

1879

Fifth Annual Report of the Principal of the Southern Illinois Normal University with the Accompanying Reports of the Several Professors

Southern Illinois State Normal University

Follow this and additional works at: http://opensiuc.lib.siu.edu/bot_ar

Recommended Citation

, . "Fifth Annual Report of the Principal of the Southern Illinois Normal University with the Accompanying Reports of the Several Professors." (Jan 1879).

This Article is brought to you for free and open access by the Board of Trustees, Southern Illinois University System at OpenSIUC. It has been accepted for inclusion in Annual Report by an authorized administrator of OpenSIUC. For more information, please contact opensiuc@lib.siu.edu.

FIFTH

ANNUAL REPORT

—OF THE—

PRINCIPAL

—OF THE—

Southern Illinois Normal University,

WITH THE

Accompanying Reports of the Several Professors.

OBSERVER PRINT,
CARBONDALE, ILL.

1879.

TO THE BOARD OF TRUSTEES
of the Southern Illinois Normal University,
Carbondale, Illinois.

GENTLEMEN:—The fifth year of our school life in this Normal University has come to its close and we have to render thanks to a kind Providence for health in large measure and for other numerous and exalted mercies. No death has occurred among our faculty or students. And only mild forms of disease has at any time afflicted our school. During the winter measles caused some interruption in study. In most respects the year has been our most successful one. Our numbers have been larger each term and the average length of time each student has remained has been longer. The grade of work done has been higher but the numbers in the advanced classes has not increased. This fact is readily accounted for by two things, owing to the stringency of the times many of our students have found themselves obliged to teach school in order to provide means with which to prosecute their studies; and a change in our course of study, or more properly in our mode of classing our students by the studies they have not completed. This caused many to pause to make the lower studies and has been a most excellent thing for our students. Then our Spring Term, owing to the change of times published in our last catalogue opened so early and continued for so short a period that many did not deem it profitable to be present. But in good character among the students and in diligent attention to business we have seldom seen young people labor more successfully or with more enthusiasm.

The number of students has been	429
Last year there were	408

An increase of	21
The aggregate by term is	867
Last year it was	776

An increase of	91
The average of attendance is	26 weeks.
The average of attendance last year	24½ weeks.

There have entered new students 210. In the fall 122, winter 33, spring 55.

It has been a matter of much interest to us to note the occupations of

the parents of the pupils. There have been 1,208 enrolled since the beginning of the university. And the record of occupations is as follows, viz: Farmers 649, carpenters 34, laborers 14, mechanics 11, shoemakers 7, miners 4, fruit growers 5, hotel keepers 7, blacksmiths 4, livery stable keepers 3, tinsmiths 3, upholsterer 1, cabinet makers 3, mason 1, house painters 3, harness makers 2, machinist 1, saloon keeper 1, butcher 1, ship carpenter 1, photographer 1, tobacconist 1, jewelers 4, lawyers 26, merchants 151, ministers 45, teachers 26, millers 21, traders 19, agents 20, druggists 10, army officer 1, civil officers 10, telegraphers 5, editors 5, engineers 4, book keepers 2, contractors 2, manufacturers 2, clerks 2, grocers 3, bankers 5. By this record it will be seen that the children of the working classes as they are called, accept, by far more than those of professional men, the privileges of the University.

There have died, as nearly as we can ascertain nine young men and ten young women who have been our students.

There have also been married twenty-five men and forty women, ten of whom have constituted five couples of students. Eighteen were married before entering.

We have with considerable pains kept a record of those who have taught in the schools of our State and find the number to be 622. Last year we reported 511, making an increase of 111. Many of these have already taught more than one year and a larger proportion than heretofore will continue in this work. An estimate of the number of months taught by our students justifies the statement that the number of months of teaching which they have done in schools is double that of their attendance in this university.

If we look at these figures we shall see that many more do actually teach than the number of those who pledge themselves to do it. The total number enrolled, as above stated, is 1,208. There are in school at the present time 289, of whom 78 have been counted in the above 622 who have been teachers. Putting these figures properly together, taking the 78 from the 622 and adding the number now in attendance we shall make 833 who are now studying in the University or have taught and this will leave 375 who are supposed to have paid tuition. But on examination we find 507 have actually paid. This ought so far as our history of five years is concerned to refute and effectually the common statement of opponents to Normal schools, that their students do not teach. And another assertion is often made that these Normalites do not teach the country schools. But if they are employed in higher schools at larger wages it should in truth prove that their work is acceptable to the people and in demand among those who would elevate the scholarship of their children.

A remark made in a former report will bear to be repeated in substance here. While not all these students of ours have been excellent or very successful teachers, it is doubtful if there is a single one who

has not taught a better school than the same person would have taught without our instructions. A few may have grown more conceited and opiniative in consequence of having studied at a Normal, and hence may have failed to do as good work as they would have done with greater distrust of their own abilities, or more caution or a more correct estimate of the popular demand. Yet trustworthy information derived from various sources, independent of these teachers own reports, confirm the opinion heretofore expressed that the efficiency of a large number of the teachers we have instructed has been fully doubled. And we certainly have found that the young persons who now enter our school after having been trained by our students are far in advance of those who entered five years ago.

The several Professors have been laboriously and very successfully employed in their several departments, as will be seen by their reports herewith submitted. The larger numbers each term have demonstrated the need of an assistant in the common studies and in the elementary Latin, and Miss Essie C. Finley was employed early in the year to teach several of these classes. It is believed that the Faculty have all been diligent and pains-taking, and conscientious in all their duties, and it certainly has been very gratifying to them to notice so good an increase in numbers and in attention to study and business among the students. The general health of the members of the families of the Faculty has been good with some exceptions, not however to impair their efficiency unless in case of the protracted sickness in that of the Principal which may have been in some instances in the way of the promptest discharge of duty.

The changes introduced into the last catalogue affecting our course of study as to the matter and methods of examinations have appeared to me to work well. These have I think diminished the number of our graduates this year, but they will it is confidently believed in a much larger degree increase the class of the next and of all subsequent classes. At all events it has aided us to systematize our class work in a very large measure, and has given to our students a better comprehension of what is a methodical study and the proper order of the several branches of education.

