Morrill act of 1862, and with the possible exception of the President of Harvard University—a longer term of service than that of any President of any College or University in America. I have seen it established on a relatively small foundation, not as an independedt self-contained institution, but as a branch of a larger institution under denominational control. I have seen it detached from that unfortunate connection after a troublous co-partnership of thirteen years. I have witnessed with joy its re-establishment under state control and its endowment by the State, and I have passed through the perilous crisis which imperilled its existence in 1881-2 and in subsequent years when assailed in the legislature with all the vehemence and all the energy which denominational animosity could supply; when the question of the repeal of State aid was pending in the House, when its building fund was exhausted and the half built college structures threatened to realize the Gospel reproach, "this man began to build and was not able to finish." The outlook was stormy indeed. Under the conditions then existing we could not stop and we could not go on. I had still a strong conviction, however, that this ship would come safely into port, so strong that when no other resource was possible, I myself, supplied the funds to carry forward the buildings to completion, trusting to a future which then seemed most gloomy for victory and reimbursement.

The measure to repeal was defeated, the clouds lifted, and judicious economy enabled us in less than three years to discharge an accumulated debt of $35,000, and best of all, neither the legislature nor the general public, not even the faculty, knew of the grave embarassments and the heavy load of debt under which we had labored. But for weeks and months, while the measure of repeal was pending, I never enjoyed for a single night the luxury of a sound sleep. These are now things of the past.

The College triumphed all along the line. Its assailants retired baffled, but sullen from the conflict. The College then entered upon the lines of uninterrupted progress which it has followed to this day. This much now seems certain—the College has come to stay—and the unexampled prosperity which it has enjoyed and the progress which it has made seem to be but an earnest and a presage of what its future will be.

I have given the best days of my life, a life which in the order of nature cannot be prolonged many years, to its upbuilding

and development. It has been to me as a child. I have loved it and worked for it with the devotion of a father. That it may be for the commonwealth an everlasting possession and glory is my most earnest wish and hope.

In conclusion I beg to thank the Board for its continued confidence and support. You are the custodians of a trust the most important, in many respects, within the boundaries of the Commonwealth. You serve the public without fee or reward, but in the days to come, when the State College of Kentucky leads the van in educational progress west of the Alleghanies, when the story of its trials and triumphs is told, men will say these results are due to the earnest, self-denying, patriotic men who bore the burden and heat of the day.

I have the honor to be

Your obedient servant,
(Signed) JAMES K. PATTERSON.

The Board of Trustees, in ordering the publication of the foregoing report, unanimously adopted the following resolution:

"It is with feelings of great pride and exultation that the Board of Trustees read the report of the President of the institution. And it is eminently fitting that as Trustees for the people of this State we express to President Patterson the thanks of the Commonwealth of Kentucky for his services that are not only unparalleled in length of time, but unsurpassed elsewhere in these United States for distinguished ability.

"Not all the battles of men have been fought on tented fields, nor all their victories won by marching legions. In the annals of our State, marked as they are by the stories of struggle and heroism, we believe no page can shine brighter than that on which is recorded the life work of President James K. Patterson. If courage in struggle with adverse circumstances can command admiration, the highest meed of praise must be his. If absolute devotion to duty and unyielding pertinacity of purpose, coupled with deep and strenuous faith in the loftiest ideals of human endeavor, count for aught, we can confidently say to the world, that as the head of this great trust we have a man and leader of men.

"It is, therefore, our duty to congratulate Kentucky on the possession of such a son and servant, and to express to him our united and earnest hope that he may long be spared to carry on the work he has done so well.

"It is, morever, our pleasure to record the unvarying courtesy and kindness that has always marked our personal and official dealings with him, and to say that he enjoys to the fullest extent our confidence, respect and esteem.

REPORT

OF THE

AGRICULTURAL AND MECHANICAL COLLEGE,

LEXINGTON, KENTUCKY.

DECEMBER 17th, 1889.

FRANKFORT, KY.:
CAPITAL OFFICE, E. POLK JOHNSON, PUBLIC PRINTER AND BINDER,
1889.

REPORT

OF THE

AGRICULTURAL AND MECHANICAL COLLEGE,

LEXINGTON, KENTUCKY.

DECEMBER 17, 1889.

FRANKFORT, KY.:
CAPITAL OFFICE, E. POLK JOHNSON, PUBLIC PRINTER AND BINDER,
1889.

REPORT OF EXECUTIVE COMMITTEE.

LEXINGTON, Dec. 17, 1889.

To His Excellency, S. B. BUCKNER,
Governor of Kentucky:

SIR:—The Executive Committee of the Board of Trustees of the Agricultural and Mechanical College of Kentucky have the honor to submit the following report to you, and through you to the Legislature of the Commonwealth.

The College closed the session of 1886–7 with a matriculation list of 297, that of 1887–8 with 331, and that of 1888–9 with 390 on the books of the College. The indications this far are that, including summer matriculations of the Normal School and those of the Commercial Department, we shall touch, if we do not exceed, 500.

For several years past the institution has been steadily growing in nnmbers and in material appliances for illustration, successive additions involving considerable outlay have from time to time been made to the equipments of the Departments of Natural History and Chemistry. The apparatus of the latter especially has grown to very respectable proportions. Considerable additions, to the extent of $1,000, has also been made to the machinery of the Department of Practical Mechanics, which with an engine of 15–horse power will, when the necessary arrangements are completed, fully double the capacity of this Department for work.

Since the adjournment of the last Legislature two buildings have been erected on the College grounds. The Hatch Act allowed $3,000 to be taken from the first year's appropriations for the erection of a building for the Experiment Station, and

$750 each year thereafter for the enlargement or repair of the original building. The Governing Board, finding that the sums available under the Hatch Act were entirely insufficient for the erection of a building with the necessary capacity, supplemented these by an appropriation from the funds of the College, and put up a building which would not only meet the wants of the Experiment Station, but relieve the pressure of the College by supplying additional accommodation for some of our Departments. Thither, accordingly, we have transferred the Chemical Department with its laboratories, the Natural History Department, and the Department of Book-keeping, Phonography and Telegraphy. This building cost, with its furniture, in the neighborhood of $20,000.

The pressure for boarding and lodging has become so great that the Board of Trustees, in September last, authorized the erection of a new dormitory, with a capacity for seventy students. The building is a handsome, though inexpensive, brick structure, and will, when completed, cost about $12,000. We shall then have capacity for boarding and lodging 175 students on the College grounds. We need, however, one dormitory more.

The Normal School has been reorganized, with a Kentuckian, who had for years been prominently identified with the common school interests of Kentucky, at its head. Fully alive to the necessities of the common schools, and with clear practical ideas to guide him, he applied himself to his duties with an energy and a zeal which gave the department a life which it had never before possessed. Discarding an impossible and unrealizable ideal, he addressed himself to the work of providing the common school teachers of the State with such a course of disciplinary training as would make them efficient, intelligent and practical teachers. In this the measure of success already achieved, has far surpassed our expectations. The Normal School matriculated last year 118 pupils. During the preceding year there were but thirty-three. The prospects are that before the close of the present collegiate year, we will far surpass the numbers of the preceding. As this department is of special interest to the public, we subjoin its courses of study in full.

COMMON SCHOOL COURSE.

FIRST TERM—Practical Arithmetic, English Grammar, Geography, English Composition.

SECOND TERM—Teachers Training, Civil Government, United States History, Physiology and Hygiene.

The Common School Course can be completed in one year, and is designed to prepare teachers for the common schools of the State. The student who completes this course of study will be able to obtain a first-class certificate in a county examination, and will have had instruction in the latest and best methods of teaching. Applicants for admission must pass a satisfactory examination in Arithmetic, Geography and English Grammar.

NORMAL COURSE.

Freshman Year.

FIRST TERM—Elementary Physics, Elementary Algebra, Higher Arithmetic, Latin Primer.

SECOND TERM—Elementary Botany and Zoology, Elementary Chemistry, Higher Arithmetic, Latin Primer.

Sophomore Year.

FIRST TERM—German, Higher Algebra, Chemistry, Latin Grammar and Cæsar.

SECOND TERM—German, Geometry, Higher Algebra, Virgil and Latin Exercises.

Junior Year.

FIRST TERM—Geometry and Trigonometry, Rhetoric and English Literature Moral Philosophy, German and French.

SECOND TERM—Analytical Geometry, Rhetoric and Literature, Botany and Zoology, German and French.

Senior Year.

FIRST TERM—Psychology, History, Cicero and Sallust, Astronomy.

SECOND TERM—Physics, History and Political Economy, Livy, Geology.

Since the last report to your Excellency, the College has organized a Department of Civil Engineering. Last year the nucleus of a good class was formed, and much good work was done. This year the numbers who entered this Department encourage us to hope that erelong this will be one of the most popular and most unanimously attended Departments of the

institution. There are already 18 or 20 students pursuing courses of study leading to graduation in Civil Engineering.

The Agricultural Department has also been placed upon a better basis than heretofore. Complete courses of study leading to graduation in Agriculture have been formed, and every encouragement given to students to specialize in the Departments of Science which relate to Agriculture. In addition to the regular Agricultural course, which is voluntary, a popular course of study has been organized, attendance upon which is obligatory by all male students. It consists of a series of Lectures on General and Agricultural Chemistry ; a series upon the application of science to Agriculture and Horticulture ; a series upon the use of manures and artificial fertilizers, and a series of lectures upon Economic Entomology. These extend from the middle of November until the first of April. Synopses of the course of study is herewith transmitted. It gives us pleasure to report that our Experiment Station, maintained by the Congressional Appropriations under the Hatch Act, is recognized as one of the best in the country. The character of the work done by us is also recognized by the other Experiment Stations as of great value. The bulletins of experimental results, issued from time to time, both interest and instruct our agriculturalists, and bring them into more intimate relationship, and closer sympathy with the general aim and work of the College. The recent addition of a practicable entomologist, of eminent ability, to the staff of the Station, has largely increased its utility.

Instruction has been given the past year in the following branches of study :

Chemistry, organic and inorganic ; Quantitative and Qualitive Analysis, Agricultural Chemistry, Botany, Zoology, Comparative Zoology, Anatomy and Physiology, Histology, Microscopy, Geology, Mineralogy, Paleontalogy, Algebra, Geometry, Trigonometry, Surveying, Analytical Geometry, Mechanics, Astronomy, Calculus, Elementary Physics, Practical Mechanics, Drawing, Civil History, Political Economy, Mental and Moral Philosophy, Rhetoric, Logic, English Literature, Latin, Greek, French, German, Book-keeping, Telegraphy, Phonography, Civil Engineering, Agriculture, Horticulture, Veterinary Science, and the Normal School courses already given.

We regret to say that the existing facilities for instruction in practical mechanics fall far short of our wishes. No great extension, however, is practicable in this direction until we are provided with more shop room. Our necessities in this direction were so fully discussed at the last meeting of the Board, and so fully set forth by the President of the College, both in the oral report of his recent visit to the Colleges and Universities of the North and West and in the written report which has already been transmitted to your Excellency, that it might seem that enough has already been said on the subject. So great, however, is its importance that we beg to repeat what was said in the report of 1887:

"The necessities of the mechanic, no less than those of the agriculturalist, point unmistakably in the direction of skilled labor. The competition of producers is now so keen in the old world and the new, that only the skilled laborer can hope to hold his own. The margin of profits is so small that the capitalist who employs unskilled labor must be driven to the wall. The skillful hand and the educated brain will give to the individual, to the corporation, and to the nation an incontestable superiority in production, in industrial enterprise and in trade. We desire, therefore, to urge upon your Excellency, and, through you, upon the Legislature of the Commonwealth, the necessity of making ample provision in the State College for an extended course of technical instruction, such as our opportunities and our necessities require. The day is not far distant when, in the development of the resources of the State, the demand for skilled labor, in many branches of industry, will be far in excess of the present. We ought to educate men who can survey our railroads, build our bridges, open our mines, construct our furnaces and rolling-mills, coke our coal and smelt our iron. We want men who can build and operate factories, and skilled artisans who can do the work appropriate to them. To supply such skilled labor, both as operators and as overseers, should be the aim of the mechanical side of the Agricultural and Mechanical College. This will, however, require money, and a good deal of it. But no investment will pay better in the end. A great obligation rests upon the State to provide the means for this purpose. The Congres-

sional donation of land given by Congress in 1862, amounting to 330,000 acres, would, if it had been judiciously and economically managed, have provided a splendid endowment, the annual income of which would have been ample for the needs of the College. It was, however, unfortunately sacrificed by the agent into whose hands the State intrusted it for sale, and only $165,000 were realized from the sale of the magnificent domain. Having accepted the trust, and virtually sacrificed the principal, the State should see to it that the Institution, founded and endowed by the residue of it, should not be crippled for want of means. The spirit of the age is in favor of industrial and technical training. The younger States around us as well as the older ; the States of the old world as well as the new, are making generous strides in this newer and nobler race for supremacy. They are spending their thousands and tens of thousands annually in promoting the highest and most thorough scientific and technical training of their citizens."

We have now reached a degree of development beyond which we can hope to make but little progress, unless the material conditions are supplied for our growth and expansion. Eight years ago the buildings supplied us with adequate accommodations. Now, notwithstanding the partial relief afforded by the building of the Experiment Station, to which we have transferred the department of Chemistry, Natural History and agriculture, we are still hampered by inadequate accommodations.

Our Department of Natural History, comprising Biology, Zoology, Comparative Anatomy and Physiology, Botany, Histology, Geology and Mineralogy should be subdivided into not less than three departments, each provided with lecture rooms, laboratories and museums. A separate department of Physics should be established auxiliary to, and in immediate connection with Mechanical, Electrical and Civil Engineering. The tendency of the age is distinctively and decidedly in the direction of these branches of science which can be turned to practical account, and which yield tangible material results. If we do not make adequate provision for instruction in these, the youth of our State will go elsewhere for it.

Steps should also be taken to found and equip a distinct department of Veterinary Science. In many parts of Ken-

tucky the stock interest can be counted by millions. We know of no veterinary school within 500 miles, where a student of veterinary science can obtain the necessary professional training, theoretical and practical, which are necessary to make him a really skillful practitioner. Surely in Kentucky, if any where on the American continent, such a school should be established.

Our necessities may then be briefly summarized as follows:

1. The wants of the Normal School require a separate building, with library, reading-room, society-room and recitation-rooms. With this the academy of the College could, with mutual advantage to both Normal School and Academy, be associated in the same building.

2. A Science building for Geology and Mineralogy, Biology and Zoology, Comparative Anatomy and Physiology, Botany and Histology, and kindred sciences.

3. A building for the Mechanical Department with the necessary machinery. In this, provision should be made for Physical Science, Lecture-room and Laboratory and for Electrical Engineering.

4. A building for a General Library, including Reading-room, Young Men's Christian Association room and three Society-rooms.

5. Drill Hall, with Gymnasium Building, Bowling Alley, and other facilities for recreation and amusement.

6. A home for young women who enter the Normal School should be provided, wherein board and lodging could be furnished at reasonable rates. Whether such a home should be in the city or on the College grounds we do not undertake now to determine. We are, however, of the unanimous opinion that equal facilities should be given to the young women to obtain an education as cheaply as to the young men of the Commonwealth.

Heartily concurring in the opinion which you so clearly and happily expressed during the late session of the Board, we believe our duty now is to address ourselves to the upbuilding of an institution of such character and proportions as will meet the educational wants of all our people. Kentucky,

which in times past has borne so conspicuous a part in the cabinet and in the field, can not allow herself now to be a laggard in the race for supremacy in science, in literature, and in art. To accomplish this most desirable end, we look to the intelligent and patriotic initiative of your Excellency, the Chief Magistrate of this Commonwealth, and the honored Chairman of the Board of Trustees of the State College of Kentucky.

We have the honor to be,

Your obedient servant,

W. B. KINKEAD,

Chairman Ex. Com. A. & M. College.

REPORT SPECIAL COMMITTEE.

To His Excellency, S. B. BUCKNER, *Governor of the Commonwealth of Kentucky:*

DEAR SIR: The undersigned Committee were appointed by the Board of Trustees of the A. & M. College of Kentucky, at their meeting in November, 1889, to lay before your Excellency a certain report to be made to them by President J. K. Patterson, of said College, and through you to the Legislature of the State. In performance of said duty, the Committee herewith hand the report of said President, and respectfully ask the careful consideration of the same, both by you and the Legislature of the Commonwealth.

The Committee desires to draw special attention to some facts in connection with this report: First. There was issued to Kentucky, under the land grant of 1862, scrip for 330,000 acres of land; to the State of Kansas, scrip for 90,000 acres of land. That of Kentucky was sold for $165,000, yieldiug an income of $9,900; that of Kansas for $501,426, yielding an annual income of $38,594. Here we see that a little more than a fourth as much land has yielded to Kansas more than three times as much money. The State of Kansas has certainly managed her grant well. How with ours? The figures speak for themselves. The little pittance of income which we have from this source is certainly not due to any fault of the College authorities, for they never had, either directly or indirectly, any control over this business, but the Legislature of Kentucky took entire control over it, and, through their agents, made disposition of the scrip, and invested the proceeds in Six-per-cent. Bonds of the Commonwealth of Kentucky.

2. We have outgrown our facilities and have not the means to expand—commencing with a limited number of students years ago, our matriculation list this session shows that we will have about 450 matriculates this year; the rooms that would accommodate less than 200 at first, are now overcrowded, and we must furnish more facilities or cease to grow. This is the only College in the State directly under State control, non-sectarian in character, admitting to its halls both males and females, largely from the humbler walks of life, fitting them all by their requirements to make good and useful citizens, and thus enabling all to earn honest and remunerative livings. Under the law, we receive a certain number from each representative district in the State free of tuition; of this class of pupils about eighty counties of the State are now represented in our halls, and are fitting themselves to become teachers. What a benefit it must be to these counties to have their own sons and daughters qualified to teach the Common Schools of their respective counties. To all such our Normal Department opens wide its doors, and gives them a welcome, and we strain every point to make the pecuniary burden upon these as light as possible.

A county appointee is never turned away for the want of money, the connection of the Experimental Station with us, supported as it is by appropriations from the United States Treasury, enables us to procure work for the young men who have not the means of support otherwise. Many such come to us, some with less than five dollars in their pocket, and a scant supply of clothing. These are always encouraged by giving to them work, by means of which they support themselves well; this class of student is destined to make a valuable citizen. The board in the dormitory costs the boys about $2.25 per week. We have at present sufficient room for these, but for girls, who are equally worthy and equally as poor, we have no dormitory facilities, and are under the necessity of procuring for them the best and cheapest board we can in respectable families. This class of students is largely composed of those, who, by teaching school, have got a little money ahead, and come here to better qualify themselves in the art of teaching. We have no facilities of enabling this class of students to stay very long with us; when their money gives out they must go home. Some have thought

that if we have a dormitory for them down in the city, under proper control and influences, where they could get board as cheap as the boys do, that it would be a great boon to them.

3. We stand much in need of a mechanical hall and tools and machinery; this department is required of by the Act of Congress of 1862; under our limited means we have done the best we could, but that is far from being satisfactory; we could vastly improve our work; the labor in this department is considered educational, and not paid for.

4. We greatly need a drill hall and armory; in bad weather we have no place to drill, except in the main halls of the College building. While this is going on, everything else has to stop on account of the noise. We can not, under the organic act, dispense with this; it must go on; everything has to succumb to it.

Respectfully submitted,

R. J. SPURR,
P. P. JOHNSTON,
HART GIBSON.

PRESIDENT'S REPORT.

Gentlemen of the Board of Trustees, A. and M. College of Kentucky:

In occordance with the resolution of the Executive Committee, adopted October 4, 1889, I visited the Colleges and Universities of Ohio, Michigan, Wisconsin, Kansas and Missouri, established and maintained as is the State College of Kentucky, in accordance with the provisions of the Act of Congress, approved July 2, 1862, for the endowment of Agricultural and Mechanical Colleges in the several States and Territories of the Union. I found all the State Institutions of these several States in a flourishing condition, well equipped and largely attended. In Ohio, the Literary and Scientific features predominate, with a fair degree of attention given to the application of Physics and Mathematics, to Practical Mechanics, but with no marked development of Theoretical Agriculture. Provision is made, it is true, for class-room instruction in Agriculture, but the classes are small and the results by no means encouraging. Experimental farming, and the application of the principles of science to agricultural pursuits, is given over almost exclusively to the Experiment Station, specially endowed by Congress under the Hatch Act. The courses of study embrace the following departments:

Mental and Moral Philosophy.
Mathematics and Astronomy.
English Language and Literature.
French Language and Literature.
German Language and Literature.
ek Language and Literature.

History and Political Economy.
Latin Language and Literature.
Geology.
Mechanical Engineering
Mining and Metallurgy.
Physics.
Pharmacy.
Zoology and Comparative Anatomy.
Veterinary Science.
Civil Engineering.
Drawing.
General Chemistry.
Botany and Horticulture.
Agriculture.
Agricultural Chemistry.
Military Science and Tactics.

Other associate and assistant professors are employed, whose salaries, with those of the preceding, amount to $49,775.

To meet these and other expenditures, which for the year 1888 amounted to $68,000, exclusive of the expenditures for the maintenance of the Experiment Station, there is the income from the proceeds of the Congressional scrip fund of 1862, fees of students and annual appropriations.

The endowment fund is $600,000.

Value of land owned by the University, $1,400,000.

The buildings are handsome, and are valued at $200,000. Besides those already built, there is now a chemical building in process of erection which will cost $75,000 more. The land was the gift of the county, and the buildings were erected out of appropriations made by the State.

Some of the more important subsidiary buildings, with their equipments, are as follows:

		Equipment.
Mechanical Building	$ 4,600.	$ 5,000
Zoological	8,000.	10,000
Physical Laboratory	10,000.	5,000
Electrical Engineering	6,000.	8,000

The institution is growing and expanding.

Its necessities are made known from year to year to the Legislature, and liberal appropriations made to meet them.

SALARIES

President	$ 3,000 00
Thirteen professors, each	2,250 00
One professor	2,000 00
Two professors, each	1,800 00
Three professors, each	1,200 00
One professor	800 00
Nine professors and employes	125—800 00
Total Salaries	49,775 00

Each professor pays rent for house which he occupies on the College grounds. There are no perquisites.

The next institution visited was that of Michigan, at Lansing. Years before the Act of Congress of 1862, under which other State institutions are organized, Michigan founded, and partially endowed, a college for the promotion of agriculture by instruction and experiment. Concurrently with this she maintained a literary, classical and scientific institution at Ann Arbor, known as the Michigan University, now, and for many years past, one of the great Universities of the Republic. After the passage of the Act of 1862 she gave the land scrip to the existing Agricultural College, whose income is now derived from the original endowment made by the State from the interest on the proceeds of the sales of land given by the Act of 1862, and from special State appropriations as the necessity may arise.

The total State appropriations since 1869 amount to	$368,222
Special appropriations in 1887	44,000
Special appropriations in 1888	30,752
The total income for 1887	63,999
The total income for 1888	63,202
Annual income from lands sold	32,006
The value of the farm, 640 acres, the gift of the State is	47,320
Value of buildings erected by the State	250,725
Value of equipments of buildings erected by the State	126,129
Endowment from lands sold	492,280
The aggregate amount expended in salaries for the year 1888 was	37,883

The principal professorships are:

Mental Philosophy and Logic.
History.
Political Science and Constitutional Law.
English Language and Literature.
Mathematics and Civil Engineering.

Mechanics—Theoretical and Applied.
French Language and Literature.
Chemistry—General and Agricultural.
Zoology and Entomology.
Botany and Forestry.
Agriculture.
Horticulture.
Veterinary Science.

Besides these regular professorships, there are assistant professorships in Chemistry, French, English, Mathematics, Bookkeeping, Drawing, Botany.

The salary of the President is	$3,200 and house.
7 Professors	1,800 and house.
1 Professor	1,500 and house.
1 Professor	1,400 and house.
1 Professor	1,828 and house.
1 Professor	1,300 and house.
3 Professors	1,200
2 Professors	1,000

Various other assistants and employes receive from $400 to $900 each.

The total amount paid for salaries is $37,838.

Part of these salaries is paid from the income under the Hatch Act, for services rendered the Experiment Station, and a small proportion out of the funds of the State Agricultural Board.

Particular attention is called to the liberality with which provision has been made for special departments in separate buildings, as follows:

Chemical Laboratory	$18,000 00
Chemical and Physical Apparatus	11.892 00
Botanical Laboratory	6,000 00
Botanical Equipment	6,512 00
Mechanical Laboratory	10,800 00
Mechanical Apparatus and Machinery	8,214 00
Veterinary Laboratory	5,400 00
Veterinary Apparatus and Museum	2,056 00
Museum, Collections and Furniture	11,672 00
Library and Furniture	20,941 00
Zoological Apparatus	9,460 00
Green Houses and Contents	6,670 00
Agricultural Implements and Stock	24 672 00
Horticultural Implements	2.042 00
Stables, Barns and Piggeries	16,000 00

Agriculture has been taught in the class-room and in the field for more than 30 years, and with marked success. Their experimental work has been especially valuable. The Mechanical Departments, with the scientific studies relating to them, were, however, long in abeyance, and have been placed upon a satisfactory basis only within the last few years.

The next institution visited was the University of Wisconsin, It is organized on a broad basis, and aims to provide liberal and practical courses of instruction, thus addressing itself to the varied wants of all within the Commonwealth who require an education. Provision is thus made for—

Logic and Mental Philosophy.
English Language and Literature.
German Language and Literature.
Scandinavian Language and Literature.
French Language and Literature.
Latin Language and Literature.
Greek Language and Literature.
Mathematics and Astronomy.
Zoology, Biology, and Comparative Anatomy.
Botany and Histology.
Chemistry, General.
Chemistry, Special, Quantitive and Qualititive.
Chemistry, Agricultural.
Physics.
History and Political Economy.
Geology, Mineralogy, Paleontology.
Civil Engineering.
Electrical Engineering.
Hebrew.
Italian.
Sancrit.
Law.
Medicine.
Agriculture.
Horticulture.
Practical Mechanics.

For the encouragement of those who desire to remain and to prosecute their studies after graduation, advance courses of study have been provided, and a number of scholarships and fellowships, yielding each a handsome income to the fortunate competitor, have been established by the generosity of private individuals and the liberality of the Board of Trustees.

The State is liberal in its support of this great Institution, providing for its wants with a generosity that is simply munificent.

Last year the income from its endowment, resulting from the sale of lands given by Congress under the Act of 1862, was	$ 27,677
From State tax (perpetual)	72,658
From special appropriations	77,791
From students' fees	12,833
Total	$190,957

The salaries paid are as follows:

President		$ 4,000 and house
Vice President		2,400
Nine professors		2,200 each
One professor		2,578
One professor		2,824
Othes varying from	$343 to	1,950
Total for salaries		66,026
For the maintenance of the department of Civil Engineering an annual appropriation is made by the State of 1 per cent. of the gross income from licenses of the railroad and telegraphs, and which gave this department in 1888		10,000
The Legislature of 1885 appropriated for the construction of scientific buildings		290,000
That of 1887 for their completion		145,000
For apparatus		40,000
For Astronomical Observatory (annually)		3,000
There have been appropriated likewise within the last three years for laboratories alone		90,000
The total value of buildings		550,000

The general equipment of the Botanical, Zoological, Geological, Physical, Electrical Engineering and Mechanical Laboratories, is liberal and grand. In the Botanical and Geological Laboratories alone, there are not less than 90 microscopes used by students in histological investigations. In the University of Wisconsin the agricultural element occupies quite a subordinate, but in the Experiment Station, which is one of its departments, and is maintained out of the Congressional grant, under the Hatch Act, good work is being done.

The Kansas College, founded under the Act of 1862, like that of Michigan, devotes itself mainly to those branches relating to Agriculture and the Mechanical Arts. Like Michigan, the State of Kansas likewise maintains a State University, estab-

lished at Lawrence, which, like that of Ann Arbor, addresses itself to the general educational wants of its citizens, and is liberally maintained by the State.

To its Agricultural College the State has also been liberal to a high degree. The appropriations, mainly for buildings, amounts to $270,000. Her land grant was managed with exceptional wisdom and prudence. Kansas received from the General Government 90,000 acres; Kentucky 330,000. The endowment of the Kansas Agricultural College, accruing from the sale of their lands, is $501,426; that of Kentucky $165,000. The income of the former from her endowment is $33,212, while that of Kentucky from the same source is $9,900. If our lands had been sold and the proceeds invested as judiciously as those of Kansas, we should now be in possession of an endowment of $1,833,000, and an income of $109,880, annually.

The income of the College as above mentioned from her land scrip endowment, is	$38,594
From other sources	6,830
Total income	45,424
Farm, about 400 acres	34,300
College buildings	104,350
Furniture	5,273
Farm equipments	22,528
Horticultural	8,160
Chemical Department, separate building	5,647
Natural History, " "	4,250
Printing Department	3,229
Mechanical "	2,653
Library	8,756
Physics and Engineering	1,800
Sundries	15,535
Total	$310,339

The barns and stables are of the most substantial construction, commodious and well arranged. The cattle include Shorthorn, Herefords and Jerseys—many of them animals of much value. Special attention has been given to the digestibility and assimilation of food stuffs, with good results.

The staff of instruction includes the following departments:

Logic and Political Economy.
Agriculture.
Chemistry and Mineralogy.
Horticulture and Entomology.

Botony and Zoology.
Mathematics.
Drawing.
Telegraphy.
English Literature.
Mechanics and Engineering.
Household Economy and Hygiene.
Music.
Physics.
History and Constitutional Law.
Physiology and Veterinary Science.
Printing.

SALARIES.

President	$ 3,000 and home.
One professor	1,800
Three professors	1,600 each.
Five professors	1,400 each.
Two professors	1,000 each.
One professor	900
Eight professors	600—800 each.
Total salaries	21,840

The University of Missouri, also in existence before the Congressional Act of 1862, to which the State of Missouri gave the land received under that act, was the last of the institutions visited. I found it in a highly prosperous condition, well managed and admirably equipped, with a good income and a liberal State government to supply all that is necesasry to its efficiency. In the University of Missouri the Mechanical Department has found little or no development. The Agricultural is confined mainly to the Experimental Station organized under the Hatch Act of 1887. The school of Mines is established at Rolla, that of Law in Columbia, and the School of Medicine at St. Louis. The School of Mines has been eminently successful in turning out men well prepared for mining engineering. The income is approximately as follows:

From invested funds, chiefly from sale of Congressional Scrip Lands	$ 36,852
Appropriations by Legislature (Annually)	33,500
Total	70,000

Special appropriations asked for last year were as follows:

Increase of Law Library	$ 5,000
Scholarships and Fellowships	5,200
Natural History	4,038
Geological Museum	9,500

Veterinary Department	2,000
Drill Hall and Gymnasium	20,000
Chemical Laboratory (Building)	30,000
Mehcanical Department, (Building)	50,000
Total	116,000

The University is fairly well supplied with buildings, though not enough for the accommodation of its various departments. Those already erected are as follows, the cost of which was defrayed by special appropriations of the Legislature:

Main Building	$ 80,000
Two wings added	125,000
Science building	50,000
Dormitory	20,000
President's house	10,000
Astronomy and Mathematics	10,000
Medical building	5,000
Barn	5,000
Zoological	6,000
Physical Laboratory (apparatus)	5,000
Engineering	3,000
The farm is large and valuable, and is estimated at	60,000
Live stock	5,170

The following are the departments of study:

Mental Philosophy or Logic.
Chemistry.
Law, 5 professors.
Surgery.
Mathematics, 2 professors.
Latin, 2 professors.
Civil Engineering.
Anatomy and Physiology.
Greek and Comp. Phil.
Hebrew and Semetic Lang.
Agriculture.
Veterinary Science.
Military Tactics.
English Language and Literature.
Biology.
Geology and Min.
Mining and Metallurgy.
Physics.
Horticulture.
Analytical Chemistry and Metallurgy.

The salaries paid are as follows:

President	$3,600 and house.
Two professors, each	2,500
Twelve professors, each	2,000 ½ from Ex. Sta.
One professor	1,800
Three professors, each	1,500
Three professors, each	1,200
Seven professors, each	1,000
One professor	1,000 ½ from Ex. Sta.
One professor	600
Five employes, 150–600	2,050
Total salaries	49,850

In order to facilitate comparison I append the following:

COMPARATIVE STATEMENT OF SUBJECTS TAUGHT.

	States.				
	Ohio.	Mich.	Wis.	Kan.	Mo.
Mental and Moral Philosophy	"	"	"	"	"
Mathematics	"		"		"
Astronomy	"	"	"	"	"
French Lan. and Lit.	"	"	"	"	"
German	"		"	"	"
Greek	"		"	"	"
Latin	"	"	"	"	"
English			"		
Hebrew and Semetic			"		
Scandinavian			"		
Italian			"		
Spanish			"		
Sanscrit			"		
History and Political Science	"	"	"	"	"
Geology and Mineralogy	"	"	"	"	"
Zoology and Comp. Anatomy	"	"	"	"	"
Botany and Histology	"	"	"	"	"
Anatomy and Physiology	"	"	"	"	"
Civil Engineering	"	"	"	"	"
General Chemistry	"	"	"	"	"
Agricultural Chemistry	"				
Pharmacy	"		"		
Electrical Engineering	"	"			"
Veterinary Science	"	"	"	"	"
Drawing	"	"	"	"	"
Physics	"	"	"	"	"
Agriculture	"	"	"	"	"
Horticulture	"	"	"	"	
Practical Mechanics			"		"
Law			"		"
Medicine					"
Mining and Metallurgy	"	"	"		"
Mechanical Engineering	"	"	"	"	"
Military Science					

Comparative View of Endowment From Congressional Scrip Fund, and Income Therefrom, Value of Farms, Buildings.

	Ohio.	Mich.	Wis.	Kas.	Ky.	Mo.
Enndowment	$ 600,000	$492,280	$190,901	$501,426	$165,000	. . . .
Income from En..	36,000	32,000	32,006	38,594	9,900	$ 36,852
Other sources of income, prin. State Appro. . . .	32,000	30,752	163,180	6,030	26,500	33.500
Land	1,400,000	47,220	50,000	34,300	17,000	660,000
Buildings	275,000	250,725	500,000	104,350	115,000	280,000
Salaries	49,775	37,883	66,026	21,840	20,100	49,850
Salary of President . . .	3,000	3,200	4,000	3,000	2,500	3,600
Of Prin. Profs.	2,250	1,800	2,200	1,600	1,500	2,000

In Wisconsin the State tax, 1-8 of a mill, yields $72,000.

The conclusions which I have reached as the result of my observations are as follows:

1. Kentucky is not up with her sister States, many of which came into the Union long after her admission.

2. Each of the institutions visited owe their prosperity (*a*) to the economic management of the land given by Congress for their endowment; (*b*) to the liberal appropriations made by their States for buildings and equipments; (*c*) to the liberal annual appropriations made by the State Legislatures to supplement the income from the endowments.

3. The State College of Kentucky has accomplished, with the means at her disposal, results which will bear a favorable comparison with those of any of the institutions visited. Her buildings were erected from sources mainly other than those derived from the State, and her farm was purchased from the small annual savings which ought to have been applied to internal growth and expansion.

4. The State College of Kentucky has reached a point in her development when her single department of Natural Science should be subdivided into three—Botany, Zoology, Comparative Anatomy; and Physiology, Biology, Geology, Paleontology, Mineralogy can no longer be taught by one professor with any

satisfactory result. The subdivision required will make three departments out of one.

5. The Mechanical Department, or department of Practical Mechanics, should be placed upon a much broader foundation. The demand for instruction of this kind is growing every day. Provision should be made for at least 100 young men, who should begin, carry on, and complete within the College course, a regular system of Mechanical Training.

6. The department of Civil Engineering should be strengthened by the addition of a competent assistant, a department of Physics, department of Electrical Engineering and a department of Mining Engineering and Metallurgy should be added. The natural resources of our State, which now are in process of rapid development, urgently demand these additions.

But the changes suggested will require more buildings, more equipments, and a larger staff of professors. This means more money. How this is to be obtained I leave to the Honorable Board of Trustees. I hope much from the intelligence, patriotism and public spirit of the Board of Trustees, and especially of His Excellency, the Governor of this Commonwealth, who is its Chairman *ex officio*.

I have the honor to be, with much respect, your obedient servant,

JAMES. K. PATTERSON.

A COURSE IN SCIENTIFIC AGRICULTURE.

Agricultural Chemistry.—Lecture I.

BY J. H. KASTLE, PH. D.

Introductory.—The many applications of Chemistry as a science. Science? Natural Science? The study of ceaseless change characteristic of all the natural sciences. This illustrated by Astronomy, Botany, Physics, Chemictry, etc. Matter or Substance. Physical changes. Chemical changes. Physics. The study of those changes which do not alter the composition of the substance.

Chemistry.—The study of changes in the composition of substances. The chemist must ask himself the questions: What can this substance do? and of what is this substance composed?

Chemical Analysis. Chemical synthesis: Iron Rust contains Iron and Oxygen. Water contains Hydrogen and Oxygen. Hydrogen and Oxygen unite to form water. By chemical analysis we have found that water is made up of Oxygen and Hydrogen. Of what is Hydrogen composed? Elements and compounds. About 67 Elements. About 12 enter largely into the formation of the earth's crust and atmosphere.

A compound is a substance composed of two or more elements, united in definite proportions by weight. Chemistry has to deal with these two great classes of substances—Elements and Compounds.

Physiological Chemistry. The Chemistry of Carbon and its compounds. The Chemistry of Bread-making. Agricultural Chemistry.

Agricultural Chemistry.—Lecture II.

BY J. H. KASTLE, PH. D.

Agricultural Chemistry.—Its aim. The perfect plant consists of two parts—an *axis* and its *appendages*. Of what is the

plant composed? The answer to this question to be furnished by a chemical analysis. Heat has always proved useful in chemical analysis. The effect of heat on a plant. The first action of heat is to drive off water. Hence water is contained in the plant. The large quantity of water in plants.—Constitutes three-fourths of the whole of the green plant, and about one-fifty of the dry plant.

The heat causes a blackening of the plant. Charcoal produced. This shows the presence of carbon in the plant. The large quantity of carbon in the plant. The heat then burns up the carbon, and we have left then a heap of white ashes.—The ash or mineral matter of the plant. Quantity of mineral matter in plants. Heat alone suffices to show that the plant contains water, carbon and mineral matters.

A more refined analysis shows us that the water of the plant contains Hydrogen and Oxygen. That the carbon is in combination with Hydrogen, Oxygen, Nitrogen and Sulphur, in the form of Sugars, Starch, Oils, etc., which can easily be extracted from the plant. Proximate elements—Seven in number.

The most searching analysis shows that the plant contains 13 elements.—These the essential elements, without which the plant will not grow. These elements are the same as those which we have found to enter largely into the composition of the earth's crust.

The quantity of these elements in the plant.—The quantity of mineral matter removed from the earth by crops.

What a complete analysis of the plant predicts.—An exhausted soil.

Agricultural Chemistry—Lecture III.

BY J. H. KASTLE, PH. D.

The general Chemistry of the Elements of which the plant is composed. Two classes of elements—*metals and non-metals.*—This division is a purely arbitrary one. No sharp line can be drawn between the two kinds of elements.

Of the elements which enter into the composition of the plant, five are *metals*, eight are non-metals. Of the non-

metals, four are *gaseous*, four are solid substances. All of the metals are solid substances.

OXYGEN.—Occurrence in nature—More widely distributed than any other element—Obtained by heating substances which contain it—Physical and chemical properties of—Cause other substances to burn. Combustion—Respiration. Both plants and animals need Oxygen.

HYDROGEN.—Occurrence—How obtained—Properties of—It burns—Water formed by the burning of Hydrogen in Oxygen—Water the most important compound of Hydrogen and Oxygen—Water necessary for Plants and Animals.

CHLORINE.—Occurrence—How obtained—Properties of—Causes other substances to burn—Similar to Oxygen—Analogy—Combines with Hydrogen—An acid is, what?—Common Salt.

NITROGEN.—Occurrence—Obtained from the air—an inactive element—Conditions which give rise to the formation of compounds of Nitrogen. Ammonia—Nitric Acid—Nitrates—Saltpeter—Chili Saltpeter.

CARBON—Occurs widely distributed—Various forms of Carbon—*The Central element of Organic Nature.* Carbon burns—Carbon Doxide—A most important compound for the plant.

SULPHUR.—Occurrence—Belongs to the Oxygen family of elements—Sulphuric Acids—Sulphates.

PHOSPHOROUS.—Occurrence—Very similar to Nitrogen in many respects—Combines with Oxygen readily—Phosphoric Acid and Phosphates—Found in the bones of animals.

SILICON—Occurs widely distributed—Similar to Carbon in its chemical conduct. Silicon Dioxide—Silicates. The metals found in plants—Potassium and Sodinm; Magnesium, Calcium and Iron. Bases—Salts.

AGRICULTURAL CHEMISTRY—LECTURE IV.

BY J. H. KASTLE, PH. D.

What can the plant do?—The plant can grow—It can increase in size and weight. It must have food in order that it may grow. Heat, Light and Food essential for plant life. Plant food consists of those elements conposing the plant put in cer-

tain available forms. The simplest food for plants a solution of smelling salts and the ash of plants—Smelling salts are composed of Ammonia and Carbonic Acid.

The difference between a plant and an animal.

The sources of plant food—The air and the soil.

The composition of the atmosphere. The air contains Oxygen, Nitrogen, Carbonic Acid, Water Vapor, Nitric Acid, Ammonia, etc.

Oxygen as food for plants—Necessary for sprouting—Used by the growing parts, the flowers, etc.—Absorbed by the leaves and also by the root—The function of Oxygen—Respiration in Plants—Accomplished by means of the Stomata, or Breathing-pores—Structure of a leaf.

Nitrogen.—The free Nitrogen of the air not a food for plants—Boussingault's Experiments.

Carbonic Acid.—The Carbonic Acid of the air an important food for plants. The "*Fixation of Carbon.*" The quantity of Carbon Dioxide used by the plant for food is very large. The large quantity of Carbonic Acid in our atmosphere—Three and a half tons of this gas used up annually by an acre of beech forest. Why does not the supply of Carbonic Acid give out? What keeps up the supply?