Professor Thomas, whose national reputation obtained for him the appointment of State Entomologist of Illinois and a place on the United States' Commission to investigate the habits of the Rocky Mountain locust, has been employed in these duties and has received no salary. He has however taught one class in zoology and has given valuable advice and assistance in many ways. The rest of the duties of this department including the care of the museum has been devolved upon Professor George H. French, who in July last was employed as a collector and in September was chosen curator and assistant teacher in various classes, and he has since been a valuable member of the Faculty.

The department of Professor Jerome has been conducted in the same

prompt and vigorous manner as has characterized him as an officer from the beginning. He has also continued to discharge the onerous and perplexing duties of Registrar, collecting bills and making orders keeping the books and filing the vouchers for such a multiplicity of details as might weary and confuse a less resolute and clear-headed man. Owing to some causes the numbers in this department have slightly decreased, we believe however only temporarily.

Professor Hull in the department of Higher Mathematics has been in the same degree as heretofore successful in impressing upon the students his own careful and quiet but earnest methods of honest work and has seen a liberal increase of members and enthusiasm, especially in the classes in trigonometry and surveying. The same increase has been seen also in the departments of Physics and chemistry where Professor Parkinson has succeeded in imparting a spirit of original research into the minds of many of his pupils which deserves great praise. He has also faithfully attended to the record of absences at morning and evening roll calls and has labored vigorously in the work of the spelling in connection with Professor Hillman.

Professor Brownlee with his quiet dignity and kindly bearing has given to the department of Reading and English literature a commanding position. His work is worthy of honorable mention and encouragement and his persevering efforts to make the light gymnastics and the music delightful and profitable are deserving of better praise than I can here bestow.

In the departments of Physical Geography, History and Physiology Professor Foster has continued to awaken enthusiasm and to inspire thoroughness. He is full of zeal and accomplishes with many of the students real wonders. In addition he has had charge of the library and has in a most careful and useful manner made a record and catalogue of more than a thousand volumes added during the year.

Professor Hillman has had charge of the departments of Arithmetic and Astronomy and has been assisted in several classes by pupil teachers. It is one of the most difficult positions and also one of the most important. And so great are the deficiencies of many who enter and so irregularly do they labor and so little do they accomplish that almost any other man would lose heart. He has however labored patiently and been an inspiring presence in the work.

Miss Buck has been during the year engaged in teaching book keeping for which under her popular instructions there has been a great demand. She has continued to teach the grammar and English analysis and has done most excellent work, and is gradually preparing our students to understand the genius of our language.

In the department of Drawing under Mrs. Nash the year has witnessed a commendable improvement. She has worked with spirit and energy and has succeeded in inspiring many to strive for excellence in Free Hand and Pencil Drawing. This is an art so necessary for a teach-

er that we realize that no expense should be spared to make it popular and successful.

The Janitor has very faithfully performed the arduous and varied duties of his labor and specially deserves the gratitude of all.

During the year many needed improvements have been made in the Library and Museum and in the Normal Hall and in the Rooms of Natural Philosophy and of Higher Mathematics. The platform in the Hall has been enlarged and newly carpeted, two fine tables have been made for the reference books and by the students many excellent plaster busts and engraved portraits have been put in place. And besides an opportunity offered to purchase a grand portrait of President Lincoln. In the Library three new tables for use in writing and for the catalogues of the books and for the magazines have been made and put in place. A good supply of apparatus has been purchased and very fine additions have been made to the Museum. The creditable appropriations made by the General Assembly of 1877 have enabled us to begin the foundations of a library and museum which if the same generous spirit shall prevail will soon give to this portion of the State advantages of books, specimens and collections long needed and always valuable.

In accordance with the directions of the trustees at their meeting in June last the Faculty established a course of lectures on Sunday afternoons which appears to me to have been beneficial in many ways. The Principal has delivered fifteen lectures in the course. Professor Thomas one; Professor Brownlee three; Professor Foster four; Professor Hillman three and Professor French two. They recommend that the course be continued and suggest that they be given once a month instead of each week.

It is suggested that it would be better if the trustees would make an order that no student should in any case be admitted without either an appointment or a recommendation by the county superintendent. The custom now prevails for the Principal in a few cases to appoint when suitable recommendations are before him, or for a trustee to do the same. And in cases like these personal persuasion often becomes vexations. To go back to the one idea of county superintendents responsibility for the age and avowed intentions of the student to teach will bring to bear on the pupil the public opinion of home, and give a wider interest to the work of the school. We find now that nearly every county in Southern Illinois is represented in our school—the number is indeed twenty-nine—and many more counties have sent students to be instructed.

The Faculty unanimously recommend the following persons as candidates to receive diplomas in the scientific course, they having completed the several branches of study embraced in it under the charge of our Professors or having been examined by us as to their fitness. All

are of good moral character are in our opinion entitled to the honor:

ANDREW C. BURNETT.

GEORGE H. C. FARMER.

IDA M. MCCREERY.

LYMAN T. PHILLIPS.

It is recommended that the edition of the catalogue be 3,500 instead of 3,000 as heretofore, and the trustees insist on better workmanship in the future. The trustees should themselves order the work and make some one of the Faculty an agent or committee to supervise the work.

The Military Department has of course been an experiment and has had the very efficient services of Capt. Thomas J. Spencer, U. S. A. It has probably succeeded as well as any new experiment which was not under a very forcible rule of compulsion. It has been entirely voluntary and of course has been subject to great variations. It has not really been a success. It has been more costly than was anticipated and Capt. Spencer has incurred expenses on his own individual responsibility. The faculty are as they were last year not willing to make recommendation in regard to this department. The Principal is clear in recommending its continuance for another year and suggests that more definite rules be enacted for its government. I wish to say that Captain Spencer has labored with great zeal and energy and deserves a high commendation.

The Principal in addition to the general charge of the oversight of the school has taught the following classes, viz:

In the Fall Term—Mental Philosophy.

Theoretical Pedagogics.

In the Winter Term—Ethics.

Criticism.

In the Spring Term—Constitution of the United States.

Theoretical Pedagogics.

School Laws of Illinois.