Water.—Atmospheric water not a source of food for plants—The water necessary for the plant is absorbed by the roots—The cause of Wilting—Reviving of a wilted plant.

Ammonia.—An important food for plants—Absorbed by the roots and also by the foliage—Effects of on vegetation—A source of nitrogen to the plant—Goes to build up the Proteides, which are so necessary for animals—What the growth of red clover teaches—The Nitrogen question.

Agricultural Chemistry.—Lecture V.

BY J. H. KASTLE, PH. D.

The Soil as a source of Plant food. Origin of Soils—Formed from the rocks of which the earth is composed.—Weathering of Rocks.—Stratified and Unstratified Rocks. Soils of the Stratified Rocks.—Calcareous Soils, Sandy Soils, Clay Soils, and Loams. Soils of the Unstratified Rocks.—Granite Soils, Trap

Soils, and Lava Soils.—Alluvial Soils. Natural preferences of Plants for certain Soils.—The fertility of a Soil is dependent *first* on the chemical composition of the Soil; secondly, on certain physical conditions. The influence of Man on crops.—He can exhaust and he can improve the Soil.

What the Soil must contain.—It must contain the Ash-ingredients of Plant and available Nitrogen compounds. The composition of a very fertile Soil.—The composition of a very barren Soil.

Quantity of available Ash-constituents of the very fertile Soil per acre. Quantity of available Ash-constituents necessary for the average crop. The number of crops which the fertile land will yield.

The relative importance of the ingredients of the Soil.—Theoretically, Iron is as important as Potash; but practically, available Nitrogen, Phosphoric Acid and Potash are the most important.

Agricultural Chemistry.—Lecture VI.

BY J. H. KASTLE, PH. D.

Soil water a food for Plants.—Water may exist in the soil in three conditions—Flowing water—Capillary water—Hygroscopic water. Roots absorb Hygroscopic and Capillary water. —Amount of water in the green Plant.—Uses of water—It acts as a Plant food, and keeps up the circulation in Plants. Water is valuable to the Plant for four reasons.—It is a Plant food itself.—It always contains other Plant foods.—It acts chemically on rocks and soils—It enables manure to act.

Do our farmers know how to make the most use of water?—Irrigation.—Practical results of.—The use of Sewage as a fertilizer.

The Nitrogen of the soil.—The chief source of the Nitrogen of Plants. Forms of Nitrogen in the soil.—Nitrates, Ammonium compound, and Organic matter containing Nitrogen. Conversion of the Nitrogen of the soil into Nitrates—Nitrification—The Nitric Acid ferment—Helps to Nitrification.—Water washes out the Nitrates.—Reduction of Nitrates. Ammonium Compounds.—Some Plants seem to prefer Ammonia, others Nitrates —Ammonium Compounds change to Nitrates.

Practical Agriculture.—Lecture I.

BY J. H. CONNELL, B. S.

The Relation of Agriculture to the Arts and Sciences.

The Circle of Science—Means used to Master its Principles. Mathematics—Geology—Chemistry—Biology, and other Relations to Agriculture.

Can there ever be an Agricultural Science? Why so much is known Generally and little Definitely of Agriculture. The Questions to be Discussed of Interest to Farmers: Stock, and its Treatment—Labor—Cultivation—Implements—Farm Buildings and Fences. The above-named points not covered by any Science.

Successful Farming due either to Good Judgment, Scientific Training, Actual Experiences, or Observation and Imitation. The Relative values of these in Business.

Practical Agriculture.—Lecture II.

BY J. H. CONNELL, B. S.

Domestic Animals, and the Breeds of Cattle.

Animal Life Classified: One Kingdom, eight Branches, Many Classes, Orders and Sub-orders. Evolution: Survival of the fittest; Similarity in Structure; Fossil remains.

Domestic Animals Herbivorous or Omnivorous. The Bos taurus and Bos indicus. Varieties. The first Domestic Animals. Wild cattle in English parks. How early writers divided the breeds: Long-Horns; Middle-Horns; Short-Horns; Polled. Experiment with Long-Horns. A System Discovered. The Short-Horns and How Improved. The White Heifer that Traveled. Crosses: Prices. The Devon: Characteristics and improvements. Ayrshires, Galloways, Herefords and Holstein.

The Milk Breeds: Channel Island, Dutch, Ayrshires, Swiss. Relative Milk Yields. Composition. Yield of butter per pound of Milk. The best Breed of stock: Object; Market; Feed. Breeds—Pure Breeds—Crosses—Grades. A Creamery

Practical Agriculture.—Lecture III.

BY J. H. CONNELL, B. S.

A Brief History of the Breeds of Horses.

First accounts denote that Egypt or Arabia was the original home. The Greek horse and Roman Cavalry. The natural paces.

The English horse at time of Roman invasion. Effects of special legislation. Character of first English races. Is the Thoroughbred of Eastern extraction? The Arab, the Barb, and the Thoroughbred compared. Eclipse. The Godolphin Arabian.

The Hackney, or saddle horse. The Hunter, strictly English. The Percheron, Norman and Clydesdale Draft Horses. The American Trotting Horse. Early records. Messenger, Abdallah, Rysdyk's Hambletonian, Dexter, Goldsmith Maid, Dutchman, and Diamond. Breeding fast Trotters. The trotting Record—Gradual improvement noticed. One hundred and seventeen Horses in the 2:20 class in 1886.

The Farm Horse: Breed, Weight and Disposition. How to Purchase: Pedigree and Relatives. Shoulders, Chest, Legs, Feet, Eyes. Stable and Road examinations. Age told by the teeth. Skill and experience necessary. Forty Incisor, Canine and Molar teeth. Dental formular: I. 6–6; C. 2–2; M. 12–12. Nippers, Tusks, Grinders.

First year, Milk teeth of twelve Nippers and sixteen Grinders.

Second year, Central Nippers lose the mark. One Grinder added.

Third year, Central Nippers shed and replaced. Corner Nipper worn.

Fourth year, Tusks appear. The second Nipper permanent.

Fifth year, full set of permanent Teeth.

Sixth year, Central Nippers almost lose their marks.

Eighth year, the Upper Central Nippers appear as the lower do at six years.

Other ages denoted by Wear and Slope of teeth. Ordinary feeding. The Hoof and Shoeing.

Practical Agricultural.—Lecture IV.

BY J. H. CONNELL B. S.

Problems of Breeding: Heredity; "In and In" Breeding; and Contro of Sex.

Hereditary Normal Characteristics as shown in Families and Varieties. The Jew and the Gypsy. Like begets Like, or the likeness of some ancestor. Longevity, Fecundity, Mental and Physical Traits. Hereditary Diseases of the Horse—Curb, Ringbone, Roaring, Grease, Spavin, Blindness, Consumption, and Insanity. "Breeding Back," or Atavism. Variation and its Adaptability to Certain Ends.

Breeding of Families ("Strains") and its Effects. The Judicious and the Promiscuous Use of this Practice. Out Crossing. The Relative Influence of the Parents as Shown in Different classes of Animals.

The Possibility of Controlling Sex. Early Theories. Maturity of Egg at Fecundation. Alternate Heats. Relative *Power* of Opposite Sexes. Practical Benefits of any System which may be Established.

Practical Agriculture—Lecture V.

BY J. H. CONNELL, B. S.

Breaking the Horse. Familiar Diseases and Simple Treatment. Castration. Gestation.

"Breaking in" the Colt—When to Begin. A Gradual Progress the best for full-grown animals. Rarey's Principles and Practice of Horse Training.

Bleeding: Early Practices, the Leech. The Fleam and Bloodstick. Where to Bleed, and in what cases necessary. Coagulation as an index of weakness. Subsequent treatment of the wound.

Inflammation, or Founder in the Feet. Causes and Symptoms. Treatment by Bleeding, Fomentations, and Blisters. The Acute and Chronic Forms. Evil results of the disease.

The Location and Nature of Bone, Bog, and Blood Spavin. Bone Spavin aggravated by improper shoeing. The deposit may decrease with farm work. Injurious use of Knife or Chisel. Blisters of use at an early stage. Bog Spavin a Disease of the Joint often causing a permanent but not serious lameness. Surface irritation the best course of treatment. Blood Spavin an unsoundness. Compression, Bandages, and Blisters. Probability of Return. Ringbone, an affection of the Pastern, and the Foot Cartilages. Style of horses most subject to the disease. Cooling application and blisters. The Distinction between Flatulent and Spasmodic Colic. Natural Contraction and Relaxation of the animal Intestine. Suddenness of attack. Cold and "Hard" Water, Green Feed, and habitual Costiveness the prime causes. Danger of violent exercise. Tetanus, or Lock-Jaw—a Spasmodic Symptom of Nerve disease. Quietness and blood-letting the curative treatment. Other Common Affections.

Castration: Tortion, Twitching, and the Ordinary Method: Time: Spring or Fall; Age: Two Months to three years for the Horse.

The Period of Gestation Proportionable to Animal size: Elephant, twenty-three months; Mare, eleven months; Cow, two hundred and eighty-five days; Sheep and Goats, five months; Swine, four months; Dog and Fox, sixty-two days; Cat, fifty days.

Practical Agriculture.—Lecture VI.

BY J. H. CONNELL, B. S.

Sheep and Swine Husbandry.

The History of Sheep Raising, and its Probable Future. How the animal may be best Utilized—for Mutton or Wool, or both combined. Requisites of the Sheep farm. The Western Plains for Pasture.

The Establishment and Improvement of the various Breeds. The "Mexican" sheep of Spanish origin. The "Virginia" and "Improved Kentucky Sheep." The American Merino and his

Antecedents. The Leicester, Cotswold, and Oxforddown breeds —two classes. Description and Comparison of the breeds. Yield of Wool per Annum. Short and Medium wool sheep: The Shropshire, the Southdown, the Hampshiredown, the Dorset, the black-faced Scotch, and the Welsh Mountain sheep. Cross Breeds—their value.

The Value of the Annual Hog Product of the United States the Greatest of Any Agricultural Interest. The Introduction of the Poland China Breed and its adaptability. Description of the Chester White; Test between these and the Berkshires. Color, shape, and markings of the Berkshire. The Suffolk, Essex, Jersey Red, and the Duroc. Essex, Suffolk and Berkshire Compared. The Foods and various systems of Feeding Swine.

Practical Agriculture—Lecture VII.

BY J. H. CONNELL, B. S.

Land Drainage, Surface and Subsoil.

The Necessity of Drainage of some character. The Open Ditch Drains Thoroughly but not Permanently. Shape, Slope, and Position of the Ditch. How to Keep Open. Objections. Uses, Advantages and Construction of the Hill-side Ditch. Plowing as it Affects the Washing of Soils. Washes and Gullies may be stopped in two ways.

The Use of Stones, Poles and Tiles for Underground Drainage. Depth and Fall of Tile Drains. Shapes and Sizes of Tiles. The two-and-one-half-inch sufficient to drain eight acres. Distance between Drains depends on Nature of Soil and Depth of Drain. The Establishment of a System of Drainage. Selecting Position and Setting Stakes. Digging the Drains and Laying the Tile. Implements Used. Obstructions in the Tile and Use of Silt Basins. The Cost of Draining an Acre. Original Cost of Tile. Freight. Labor. Experience of other States in Tile Drainage.

Perfect Drainage Lessens the Effects of Drought. Large Supplies of Fertilizing Gases of the Atmosphere are Added to the

Soil. The Lower Portions of the Soil are Warmed, and the Cooling Effects of Evaporation at the Surface are Diminished. Assists in the Chemical Preparation of Plant Food. Deepens the Surface Soil. Lengthens the Growing Season. Prevents Throwing Out of Grain by Frost. Land is Sooner Worked after Rains. Prevents Souring of the Soil. Lessens the Tendency of the Surface Soil to Form a Crust. Does Drainage Pay in Practice?

Practical Agriculture—Lecture VIII.

BY J. H. CONNELL, B. S.

Plowing, Planting, Cultivation and Harvesting.

The Mechanical Principles on which the Plow Works. Our Modern Implement and its Adaptability to Soils. Objects of Plowing. Turn, Trench and Subsoil Plowing. The First a Necessity. When the Second should be Practiced. Subsoiling a benefit to Grass Lands. How deep should the Soil be Plowed? The Mechanical Condition Necessary to Seed Germination. Preparation of the Different Soils for Seeding Various Crops. Shape and Construction of the Harrow. Its Uses. The Cultivator, Drag and Roller.

Flat vs. Raised Cultivation. Depth to Seed. When Necessary to Cultivate Deep. Mulching. The Advantages of the Seed Drill. Modern Harvesting Machines. Styles of Reapers and Mowers. What machines to use under Varying Conditions.

Practical Agriculture.—Lecture IX.

BY J. H. CONNELL, B. S.

Cutting, Curing, Harvesting and Feeding Stock Foods.

Reapers, Tedders, Rakes, Rickers and Horse-Forks. Proper time for Cutting Hays and Grasses. Methods of Curing Clover-

Hay. Exclusion of Air. Timothy. Pea Vines. The use of Hay Caps. Grains should be more Mature for Cutting than Grasses. The Curing of Wheat, Oats, Sorghum and Corn Fodder. Stacking. In what cases Seed for Planting may be selected to advantage. The Comparative Values of White and Red Clover, Timothy, Orchard Grass, Mellilotus Clover, Meadow Oat Grass, Bermuda, and Johnson Grass for Hay. The Manurial Value of Feed Stuffs a point of Practical Consideration. The Effects of Cooking, Cutting and Grinding food theoretically and practically considered with reference to Horses, Sheep, Cattle and Swine. Ensilage. The Silo and its Construction—Capacity. Advantages of the Ensilage Crop.

Practical Agriculture.—Lecture X.

BY J. H. CONNELL, B. S.

Feeding Live Stock.

Relative Value of various classes of Domestic Animals of the United States. Does Breed or Feed Originate and Establish the Improved Animal. Recent improvements made in the Care and Keeping of Stock.

Soil, Plants, Animals. Oxygen, Carbon, Hydrogen and Nitrogen the "Organic Elements." Gaseous and Mineral Constituents of Flesh. Chemical relation between Plants and Blood. The Corpuscles and the Ash of blood. The Refuse parts Considered. Fat a Carbo-hydrogenous Compound, Containing no ash or Mineral Element. Bone composed largely of Mineral Constituents.

The terms Nutrient and Ration as used in Feed Discussion. Nitrogenous and Non-Nitrogenous Elements. Wood-Fibre. Carbo-hydrates, Fats and Albuminoids. Peculiar Formation and differences of the Stomach and Intestines of Solipeds, Ruminants and Swine. Nature of Foods best adapted to the various Domestic Animals.

Practical Agriculture.—Lecture XI.

BY J. H. CONNELL, B. S.

Feeding Live Stock—Continued.

Best Age for Beef—Quality, Economy. Cost of per Pound. Pounds of Beef per Acre of Corn. Home Breeding and Raising of Beef Stock. Summer Feeding: Grain or Hay for Winter Feeding. Temperature of Barns. Out-door Feeding of Stock. German Experiments and Cattle Rations. The "Wide" and the "Narrow" Ration Applied. Feeding Corn, Clover, Oats, Seed-cake and Waste Products. Feeding for Milk, Butter, Beef. Cost of Pork per Pound in Feed.

The Horse is Useful for his Muscle, and must be Fed to that End. Early Feeding of the Colt. The Digestibility of Certain Feed-stuffs. The Standard and the Practical Ration. How Fine to Cut and Grind Food. Feeding the Fast Colt and Horse. The Mystery of Feeding Animals.

Practical Agriculture.—Lecture XII.

BY J. H. CONNELL, B. S.

Farm Economy.

The Enduring Fertility of Bottom Lands. How to Farm Sterile and Hilly Districts Profitably. The Management of Forage Crops, and the Use of Indian Corn. The Influence of Roads and Highways. What Constitutes Good Farming. "Extensive" v. "Intensive" Farming. Grass and Pasturage Tends Toward "Low" Farming. Where can "High" Farming be Practiced Successfully? The Change from the Extensive to the Intensive System Must be Gradual. The Cost of Crops on Good Lands Compared with those on Poor. Pioneer Cultivation and Its Effects upon the Soil. Exhaustion of Good Lands Necessarily a Slow Process. The Causes and Probable Extent of Improved Farming in the United States. The Landlord's Duty to Sustain the Soil's Fertility. The Effects of Rotation, and the Management of Feed-stuffs and Farm Products to this End.

Practical Agriculture.—Lecture XIII.

BY J. H. CONNELL, B. S.

Fruit Trees and Their Propagation.

The Roots, Stem, and Branches, and their Relation to each other. Composition, Growth, and Sub-division of Plants. Fruit-Branches and Fruit-Spurs. Buds, Leaves, Blossoms, and Fruits—and their offices. Hybridization and its uses.

Propagation by Seed Germination. Division a Method of Reproduction. The Preservation and Planting of Cuttings. When Practicable. Propagation by Layering, Suckers, and Budding. Condition of Sap Necessary to Successful Budding. Wrapping Material. The Preparation and Preservation of the Buds. Operation. Relations which must exist between Stocks and Cions in Propagating Varieties and Families. Whip and Cleft Grafting: The Adaptability of Each to Certain Work. Grafting Composition and Grafting Tools. The Effects of Pruning: Directs the Growth and Induces Fruitfulness. When to Prune and how Executed with Safety.

Practical Agriculture.—Lecture XIV.

BY J. H. CONNELL, B. S.

Fruits—Concluded.

Suitable Location of the Home and Market Orchard as regards Exposure, Soil, Climate, and Market. The Selection of Varieties of Fruits.

Propagation of Stocks for the Apple. Seed Planting, and Subsequent Management. Standard, Doucin and Paradise Stocks for the Apple. Stocks for Pears and Cherries. Stocks must be Transplanted. The Raising, Pruning, and Replanting with reference to Age, Season, Mechanical Execution, and Final Disposition of Stocks. Layers of Peach Seed, and how Handled after Germination. The Peach is Grafted and Budded upon its own stock. Cuttings and Layers the simplest plan of Propagating Grapes. Conditions to be noted in following

either practice. Various systems of Grape-growing and How to Prune. The Square and Quincunx System of Planting trees. Distances. Hedges and some Varieties of Hedge Shrubs. Packing and Shipping of Fruits for Market.

Practical Agriculture.—Lecture XV.

BY J. H. CONNELL, B. S.

Garden Vegetables and Fruits.

Essential Conditions of successful Gardening. The amount of Capital and Labor required per Acre. The Actual Profits, and how obtained. Gardening, as a Profession Compared with other Callings.

What constitutes a desirable Location? Various Systems of Management. How the Cold Frame is Constructed and its uses.

Cost and Probable Profit. Construction of Hot-Beds. Directions for building Green-Houses. Systems of heating and management.

Classification and Geographical range of the Strawberry. Layering as a method of propagation. Field Culture of the berry. Hill, Row, and Matted Row Systems of Cultivation. Red, Black and Yellow Raspberries. Propagation and Culture. Blackberries and Currants. How to adapt the Grape to the Garden.

Food of Plants.—Lecture I.

BY M. A. SCOVELL, M. S.

The Constituents of Plants.—Water the most abundant. The dry matter of plants divided into two classes—the *combustible* and the *incombustible*. Combustible made up of four chemical elements—*carbon*, *oxygen*, *hydrogen* and *nitrogen*—all essential to the production of plants. Nearly one-half of the dry matter of plants consists of carbon. Of the other half, oxygen forms a large portion. Nitrogen seldom exceeds 4 per

cent. of the dry matter. The incombustible matter consists of *potasium*, *magnesium*, *calcium*, *iron*, *phosphorus* and *sulphur*, which are indispensable to plant life, and sodium, solicon, chlorine and manganese, not apparently essential to plant life.

Sources of Plant Food.—Plants derive their food from three sources, viz: Air, soil and seed. Plants chiefly derived from the air. The plant food derived from the atmosphere always in sufficient quantity. The plant food contained in soil, its quantity and condition. Soils sometimes lacking in certain elements of plant food. Most soils furnish iron, calcium, magnesium and sulphur in abundance. Worn soils are lacking in *phosphorus*, *potash* and *nitrogen*. Fertilizers applied to supply these elements.

Food of Plants.—Lecture II.

BY M. A. SCOVELL, M. S.

Sources of Plant Food.—Plants unable to take up all forms of food elements. Poor soils may be rich in these elements. Food elements in order to be available to plants must be in solution. Plants capable of dissolving to some extent elements in the soil not already in solution. Soil analysis not a true guide to soil production. Plot experiments in which potassium, phosphorus and nitrogen are supplied to the soil the best way to tell its wants.

Phosphatic Manures.—Varieties of phosphate of lime. Bones. Bone ash. Bone meal. Varieties of Bone meal. Raw bone. Steam bones. Dessiccated bone. Floated bone. Grades of bone meal. Bone black. Tankage. Mineral phosphates. Guanos. Slags from Steel manufacture. Not all phosphate available to plants. Especially is this true of mineral phosphates. Such phosphates made available by treatment with sulphuric acid. They are then called superphosphates. Amount of phosphoric acid carried off by crops.

Food of Plants.—Lecture III.

BY M. A. SCOVELL, M. S.

Nitrogenous Fertilizers.—Plants not able to feed on the free nitrogen of the air. Nitrogen in the form of nitric acid, ammonia, or organic nitrogen available to plants. Form of nitrates used as fertilizers. Nitrate of soda. Nitrate of potash. Nitrification. Helps to nitrification. Watte of nitrates from the soil. Ammonium compounds. Ammonia of the air. Sulphate of ammonia. Ammonium compounds as fertilizing agents. Some plants prefer nitrates to ammonia. Ammonium salts change to nitrates. Soot. Guano. Nitrogenized animal and vegetable refuse. Fish scrap. Blood. Azotine. Tankage. Oil cake. Castor pomace. Cotton-seed meal.

Food of Plants.—Lecture IV.

BY M. A. SCOVELL, M. S.

Potash Fertilizers. — Some rocks contain comparatively large quantities of potassium. Forms of potash fertilizers. Sulphate of potash. Muriate of potash. Kainit. Ashes of cotton-seed hulls. Wood ashes. Stems of tobacco.

Modes of Applying Fertilizers.

Uses of Lime in Agriculture.—Lime an abundant substance. Modes of action of lime. Flocculation of clay by lime. Importance of lime on clays. Gypsum a form of lime. Gypsum loosens up potash in the soil. Use of gypsum on clover. Gypsum as preservative of manure.

Barn-yard Manure.

ANNUAL REGISTER

OF THE

STATE COLLEGE

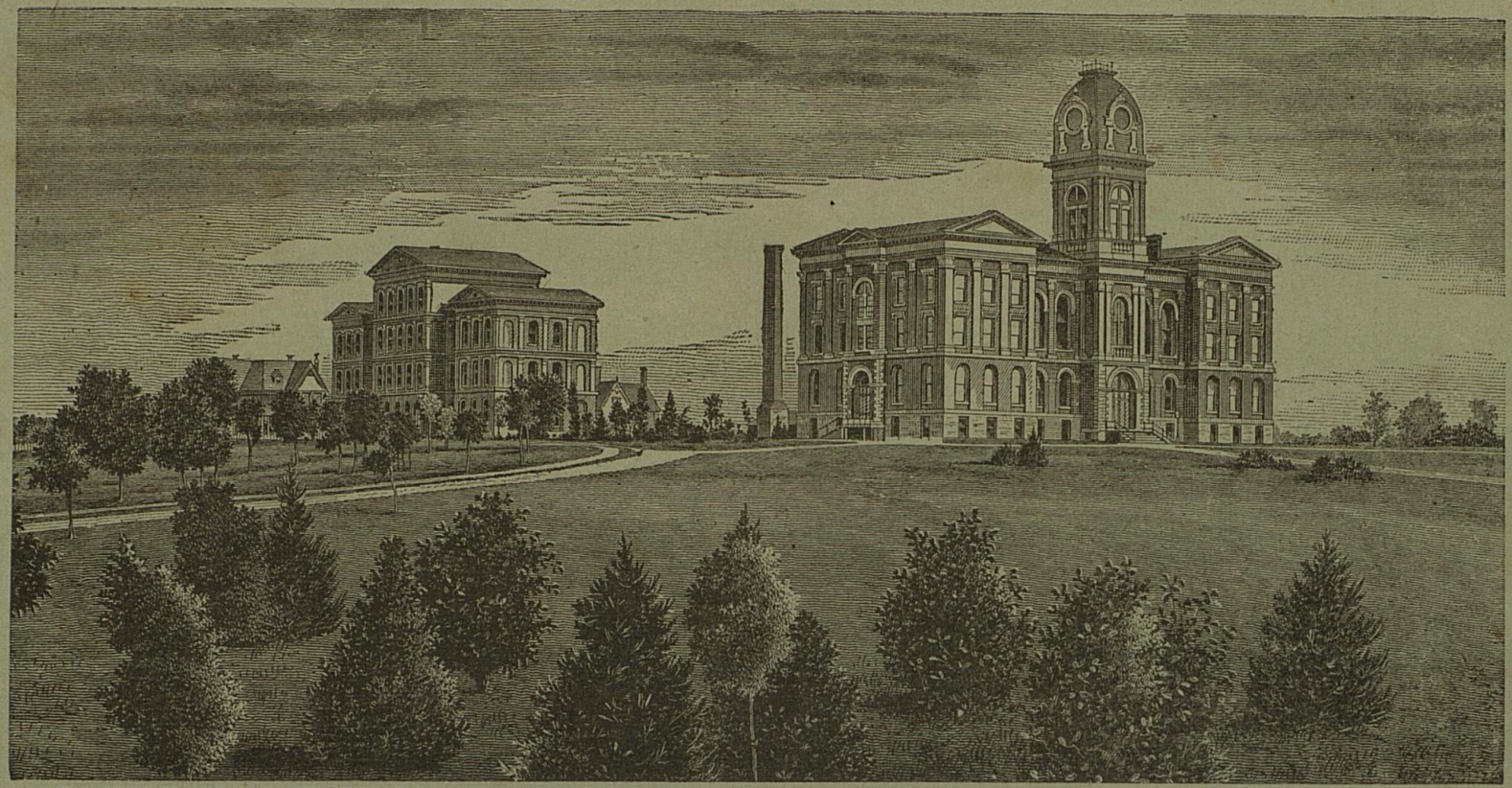
OF KENTUCKY.

STATEMENT OF THE CONDITION, MATRICULATES, AND COURSE OF STUDY FOR THE COLLEGIATE YEAR 1883-'4, WITH THE ANNOUNCEMENTS FOR 1884-'5.

SESSION BEGINS

WEDNESDAY, SEPTEMBER 10TH, 1884.

FRANKFORT, KY.:
PRINTED AT THE KENTUCKY YEOMAN OFFICE.
MAJOR, JOHNSTON & BARRETT.
1884.



PRESIDENT'S HOUSE. DORMITORY. COLLEGE BUILDING.

ANNUAL REGISTER

OF THE

STATE COLLEGE

OF KENTUCKY.

STATEMENT OF THE CONDITION, MATRICULATES, AND COURSE OF STUDY FOR THE COLLEGIATE YEAR 1883-'4, WITH THE ANNOUNCEMENTS FOR 1884-'5.

SESSION BEGINS

WEDNESDAY, SEPTEMBER 10TH, 1884.

FRANKFORT, KY.:
PRINTED AT THE KENTUCKY YEOMAN OFFICE.
MAJOR, JOHNSTON & BARRETT.
1884.

INTRODUCTORY.

Agricultural and Mechanical Colleges in the United States owe their origin to an act of Congress, entitled "An act donating public lands to the several States and Territories which may provide colleges for the benefit of agriculture and the mechanic arts," approved July 2, 1862. The amount of land donated was 30,000 acres for each Representative in the National Congress. Under this allotment Kentucky received 330,000 acres. Several years elapsed before the Commonwealth established an Agricultural and Mechanical College under the act. When established, it was not placed upon an independent basis, but was made one of the Colleges of Kentucky University, to which Institution the annual interest of the proceeds of the Congressional land grant were to be given for the purpose of carrying on its operations. The land scrip had meanwhile been sold for fifty cents per acre, and the amount received—$165,000—invested in six per cent. Kentucky State bonds, of which the State became the custodian in trust for the College.

The connection with Kentucky University continued till 1878, when the act of 1865, making it one of the colleges of said University, was repealed, and a Commission was appointed to recommend to the Legislature of 1879–'80 a plan of organization for an Institution including an Agricultural and Mechanical College such as the necessities of the Commonwealth require. The city of Lexington offered to the Commission (which was also authorized to recommend to the General Assembly the place, which, all things considered, offered the best and greatest inducements for the future and permanent location of the College) the City Park, containing fifty-two acres of land, within the limits of

the city, and thirty thousand dollars in city bonds for the erection of buildings. This offer the county of Fayette supplemented by twenty thousand dollars in county bonds, to be used either for the erection of buildings or for the purchase of land. The offers of the city of Lexington and of the county of Fayette were accepted by the General Assembly.

By the act of incorporation, and the amendments thereto, constituting the charter of the Agricultural and Mechanical College of Kentucky, liberal provision is made for educating, free of tuition, the energetic young men of the Commonwealth whose means are limited. The Normal Department, for which provision is also made, is intended to aid in building up the Common School system by furnishing properly qualified teachers. This College, with the associated departments which will, from time to time, be opened as the means placed at the disposal of the Trustees allow, will, it is hoped, in the no distant future, do a great work in advancing the educational interests of Kentucky. Being entirely undenominational in its character, it will appeal with confidence to people of all creeds and of no creed, and will endeavor, in strict conformity with the requirements of its organic law, to afford equal advantages to all, exclusive advantages to none. The liberality of the Commonwealth in supplementing the inadequate annual income arising from the proceeds of the land scrip invested in State bonds will, it is believed, enable the Trustees to begin and carry on, upon a scale commensurate with the wants of our people, the operations of the institution whose management and oversight have been committed to them by the General Assembly of Kentucky.

BOARD OF TRUSTEES OF THE AGRICULTURAL AND MECHANICAL COLLEGE OF KENTUCKY.

CHAIRMAN EX OFFICIO,

HIS EXCELLENCY, GOVERNOR J. PROCTOR KNOTT.

SECRETARY,

JAS. K. PATTERSON.

TRUSTEES WHOSE TERM OF OFFICE EXPIRES JANUARY 10, 1886.

MAJ. ROBERT S. BULLOCK . . . . . Lexington.
COL. L. J. BRADFORD . . . . . Covington.
HON. A. R. BOONE . . . . . Mayfield.
HON. P. P. JOHNSTON . . . . . Fayette county.

TRUSTEES WHOSE TERM OF OFFICE EXPIRES JANUARY 10, 1888.

JUDGE WM. B. KINKEAD . . . . . Lexington.
EX-CHIEF JUSTICE B. J. PETERS . . . . . Montgomery county.
JUDGE ALBERT G. RHEA. . . . . Logan county.
HON. W. H. WADSWORTH . . . . . Mason county.

TRUSTEES WHOSE TERM OF OFFICE EXPIRES JANUARY 10, 1890.

HON. J. M. UNTHANK . . . . . Bell county.
PHILIP BIRD, ESQ. . . . . Shelby county.
GEN. S. B. BUCKNER . . . . . Hart county.
DR. R. J. SPURR . . . . . Fayette county.

EXECUTIVE COMMITTEE.

JUDGE W. B. KINKEAD, *Chairman*.
DR. R. J. SPURR, *Secretary*.
MAJ. ROBERT S. BULLOCK, *Treasurer*.
HON. P. P. JOHNSTON.
COL. L. J. BRADFORD.

FACULTY.

JAMES K. PATTERSON, Ph. D., F. S. A.,
President, Professor of Metaphysics, Civil History.

ROBERT PETER, M. D.,
Professor of Chemistry and Experimental Physics.

JOHN SHACKLEFORD, A. M.,
Professor of the English Language and Literature.

JAMES G. WHITE,
Professor of Mathematics, Physics, and Astronomy.

A. R. CRANDALL,
Professor of Natural History and Director of the Mechanical Department.

C. R. TYLER, Second Lieutenant U. S. A.,
Professor of Civil, Mechanical, and Mining Engineering, Drawing, and Military Science.

F. M. HELVETI,
Professor of the French and German Languages and Literature.

JOHN H. NEVILLE, A. M.,
Professor of the Latin and Greek Languages and Literature.

MAURICE KIRBY, A. M.,
Professor of Moral and Political Philosophy, and Principal of the Normal Dep't.

ALBERT A. MENKE,
Professor of Agricultural Chemistry, Horticulture, and Agriculture.

WALTER K. PATTERSON,
Principal o the Preparatory Department.

W. G. THORNBURY,
Instructor in Practical Mechanics.

G. D. BUCKNER, M. D.,
Medical Examiner.

M. L. PENCE, B. S.,
Professor of Book-keeping and Assistant in Preparatory Department.

FELIX I. BARTON,
Tutor in Preparatory Department.

J. W. TAYLOR,
Instructor in Greek and Latin.

JOHN GILCHRIST,
Superintendent of Farm.

MRS. B. P. RYLAND,
Matron of Boarding Hall.

GRADUATES OF 1883-'4.

EUBANK, BURTON PENDEGAST, KASTLE, JOSEPH HOEING.
GRAVES, CLARENCE SCOTT, RAMSEY, RUSSELL THOMAS,
JONES, HENRY CLAY, RILEY, OTIS VIOLET.

Diploma of Normal Department,

HOEING, LEONORA.

Governor's Medal, 1882-'3,

LAMBUTH, WILLIAM DAVID.

Governor's Medal, 1883-'4,

KASTLE, JOSEPH HOEING.

MATRICULATES, 1883-'4.

ADAMS, W. T. . . . . Goshen.
AMBROSE, OSCAR BLAIR . . . . . Lexington.
ASHER, HUGH L. . . . . Skidmore.
BAKER, JOHN M. . . . . Hazard.
BAILEY, CHARLES BONDURANT . . . . . Lexington.
BARTON, FELIX ISOM. . . . . Whitley C. H.
BARTLETT, FREDERICK VINCENT. . . . Lexington.
BASHAM, L. LEE . . . . . Stephensport.
BEALERT, MRS. ALICE . . . . . Lexington.
BEATTY, WILLIAM DAVID . . . . . Russell Cave.
BENNETT, ALVA J. . . . . Sacramento.
BERRYMAN, CHARLES HENRY. . . . . Lexington.
BOSWORTH, JO. FRAZER. . . . . Slickaway.
BOWLING, ANDERSON CRAWFORD . . . Greenmount.
BURBRIDGE, STEPHEN DENNIE . . . . . Hutchinson's Station.
BUTLER, THOMAS E. . . . . Shreve.
BRADFORD, WILLIAM GRANT . . . . . Williamsburg.
BRATT, FRANK ELLSWORTH. . . . . Cold Spring.
BRATT, GEO. H.. . . . . Cold Spring.
BRECKINRIDGE, SOPHONISBA PRESTON, Lexington.

BROWNELL, CLAUDE SYLVESTER . . . . Lexington.
BRYAN, GEORGE GIST . . . . . Windom.
BRYAN, ROBERT MILLIGAN . . . . . Windom.
CADDELL, ANDREW JACKSON . . . . . Holly Hill.
CASSELL, ROBT. LEE . . . . . Windom.
CASSITY, GEORGE D. . . . . Terry, Miss.
CASTLEMAN, WILLIAM WORLEY. . . . . Louisville.
COOK, LOUISA. . . . . Lexington.
COOK, THOMAS ANDREW . . . . . Razor Blade.
COLLINS, JOHN . . . . . Rock House.
COLYER, STEPHEN DEARBORN. . . . . Richmond.
CURTIS, HENRY ERNEST . . . . . Greendale.
CHAMBERS, STUART BENJAMIN . . . . . Lexington.
CHENAULT, DANIEL MITCHELL . . . . . Richmond.
CLARKE, GEORGE TILFORD . . . . . Lexington.
CROMWELL, EDDIE B. . . . . Lexington.
CROSSTHWAITE, WILLIAM TILFORD. . . Lexington.
DAVIS, EDGAR CROYSDALE . . . . . Lexington.
DEANE, THOMAS ELLA . . . . . Lexington.
DEROODE, RUDOLPH JOHN JULIUS . . . Lexington.
DICK, GARNETT STRATTON . . . . . Westport.
DIXON, SANFORD VALLANDINGHAM . . Dixon.
DODDS, JAMES FREEMAN . . . . . Hickman.
DUNCAN, EDWARD MACALISTER. . . . . Lexington.
DUNCAN, HENRY T . . . . . Lexington.
DRAKE, AUGUSTINE FREELAND . . . . . Natchez, Miss.
EUBANK, BURTON PENDEGAST. . . . . Glasgow.
ELY, BENJAMIN FRANKLIN . . . . . Lexington.
FARNAU, WILLIAM ARTHUR. . . . . Lexington.
FISH, GEORGE COOKE. . . . . Mount Vernon.
FISHER, KATIE L.. . . . . Cynthiana.
FULTON, ROBERT LEE . . . . . Thomasville, Ga.
FYFFE, JAMES PERRY. . . . . Maysville.
FRAZER, HUGH MILLER . . . . . Lexington.
FRAZER, MARY . . . . . Lexington.
GESS, GEORGE THOMAS. . . . . Lexington.
GIBSON, CARLTON JAMES. . . . . Dayton.
GIBSON, ELIZABETH DUNSTER. . . . . Lexington.
GILLESPIE, GEORGE ROBERTSON. . . . . Lexington.
GOGGIN, BOURNE . . . . . Kirksville.
GUNN, ROBERT TEVIS. . . . . Lexington.
GLASGOW, JOSEPHUS CRITTENDEN . . . Costello.
GRAVES, CLARENCE SCOTT. . . . . Lexington.
GRAY, SHELBY COFFEY. . . . . Albany.

GROSS, GEORGE CLARKE. . . . . Lexington.
HAGGARD, GORDON AUGUSTINE. . . . . Winchester.
HALL, AMOS. . . . . Harper's Ferry.
HANCOCK, ELIZABETH. . . . . Lexington.
HANCOCK, FLORENCE BODLEY . . . . . Lexington.
HAYS, JOHN THOMAS. . . . . Barbourville.
HAYS, PAUL. . . . . Lexington.
HAMILTON, JOHN. . . . . Dayton.
HARDESTY, FRANCIS LEONARD. . . . . Lexington.
HARDIN, EDWARD EVERETT . . . . . Beech Grove.
HARDIN, HENRY AARON. . . . . Louisville.
HEYSER, EMBERSON SHIELDS . . . . . Millerstown.
HENNESEY, ROSE ANNA . . . . . Lexington.
HERR, HARDIN HELM . . . . . Owensboro.
HILLSMAN, GEORGE ALBERT . . . . . Livermore.
HIEATT, WILLIAM WALLACE . . . . . Orr.
HIFNER, KEARNEY LEE . . . . . South Elkhorn.
HOEING, LEONORA . . . . . Lexington.
HOEING, CHARLES. . . . . Lexington.
HOAGLAND, NELLIE . . . . . Lexington.
HOAGLAND, ANNA . . . . . Lexington.
HODGES, HARRIETT . . . . . Lexington.
HODGES, MARY. . . . . Lexington.
HUNT, JOHN DILLARD . . . . . Side View.
INGLES, JENNIE WORLEY . . . . . Lexington.
INGRAHAM, SIDNEY JOHNSTON . . . . . Trenton, Tenn.
INNES, GEORGE WHITNEY . . . . . Russell Cave.
JACKSON, JOHN T. . . . . Rockport.
JACKSON, JARVIS LEE . . . . . London.
JEWELL, WILBUR THOMAS. . . . . Lexington.
JEWELL, YODER . . . . . Lexington.
JONES, HENRY CLAY . . . . . Albany.
JONES, BETTIE RYLAND. . . . . Lexington.
JONES, HENRY BANKHEAD . . . . . Lexington.
JONES, WILLIAM E. . . . . Lexington.
JONES, LUCY ANNA. . . . . Mill Springs.
JOHNSON, JOSEPH E. . . . . Calhoon.
JOHNSON, AZIM O. . . . . Paradise.
KASTLE, JOSEPH HOEING . . . . . Lexington.
KEARNEY, PATRICK HENRY . . . . . Russell Cave.
KELLER, DAVID HENRY . . . . . Lexington.
KENNEDY, BEN. SHACKLEFORD . . . . . Hinklesville.
KIDD, CLAUDE HENRY. . . . . Lexington.
KILGORE, FRANK. . . . . Catlettsburg.

LAMBUTH, WILLIAM DAVID . . . . . Sonora.
LANCASTER, ROBERT LEE . . . . . Knottsville.
LANCASTER, PEARL ANNA. . . . . Lexington.
LAND, GEORGE WASHINGTON . . . . . Lexington.
LAND, CHARLES . . . . . Lexington.
LAWRENCE, JAMES RUSSELL. . . . . Trenton, Tenn.
LONG, WILLIAM DUDLEY. . . . . Georgetown.
LOEVENHART, JACOB HOMER . . . . . Lexington.
LEE, ROBERT EDMUND . . . . . Great Crossings.
MACCOUN, JAMES. . . . . Lexington.
McBRAYER, LOUIS. . . . . Lawrenceburg.
McCRACKEN, CATHERINE . . . . . Lexington.
McDOWELL, THOMAS JULIAN CLAY . . . Lexington.
McFARLAND, JOSEPH POTTER . . . . . Louisville.
McFADDEN, ANTHONY JOSEPH. . . . . Lexington.
McKEE, ROBERT ALEXANDER . . . . . Lawrenceburg.
MARTIN, WICKLIFFE . . . . . Lexington.
MASON, WILLIAM. . . . . Alton.
MASNER, JOHN WILLIAM. . . . . Lexington.
MILWARD, STANLEY ANDREW. . . . . Lexington.
MILWARD, CHARLES SPILLMAN . . . . . Lexington.
MORGAN, GEORGE CLAUDE . . . . . Lexington.
MORGAN, THOMAS HUNT. . . . . Lexington.
MORGAN, JOHN HUNT . . . . . Lexington.
NEELY, CALVIN H. . . . . Costello.
O'BANION, JOHN BRYANT. . . . . East Eagle.
OFFUTT, ALBERT LEE . . . . . Paris.
OLDHAM, THOMAS EDWARD. . . . . Fayette county.
OLDHAM, JEFFERSON. . . . . Fayette county.
OLDHAM, JAMES PETER. . . . . Carrollton.
OSBORNE, ESQUIRE GREEN. . . . . Corinth.
OWEN, JOHN EDWARD . . . . . North Middleton.
PARK, JAMES H . . . . . Paris.
PATTERSON, WILLIAM ANDREW . . . . Lexington.
PETTIT, KATHERINE RACHEL . . . . . Lexington.
PIERCE, W. SLAY . . . . . Bronston.
PURSLEY, SAMUEL WOODFORD . . . . . Pine Grove.
PREWITT, ROBERT . . . . . Athens.
PREWITT, WILLIAM . . . . . Athens.
PREWITT, DANIEL BOYCE . . . . . Lexington.
PRICE, HENRY BURNHAM . . . . . Lancaster.
RAMSEY, RUSSELL THOMAS . . . . . London.
RANKIN, ALLAN . . . . . Mill Springs.
REESE, HIRAM SKILLMAN. . . . . Lexington.