These classes all belong to the most important portion of our course in the methodology of the science of teaching. It is the object in the mental philosophy to explain and illustrate the powers or faculties of the human mind and its methods of gathering and retaining knowledge. In the regular course this is supplemented by the methods of expression in the science of rhetoric which has been taught by Professor Parkinson. Logic also by him belongs in the same branch and is used to teach how valid reasoning proceeds in drawing conclusions. Then criticism or the rules by which literature and art are judged are brought in to the same plan, while theoretical pedagogics teaches how each science is to be learned in the first place, and in the second how it is to be presented to the mind of a child both for the purpose of being comprehended and remembered. The Constitution of the United States in its provisions and history together with that of Illinois is thoroughly explained for the purpose both of making the teacher familiar with our

nation's glorious contributions to the science of political and governmental thought, and of making the citizen intelligent concerning his duties to the country which nourishes him and which he should serve with the loyalty of a true heart. Then the school law of our own state is a matter with which every citizen, to say nothing of every teacher should know as he knows the road to the postoffice.

The department is a most interesting one and has far reaching connections with all our school business and deserves the whole attention of a master mind. In the multiplicity of details necessarily devolved on the Principal of a school already large and growing in a healthy manner that time and thought cannot be given to it which its importance demands. But much has been done and with the aid of Professor Parkinson in the two branches of rhetoric and logic and of Professor Hull, whose practical experience formerly as a county superintendent renders him invaluable in the kindred branch of practical pedagogics and school law, this part of our course is certainly among the most practical and useful of all our work. We have devoted to it a much larger share of thought and time and purpose to give to its duties a still larger portion of our strength and study.

Respectfully submitted,

ROBERT ALLYN, PRINCIPAL.

II. *Department of Natural Science.*

CARBONDALE, Ill., May 23, 1879.

ROBT. ALLYN, LL. D., *Principal of Southern Illinois Normal University.*

DEAR SIR:—I herewith submit the following report of the few classes that have been under my charge during the school year now near its close:

In the special session, held during the month of August last, I had three classes: Botany, zoology and physiology, carrying the three through the session. The character of the work was review of the subjects without using any particular text books, together with methods of teaching them to different grades of classes. Besides this considerable practical work was done in the botany and zoology classes; but not as much as can be done now in the same time because of the better preparations that have been made since for doing work in natural history.

During the fall term I taught a class in elementary zoology until the first monthly examination, after which it was taken by Prof. Thomas; and a class in elementary botany. The latter contained _____ members of whom passed. The text book used was Wood's Class Book, selecting such portions as were adapted to the wants of the class.

During the winter term I taught a class in elementary physiology and a division of a class in geography. The first began with the term, and

used Dalton's Physiology as a text book. The second began with me after a few weeks of the term had passed, having been taught by a pupil teacher. The number, etc., in the classes was as follows:

Elementary Physiology, - -	Number, 12	Left Class, 5	Passed 6
Geography - - - - -	" 12	" 3	" 9

This term I have classes in elementary botany, advanced botany and zoology, the numbers as follows:

Elementary Botany - - -	Number, 25	Left Class, 5	Passed, 17
Advanced Botany - - -	" 28	" 3	" 19
Zoology - - - - -	" 26	" 2	" 18

Gray's "How Plants Grow" was introduced as a text book in the elementary class and gives better results than the large book would with the same grade of pupils. Some analytical work has been done by this class and a few of its members have pressed and mounted some plants for themselves. The work in the advanced class has been study of the text and analytical work, the latter beginning as soon as flowers were to be had in sufficient quantity. Besides this work outside of the recitation hour has been encouraged, such as analyzing and pressing plants, which was taken hold of with considerable interest by the class, the first by most of its members but the last by a smaller number. To facilitate preparing plants for the herbarium three presses were prepared the fore part of the term, two of which have been in constant use.

It was found that the zoology class, though of the same grade, parts of it would have to be heard at separate hours on account of clashing with other studies. Besides the text book work, analytical work has been done during the recitation hour about half of the time during the term. It is to be regretted that in this study facilities for such work cannot be furnished in the text book the same as in botany. This lack was partially met by using Jordan's Manual for the vertebrates supplemented by Birds of North America and Tenny's Manual. In insects numbers five, six and seven of the State Entomologist's reports were used together with some table work prepared for the occasion and put upon the blackboard. To meet the want of tables in zoology I have thought it best to prepare from time to time as we obtained material tables on the different groups of animals, of our own state at least. The first of these, a table for the Diurnal Lepidoptera of Illinois, I shall endeavor to have ready to submit to you as part of my report for the museum in a few days. A dozen or more copies of Jordan's Manual owned by the school would furnish very good facilities for analysis in the vertebrates and the practicability of the purchase of such a quantity is suggested.

Besides work in the recitation practical work in zoology has been encouraged in those who could spare the time during the after lunch hours. As a result more than half the class have been engaged in this work, some only occasionally, others nearly regularly. This work con

sisted in analysis, and preparing and taking care of specimens in various classes of animals.

All of which is respectfully submitted,

G. H. FRENCH, Curator of Museum.

III. Department of Languages and Literatures.

ROBT. ALLYN, LL. D., *Principal Southern Illinois Normal University.*

DEAR SIR:—The following is a summary of the classes and work in this department for 1878-79:

In the fall term the classes under my charge were as follows: Greek Rudiments—three members; Cæsar's Commentaries on the Gallic War, and Latin Grammar—eighteen members; The Æneid of Virgil—five members; Xenophon's Anabasis—five members; two classes in Latin Elements—one having twenty, and the other twenty-two members.

In the winter term the classes continued the same studies or advanced to higher authors. The Anabasis class advanced to the Memorabilia of Socrates, and the class in Cæsar's Commentaries advanced to Sallust's Cataline, the students in Virgil read the Orations of Cicero; the classes beginning the Latin advanced to reading in Roman history, and Latin Grammar; and the Greek Rudiments passed to exercises in reading, fables anecdotes, mythology, legends, etc.

During the third term, and at this writing, my classes are pursuing the studies of Anabasis and Greek Grammar, Tacitus de Germania, Homer's Iliad, Sallust's Cataline and Latin Grammar, Roman History and Latin Grammar.

During a part of the first term and during all the second term one of the classes in the elements of Latin was instructed by Miss Essie C. Finley.

The second and third terms, I have also had charge of one division of section D, in orthography. During the last term I have spent one hour each day as monitor in Normal Hall.