REID, JAMES WASHINGTON . . . . . Manchester.
REYNOLDS, LEWIS PRICE . . . . . Lexington.
RILEY, OTIS VIOLETT . . . . . Dallasburg.
ROBB, CHARLES. . . . . Windom.
ROBINSON, THOS. MANSFIELD. . . . . Lexington.
RUBBATHAN, JOHN. . . . . Lexington.
RUCKER, J. W. . . . . Lexington.
RYLEY, CLAUDE LOGAN . . . . . Troy.
SEALS, CLAUDE GREEN . . . . . Terry, Miss.
SIMMONS, BENJAMIN B. . . . . Harris, Ky.
SIMMONS, ROBERT PURLEY. . . . . Harris, Ky.
SIMPSON, JEFFERSON DAVIS . . . . . Lancaster, Ky.
SUTER, ROBERT HENRY . . . . . Peak's Mill, Ky.
SUTHERLAND, CLARA MASON . . . . . Lexington, Ky.
SCOTT, JAMES RUSSELL. . . . . Russell Cave, Ky.
SCOTT, HUGH LEE. . . . . Hanley, Ky.
SCRUGGS, JOHN BERRY . . . . . Cornishville, Ky.
SCHMIDT, NANNIE . . . . . Lexington, Ky.
SCHMIDT, MARY ELIZABETH . . . . . Lexington, Ky.
SCHRADER, JAMES ALBERT. . . . . Goshen, Ky.
SHELBY, EDMUND P. . . . . Lexington, Ky.
SHELBY, DAVID HART . . . . . Lexington, Ky.
SHAWHAN, HUBBARD WARFIELD . . . . Florence.
SMITH, WILLIAM ADDISON. . . . . Lexington.
SMITH, ROBT. ACE . . . . . Lexington.
SMITH, ERWIN JESSE . . . . . Pottsboro, Texas.
SHREVE, HENRY CALVIN . . . . . Shreve.
SHACKLEFORD, THOS. WHEATLEY . . . Lexington.
STOCKDELL, MOLLIE BREWER. . . . . Lexington.
STOCKDELL, EVAN WARNER . . . . . Lexington.
SCHERMERHORN, JENNIE AXTELL . . . Lexington.
STATON, HIRAM ABIFF . . . . . Albany Landing.
SPEYER, MAURICE . . . . . Lexington.
SPEYER, ISAAC . . . . . Lexington.
STIVERS, LENA C. . . . . Lexington.
SWOPE, WILLIAM PARKER. . . . . Owenton.
TALBERT, PERCY STANTON. . . . . Lexington.
TALBERT, WILLIAM BROWNELL. . . . . Lexington.
TARLTON, JARVIS TAYLOR. . . . . Murphysville.
THORNBURY, WILLIAM GARLAND. . . . New Haven.
THORNTON, VIRGINIA LEE. . . . . Fredericksburg, Va.
THURMA, ALMAR . . . . . Lexington.
TODD, JOHN. . . . . Richmond.
TUCKER, JAMES JACKSON. . . . . Slickaway.
WARNER, WILLIAM. . . . . Lundy's Landing, Ark
WEST, JAMES NEVIEW . . . . . Russell Cave.

WHITE, MILFORD. . . . . Meadorsville.
WHITE, EDWARD M. . . . . Lexington.
WHITE, MARY ELLA . . . . . Lexington.
WILKERSON, CHRISTOPHER HARRIS . . Lexington.
WOODS, ROBERT MILTON. . . . . Smithfield.
WOOLFOLK, JOHN GROSVENOR . . . . . Lexington.
WOOLUMS, JESSIE PATTERSON. . . . . Lexington.
YATES, WILLIAM LEE. . . . . Richmond.
YATES, JAMES ANDERSON . . . . . Richmond.
YELLMAN, LILLY. . . . . Lexington.
YELLMAN, ROSE . . . . . Lexington.
ZIMMERMAN, KATHERINE. . . . . Lexington.
ZIMMERMAN, LOUISA. . . . . Lexington.

DEPARTMENTS OF STUDY.

The Departments of Study comprise the following:

Mathematics.
Physics and Astronomy.
Chemistry, Elementary and Applied.
Mental and Moral Philosophy.
Civil History and Political Economy.
Agriculture and Horticulture.
English Language and Literature.
Latin Language and Literature.
Greek Language and Literature.
French Language and Literature.
German Language and Literature.
Civil, Mechanical, and Mining Engineering and Drawing.
Natural History—Botany, Comp. Anatomy, Geology, &c.
Veterinary Science.
Practical Mechanics.
Theory and Practice of Teaching.
Book-keeping and Penmanship.
Military Art and Science.
Architectural and Landscape Gardening.

Scientific Course.

Mathematics.
Physics and Astronomy.
Chemistry, Elementary and Applied.
Agriculture and Horticulture.
Veterinary Science.
Civil History and Political Economy.
Mental and Moral Philosophy.
Natural History — Botany, Zoölogy, Comp. Anatomy, Geology, Mineralogy, &c.
Latin, Partial Course.
French or German.
Practical Mechanics.
English Language and Literature.
Civil, Mechanical, and Mining Engineering and Drawing.
Landscape Gardening.
Military Art and Science.

Classical Course.

Mathematics.
Physics and Astronomy.
Chemistry.
Mental and Moral Philosophy.
Latin and Greek Languages and Literature.
English Language and Literature.
French and German Languages and Literature.
Civil History and Political Economy.
Natural History—Botany, Comp. Anatomy, Zoölogy, Geology, &c.

Course of Study Required for Diploma in Normal School.

Elementary English Branches.
Mathematics, including Geometry and Trigonometry.
Experimental Physics.
Descriptive Astronomy.
Natural History—Botany, Physical Geography, Physiology.
Penmanship and Book-keeping, Drawing.
Rhetoric, Elements of Criticism, Composition, Logic.
History and Political Economy.
Theory and Practice of Teaching.
French and German.
Latin Language and Literature, partial course.
Mental and Moral Philosophy.

All other departments of study in the College are open, without extra fees, to students in the Normal course. To those who do not take the course required for a diploma, certificates of qualification to teach are issued for those branches in which the required degree of proficiency is attained

The Course of Study Required for a Diploma in the Commercial Course is as follows:

Penmanship, Book-keeping, general and special.
English Grammar, Geography—Descriptive, Political, and Physical.
Rhetoric, Composition.
Higher Arithmetic, Algebra, Geometry.
Political Economy, Moral Philosophy.
French and German.

All other departments are open, without extra fees, to students in the Commercial Course. To those who do not take the entire course of study, but confine themselves mainly to book-keeping, certificates are given when the required degree of proficiency is attained.

PREPARATORY DEPARTMENT—CLASSICAL COURSE.

JUNIOR.

First term .	English Grammar (elementary).	Geography.	Arithmetic.	Latin Grammar, with daily exercise in writing Latin.	
Second term.	English Grammar (elementary).	Geography.	Arithmetic completed, Elementary Algebra.	Latin Grammar continued, Nepos.	

SENIOR.

First term .	English Grammar (advanced).	History.	Higher Algebra.	Cæsar and Grammar.	Greek Grammar, with a daily exercise in White's Lessons.
Second term.	March's Philological Study and Graham's Synonyms.	History.	Higher Algebra.	Virgil and Latin Exercises.	Greek Grammar exercises, Xenophon's Anabasis.

AGRICULTURAL AND SCIENTIFIC COURSE.

JUNIOR.

First term .	English Grammar (elementary).	Geography.	Arithmetic.	Elementary Zoölogy.	
Second term.	English Grammar (elementary).	Geography.	Arithmetic completed, Elementary Algebra.	Elementary Botany.	

SENIOR.

First term .	English Grammar (advanced).	History.	Higher Algebra.	Physical Geography.	
Second term.	March's Philological Study and Graham's Synonyms.	History.	Higher Algebra.	Physical Geography.	

AGRICULTURAL COURSE.

	First hour.	Second hour.	Third hour.	Fourth hour.
First year.				
First term . .	English.	Mathematics.	Physics.	
Second term .	English.	Mathematics.	Chemistry.	
Second year.				
First term . .	Mathematics.	German.	Org. Chem.	Anat. & Phy.
Second term .	Mathematics	German.	Agr. Chem.	Botany.
Third year.				
First term . .	German.	English.	Prac. Chem	Prac. Chem.
Second term .	German.	English.	Zoölogy.	Astronomy.
				Shop work in aftern'n.
Fourth year.				
First term . .	Veterinary science.	History.	Geology.	Agriculture.
Second term .	Veterinary science.	Hist. & Polit. Econ.		Horticult'e.

SCIENTIFIC COURSE.

First year.				
First term . .	English.	Mathematics.	Physics.	French.
Second term .	English.	Mathematics.	Chemistry.	French.
Second year.				
First term . .	Mathematics.	German.	French.	Anat. & Phy.
Second term .	Mathematics.	German.	French.	Botany.
Third year.				
First term . .	German.	English.	Mechanics	Math. or Pr. Chem.
Second term .	German.	English.	Zoölogy.	Astronomy.
Fourth year.				
First term . .	Mental & Mor. Philosophy.	History.	Geology.	(Optional). Civil Eng.
Second term .	Mental & Mor Philosophy.	Hist & Polit. Econ.		Civil Eng.

CLASSICAL COURSE.

First year.				
First term	English.	Mathematics.	Physics.	Latin.
Second term .	English.	Mathematics.	Chemistry.	Latin.
Second year.				
First term . .	Mathematics.	German.	Latin.	Greek.
Second term .	Mathematics.	German.	Latin.	Greek.
Third year				
First term .	German.	English.	Greek.	Anat & Phy.
Second term .	German.	English.	Greek	Botany.
Fourth year.				
First term . .	Mental & Mor. Philosophy.	History.	Geology or Early English.	Math. or Pr. Chem.
Second term .	Mental & Mor. Philosophy.	Hist. & Polit. Econ.		Astronomy.

COURSE OF INSTRUCTION.

I. Department of Civil History.

PROFESSOR PATTERSON.

Junior Class.

First Term—Freeman's General Sketch of European History.
Second Term—Sime's History of Germany; Doyle's United States.

Senior Class.

First Term—The Student's Hume; English Constitution; Lectures.
Second Term—The Student's Hume; Constitutional History; Lectures.

II. Department of English.

PROFESSOR SHACKLEFORD.

Freshman Class.

First Term—Rhetoric.
Second Term—Studies in English Literature.

Junior Class.

First Term—Sir Wm. Hamilton's Logic, with lectures on inductive reasoning.
Second Term—Shaw's Manual of English Literature and Whatley's Rhetoric.

Senior Class.

First Term—Early English.

III. Course in Mental and Moral Philosophy.

PROFESSOR PATTERSON.

First Term—Metaphysics, Hamilton's Lectures.
Second Term—Metaphysics, Hamilton's Lectures; Calderwood's Moral Philosophy.

IV. Department of Latin and Greek.

PROFESSOR NEVILLE.

LATIN.

First Year.

First Term—Grammar, with daily exercise in writing Latin.
Second Term—Grammar continued; Nepos.

Second Year.

First Term—Cæsar and Grammar.
Second Term—Virgil and Latin exercises.

Third Year.

First Term—Cicero's Orations, Sallust.
Second Term—Livy; Exercises in writing Latin.

Fourth Year.

First Term—Horace; Cicero de Senectute.
Second Term—Tacitus; Juvenal; Exercises.

GREEK.

Preparatory.

First Term—Grammar, with a daily exercise in White's Lessons.
Second Term—Grammar; Exercises; Xenophon's Anabasis.

Freshman Class.

First Term—Xenophon's Anabasis; Homer's Iliad.
Second Term—Selections from Herodotus; Plato's Apology.

Sophomore Class.

First Term—Thucydides; Exercises.
Second Term—Demosthenes; Lysias.

Junior Class.

First Term—Euripides; Æschylus.
Second Term—Sophocles; Aristophanes or Lyric Poets.

V. Department of Mathematics.

Freshman Class.

First Term—Wentworth's Complete Algebra, chapters 15, 16, 17, 18, 20, 21, 24, 27, 30, 33, and 34.
Second Term—Wentworth's Geometry to Book 6.

Sophomore Class.

First Term—Wentworth's Geometry completed; Loomis' Plane and Analytical Trigonometry and Surveying.
Second Term—Peck's Analytical Geometry and Field-work in Surveying.

Junior Class.

First Term—Peck's Mechanics; Peck's Integral and Differential Calculus; Loomis' Spherical Trigonometry.

Second Term—Snell's Olmsted's Astronomy.

VI. Course in Chemistry and Physics.

PROFESSOR PETER.

Freshman Class.

First Term—Lecture or Recitation daily; Elementary General Physics and Chemical Physics, with Experimental Illustrations and Applications.
Second Term—Same, continued into Elementary Chemistry.

Junior Class.

Both Terms—Lecture or Recitation daily; General Chemistry, with its application to Agriculture, Medicine, and the Mechanic Arts, fully illustrated by Experiments.

Practical Chemistry.

Preparations are made for full instruction in Practical Chemistry under the Professor of Chemistry and Physics. Each student will be charged with the apparatus he may break, and a small additional fee for the course.

VII. Department of Natural History.

PROFESSOR CRANDALL.

To enter the Sophomore Class of this school students must have attended at least one course of lectures upon Organic and Inorganic Chemistry, and must present a certificate of having sustained a thorough and satisfactory examination therein. Those wishing to enter any advanced class must sustain an examination upon the studies of the previous classes, or present proof of having done so elsewhere.

Sophomore Year.

First Term—Anatomy, Physiology, and Hygiene (Huxley & Youmans).

Second Term—Botany, Plant Physiology and Histology (Kellerman & Bessey); Microscopy—Lectures on the history, use, &c., of the Microscope.

Junior Year.

First Term—Continued studies in Botany or Microscopy (not required).

Second Term—Zoölogy, Comparative Zoölogy. Text-book, laboratory, and lectures.

Senior Year.

First Term—Geology; Text book (Dana) and lectures.

Second Term—Geology continued; Paleontology (not required).

VIII. Department of Modern Languages.

PROFESSOR HELVETI.

FRENCH.

First Year.

First Term—Ahn-Henn's French Course, First Book and part of Second; Ahn Henn's First French Reader.

Second Term—Ahn-Henn's French Course, Second and Third Book; Conversation; Erkman-Chatrian: LeConscrit de 1813, Charles XII.

Second Year.

First Term—Keetel's Collegiate French Grammar; Exercises; French Readings, W. J. Knapp; Conversation.

Second Term—Keetel's Collegiate French Grammar; Composition, X. de Maitru; Voyage autour de ma Chambre; Modern Plays; Primer of French Literature; Saintsbury.

Third Year (optional).

First Term—E. Borel's Grammaire Française; Composition and Conversation; One of Moliere's Plays; One Modern Play.

Second Term—E. Borel's Grammaire Française; Composition and Conversation; one of Racine's and one of Corneille's Dramas.

GERMAN.

First Year.

First Term—Ahn-Henn's German Course, First Book and part of Second; Exercises; Reading.

Second Term—Ahn-Henn's German Course, Second Book; Ahn-Henn's First Reader; Conversation.

Second Year.

First Term—Ahn-Henn's German Course, Third Book; Preparatory Book of German Prose, A. B. Boisen.

Second Term—Ahn-Henn's German Course, Fourth Book; M. M. Fischel's Specimens of Modern German Style, with short sketch of History of German Literature; one of Schiller's Dramas.

Third Year (optional).

First Term—History of German Literature, Klemm (in German); German Composition; Lessing's Nathan der Weise; Schiller's Don Carlos or Goethe's Egmont.

Second Term—History of German Literature (concluded); German Composition; Lessing's Laokoon; Goethe's Iphigenia aûf Tauris; Goethe's Prose (extracts).

IX. Military Art and Science.

PROFESSOR TYLER.

Practical and Theoretical Instruction in the Tactics of different Arms; in Military Discipline, including the duties of the Guards, Sentinels, etc., in accordance with the Tactics and Regulations prescribed for the United States Army; Civil, Mechanical, and Mining Engineering; Military Engineering; Drawing.

All students are required to wear the prescribed uniform dress (the cost of which is about $20); and every student not physically disabled (a certificate of actual physical disabilty from a physician designated by the Faculty, issued to the applicant therefor upon actual examination will be required to excuse from the prescribed drill and discipline) is required to attend the prescribed drills and other military training and discipline, to which five hours of each week are devoted.

In addition to the importance of military science and training, considered in themselves, the habits of exactness and promptitude developed thereby, and the ease, grace, and dignity resulting therefrom, cannot be overestimated.

X. Commercial Department.

COURSE OF INSTRUCTION.

PROFESSOR M. L. PENCE.

First Year.

English Grammar, Composition.
Geography—Descriptive, Political, and Physical.
Arithmetic, Elementary Algebra.
Book keeping—Elements, Penmanship

Second Year.

Rhetoric, Composition.
Higher Arithmetic, Algebra.
French, German.
Political Economy, Book-keeping continued.

Third Year

Moral Philosophy, Commercial Law.
Geometry, Book-keeping continued.
French and German.

XI. Department of Agriculture and Horticulture.

PROFESSOR MENKE.

Instruction by lectures and recitations with demonstration and experiments. The course of study which follows is preceded by Elementary Zoölogy and Botany in the Preparatory Department. The lectures to the freshman class in general chemistry by Dr. Peter, form a suitable introduction to the more distinctive work of this Department.

Sophomore Class.

First Term—Organic Chemistry.
Second Term—Agricultural Chemistry.

Senior Class.

First Term—Veterinary Science, Agriculture.
Second Term—Veterinary Science, Horticulture.

XII. Normal Department.

COURSE OF INSTRUCTION.

PROFESSOR KIRBY, PRINCIPAL.

First Year.

English Grammar and Composition.
Geography—Descriptive and Political
Chemestry, Elementary; Drawing, Experimental Physics.
Arithmetic, Elementary Algebra.
Latin Grammar and Reader.
History, Outlines of.
Theory and Practice of Teaching.
French and German.

Second Year

Rhetoric and Composition.
Physical Geography, Botany, Drawing.
Higher Arithmetic, Higher Algebra.
History United States, Political Economy.
Latin—Cæsar, Cicero.
Theory and Practice of Teaching.
French and German.

Third Year.

Elements of Criticism, Logic, Mental Philosophy.
Anatomy, Physiology and Hygiene, Drawing.
Geometry and Trigonometry; Latin—Cicero, Virgil.
Theory and Practice of Teaching.
French and German.

XIII. Practical Mechanics.

PROFESSOR CRANDALL.

Instruction in Practical Mechanics includes such elementary practice in the workshop as will enable the student to apply the principles of experimental physics taught in the class-room, and familiarize him with the use of tools, machinery, and mechanical processes. The course of instruction is based on what is known as the Russian System, now generally adopted in the Agricultural and Mechanical Colleges of this country. It embraces mechanical drawing, the study and care of tools, work in wood and metals at the bench, the lathe, and the forge. This department is under the care of one of the most skillful of practical mechanics.

XIV. Ethics and Political Economy.

COURSE OF INSTRUCTION.

PROFESSOR KIRBY.

Hamilton's Metaphysics.
Calderwood's Moral Philosophy.
Fawcett's Political Economy.

CONDITIONS OF ADMISSION.

Applicants for admission into the Freshman Class of the Scientific Course must be prepared to stand an examination upon the following or their equivalents: English Grammar and Composition, Geography; Ray's Arithmetic, Part III, Ray's Algebra, Part I, or their equivalents; Outlines of History.

New students must present themselves for examination and matriculation on the Monday preceding the beginning of the fall term. No one is admitted to tuition until *all his fees are paid.*

Applicants for admission into the Normal School or Commercial Department must be prepared to stand an examination in English Grammar, Arithmetic, and Geography. *Normal students who receive free tuition will be required on entering to sign an obligation to teach within the limits of Kentucky for a period as long as that during which they receive free tuition.*

Degrees.

The degrees conferred are Bachelor of Science (B. S.), Bachelor of Arts (B. A.), Master of Science (M. S.), Master of Arts (M. A.)