It will be seen from the above that there have been eighteen classes in this department, comprising a membership in the aggregate, aside from the class in orthography, of two hundred and nineteen members. It affords me pleasure to state that the students have very generally evinced a commendable zeal and an earnest desire to progress in their studies. A few from irregular attendance and want of faithful application, will probably fail to carry their work. The grades, in most cases, from daily recitations and written examinations, have been excellent. Some have been called home, and have thus interfered with the amount and progress of their class work.

The classical course embraces three years of Latin and two years of the

Greek. It is the aim to make the student more familiar with the English by a knowledge of the historic and philosophic etymology of the Latin and Greek elements. The method of presenting the lessons at each recitation looks to the practical. Each lesson is thoroughly examined as to etymology, and grammatical structure. The aim is to cultivate accuracy in memory and judgment at the same time, to reveal the intimate connection of the ancient with our own language, and especially to render the student's knowledge of the English more thorough and satisfactory.

Added to the duties of the school and class room I have performed the labor of the Registrar of the institution; have enrolled carefully eight hundred and sixty-five names, giving date of entrance, residence, parent's or guardian's name, date of birth, nativity, etc.; have collected all the tuition and incidental fees, and have, on receipt, transferred the same to the treasurer of the institution; have prepared proper vouchers in duplicate, and have issued money orders for the payment of all bills of indebtedness, and have kept a faithful account of all amounts received and paid out; and have performed such other duties as pertain to the office of Registrar.

Respectfully submitted.

CHARLES W. JEROME.

IV. *Higher Mathematics and Practical Pedagogics.*

ROBT. ALLYN, LL. D., *Principal Southern Illinois Normal University.*

DEAR SIR:—The following is a summary of the work in my department for the year 1878-79:

FALL TERM.

	(1)	(2)	(3)
Elementary Algebra, E, two classes - -	44	37	23
Higher Algebra, C, one class - - -	30	29	20
Geometry, B, two classes - - - -	25	22	18
Practical Pedagogics, B, one class - -	16	14	14

WINTER TERM.

Elementary Algebra, E, one class - - -	25	19	13
Elementary Algebra, D, one class - - -	34	26	14
Higher Algebra, B, one class - - - -	29	26	17
Geometry A, two classes - - - - -	20	20	16
Practical Pedagogics, A, one class - -	19	18	18

SPRING TERM.

Elementary Algebra, E, one class - - -	7	6	4
Elementary Algebra, D, one class - - -	24	20	9
Higher Algebra, A, one class - - - -	19	17	14
Trigonometry, one class - - - - -	20	20	19

Aggregate - - - - -	312	274	199
---------------------	-----	-----	-----

Each of the classes in the foregoing statement continued for one term. Column (1) shows the number enrolled; column (2), the number at the close of the term; column (3), the number successful in their work.

The trigonometry required two hours each day and should be reckoned as two classes. Prof. Parkinson taught one of the classes in the elementary algebra during the fall term. Besides the teaching work here indicated, one hour each day for about half the year, has been given to the supervision of pupils in the assembly room of the school.

The Board of Trustees assigned to me, at their meeting in September, 1878, the work of making estimates for the grading of about nine acres of the school lot. Having only inexperienced assistants, the results were necessarily slowly obtained and required constant revision. A separate and full report on the grading will be made to the Board of Trustees.

A careful estimate of the time indicated in the foregoing statements, shows that I have been occupied more hours a day during the entire year than have been assigned to the instruction of classes.

The change in the course of study, at the beginning of the year prevented the organization of a class in the optional studies of the mathematical course,—the general geometry and calculus. The same cause prevented the organization of a class in practical surveying.

The number of classes regularly required in the department of higher mathematics, each year, including the optional branches, is fifteen, and in practical pedagogics three. If necessary to the proper care of this number, the classes in elementary algebra may, with profit, be placed under pupils who have been trained in pedagogics and higher algebra, in our institution, subject to careful daily supervision.

The progress made by a large part of the students in algebra and the higher branches of mathematics has been quite satisfactory. A majority of those in the lower classes in algebra seem to require from one to three terms for the acquirement of good habits of study. Failure in the higher classes has usually resulted from the large number of studies pursued rather than from lack of effort.

The classes in pedagogics have done well and deserve praise. Some changes are proposed for the next class. Three terms will be required instead of two, that more time may be given to observation of methods, to careful preparation of notes and criticisms, and to the practical management of classes.

The apparatus received during the year, will add much to the profit of the classes in trigonometry and surveying.

A synopsis of the work of the classes named in this report has been prepared for publication in connection with the course of study in the catalogue for the year just closed.

Respectfully submitted,

JOHN HULL.

V. *Department of Physics and Chemistry.*

ROBT. ALLYN, LL.D., *Principal Southern Illinois Normal University.*

DEAR SIR:—I beg leave to submit the following report from the Department of Physics and Chemistry, with some additional classes in other departments, during the school year just passed.

The following is a list of classes heard; giving the number enrolled and the number passed.

FALL TERM.

	No. pupils enrolled.	No. pupils passed.
Advanced Natural Philosophy - - -		
Analytical Chemistry - - -	5	4
Rhetoric - - -	25	20
Elementary Algebra, Sec. 2 - - -	26	11

WINTER TERM.

Elementary Natural Philosophy - - -	26	21
Descriptive and Theoretical Chemistry -	17	17
Analytical Chemistry - - -	4	4
Logic - - -	17	15

SPRING TERM.

Natural Philosophy (Special) - - -		
Analytical Chemistry - - -	13	13
Geology and Mineralogy - - -	16	15
Elementary Physiology - - -		

Am glad to report that during the past year valuable additions have been made to the physical apparatus both as to material and excellent and convenient cases for its protection.

Since the last report the seats and lecture table have been rearranged so as to make the room better adapted to the kind of work.

As another important improvement I suggest that suitable curtains be provided for the purpose of darkening the room in giving experiments in optics, electricity, etc.

On account of the liberal aid given to this department, that of chemistry has been conducted as economically as was possible—not to interfere with the usual demands.

The change made by the faculty in the course of study pertaining to this branch has worked very satisfactorily. Especially since the new arrangement of terms, does it seem necessary to supplement the ten weeks work in the inorganic chemistry by some little of the organic in connection with the analysis during the third term.

As to the facilities in the Laboratory I earnestly ask that the water supply be introduced into the laboratory proper with the sink enlarged and at least three more faucets. New cases are needed for the chemicals; and the black-board should be put in repair. The ceiling should be whitened that the room be made more cheerful.

Perhaps the thing most needed is a hood, so constructed as to carry off the unpleasant odors that necessarily accumulate in such a place.

At present other parts of the building are troubled with the gases that should be carried away.

In addition to the work done in class, I refer to the keeping of records of attendance for the entire school, and also, in connection with Prof. Hillman, supervision of the spelling; making a report of the several grades every week.

Yours most respectfully,

D. B. PARKINSON.

VI. *Departments of Literature and Elocution, Vocal Music and Calisthenics.*

ROBT. ALLYN, LL. D., *Principal Southern Illinois Normal University.*

DEAR SIR:—I have the honor herewith to submit my report for the year 1878-79.

The number enrolled, dropped and passed in the first department is as follows:

ENGLISH LITERATURE—*Two Terms.*

	Enrolled.	Dropped.	Passed.
Second Term - - - - -	25	3	20
Third Term - - - - -	24	3	21

ELOCUTION.

First Term - - - - -	35	5	29
Second Term - - - - -	18	1	14
Third Term - - - - -	37	7	28

READING—*Class A.*

First Term - - - - -	33	4	21
Second Term - - - - -	27	11	14
Third Term - - - - -	32	7	23

READING—*Class B.*

First Term - - - - -	20	6	8
Second Term - - - - -	14	6	8
Third Term - - - - -	25	10	13

READING—*Class C—Two Terms.*

First Term - - - - -	11	5	5
Second Term - - - - -	16	3	13

Total for First Term - - - - -	-	-	99
Total for Second Term - - - - -	-	-	100
Total for Third Term - - - - -	-	-	118

The first term in literature was devoted entirely to the poets and authors of America. The text book used was Royse's American Literature, but the extracts therein given were supplemented by additional readings from Bryant, Longfellow, Whittier, Lowell, Poe, Read, Alice and Phæbe Cary; from Cooper, Hawthorne, and Irving and Mrs. Stone, etc. I shall make the study of American Literature precede the English hereafter. In English Literature the text book used was Shaw's Re-

vised Outlines, which has given better satisfaction than former editions as the style has been simplified and improved and much unimportant matter has been omitted. Especial attention has been bestowed upon the more remarkable periods and upon the great authors, and time was found for the reading by teacher and pupils, of copious extracts from the latter, and was most profitably spent. Among the readings were The Clerk's Tale from the Canterbury Tales, Shakespeare's Julius Cæsar, Spenser's Epithalamium, Milton's Hymn on the Nativity L'Allegro and Il Penseroso, Coleridge's Rime of the Ancient Mariner, Dryden's Alexander's Feast, and Burns' Tam O Shanter. Extracts were also read from Mandeville, Gower, Dunbar, King James I, from The Fairy Queen, the Defence of Poesy; from Bacon, Jonson, Sidney, Raleigh, Marlone, Burton; from Sterne, Goldsmith, Johnson, Wordsworth, Suelley, Southey, DeQuincy, Hunt, and many others. By this means great interest was awakened and maintained, and a love for good literature fostered and increased. I have been greatly pleased by the work done and progress made by the classes, who, with a few exceptions, have been earnest and faithful in duty.

ELOCUTION AND READING.

The report from the classes in this important branch of study is on the whole favorable and better work has been done than in any previous year.

It is a matter of regret to have to say that many of those who come under my tuition come not only with much to learn, but worse still, with much to unlearn. Bad habits have been formed which have to be eradicated. Tones, inflections, emphasis and manner, are unnatural while reading, and are in marked contrast to those used in unpremeditated conversation. Oral reading brings into exercise two sets of faculties, viz: The receptive, by means of which the author's exact meaning is apprehended; and the expressive, through the agency of which the thoughts and feelings of the author are communicated to another. The chief reason why the majority of teachers fail in teaching the important art of reading is because they permit their pupils to attempt expression of thoughts not clearly conceived by the mind. The receptive-faculties must have been so trained on a selection, before the expressive are brought into exercise, that when the work of communicating thought, feeling and purpose to another mind, through the eye and ear, is begun the former may do their work unconsciously, and the whole soul be given to the latter. First, understand, then express. It does by no means follow that one who can grasp intelligently the author's meaning can adequately express that to another. The agencies of expression—voice and action—may both be inadequate to the task. The ability to comprehend thoughts and feel emotion, and ability to adequately communicate them to another are different things. But it does follow that without a clear conception of that which is to be communicated, the most cultivated voice and expressive manner are vain.

The class in elocution are highly pleased with the new text book—Cumnoch's Choice Readings. Consideration has been given to respiration in so far as it related to speech. In giving to the class a clear idea of the organs and muscles of respiration and their action, the casts of the organs of breathing, voice and speech have been found a great aid. Breathing exercises have been frequently practiced and the spirometer has been used to aid in the development of the chest. The tones of the voice have been made the subject of attention, and the five elements of a tone—quality, force, stress, pitch and quantity, have been separately considered, and their application in the communication of thought exemplified and practiced.

The good qualities of voices have been strengthened, the bad suppressed. All of the elements of delivery have received attention. The elementary sounds and the symbols representing them, with the diacritical marks, (Webster's system), syllables, words, phrases, clauses, sentences, paragraphs, etc.; the pause, inflection, accent, emphasis, slur and cadence, all have been passed in review. Proper attitudes have been taught and insisted on and concert exercises in gesture have been given. Thorough attention has been bestowed upon the professional part of our work and the methods of teaching reading in primary grades, viz: The alphabetic, phonetic, word and sentence, have been exemplified and discussed. Each member of the class was required to prepare a carefully considered essay on the word method.

READING.

There have been as shown by the tabulated statement, three classes in reading, viz; A, B and C, the latter of which, at the close of the second term, is merged into the B class. In the upper class, methods of teaching in primary and intermediate grades was discussed, and essays were presented. Concert reading has been allowed but sparingly on account of its bad effect upon the voice and manner of pupils. Pupils have been generally required to read aloud the selections assigned in their rooms before reading them in class. The articulative organs have been trained and strengthened by a progressive drill upon the elements of utterance, first taken singly then in their simple and more difficult combinations. Accent, inflection, emphasis, pitch, force, purity and rate of voice have been given attention. One system of symbolization has been analyzed and the intelligent use of the dictionary as a guide to exact pronunciation is made possible. Classes of words commonly mispronounced are made the subject of special drill.