For the degrees of B. S. and B. A. an actual membership of at least one year in this College is required, and a satisfactory examination on the *entire course* of scientific or classical study.

For the degrees of M. S. and M. A. a satisfactory examination is required on a course of post-graduate studies prescribed by the Faculty, and covering a period of two years.

To those who do not complete the entire Scientific or Classical Course, but only certain parts thereof, certificates

of proficiency may be given for those departments of study completed.

No degrees are conferred upon graduates in the Normal School or Commercial Department; but diplomas are given to those who complete the course of study embraced therein.

Fees.

Tuition for the year	$15 00
Matriculation	5 00
Total fees	$20 00

Those who occupy rooms in the dormitory pay $5 each (yearly) for the use of an unfurnished room. A standing deposit of $5 is required from each student, which deposit is refunded when his connection with the College is terminated, less the amount which may be assessed against him for damages done to the buildings, furniture, or premises. All damages, injuries, defacements, &c., which rooms in the dormitory sustain during occupancy, will be charged to the occupants thereof. All injuries, damages, defacements, &c., which the halls and dining-room sustain, will, unless specifically traced, be charged to the occupants of the respective sections collectively.

Location.

The Agricultural and Mechanical College of Kentucky is established on the City Park grounds of the city of Lexington, given to the Commonwealth for this purpose. The site is elevated, and commands a good view of the city and surrounding country. A new college building has been erected, containing commodious chapel, society rooms, lecture and recitation rooms sufficient for the accommodation of 600 students. A large and well-ventilated dormitory has also been built, with rooms for ninety students, for the use of the appointees sent by the Legislative Representative Districts of the State to the *scientific* or *classical* departments of the College, and containing suitable dining-room, kitchen,

matron's and servants' rooms. The natural conformation of the ground, and an abundant supply of water from the Maxwell spring, render the construction of an artificial lake, with boating course a quarter of a mile in length, comparatively easy, thus providing for a beautiful sheet of water to add to the attractions of the landscape.

Lexington is now the most important railroad center in Kentucky, being in immediate communication with Louisville, Cincinnati, Maysville, Chattanooga, and with more than seventy counties in the Commonwealth. The long established reputation of the city for refinement and culture renders it attractive as a seat of learning, and the large body of fertile country adjacent, known as the "Blue Grass Region," with its splendid stock farms, affords unsurpassed advantages to the student of agriculture who desires to make himself familiar with the best breeds of horses, cattle, sheep, and swine in America.

Boarding.

For the accommodation of students sent by the Board of Examiners appointed by the Court of Claims, as beneficiaries of the Legislative Representative Districts of the State, rooms for ninety students are provided in the dormitory. To these good substantial board is furnished at $2.25 per week, payable in advance. Students lodging in the dormitory furnish their own rooms. Good boarding, with fuel, lights, and furnished room can be obtained in private families at rates varying from $3.50 to $5 per week. In all cases where students can at all afford it, boarding and lodging in private families are recommended.

Expenses.

The necessary expenses of a student while at College need not exceed the following estimates. As a rule, the less pocket money allowed by parents or guardians the better it is for the pupil. When supplies are kept short, the opportunity for contracting vicious habits is correspondingly

diminished. Students should be allowed by their parents to create no debts.

For appointees occupying a room in the dormitory, and boarding in the common mess, the necessary expenses are as follows:

Tuition	$0 00
Room fee	5 00
Matriculation	5 00
Cost of furnishing room, about	10 00
Fuel and gas	8 00
Washing	10 00
Board, 38 weeks, at $2.25 per week	85 50
Books, about	10 00
Total	$133 50

Each room must be provided by the occupants thereof with neat and comfortable bed and bedding, table, wash-stand, looking-glass, chairs, bowl and pitcher, water and slop buckets.

The furniture bought at the outset can be sold at the end of the collegiate year or retained for further use, at the option of the owner.

For students who are not supplied with appointments from the Legislative Representative Districts of the Commonwealth, and who board in private families, the necessary expenses will be as follows:

Tuition fee	$15 00		
Matriculation fee	5 00		
Board and lodging, 38 weeks, at $4 to $5 per week,	152 00	to	190 00
Washing	10 00		
Books and stationery	10 00		
Total	$160 00	to	$240 00

Beneficiaries.

Each Legislative Representative District is allowed to send, on competitive examination, *one properly prepared student* each year, between the ages of twelve and twenty-

five, to this College, free of tuition charge. Said students shall be selected as follows: 1st. The trustees and teacher of each common school taught within said Representative District shall select and send before an Examining Board appointed by the Court of Claims *one* pupil in the school managed and taught by them. 2d. Any other person resident within the Representative District, and within the required limits as to age, may present himself to the examining board appointed by the Court of Claims as a candidate for selection, and from these persons so appearing, viz: from the pupils sent before the said Examining Board by the trustees and teachers of common schools, and from such persons within the specified age as present themselves, the Examining Board appointed by the Court of Claims shall select one student, and properly certify to his selection, who shall be entitled to remain at the College four years, or until the course of study for which he matriculates shall have been completed. Preference in such selection and appointment shall be given to energetic, moral young men, whose means are not large, to aid whom in obtaining a good education this provision is specially intended. Properly prepared students, under the meaning of the acts of the Legislature, of which the foregoing is a summary, are those who can pass a satisfactory examination in Spelling, Reading, Writing, Arithmetic, Geography, and English Grammar, and who are between the ages of 12 and 25 years.

All teachers, or persons preparing to teach, male or female, are admitted free of tuition charge for one year, at the rate of not more than four, at the discretion of the Board of Trustees, for each Legislative Representative District. All the classes in the College are open, without extra fees, to students who matriculate in the Normal Department.

Compensated and Uncompensated Labor.

The work necessary for carrying on the Agricultural and Horticultural operations of the College is done by the students in those departments, and is paid for at rates varying

from five to eight cents per hour. Its design is two-fold: to put in practice the instruction received in the class room, and to assist indigent students. The experience of this College is that of Agricultural Colleges generally—that compensated labor is not remunerative to the College.

The College holds itself under no obligation to furnish compensated labor to any students except those who enter as county appointees.

Students are paid monthly for the service rendered, and apply the money as they see proper.

No student, however, should come to this College expecting to maintain himself exclusively by compensated labor. At least seventy-five dollars per annum, exclusive of his earnings while here, should be at the command of every student who wishes to avail himself of the advantages of the compensated labor system.

No compensation is given to students in the Department of Practical Mechanics, inasmuch as no pecuniary returns are possible to the College from this Department as at present organized.

All students are liable to be called upon for occasional work upon the grounds belonging to the College, and to such work no compensation is attached.

Preparatory Department.

For the benefit of those who are inadequately prepared to enter the regular College classes, a Preparatory Department has been organized, under the charge of a principal, assisted by a competent staff of assistants, which will provide the necessary elementary instruction. The conditions of admission into the Preparatory Department are, a good knowledge of Arithmetic as far as percentage, English Grammar, and Geography.

Certificates of Character.

All applicants for admission into any class in the College, or Preparatory Department, must bring satisfactory testimonials of good moral character.

The following paragraphs from the "Regulations" are added for the benefit of intending matriculates:

Admission of Students.

24. By the acts of the Legislature each legislative Representative District is entitled to send, on competitive examination, one properly prepared student each year, between the ages of twelve and twenty-five, to the College, free of tuition. The candidate presenting himself at the College for admission under this authority shall deliver to the President a certificate from his district Board of Examination setting forth "that the Board was duly appointed by 'the court of claims,' as prescribed in the charter of the College, approved March 4th, 1880; that he is between the ages of twelve and twenty-five, and that he has been selected on competitive examination from all of the students (of whom there shall not be more than one from each common school), sent before the Board by the trustees and teachers of the several common schools in the district." The candidate shall then be examined by the Faculty, or a committee appointed by it, and must pass a satisfactory examination in Spelling, Reading, Writing, Arithmetic, English Grammar, and Geography, in order to be admitted as a "*properly prepared*" student in the meaning of the act of the Legislature.

25. The charter of the College also provides "that teachers or persons preparing to teach may be admitted free of tuition charge for one year, at the rate of not more than four, at the discretion of the Board of Trustees, for each Legislative Representative District." A person desiring admission under this provision must present to the President a certificate from the School Commissioner of his county, or from some other satisfactory source, setting forth "that the applicant is a citizen of the county from which admission is claimed, and that he is a teacher, or is preparing to teach."

26. The charter also provides "that other students, without regard to place of residence or birth, may also be admit-

ted to the College on the payment of the fees prescribed for them by the Board of Trustees or the Academic Board."

29. No applicants will be admitted who are under fourteen years of age, excepting those who, by the charter of the College, are admitted to free tuition at an earlier age.

30. *Every student on admission, and before he is allowed to recite, shall present to the President a certificate from the Treasurer showing that he has paid the sum required in advance on account of tuition or other items.*

31. As a further condition of admission, the applicant must answer affirmatively the following questions, viz: Have you read and understood the regulations governing this Institution? Do you acknowledge your obligation to obey them? He must also subscribe the following form in a book kept for that purpose by the Faculty: "We, whose names are hereto subscribed, do declare that we acquiesce in the regulations of the Agricultural and Mechanical College of Kentucky, and acknowledge our obligation to obey them."

32. Having complied with the prescribed conditions, the student shall be registered on the College roll. He shall be considered as a member of the College, and amenable to its regulations during vacations as well as during the sessions, until he shall have been graduated or formally discharged, honorably or otherwise. In the case of an honorable discharge, he shall be entitled to a certificate in the following words:

"I certify that A B was honorably discharged from the Agricultural and Mechanical College of Kentucky on the — day of ——. ——— ———.

"*Secretary [or Clerk] of the Faculty.*"

33. No honorable discharge or leave of absence will be granted to a student within six weeks of the termination of the collegiate year, excepting in cases of great emergency.

34. Every student on entering the Institution shall be furnished with a copy of its regulations, and no plea of

ignorance shall be admissible in extenuation of any failure to comply with their requirements.

Practical Instruction and Training.

58. In addition to the theoretical study required of every male student in mechanics, agriculture, and military art, every male student who accepts the privilege of free tuition, and such others as may elect, shall pursue a course of practical instruction in mechanics and agriculture. For labor performed in that way that is valuable otherwise than as a means of instruction, a reasonable compensation will be allowed, the proceeds going, if necessary, first to supply the student with the prescribed military uniform, and after that toward the payment of his rent and board account.

59. For military instruction and training there will be a drill, or other military exercise, every day, Saturdays and Sundays excepted, and lasting one hour; unless for some special and urgent reason the President may occasionally dispense with it. The drill will be conducted in the academic building when the weather or condition of the ground will not permit it out of doors. There will, besides, be a guard mounting daily, without exception, and special military exercises may be ordered by the President at any time.

64. Besides the means above provided for the repression of neglect and misconduct, a demerit system shall be enforced. The Commandant shall keep a register of all delinquencies for which the students are reported, and shall charge against each offense, not satisfactorily explained, a number of demerit according to the following scale:

An offense of the first class will count	10.
An offense of the second class will count	7.
An offense of the third class will count	5.
An offense of the fourth class will count	4.
An offense of the fifth class will count	3.
An offense of the sixth class will count	2.
An offense of the seventh class will count	1.

In the first year of the student at the College offenses will count one third less than in the above scale. The Fac-

ulty will classify to suit this scale the offenses ordinarily committed by students. At the end of every month for which the number of demerit recorded against any student is less than 8, the difference between 8 and the number recorded shall be deducted from his aggregate record of demerit.

65. Any student whose record of demerit at the close of a session shall amount to 100 for that session, shall, *ipso facto*, be dismissed.

Discipline and Police.

68. When a student has been reported for any grave misdemeanor requiring severe punishment, the Commandant shall order his arrest, either directly or through the Adjutant.

69. In case of violent disturbance, open contumacy, or other outrageous conduct on the part of a student, the officer of the day, or any member of the Faculty present, may place the offender in arrest, and order him to his quarters. In all such cases the arrest must be promptly reported to the Commandant.

70. A student placed in arrest is in duty bound to obey the orders of the officer making the arrest, and the conditions attached to it, on pain of dismissal. Any student guilty of breach of arrest shall be dismissed.

71. No student in arrest is allowed to exercise command, but shall confine himself to his quarters until released, unless otherwise specially ordered, except when required to be absent for the performance of some of his academic or military duties, and except on a necessary occasion, and to march to and from meals.

72. No student in arrest will make a visit to the commanding or other officer unless sent for. In case of business he will make known his object in writing, and he shall not apply for the usual indulgences granted to the students.

73. No student will be released from arrest except by the President or by the Commandant.

74. A student placed in confinement for punishment shall be subject to the same regulations as a student in arrest; and a breach of confinement, or a failure to perform any extra duty awarded as a punishment, shall be considered an offense of the gravest nature, and treated accordingly.

75. All deliberations or discussions among students having the object of conveying praise or censure, or any mark of approbation or disapprobation toward the College authorities, are strictly forbidden.

76. Any student who shall disobey a lawful command of the President or of any Professor, Instructor, or other superior officer, or behave himself in a refractory or disrespectful manner toward either of them, shall be dismissed, or otherwise less severely punished, according to the nature of his offense.

77. No Cadet shall bring any spirituous or intoxicating liquor, or cause the same to be brought, within or near the College limits, or have the same in his room or possession, upon pain of being dismissed.

78. Any student convicted of visiting a drinking saloon, or a gambling or other disreputable house, or of being drunk, or of gambling at cards or other game of chance, or who shall make, cause, or procure to be made, a false official report or statement in regard to a matter of College duty or government, shall be dismissed, or less severely punished, according to the gravity of his offense.

79. No student shall play at cards, or any other game of chance, within the College limits, or bring or cause to be brought within the limits, or have in his room, cards or other articles used in games of chance. All games and amusements of every kind are forbidden during study hours.

80. All conspiracies and combinations of students, with a view of violating or evading the regulations of the College, are prohibited on pain of dismissal; and any interference of one or more students with another student, or with a candidate for admission, in the nature of "hazing," shall be punished with dismissal.

81. The use of tobacco for smoking or chewing on any duty, or in the College building, dormitories, or dining-rooms, and all profanity and obscenity, are forbidden.

82. No student shall cook, prepare food, or give any entertainment in his room, or elsewhere within the College limits, without permission from the Commandant.

100. All permits to be absent from any duty, or from quarters during study hours, must have the approval of the President. All other permits for absence may be granted by the Commandant of the Corps; and every permit for a brief absence will be deposited with the Officer of the Day, to whom the student will invaribly report at the expiration of his permit, whether it has been used or not. No permit will bear the name of more than one student.

101. If the Cadet be in arrest or in confinement, or confined to less than the usual limits, or if his name be on the *sick report*, the fact must be stated in the permit.

102. All applications by students for leave of absence must be made in writing, addressed to the Commandant of the Corps, and specify the place to which the applicant wishes to go. If the application is for a longer period than the Commandant is authorized to grant, he will forward it to the President.

103. Every student who overstays his leave of absence, must produce satisfactory evidence of his having been detained by sickness or some other unavoidable cause.

104. Every student, on returning from leave of absence, will immediately report, in person, to the President.

105. A leave of absence shall not be construed to grant the student any indulgence at the College, or to absolve him from the observance of regulations.

106. Applications to be excused from any duty, must be made in ample time before the beginning of the duty.

107. Except in case of sickness, no Officer of the College will absent himself from any duty without the permission of the President, and with the assent of his immediate superior.

123. No student shall be absent from his room between taps and reveille without permission from the Commandant.

124. No Cadet shall visit the room of another during study hours.

125. No student shall throw anything from the windows and doors, nor any missile in the vicinity of the public buildings.

126. No student shall play upon any musical instrument in study hours, or otherwise disturb the quiet of the Quarters.

127. Students shall walk the halls and pass up and down stairs in study hours in a soldier-like and orderly manner. Loud talking or laughing, scuffling, and all other unnecessary noise in the buildings, are prohibited at all times.

128. No student shall post any placard or notice upon any of the College buildings, fences, or other improvements or places, or affix to the walls of his room any map, picture, or piece of written or printed paper, without permission from the Commandant.

129. Students are forbidden to take or have in their quarters any newspapers or other periodical publications without special permission from the President. They are also forbidden to keep in their rooms any books except text-books, without special permission from the President.

130. No student shall mark, cut, or in any manner deface or injure the buildings or other property of the College.

171. Any student having an explanation to offer for an offense for which he has been reported, will express it in writing according to the prescribed form, and present it to the Commandant of the Corps within forty-eight hours after its publication. If satisfactory, the Commandant will erase the report; if not satisfactory, he may refer the explanation to the reporting officer, who shall indorse upon it such remarks as may be pertinent, and return it to the Commandant.

172. No explanation will be received after the lapse of forty-eight hours, unless sickness, absence, or some other unavoidable cause, which must be fully stated, has prevented its presentation within the prescribed time, in which case it must be presented as soon as possible.

173. Whenever a student is absent from any duty, or absent from quarters after taps, or at any other time longer than thirty minutes, he will be punished as if beyond the College limits, unless his absence is satisfactorily accounted for.

174. Explanations will include only such statements of fact and of the intentions of the student as may be necessary for a correct understanding of the case, and will not

be made the medium of complaint or criticism, or of irrelevant remarks.

175. Appeals to the President for the reconsideration of reports will not be entertained after the expiration of ten days from the time they were recorded, except in cases where it was impracticable to apply for a reconsideration within that time.

176. No student shall address an officer or Cadet who has reported him for an offense on the subject of such report, unless specially permitted, in writing, by the Commandant of the Corps; and no officer or Cadet having made such report against a student shall hold any conversation with him concerning it unless referred to with the proper permission.

Prizes.

The Governor's Medal is awarded at the close of each collegiate year to the student who has made the highest standing in four daily recitations during the year. The person to whom the Governor's Medal is thus awarded shall not be eligible as a competitor for the same a second year.

Gold medals will also be awarded to students who make the best record during the year in the departments of Metaphysics, Mathematics, Chemistry, Ancient Languages, Modern Languages, Practical Mechanics, and Agriculture. The same student shall not be eligible to compete for a medal a second time in any department in which it may have been awarded to him.

CALENDAR.

First term begins Wednesday, September 10, 1884.
Thanksgiving, Thursday, November 27, 1884.
Christmas holidays begin Friday, December 19, 1884.
Christmas holidays close Thursday, January 1, 1885.
Intermediate examinations January 14–23, 1885.
Second term begins January 26, 1885.
Washington's Birthday celebrated February 22, 1885.
Final examinations May 18 to June 2, 1885.
Board of Trustees meet June 2, 1885.
Commencement June 3, 1885.

REPORT OF J.K. PATTERSON, PRESIDENT, OF
AGRICULTURAL AND MECHANICAL COLLEGE OF KENTUCKY

Kentucky. University

University Archives
Margaret I. King Library - North
University of Kentucky
Lexington, Kentucky 40506

LIBRARY
UNIVERSITY OF KENTUCKY

Kentucky. University.

Report of

James K. Patterson, President,

of

Agricultural and Mechanical College of Kentucky

To the Board of Trustees,

May 31, 1899.

Published by Order of the Board.

VEACH PR. LEXINGTON.

78.769
19-Cp

LIBRARY
UNIVERSITY OF KENTUCKY

LIBRARY
UNIVERSITY OF KENTUCKY

REPORT OF PRESIDENT PATTERSON.

Gentlemen of the Board of Trustees of the Agricultural and Mechanical College of Kentucky:

I have the honor to submit to you to-day my annual report on the Agricultural and Mechanical College of Kentucky. The year just closing has been the most prosperous in the history of the College. Its matriculation list reaches four hundred and eighty. This does not take into account many who entered provisionally and after a short time withdrew. The increased attendance I ascribe to two causes, viz: The improved financial condition of the people of the Commonwealth and the effective canvass made in Western Kentucky last year by an agent of the College.

Acting under the authority of the Board, I have again placed an agent in the field with instructions to visit the section of country traversed by the L. & N. Railroad and some of its branches. If a suitable man can be found to do like work in Eastern Kentucky I will have that part of the State visited also.

The general health of our student community has compared very favorably with that of preceding years. While there has been some sickness, principally measles and grippe, there has happily been no consequent mortality. We endeavor to give such attention to sanitary precautions as circumstances enable us to do. Persons attacked by infectious diseases are at once quarantined, and so remain until danger is past.

The reports of heads of departments and deans of courses of study show satisfactory work done. Better results could be obtained if our recitation rooms were larger and our equipment more ample.

The deficit of last year has been reduced fully one-half, and is likely to be wholly extinguished by the end of the next fiscal year. I desire, however, to impress upon the Board the necessity of economy in appropriations for the forthcoming year. The estimates of receipts and expenditures which will be submitted to you have been framed upon the most careful consideration. The appropriations for the service of the several departments have been cut down to the minimum compatible with efficiency. The salaries

LIBRARY
UNIVERSITY OF KENTUCKY

of professors and assistants should remain as they are except in the two or three cases wherein they have not reached the maximum provided for by the action of the board in December, 1893, or by special agreement when appointed. Our salaries are liberal as compared with those of other colleges in Kentucky, but not too liberal for efficient service.

All our balances hereafter should be, as far as possible, devoted to internal expansion, especially in the enlargement of the the equipment of existing laboratories, the establishment of new ones, and in supplying the necessary means for making instruction effective.