A portion of the work now done in my department ought to be done in the common schools.

In addition to the work in elocution and reading above specified, I have given private instruction to students desiring my aid in preparing them for public appearance upon the platform at exhibitions or commencements.

VOCAL MUSIC.

The course in this branch as arranged is four terms in length and students of The Normal department—and only these are required to study it—are classed into four grades or sections. In the work of instruction I have been assisted by Messrs. G. Brown, W. E. Mann and Louis Heitman, and Misses Dora Lipe and Sarah Saul.

Better progress has been made than in any previous year. The reduction in the number enrolled caused by the adoption of the rule making the study of music obligatory only on those who pay no tuition has made it possible to secure better results than heretofore. About sixty per cent of those in A section passed successfully the required examination and will hereafter be excused. Promotions have been made in all the other grades of those who passed the final examinations at the close of this term.

PHYSICAL CULTURE.

I am happy to be able to state that the beneficial effect of the calisthenic exercises upon health and carriage is so apparent as to have been clearly perceived by the pupils, who, with but one or two exceptions, have participated in and enjoyed these exercises. It is worthy of remark that here, as in Germany, the only objections to them come from the mothers of young ladies, who must be imperfectly acquainted with the kind and amount of exercise required. The time allotted to this is but eight minutes, and the exercise is followed by a fifteen minutes' recess.

Physicians charge, and we believe justly, that no class of men are more ignorant of the laws of health (if they are judged by the shattered physical constitutions too often of the young men and women sent from their school rooms into the world) than teachers.

It is a terrible charge, and the most terrible part of it is its truth.

Mind and body, though mysteriously, are intimately related and mutually dependent; and that system of education which provides for the culture of the one to the exclusion or neglect of the other is wrong.

Hand in hand with the development of the mind must go the development of the body. A student with a strong brain and weak and sickly body is, to borrow the words of a learned scientist, like Hercules out upon the ocean in a leaky and rotten boat.

In these exercises we have not so much endeavored to secure to the student great strength of body and limb, as to preserve and promise health, increase capacity of chest, and develop symmetry of form and ease and dignity of bearing.

Our efforts have been attended with a good degree of success.

Very respectfully submitted.

JAMES H. BROWNLEE.

VII. Department of Physiology, History and Geography.

ROBT. ALLYN, LL. D., *Principal Southern Illinois Normal University.*

DEAR SIR:—During the year the following classes were taught in this department:

FALL TERM.									
Ancient History	-	-	-	-	-	-	-	-	18 Pupils.
Physiology (Normal course)	-	-	-	-	-	-	-	-	12 "
Geography, Class A	-	-	-	-	-	-	-	-	12 "
" " B	-	-	-	-	-	-	-	-	27 "
" " C	-	-	-	-	-	-	-	-	20 "
" " D	-	-	-	-	-	-	-	-	13 "
" " E	-	-	-	-	-	-	-	-	23 "

WINTER TERM.									
Geography, Class A	-	-	-	-	-	-	-	-	6 "
" " B	-	-	-	-	-	-	-	-	38 "
" " C	-	-	-	-	-	-	-	-	29 "
Modern History	-	-	-	-	-	-	-	-	17 "
United States History, Class A	-	-	-	-	-	-	-	-	39 "
" " " " B	-	-	-	-	-	-	-	-	32 "

SPRING TERM.									
Geography, Class A	-	-	-	-	-	-	-	-	29 "
" " B	-	-	-	-	-	-	-	-	35 "
United States History, Class A	-	-	-	-	-	-	-	-	14 "
" " " " B, Division 1	-	-	-	-	-	-	-	-	43 "
" " " " B, " 2	-	-	-	-	-	-	-	-	34 "
Physiology, (Normal Course)	-	-	-	-	-	-	-	-	6 "
" (Preparatory Course)	-	-	-	-	-	-	-	-	32 "
Physical Geography	-	-	-	-	-	-	-	-	11 "

Total 21 classes and 490 Pupils.

Distributed by branches:—

Geography	-	-	-	-	-	-	-	-	232 Pupils.
United States History	-	-	-	-	-	-	-	-	162 "
Ancient History	-	-	-	-	-	-	-	-	18 "
Modern History	-	-	-	-	-	-	-	-	17 "
Physiology	-	-	-	-	-	-	-	-	50 "
Physical Geography	-	-	-	-	-	-	-	-	11 "

Total as before 490 Pupils.

Only 400 pupils obtained grades sufficiently high to entitle them to pass in their work.

Having extra duties this year to perform in arranging and cataloguing for the university library 1,000 new books, I found it impossible to perform all the work which properly belonged to this department, and hence I was glad to avail myself of the proffered help of others. In this way, only fourteen out of the twenty-one classes, enrolling 220 pupils were left to my charge. Of the seven classes of which I was relieved, one in geography was taught by Prof. French, three in geography, one

in physical geography and one in the history of the United States, by Miss Finley and one in physiology by Prof. Parkinson. To the three teachers here named I am greatly indebted for the assistance so kindly and cheerfully rendered.

In addition to the regular daily work in my department and in the library, I had charge, for twenty-five weeks, of the Normal assembly hall, two hours each day; and in conformity to the act of the Board of Trustees, establishing regular Sunday afternoon lectures on Manners and Morals, I prepared and delivered during the year four lectures to the Normal students.

Keeping in mind that Normal schools are for the training of teachers for the public schools, it has been my aim not to allow a single day to pass without at least some instruction in matters pertaining to methods of teaching, while every month several days are wholly spent in studies in methods, illustrations of methods, lectures, debates. In all the "teachers' " classes in geography and history, it has been an especial aim to make every recitation tend in the direction of training teachers. From time to time various methods of class drill have been introduced and their merits and effects fully discussed. Pupil teachers, after considerable training, have been from time to time called on to conduct classes. This drill, together with subsequent suggestions, has been of considerable utility not only to the one conducting but also to those composing the class. This drill in this department is additional to the regular systematic study of "the science and art of teaching" pursued elsewhere in the university, under the charge of teachers devoting the chief part of their time to this work.

Respectfully submitted.

GRANVILLE F. FOSTER.

VIII. *Department of Arithmetic and Astronomy.*

ROBT. ALLYN, LL. D., *Principal Southern Illinois Normal University.*

DEAR SIR:—The following is a summary of the work in my department for the year 1878-79:

Number of classes, 17; aggregate number of pupils in classes, 518.

	First Term.	Second Term.	Third Term.
Class D - -	30	16	21
" C - -	22	39	41
" B - -	64	36	46
" A - -	28	69	40
Methods - -	-	31	18
Astronomy - -	-	17	-
	<hr/> 144	<hr/> 208	<hr/> 166

About 70 per cent were successful in their work.

During the first term class B was divided into two sections and the

recitations were heard at different hours.

The second term class D was taught by Miss Annie C. Wheeler and class C by Mr. Joseph Gray, pupil teachers. Both were quite successful. The A class was divided into two divisions.

The following syllabus shows the character of the work done in the respective classes:

ARITHMETIC—*Class C.*

Fractions—Definitions; reading and analysis of fractional expressions; discussions of propositions; greatest common divisor; least common multiple; reduction of fractions to lowest terms, to higher terms; improper fractions to whole or mixed numbers; mixed numbers to improper fractions; fractions to common denominator, to least common denominator; addition, subtraction, multiplication and division of fractions; nature of a decimal fraction; reading and writing decimals; reduction of common fractions to decimals and decimals to common fractions; addition, subtraction, multiplication and division of decimals; solution of text book examples; original examples by members of the class; reasons required for the processes; compound numbers; tables; examples; longitude and time.

ARITHMETIC—*Class B.*

Percentage—Terms and definitions; analysis and formulæ; making and solving original examples; interest—aliquot parts and decimal methods; common, exact, annual and compound interest; partial payments—United States rule, merchant's rule; essentials to the validity of every promissory note, and making examples; discount—trade, bank, true; insurance; taxes; averaging accounts; partnership, ratio and proportion.

ARITHMETIC—*Class A.*

Powers and roots; square; cube; number of figures in the square of a number; in the cube of a number; square root; cube root; number of figures in the root of a number; square of a number made up of tens and units; cube of a number made up of tens and units square root formula; cube root formula; writing cube root rule from the formula; solution of examples; original examples made by the class; metric system; meaning of terms used; tables; reducing metric to common measure, and common measure to metric; review principles of fundamental rules; review fractions explaining carefully all principles; thorough review of percentage with its applications; ratio and proportion.

ARITHMETIC—*Method Class,*

Methods of mental arithmetic; advantages and disadvantages of mental arithmetic; advantages of writing mental and written arithmetic; method of conducting black-board exercises; illustration of the law that a unit of any order is made up of ten units of the next lower order; composition of the period in numeration and how the periods are named; the named orders of figures; use of numerical frame; how the black-board and slate can be used instead of it; importance of

slates to primary students; how to teach the tables, especially the addition and multiplication tables; method of adding by complements; subtracting by the same; Grube's method of elementary instruction; object to be attained in teaching primary arithmetic; methods in fundamental rules for advanced classes; G. C. D. three processes; L. C. M. methods in fractions—inductive, deductive; compound numbers; methods in percentage and its applications; ratio and proportion; powers; roots; metric system.

ARITHMETIC—*Class D.*

Terms and definitions; reading and writing numbers; special attention to drills on the tables; solution of text book examples; pupils taught to make and solve original examples; thorough familiarity with all the processes insisted upon.

This class does not belong to the course of study, and has only been taught to accommodate some who were not qualified for the regular classes.

ASTRONOMY.

Early history; Ptolemaic and Copernican systems; Kepler's laws; law of gravitation; systems of circles—horizon, equinoctial, ecliptic; solar system—sun, planets, satellites, asteroids, meteors, comets and zodiacal light; orbits of the planets; the seasons; parallax; time; refraction; eclipses; tides; study of constellations with night observations; use of the telescope; lecture on the origin of the solar system; lecture on the probabilities and improbabilities of the interplanetary spaces being occupied by an ether; lecture on the future of the solar system; a lecture, are the planets, other than the earth inhabited; original essays by class.

Through the courtesy of the Board of Trustees the department has been presented with McVicker's Tellurium globe. It is a very useful instrument for explaining a number of astronomical phenomena.

In connection with Prof. Parkinson, I have had charge of the spelling exercises of the university during the year. Over three thousand words have been spelled: fall term, 1,300; winter term, 1,000; spring term, 750.

At the commencement of each term a general examination was held and any student misspelling three or more words in a list of one hundred, was required to go into a spelling class. The words were selected by Dr. Allyn from the columns of a daily newspaper. Those misspelling less than five words were organized as class A; five words and less than ten, as class B; ten words and less than fifteen, as class C; fifteen words and upwards, as class D. On account of its large size class D was divided into four divisions. Pupil teachers, who, by good work had merited exemption from spelling, were appointed to pronounce the words and have special charge of these classes and divisions. I made it my duty to visit each of these classes at every spelling and observe the order and work done. The pupil teachers were Mr. Thomas Brown, A class, three terms; Mr. Arthur Parkinson B class, one term, Mr. James H. Beatty two terms; Mr. Charles Hull C class, three terms;

Henry A Kimmel division of D, three terms; George H. C. Farmer division of D two terms; Miss Annie Wheeler same division, one term; Andrew C. Burnett division of D. two terms; Prof. Jerome same division, one term; Miss Maggie Kennedy division of D, one term; Mr. Lyman T. Phillips same division, one term; Miss Dora A. Lipe same division, one term.

Some of the pupils spelling very badly, class E was organized about the middle of the fall term, and Mr. Wallace E. Mann took charge of it. It was hoped this class would soon be discontinued for want of material but it has held on its way during the year.

The following system of transfers from one class to another was adopted. Five words a week misspelled by a member of the A class, transfers the pupil to the B class, eight words in B to the C class, ten words in C to the D Class, twenty words in any of the classes to the E class. One week without misspelling a word promotes from the E to the D class, two weeks from D to C, two weeks from C to B, two weeks from B to A, five weeks in A excuses permanently from spelling.

About fifty words were assigned as a spelling lesson. The pronouncers selected from the list twenty-five words to be spelled. All the pupils were required to have writing spellers and write the spelling lessons. Correctors were appointed and the lessons were examined and corrected each day. Good results have been obtained.

In compliance with an order establishing Sunday afternoon lectures, I have prepared and delivered three lectures during the year at such times as were assigned me by the president. Subject of the first lecture, Excellence; second lecture, Earnestness; third lecture, Beauty.