By the act of the Legislature removing the geological museum to this college and the transfer therewith of the Inspector of Mines and his assistant, and the provision contained in the act that after the expiration of the term of service of the present inspector and his assistant their successors shall be appointed by the Board of Trustees, a school of Mines will thereby be created in conformity with the terms of the act and under the management and control of the college.

The school of Mines will be established in 1900. This will require money for its equipment. It behooves us then to accumulate if possible a fund for this purpose, and this is an additional reason for the most rigorous economy.

As the members of the board are aware, I was unable to obtain last year from the War Department the detail of an army officer as instructor in military tactics and commandant of cadets.

The Board authorized me to make the best arrangement possible for this purpose at a moderate salary. I employed M. B. Jones, an alumnus of the college and a man of character and ability, uniting with his duties as commandant those of assistant in mathematics on a salary of $700. The results of the year's work have been entirely satisfactory. We have never had a better drilled corps, and the discipline of the dormitories has been the best we have ever had since the organization of the college. At the outset there was some friction, due partly to the heritage of disorganization inherited from his predecessor, but during the latter half of the year there has been the utmost harmony between Major Jones and his officers, and through the latter half between him and the battalion. This happy result is due to two causes,

viz: The compensation allowed officers and to the organization of the latter into a body with Major Jones as chairman and known as the military council. This body sustains the same relation to the college that the special faculties do to their respective courses of study. They meet bi-monthly, discuss matters pertaining to the efficiency of the corps and keep records of their proceedings. I advise that this body obtain official recognition from the Board, and that their proceedings be submitted henceforward to the Board as the records of the other subordinate faculties of the college are.

I again applied to the War Department for a detail, but have been advised that no detail can be made while the unsettled conditions in the Philippines last. I therefore recommend that Major Jones be re-appointed as commandant of cadets and assistant in Mathematics. His services in the latter relation have been entirely satisfactory. This appointment, with the assistance already provided for, and with that subsequently referred to will meet all the requirements of the Department of Mathematics effectively and economically. Professor White informs me that his services as assistant in mathematics have been very efficient and entirely satisfactory.

The establishment of a few fellowships as a reward of proficiency in the departments for which they were created has been productive of good results. The emoluments, though relatively small, have excited ambition. They enable students who are desirous of doing post-graduate work for the master's degree, to remain at the college for this purpose. The system also provides efficient and well trained assistance in the departments to which they are attached at relatively small outlay to the college. I respectfully recommend that three more fellowships be created in addition to the three already authorized, viz: One in Modern Languages, one in Mathematics or Ancient Languages as may be deemed expedient, and one in Civil Engineering. I know of no better stimulus to good undergraduate work than the reward thus given, and of no more economic method of providing assistance for the respective departments in which these honors are awarded. They are tenable for one year and the value of the fellowship is $150. For those who are preparing to teach the value of the

fellowship can scarcely be over-estimated, both as regard the experience in teaching and the prestige and distinction conferred.

I recommend that the Principal of the Academy and his staff of assistants constitute a subordinate Faculty with monthly meetings and a record of their proceedings, which record shall be submitted to the Board of Trustees at their regular meetings.

From the report of the committee on internal expansion the necessity for additional accommodations will be apparent, with the exception of the comparatively inexpensive addition asked for by Profs. Anderson and Brooks, it will be impossible for the College for some time to provide out of its exising income the additional buildings required. The only alternative left is an appeal to the Legislature for money. I suggest that a committee of this Board be appointed to present in conjunction with the President a statement of the wants of the College and to solicit and work for an appropriation for this purpose. The buildings most urgently needed are:

1. A building which will provide the necessary space and appliances for a first class gymnasium. This might also include, on the ground floor, space for a drill hall with military offices, and in the upper story space for society rooms and rooms for the Young Men's Christian Association. For these purposes $25,000 would suffice.

2. A building tor the accommodation of the Normal School and for the Academy conjointly. Suitable quarters could be provided for Normal School work and for the Academy in a building costing $25,000. These are urgent needs and might be met by judicious and persistent pressure on the Legislature.

Inasmuch as we are now nearing the end of a century a brief retrospect may not be inappropriate. It is sometimes the part of prudence to look backward as well as forward, in order that from the experience of the past an intelligent forecast may be formed for the future. For this purpose I append the following epitome of the origin and growth of the institution:

DEVELOPMENT

The Growth of the College from Year to Year is Shown in the Following Summary:

1862. To establish and endow a College, chiefly for instruction in Agricultural and Mechanic Arts, an act of Congress

apportioned to each State, for each of its Senators and Representatives in Congress, 30,000 acres of the public land.

1865. The General Assembly of Kentucky having accepted the State's portion under the conditions prescribed, established the Agricultural and Mechanical College, making it one of the Colleges of Kentucky University, then recently united with Transylvania University and located at Lexington, citizens of Lexington and its vicinity donating $100,000 to the Curators of the University to buy a site for the College. The General Assembly having authorized the Commissioners of the Sinking Fund to sell the 30,000 acres apportioned to Kentucky, by the mismanagement of the Commissioners' agent the State realized for its land only $165,000.

1866. The College opens with a President, four professors and a commandant.

1878. Dissatisfied with the management of the College by the Curators, who were engaged in a long factional strife, the General Assembly severed the connection with the University and appointed a commission to re-locate the College, to provide for its continuance in operation till re-located, and to prepare a "plan for a first class university." Kentucky University claiming and retaining the former site of the College, the sole property left the College after the severance was an income of $9,900 derived from the land grant.

1880. The city of Lexington offered the city park of fifty-two acres as a new site for the College, and also $30,000 in bonds, and the county of Fayette offering $20,000 besides, the General Assembly ratified the selection of the site made by a majority of the Commission, and located the College permanently in Lexington.

1880. To provide teachers for the common schools of the State and for other schools, the General Assembly added to the College a Normal Department, which should admit, besides other students, one from each representative district every year free of tuition.

1880. To further endow the College and to enable it to purchase apparatus, machinery, implements and a library; to maintain the Normal Department and to defray other necessary expenses, the General Assembly imposed a tax of one-half cent on each one hundred dollars of the assessed value of all property in the State liable to taxation for State revenue and belonging to its white inhabitants.

1880. The Classical and Normal Departments and Academy added.

1882. The College building, the first Dormitory and the President's house completed.

1885. The Commandant's house reconstructed.

1887. To enlarge by experiments and to diffuse the knowledge of agriculture, an act of Congress established, under the direction of the Agricultural and Mechanical College in each State, an Agricultural Experiment Station, appropriating for its support $15,000 per annum.

1887. The Department of Civil Engineering established, an experimental farm of forty-eight acres purchased, and the College greenhouse built.

1889. The Experiment Station building completed.

1890. The second Dormitory completed.

1890. For "the more complete endowment" of Agricultural and Mechanical Colleges an act of Congress appropriated to each State $15,000 for the year ending June 30, 1890, and the same sum with an increase of $1,000 per annum for ten years. after which the maximum of $25,000 should continue without change. Of the amount thus annually appropriated the College receives 85 per cent and the school of the colored people at Frankfort 15 per cent.

1891. The Department of Mechanical Engineering established.

1892. The Mechanical building and workshops completed.

1894. Greenhouses for the Experiment Station built.

1895. The annex to the Mechanical Building and the Insectarium for the Station built.

1897. The Department of Electrical Engineering established. Additions made to the greenhouses and Insectarium.

1898. The building for Natural Science completed.

Increase of Property. The property of the College is estimated to be worth $500,000 more than it was eighteen years ago.

Increase of Teachers. Before 1880 the College had six professors; it now has sixteen professors and eight assistants.

Increase of Courses. Before 1880 the College offered a single course of study leading to a degree; it now offers eight.

Increase of Graduates. No fact more distinctly marks the growth of the College than the increase in the number of its graduates. More students were graduated in 1897 than were graduated in the first seventeen years, and more in the last five years than in the first twenty-seven years.

I have thus advented to the growth of the College somewhat in detail because its rapid advance is but imperfectly known to even some of our governing board. With these facts behind us we should bestir ourselves to give it such additional expansion as the demands of the public require. By united effort, by keeping

it before the public in its results and possibilities we shall best accomplish the end for which it was established.

My service with the College dates from the day when it first opened its doors, viz: September, 1866. Since 1869 I have been its President—a longer term of service in that capacity than that of any President of any College founded under the Morrill act of 1862, and with the possible exception of the President of Harvard University—a longer term of service than that of any President of any College or University in America. I have seen it established on a relatively small foundation, not as an independedt self-contained institution, but as a branch of a larger institution under denominational control. I have seen it detached from that unfortunate connection after a troublous co-partnership of thirteen years. I have witnessed with joy its re-establishment under state control and its endowment by the State, and I have passed through the perilous crisis which imperilled its existence in 1881-2 and in subsequent years when assailed in the legislature with all the vehemence and all the energy which denominational animosity could supply; when the question of the repeal of State aid was pending in the House, when its building fund was exhausted and the half built college structures threatened to realize the Gospel reproach, "this man began to build and was not able to finish." The outlook was stormy indeed. Under the conditions then existing we could not stop and we could not go on. I had still a strong conviction, however, that this ship would come safely into port, so strong that when no other resource was possible, I myself, supplied the funds to carry forward the buildings to completion, trusting to a future which then seemed most gloomy for victory and reimbursement.

The measure to repeal was defeated, the clouds lifted, and judicious economy enabled us in less than three years to discharge an accumulated debt of $35,000, and best of all, neither the legislature nor the general public, not even the faculty, knew of the grave embarassments and the heavy load of debt under which we had labored. But for weeks and months, while the measure of repeal was pending, I never enjoyed for a single night the luxury of a sound sleep. These are now things of the past.

The College triumphed all along the line. Its assailants retired baffled, but sullen from the conflict. The College then entered upon the lines of uninterrupted progress which it has followed to this day. This much now seems certain—the College has come to stay—and the unexampled prosperity which it has enjoyed and the progress which it has made seem to be but an earnest and a presage of what its future will be.

I have given the best days of my life, a life which in the order of nature cannot be prolonged many years, to its upbuilding

and development. It has been to me as a child. I have loved it and worked for it with the devotion of a father. That it may be for the commonwealth an everlasting possession and glory is my most earnest wish and hope.

In conclusion I beg to thank the Board for its continued confidence and support. You are the custodians of a trust the most important, in many respects, within the boundaries of the Commonwealth. You serve the public without fee or reward, but in the days to come, when the State College of Kentucky leads the van in educational progress west of the Alleghanies, when the story of its trials and triumphs is told, men will say these results are due to the earnest, self-denying, patriotic men who bore the burden and heat of the day.

I have the honor to be

Your obedient servant,

(Signed) JAMES K. PATTERSON.

The Board of Trustees, in ordering the publication of the foregoing report, unanimously adopted the following resolution:

"It is with feelings of great pride and exultation that the Board of Trustees read the report of the President of the institution. And it is eminently fitting that as Trustees for the people of this State we express to President Patterson the thanks of the Commonwealth of Kentucky for his services that are not only unparalleled in length of time, but unsurpassed elsewhere in these United States for distinguished ability.

"Not all the battles of men have been fought on tented fields, nor all their victories won by marching legions. In the annals of our State, marked as they are by the stories of struggle and heroism, we believe no page can shine brighter than that on which is recorded the life work of President James K. Patterson. If courage in struggle with adverse circumstances can command admiration, the highest meed of praise must be his. If absolute devotion to duty and unyielding pertinacity of purpose, coupled with deep and strenuous faith in the loftiest ideals of human endeavor, count for aught, we can confidently say to the world, that as the head of this great trust we have a man and leader of men.

"It is, therefore, our duty to congratulate Kentucky on the possession of such a son and servant, and to express to him our united and earnest hope that he may long be spared to carry on the work he has done so well.

"It is, morever, our pleasure to record the unvarying courtesy and kindness that has always marked our personal and official dealings with him, and to say that he enjoys to the fullest extent our confidence, respect and esteem.

GAYLAMOUNT
PAMPHLET BINDER
Manufactured by
GAYLORD BROS. Inc.
Syracuse, N. Y.
Stockton, Calif.

University Archives
Margaret I. King Library - North
University of Kentucky
Lexington, Kentucky 40506

REPORT OF J.K. PATTERSON, PRESIDENT, OF
AGRICULTURAL AND MECHANICAL COLLEGE OF KENTUCKY

Kentucky. University

REPORT OF
JAMES K. PATTERSON, PRESIDENT,
OF
AGRICULTURAL AND MECHANICAL
COLLEGE OF KENTUCKY

KENTUCKY. UNIVERSITY.

University Archives
Margaret I. King Library - North
University of Kentucky
Lexington, Kentucky 40506

GAYLAMOUNT

Kentucky. University.

Report of

James K. Patterson, President,

of

Agricultural and Mechanical College of Kentucky

To the Board of Trustees,

May 31, 1899.

Published by Order of the Board.

VEACH PR. LEXINGTON.

3.769
9-Cp

Marga
U
Lexi

LIBRARY
UNIVERSITY OF KENTUCKY

12-8-51
Rau

GAYLAMOUNT

LIBRARY
UNIVERSITY OF KENTUC

REPORT OF PRESIDENT PATTERSON.

Gentlemen of the Board of Trustees of the Agricultural and Mechanical College of Kentucky:

I have the honor to submit to you to-day my annual report on the Agricultural and Mechanical College of Kentucky. The year just closing has been the most prosperous in the history of the College. Its matriculation list reaches four hundred and eighty. This does not take into account many who entered provisionally and after a short time withdrew. The increased attendance I ascribe to two causes, viz: The improved financial condition of the people of the Commonwealth and the effective canvass made in Western Kentucky last year by an agent of the College.

Acting under the authority of the Board, I have again placed an agent in the field with instructions to visit the section of country traversed by the L. & N. Railroad and some of its branches. If a suitable man can be found to do like work in Eastern Kentucky I will have that part of the State visited also.

The general health of our student community has compared very favorably with that of preceding years. While there has been some sickness, principally measles and grippe, there has happily been no consequent mortality. We endeavor to give such attention to sanitary precautions as circumstances enable us to do. Persons attacked by infectious diseases are at once quarantined, and so remain until danger is past.

The reports of heads of departments and deans of courses of study show satisfactory work done. Better results could be obtained if our recitation rooms were larger and our equipment more ample.

The deficit of last year has been reduced fully one-half, and is likely to be wholly extinguished by the end of the next fiscal year. I desire, however, to impress upon the Board the necessity of economy in appropriations for the forthcoming year. The estimates of receipts and expenditures which will be submitted to you have been framed upon the most careful consideration. The appropriations for the service of the several departments have been cut down to the minimum compatible with efficiency. The salaries

U OF K

of professors and assistants should remain as they are except in the two or three cases wherein they have not reached the maximum provided for by the action of the board in December, 1893, or by special agreement when appointed. Our salaries are liberal as compared with those of other colleges in Kentucky, but not too liberal for efficient service.

All our balances hereafter should be, as far as possible, devoted to internal expansion, especially in the enlargement of the the equipment of existing laboratories, the establishment of new ones, and in supplying the necessary means for making instruction effective.

By the act of the Legislature removing the geological museum to this college and the transfer therewith of the Inspector of Mines and his assistant, and the provision contained in the act that after the expiration of the term of service of the present inspector and his assistant their successors shall be appointed by the Board of Trustees, a school of Mines will thereby be created in conformity with the terms of the act and under the management and control of the college.

The school of Mines will be established in 1900. This will require money for its equipment. It behooves us then to accumulate if possible a fund for this purpose, and this is an additional reason for the most rigorous economy.

As the members of the board are aware, I was unable to obtain last year from the War Department the detail of an army officer as instructor in military tactics and commandant of cadets.

The Board authorized me to make the best arrangement possible for this purpose at a moderate salary. I employed M. B. Jones, an alumnus of the college and a man of character and ability, uniting with his duties as commandant those of assistant in mathematics on a salary of $700. The results of the year's work have been entirely satisfactory. We have never had a better drilled corps, and the discipline of the dormitories has been the best we have ever had since the organization of the college. At the outset there was some friction, due partly to the heritage of disorganization inherited from his predecessor, but during the latter half of the year there has been the utmost harmony between Major Jones and his officers, and through the latter half between him and the battalion. This happy result is due to two causes,

GAYLAMOUNT

viz: The compensation allowed officers and to the organization of the latter into a body with Major Jones as chairman and known as the military council. This body sustains the same relation to the college that the special faculties do to their respective courses of study. They meet bi-monthly, discuss matters pertaining to the efficiency of the corps and keep records of their proceedings. I advise that this body obtain official recognition from the Board, and that their proceedings be submitted henceforward to the Board as the records of the other subordinate faculties of the college are.

I again applied to the War Department for a detail, but have been advised that no detail can be made while the unsettled conditions in the Philippines last. I therefore recommend that Major Jones be re-appointed as commandant of cadets and assistant in Mathematics. His services in the latter relation have been entirely satisfactory. This appointment, with the assistance already provided for, and with that subsequently referred to will meet all the requirements of the Department of Mathematics effectively and economically. Professor White informs me that his services as assistant in mathematics have been very efficient and entirely satisfactory.

The establishment of a few fellowships as a reward of proficiency in the departments for which they were created has been productive of good results. The emoluments, though relatively small, have excited ambition. They enable students who are desirous of doing post-graduate work for the master's degree, to remain at the college for this purpose. The system also provides efficient and well trained assistance in the departments to which they are attached at relatively small outlay to the college. I respectfully recommend that three more fellowships be created in addition to the three already authorized, viz: One in Modern Languages, one in Mathematics or Ancient Languages as may be deemed expedient, and one in Civil Engineering. I know of no better stimulus to good undergraduate work than the reward thus given, and of no more economic method of providing assistance for the respective departments in which these honors are awarded. They are tenable for one year and the value of the fellowship is $150. For those who are preparing to teach the value of the

LIBRARY
OF

fellowship can scarcely be over-estimated, both as regard the experience in teaching and the prestige and distinction conferred.

I recommend that the Principal of the Academy and his staff of assistants constitute a subordinate Faculty with monthly meetings and a record of their proceedings, which record shall be submitted to the Board of Trustees at their regular meetings.

From the report of the committee on internal expansion the necessity for additional accommodations will be apparent, with the exception of the comparatively inexpensive addition asked for by Profs. Anderson and Brooks, it will be impossible for the College for some time to provide out of its exising income the additional buildings required. The only alternative left is an appeal to the Legislature for money. I suggest that a committee of this Board be appointed to present in conjunction with the President a statement of the wants of the College and to solicit and work for an appropriation for this purpose. The buildings most urgently needed are:

1. A building which will provide the necessary space and appliances for a first class gymnasium. This might also include, on the ground floor, space for a drill hall with military offices, and in the upper story space for society rooms and rooms for the Young Men's Christian Association. For these purposes $25,000 would suffice.

2. A building tor the accommodation of the Normal School and for the Academy conjointly. Suitable quarters could be provided for Normal School work and for the Academy in a building costing $25,000. These are urgent needs and might be met by judicious and persistent pressure on the Legislature.

Inasmuch as we are now nearing the end of a century a brief retrospect may not be inappropriate. It is sometimes the part of prudence to look backward as well as forward, in order that from the experience of the past an intelligent forecast may be formed for the future. For this purpose I append the following epitome of the origin and growth of the institution:

DEVELOPMENT

The Growth of the College from Year to Year is Shown in the Following Summary:

1862. To establish and endow a College, chiefly for instruction in Agricultural and Mechanic Arts, an act of Congress

GAYLAMOUNT

apportioned to each State, for each of its Senators and Representatives in Congress, 30,000 acres of the public land.

1865. The General Assembly of Kentucky having accepted the State's portion under the conditions prescribed, established the Agricultural and Mechanical College, making it one of the Colleges of Kentucky University, then recently united with Transylvania University and located at Lexington, citizens of Lexington and its vicinity donating $100,000 to the Curators of the University to buy a site for the College. The General Assembly having authorized the Commissioners of the Sinking Fund to sell the 30,000 acres apportioned to Kentucky, by the mismanagement of the Commissioners' agent the State realized for its land only $165,000.

1866. The College opens with a President, four professors and a commandant.

1878. Dissatisfied with the management of the College by the Curators, who were engaged in a long factional strife, the General Assembly severed the connection with the University and appointed a commission to re-locate the College, to provide for its continuance in operation till re-located, and to prepare a "plan for a first class university." Kentucky University claiming and retaining the former site of the College, the sole property left the College after the severance was an income of $9,900 derived from the land grant.

1880. The city of Lexington offered the city park of fifty-two acres as a new site for the College, and also $30,000 in bonds, and the county of Fayette offering $20,000 besides, the General Assembly ratified the selection of the site made by a majority of the Commission, and located the College permanently in Lexington.

1880. To provide teachers for the common schools of the State and for other schools, the General Assembly added to the College a Normal Department, which should admit, besides other students, one from each representative district every year free of tuition.

1880. To further endow the College and to enable it to purchase apparatus, machinery, implements and a library; to maintain the Normal Department and to defray other necessary expenses, the General Assembly imposed a tax of one-half cent on each one hundred dollars of the assessed value of all property in the State liable to taxation for State revenue and belonging to its white inhabitants.

1880. The Classical and Normal Departments and Academy added.

1882. The College building, the first Dormitory and the President's house completed.

LIBRARY
U OF KY

1885. The Commandant's house reconstructed.

1887. To enlarge by experiments and to diffuse the knowledge of agriculture, an act of Congress established, under the direction of the Agricultural and Mechanical College in each State, an Agricultural Experiment Station, appropriating for its support $15,000 per annum.

1887. The Department of Civil Engineering established, an experimental farm of forty-eight acres purchased, and the College greenhouse built.

1889. The Experiment Station building completed.

1890. The second Dormitory completed.

1890. For "the more complete endowment" of Agricultural and Mechanical Colleges an act of Congress appropriated to each State $15,000 for the year ending June 30, 1890, and the same sum with an increase of $1,000 per annum for ten years. after which the maximum of $25,000 should continue without change. Of the amount thus annually appropriated the College receives 85 per cent and the school of the colored people at Frankfort 15 per cent.

1891. The Department of Mechanical Engineering established.

1892. The Mechanical building and workshops completed.

1894. Greenhouses for the Experiment Station built.

1895. The annex to the Mechanical Building and the Insectarium for the Station built.

1897. The Department of Electrical Engineering established. Additions made to the greenhouses and Insectarium.

1898. The building for Natural Science completed.

INCREASE OF PROPERTY. The property of the College is estimated to be worth $500,000 more than it was eighteen years ago.

INCREASE OF TEACHERS. Before 1880 the College had six professors; it now has sixteen professors and eight assistants.

INCREASE OF COURSES. Before 1880 the College offered a single course of study leading to a degree; it now offers eight.

INCREASE OF GRADUATES. No fact more distinctly marks the growth of the College than the increase in the number of its graduates. More students were graduated in 1897 than were graduated in the first seventeen years, and more in the last five years than in the first twenty-seven years.

I have thus advented to the growth of the College somewhat in detail because its rapid advance is but imperfectly known to even some of our governing board. With these facts behind us we should bestir ourselves to give it such additional expansion as the demands of the public require. By united effort, by keeping

GAYLAMOUNT

it before the public in its results and possibilities we shall best accomplish the end for which it was established.

My service with the College dates from the day when it first opened its doors, viz: September, 1866. Since 1869 I have been its President—a longer term of service in that capacity than that of any President of any College founded under the Morrill act of 1862, and with the possible exception of the President of Harvard University—a longer term of service than that of any President of any College or University in America. I have seen it established on a relatively small foundation, not as an independedt self-contained institution, but as a branch of a larger institution under denominational control. I have seen it detached from that unfortunate connection after a troublous co-partnership of thirteen years. I have witnessed with joy its re-establishment under state control and its endowment by the State, and I have passed through the perilous crisis which imperilled its existence in 1881-2 and in subsequent years when assailed in the legislature with all the vehemence and all the energy which denominational animosity could supply; when the question of the repeal of State aid was pending in the House, when its building fund was exhausted and the half built college structures threatened to realize the Gospel reproach, "this man began to build and was not able to finish." The outlook was stormy indeed. Under the conditions then existing we could not stop and we could not go on. I had still a strong conviction, however, that this ship would come safely into port, so strong that when no other resource was possible, I myself, supplied the funds to carry forward the buildings to completion, trusting to a future which then seemed most gloomy for victory and reimbursement.

The measure to repeal was defeated, the clouds lifted, and judicious economy enabled us in less than three years to discharge an accumulated debt of $35,000, and best of all, neither the legislature nor the general public, not even the faculty, knew of the grave embarassments and the heavy load of debt under which we had labored. But for weeks and months, while the measure of repeal was pending, I never enjoyed for a single night the luxury of a sound sleep. These are now things of the past.

The College triumphed all along the line. Its assailants retired baffled, but sullen from the conflict. The College then entered upon the lines of uninterrupted progress which it has followed to this day. This much now seems certain—the College has come to stay—and the unexampled prosperity which it has enjoyed and the progress which it has made seem to be but an earnest and a presage of what its future will be.

I have given the best days of my life, a life which in the order of nature cannot be prolonged many years, to its upbuilding

and development. It has been to me as a child. I have loved it and worked for it with the devotion of a father. That it may be for the commonwealth an everlasting possession and glory is my most earnest wish and hope.

In conclusion I beg to thank the Board for its continued confidence and support. You are the custodians of a trust the most important, in many respects, within the boundaries of the Commonwealth. You serve the public without fee or reward, but in the days to come, when the State College of Kentucky leads the van in educational progress west of the Alleghanies, when the story of its trials and triumphs is told, men will say these results are due to the earnest, self-denying, patriotic men who bore the burden and heat of the day.

I have the honor to be

Your obedient servant,
(Signed) JAMES K. PATTERSON.

The Board of Trustees, in ordering the publication of the foregoing report, unanimously adopted the following resolution:

"It is with feelings of great pride and exultation that the Board of Trustees read the report of the President of the institution. And it is eminently fitting that as Trustees for the people of this State we express to President Patterson the thanks of the Commonwealth of Kentucky for his services that are not only unparalleled in length of time, but unsurpassed elsewhere in these United States for distinguished ability.

"Not all the battles of men have been fought on tented fields, nor all their victories won by marching legions. In the annals of our State, marked as they are by the stories of struggle and heroism, we believe no page can shine brighter than that on which is recorded the life work of President James K. Patterson. If courage in struggle with adverse circumstances can command admiration, the highest meed of praise must be his. If absolute devotion to duty and unyielding pertinacity of purpose, coupled with deep and strenuous faith in the loftiest ideals of human endeavor, count for aught, we can confidently say to the world, that as the head of this great trust we have a man and leader of men.

"It is, therefore, our duty to congratulate Kentucky on the possession of such a son and servant, and to express to him our united and earnest hope that he may long be spared to carry on the work he has done so well.

"It is, morever, our pleasure to record the unvarying courtesy and kindness that has always marked our personal and official dealings with him, and to say that he enjoys to the fullest extent our confidence, respect and esteem.

GAYLAMOUNT
PAMPHLET BINDER
~
Manufactured by
GAYLORD BROS. Inc.
Syracuse, N.Y.
Stockton, Calif.

University Archives
Margaret I. King Library - North
University of Kentucky
Lexington, Kentucky 40506

REPORT OF
JAMES K. PATTERSON, PRESIDENT
OF
AGRICULTURAL AND MECHANICAL
COLLEGE OF KENTUCKY

KENTUCKY. UNIVERSITY.

University Archives
Margaret I. King Library - North
University of Kentucky
Lexington, Kentucky 40506

GAYLAMOUNT
PAMPHLET BINDER

Kentucky. University.

Report of

James K. Patterson, President,

of

Agricultural and Mechanical College of Kentucky

To the Board of Trustees,

May 31, 1899.

Published by Order of the Board.

VEACH PR. LEXINGTON.

1.769
9-Cp

LIBRARY
UNIVERSITY OF KENTUCKY

GAYLAMOUNT
PAMPHLET BINDER

LIBRARY
UNIVERSITY OF KENTUCKY

REPORT OF PRESIDENT PATTERSON.

Gentlemen of the Board of Trustees of the Agricultural and Mechanical College of Kentucky:

I have the honor to submit to you to-day my annual report on the Agricultural and Mechanical College of Kentucky. The year just closing has been the most prosperous in the history of the College. Its matriculation list reaches four hundred and eighty. This does not take into account many who entered provisionally and after a short time withdrew. The increased attendance I ascribe to two causes, viz: The improved financial condition of the people of the Commonwealth and the effective canvass made in Western Kentucky last year by an agent of the College.

Acting under the authority of the Board, I have again placed an agent in the field with instructions to visit the section of country traversed by the L. & N. Railroad and some of its branches. If a suitable man can be found to do like work in Eastern Kentucky I will have that part of the State visited also.

The general health of our student community has compared very favorably with that of preceding years. While there has been some sickness, principally measles and grippe, there has happily been no consequent mortality. We endeavor to give such attention to sanitary precautions as circumstances enable us to do. Persons attacked by infectious diseases are at once quarantined, and so remain until danger is past.

The reports of heads of departments and deans of courses of study show satisfactory work done. Better results could be obtained if our recitation rooms were larger and our equipment more ample.

The deficit of last year has been reduced fully one-half, and is likely to be wholly extinguished by the end of the next fiscal year. I desire, however, to impress upon the Board the necessity of economy in appropriations for the forthcoming year. The estimates of receipts and expenditures which will be submitted to you have been framed upon the most careful consideration. The appropriations for the service of the several departments have been cut down to the minimum compatible with efficiency. The salaries

of professors and assistants should remain as they are except in the two or three cases wherein they have not reached the maximum provided for by the action of the board in December, 1893, or by special agreement when appointed. Our salaries are liberal as compared with those of other colleges in Kentucky, but not too liberal for efficient service.

All our balances hereafter should be, as far as possible, devoted to internal expansion, especially in the enlargement of the the equipment of existing laboratories, the establishment of new ones, and in supplying the necessary means for making instruction effective.

By the act of the Legislature removing the geological museum to this college and the transfer therewith of the Inspector of Mines and his assistant, and the provision contained in the act that after the expiration of the term of service of the present inspector and his assistant their successors shall be appointed by the Board of Trustees, a school of Mines will thereby be created in conformity with the terms of the act and under the management and control of the college.

The school of Mines will be established in 1900. This will require money for its equipment. It behooves us then to accumulate if possible a fund for this purpose, and this is an additional reason for the most rigorous economy.

As the members of the board are aware, I was unable to obtain last year from the War Department the detail of an army officer as instructor in military tactics and commandant of cadets.

The Board authorized me to make the best arrangement possible for this purpose at a moderate salary. I employed M. B. Jones, an alumnus of the college and a man of character and ability, uniting with his duties as commandant those of assistant in mathematics on a salary of $700. The results of the year's work have been entirely satisfactory. We have never had a better drilled corps, and the discipline of the dormitories has been the best we have ever had since the organization of the college. At the outset there was some friction, due partly to the heritage of disorganization inherited from his predecessor, but during the latter half of the year there has been the utmost harmony between Major Jones and his officers, and through the latter half between him and the battalion. This happy result is due to two causes,

GAYLAMOUNT
PAMPHLET BINDER

viz: The compensation allowed officers and to the organization of the latter into a body with Major Jones as chairman and known as the military council. This body sustains the same relation to the college that the special faculties do to their respective courses of study. They meet bi-monthly, discuss matters pertaining to the efficiency of the corps and keep records of their proceedings. I advise that this body obtain official recognition from the Board, and that their proceedings be submitted henceforward to the Board as the records of the other subordinate faculties of the college are.

I again applied to the War Department for a detail, but have been advised that no detail can be made while the unsettled conditions in the Philippines last. I therefore recommend that Major Jones be re-appointed as commandant of cadets and assistant in Mathematics. His services in the latter relation have been entirely satisfactory. This appointment, with the assistance already provided for, and with that subsequently referred to will meet all the requirements of the Department of Mathematics effectively and economically. Professor White informs me that his services as assistant in mathematics have been very efficient and entirely satisfactory.

The establishment of a few fellowships as a reward of proficiency in the departments for which they were created has been productive of good results. The emoluments, though relatively small, have excited ambition. They enable students who are desirous of doing post-graduate work for the master's degree, to remain at the college for this purpose. The system also provides efficient and well trained assistance in the departments to which they are attached at relatively small outlay to the college. I respectfully recommend that three more fellowships be created in addition to the three already authorized, viz: One in Modern Languages, one in Mathematics or Ancient Languages as may be deemed expedient, and one in Civil Engineering. I know of no better stimulus to good undergraduate work than the reward thus given, and of no more economic method of providing assistance for the respective departments in which these honors are awarded. They are tenable for one year and the value of the fellowship is $150. For those who are preparing to teach the value of the

fellowship can scarcely be over-estimated, both as regard the experience in teaching and the prestige and distinction conferred.

I recommend that the Principal of the Academy and his staff of assistants constitute a subordinate Faculty with monthly meetings and a record of their proceedings, which record shall be submitted to the Board of Trustees at their regular meetings.

From the report of the committee on internal expansion the necessity for additional accommodations will be apparent, with the exception of the comparatively inexpensive addition asked for by Profs. Anderson and Brooks, it will be impossible for the College for some time to provide out of its exising income the additional buildings required. The only alternative left is an appeal to the Legislature for money. I suggest that a committee of this Board be appointed to present in conjunction with the President a statement of the wants of the College and to solicit and work for an appropriation for this purpose. The buildings most urgently needed are:

1. A building which will provide the necessary space and appliances for a first class gymnasium. This might also include, on the ground floor, space for a drill hall with military offices, and in the upper story space for society rooms and rooms for the Young Men's Christian Association. For these purposes $25,000 would suffice.

2. A building tor the accommodation of the Normal School and for the Academy conjointly. Suitable quarters could be provided for Normal School work and for the Academy in a building costing $25,000. These are urgent needs and might be met by judicious and persistent pressure on the Legislature.

Inasmuch as we are now nearing the end of a century a brief retrospect may not be inappropriate. It is sometimes the part of prudence to look backward as well as forward, in order that from the experience of the past an intelligent forecast may be formed for the future. For this purpose I append the following epitome of the origin and growth of the institution:

DEVELOPMENT

The Growth of the College from Year to Year is Shown in the Following Summary:

1862. To establish and endow a College, chiefly for instruction in Agricultural and Mechanic Arts, an act of Congress

GAYLAMOUNT
PAMPHLET BINDER

apportioned to each State, for each of its Senators and Representatives in Congress, 30,000 acres of the public land.

1865. The General Assembly of Kentucky having accepted the State's portion under the conditions prescribed, established the Agricultural and Mechanical College, making it one of the Colleges of Kentucky University, then recently united with Transylvania University and located at Lexington, citizens of Lexington and its vicinity donating $100,000 to the Curators of the University to buy a site for the College. The General Assembly having authorized the Commissioners of the Sinking Fund to sell the 30,000 acres apportioned to Kentucky, by the mismanagement of the Commissioners' agent the State realized for its land only $165,000.

1866. The College opens with a President, four professors and a commandant.

1878. Dissatisfied with the management of the College by the Curators, who were engaged in a long factional strife, the General Assembly severed the connection with the University and appointed a commission to re-locate the College, to provide for its continuance in operation till re-located, and to prepare a "plan for a first class university." Kentucky University claiming and retaining the former site of the College, the sole property left the College after the severance was an income of $9,900 derived from the land grant.

1880. The city of Lexington offered the city park of fifty-two acres as a new site for the College, and also $30,000 in bonds, and the county of Fayette offering $20,000 besides, the General Assembly ratified the selection of the site made by a majority of the Commission, and located the College permanently in Lexington.

1880. To provide teachers for the common schools of the State and for other schools, the General Assembly added to the College a Normal Department, which should admit, besides other students, one from each representative district every year free of tuition.

1880. To further endow the College and to enable it to purchase apparatus, machinery, implements and a library; to maintain the Normal Department and to defray other necessary expenses, the General Assembly imposed a tax of one-half cent on each one hundred dollars of the assessed value of all property in the State liable to taxation for State revenue and belonging to its white inhabitants.

1880. The Classical and Normal Departments and Academy added.

1882. The College building, the first Dormitory and the President's house completed.

1885. The Commandant's house reconstructed.

1887. To enlarge by experiments and to diffuse the knowledge of agriculture, an act of Congress established, under the direction of the Agricultural and Mechanical College in each State, an Agricultural Experiment Station, appropriating for its support $15,000 per annum.

1887. The Department of Civil Engineering established, an experimental farm of forty-eight acres purchased, and the College greenhouse built.

1889. The Experiment Station building completed.

1890. The second Dormitory completed.

1890. For "the more complete endowment" of Agricultural and Mechanical Colleges an act of Congress appropriated to each State $15,000 for the year ending June 30, 1890, and the same sum with an increase of $1,000 per annum for ten years. after which the maximum of $25,000 should continue without change. Of the amount thus annually appropriated the College receives 85 per cent and the school of the colored people at Frankfort 15 per cent.

1891. The Department of Mechanical Engineering established.

1892. The Mechanical building and workshops completed.

1894. Greenhouses for the Experiment Station built.

1895. The annex to the Mechanical Building and the Insectarium for the Station built.

1897. The Department of Electrical Engineering established. Additions made to the greenhouses and Insectarium.

1898. The building for Natural Science completed.

Increase of Property. The property of the College is estimated to be worth $500,000 more than it was eighteen years ago.

Increase of Teachers. Before 1880 the College had six professors; it now has sixteen professors and eight assistants.

Increase of Courses. Before 1880 the College offered a single course of study leading to a degree; it now offers eight.

Increase of Graduates. No fact more distinctly marks the growth of the College than the increase in the number of its graduates. More students were graduated in 1897 than were graduated in the first seventeen years, and more in the last five years than in the first twenty-seven years.

I have thus advented to the growth of the College somewhat in detail because its rapid advance is but imperfectly known to even some of our governing board. With these facts behind us we should bestir ourselves to give it such additional expansion as the demands of the public require. By united effort, by keeping

GAYLAMOUNT
PAMPHLET BINDER

it before the public in its results and possibilities we shall best accomplish the end for which it was established.

My service with the College dates from the day when it first opened its doors, viz: September, 1866. Since 1869 I have been its President—a longer term of service in that capacity than that of any President of any College founded under the Morrill act of 1862, and with the possible exception of the President of Harvard University—a longer term of service than that of any President of any College or University in America. I have seen it established on a relatively small foundation, not as an independedt selfcontained institution, but as a branch of a larger institution under denominational control. I have seen it detached from that unfortunate connection after a troublous co-partnership of thirteen years. I have witnessed with joy its re-establishment under state control and its endowment by the State, and I have passed through the perilous crisis which imperilled its existence in 1881-2 and in subsequent years when assailed in the legislature with all the vehemence and all the energy which denominational animosity could supply; when the question of the repeal of State aid was pending in the House, when its building fund was exhausted and the half built college structures threatened to realize the Gospel reproach, "this man began to build and was not able to finish." The outlook was stormy indeed. Under the conditions then existing we could not stop and we could not go on. I had still a strong conviction, however, that this ship would come safely into port, so strong that when no other resource was possible, I myself, supplied the funds to carry forward the buildings to completion, trusting to a future which then seemed most gloomy for victory and reimbursement.

The measure to repeal was defeated, the clouds lifted, and judicious economy enabled us in less than three years to discharge an accumulated debt of $35,000, and best of all, neither the legislature nor the general public, not even the faculty, knew of the grave embarassments and the heavy load of debt under which we had labored. But for weeks and months, while the measure of repeal was pending, I never enjoyed for a single night the luxury of a sound sleep. These are now things of the past.

The College triumphed all along the line. Its assailants retired baffled, but sullen from the conflict. The College then entered upon the lines of uninterrupted progress which it has followed to this day. This much now seems certain—the College has come to stay—and the unexampled prosperity which it has enjoyed and the progress which it has made seem to be but an earnest and a presage of what its future will be.

I have given the best days of my life, a life which in the order of nature cannot be prolonged many years, to its upbuilding.

and development. It has been to me as a child. I have loved it and worked for it with the devotion of a father. That it may be for the commonwealth an everlasting possession and glory is my most earnest wish and hope.

In conclusion I beg to thank the Board for its continued confidence and support. You are the custodians of a trust the most important, in many respects, within the boundaries of the Commonwealth. You serve the public without fee or reward, but in the days to come, when the State College of Kentucky leads the van in educational progress west of the Alleghanies, when the story of its trials and triumphs is told, men will say these results are due to the earnest, self-denying, patriotic men who bore the burden and heat of the day.

I have the honor to be

Your obedient servant,
(Signed) JAMES K. PATTERSON.

The Board of Trustees, in ordering the publication of the foregoing report, unanimously adopted the following resolution:

"It is with feelings of great pride and exultation that the Board of Trustees read the report of the President of the institution. And it is eminently fitting that as Trustees for the people of this State we express to President Patterson the thanks of the Commonwealth of Kentucky for his services that are not only unparalleled in length of time, but unsurpassed elsewhere in these United States for distinguished ability.

"Not all the battles of men have been fought on tented fields, nor all their victories won by marching legions. In the annals of our State, marked as they are by the stories of struggle and heroism, we believe no page can shine brighter than that on which is recorded the life work of President James K. Patterson. If courage in struggle with adverse circumstances can command admiration, the highest meed of praise must be his. If absolute devotion to duty and unyielding pertinacity of purpose, coupled with deep and strenuous faith in the loftiest ideals of human endeavor, count for aught, we can confidently say to the world, that as the head of this great trust we have a man and leader of men.

"It is, therefore, our duty to congratulate Kentucky on the possession of such a son and servant, and to express to him our united and earnest hope that he may long be spared to carry on the work he has done so well.

"It is, morever, our pleasure to record the unvarying courtesy and kindness that has always marked our personal and official dealings with him, and to say that he enjoys to the fullest extent our confidence, respect and esteem.

GAYLAMOUNT
PAMPHLET BINDER
~
Manufactured by
GAYLORD BROS. Inc.
Syracuse, N.Y.
Stockton, Calif.

University Archives
Margaret I. King Library - North
University of Kentucky
Lexington, Kentucky 40506