During the third hour of each day throughout the year, I have had charge of the Normal hall. I kept a list of all the students and the seats which they occupied, so that none could be absent from the hall or out of their seats without my knowing it. Speaking, leaving seats, consulting reference books, going out were only allowed by permission. I am happy to report that there has been nothing but general good order during the year.

I have this year lost one day from sickness. This is the only time since my connection with the Normal.

In all the work of the year it has been constantly in mind that education is not the mere work of gaining knowledge, but discipline. Discipline and knowledge are two things. Discipline is the great, permanent ground fact of education. Knowledge only supplies the material to be worked up. Discipline makes the soul a strong, tough bundle of thinking muscles. Knowledge only furnishes the instruments. Discipline charges the mind with electricities of thought and sentiment, and makes it capable of using knowledge in all departments. It makes the intellect an engine of strength. Knowledge is the servant, discipline is the master. A thorough discipline will give to the state teachers who

will waste none of their energies, but make them all do execution.

Respectfully submitted,

A. C. HILLMAN.

IX. *Department of Grammar and Book-Keeping.*

ROBT. ALLYN, LL. D., *Principal Southern Illinois Normal University.*

DEAR SIR:—The following is a summary of the work in this department for the year 1878-79:

FALL TERM.						
Grammar, D, three divisions	-	-	-	-	-	70 Members.
“ C, two divisions	-	-	-	-	-	49 “
“ B.	-	-	-	-	-	28 “
Primary Grammar	-	-	-	-	-	14 “
Book-Keeping	-	-	-	-	-	28 “
Total for term	-	-	-	-	-	189

WINTER TERM.						
Grammar, D	-	-	-	-	-	28 Members.
Grammar, C, three divisions	-	-	-	-	-	87 “
Grammar, B	-	-	-	-	-	34 “
Grammar, A	-	-	-	-	-	14 “
Primary Grammar	-	-	-	-	-	6 “
Analysis	-	-	-	-	-	13 “
Book-Keeping	-	-	-	-	-	21 “
Total for term	-	-	-	-	-	203

SPRING TERM.						
Grammar, D	-	-	-	-	-	37 Members.
Grammar, C	-	-	-	-	-	30 “
Grammar, B, three divisions	-	-	-	-	-	81 “
Primary Grammar	-	-	-	-	-	6 “
Analysis	-	-	-	-	-	13 “
Book-Keeping	-	-	-	-	-	20 “
Total for term	-	-	-	-	-	187

Total for the year - - - - - 579

Of the above classes, during the fall term two divisions of class D were taught by pupils, Misses Dora Lipe and Ida McCreery. The former showed great ability in her work, and the latter gave entire satisfaction.

The seventh week of the fall term Miss Finley entered upon her work as a teacher, taking one division of class D, one of class C, and the primary class. Second term she took class D, two divisions of class C, and primary. Third term, class D, class C, and primary.

The membership in this department shows an increase of 126 pupils over last year, being nearly 28 per cent in a department already large. The addition of Book-keeping to a department so well filled, as gram-

mar makes a very heavy work. It has required me to spend six hours in actual teaching each day.

Respectfully submitted,

MARTHA BUCK.

X. *Department of Drawing and Writing.*

ROBT. ALLYN, LL. D., *Principal Southern Illinois Normal University.*

DEAR SIR:—The following is a summary of the work in this department for the year 1878-79:

DEPARTMENT OF DRAWING.

Number of pupils enrolled first term	-	-	-	53
“ “ “ second term	-	-	-	86
“ “ “ third term	-	-	-	62

201

The work during the year just finished has been conducted in accordance with the system adopted the preceding year, and the results thus attained demonstrate that thorough instruction in morphology and the fundamental principles of perspective should constitute the first work of the student in drawing, thus supplying a knowledge which will enable him to delineate whatever his ideality may prompt or his practical thought suggest.

Twenty-six have completed the course, and a large number have passed in the work of the first and second terms.

An effort to develop a taste for industrial drawing, has been made with encouraging results, especially among the younger pupils, who have evinced a gratifying degree of taste and pleasure in the work.

All have, with few exceptions, displayed earnestness and zeal in their work, and numbers have given evidence of genuine artistic talent.

Special attention has been given to free hand drawing on the board—requiring the pupils to delineate from memory the outlines of familiar objects, thus forming correct ideas of their relative proportions, and giving them proper perspective delineation.

The work although far from attaining the desired excellence, has given evidence of progress, and we trust will not prove barren of good results.

DEPARTMENT OF WRITING.

In the department of writing, we have this year, as last, been assisted by pupil teachers, all of whom have done excellent work. The assistants during the first term were:

Thomas Brown—No. pupils enrolled	-	-	32
F. P. Rentchler “ “ “	-	-	23
W. F. Noetting “ “ “	-	-	21
Sarah Saul “ “ “	-	-	23

99

Assistants for second term were:

Thomas Brown—No. enrolled	-	-	-	-	39
F. P. Rentchler	"	"	-	-	34
W. F. Noetting	"	"	-	-	19
L. T. Phillips	"	"	-	-	45
					<hr/> 137

Assistants for third term were:

Thomas Brown—No. enrolled	-	-	-	-	31
F. P. Rentchler	"	"	-	-	31
John M. Pierce	"	"	-	-	36
Frank L. Boyd	"	"	-	-	20
					<hr/> 118

The students in all the classes throughout the year have, with rare exceptions, been prompt, neat and diligent in executing the work assigned them and have given evidence of fair improvement.

Respectfully submitted,

HELEN M. NASH.

XI. Department of Geography and Elements of Language.

ROBT. ALLYN, LL. D., *Principal Southern Illinois Normal University.*

DEAR SIR:—I herewith submit report of classes taught by me during this year. I began teaching October 28.

FALL TERM.

	Pupils.	Dropped.	Passed.
Geography	22	2	14
Grammar, D	16		14
Primary Grammar	14		
Latin Elements	21	4	12
Grammar, D	21	2	14

WINTER TERM.

Geography	29	8	11
Latin Elements	10	1	7
Grammar	27	6	12
Grammar--2 classes	47	10	25
Primary Grammar	8		

SPRING TERM.

Geography	35	9	13
History United States	35	15	12
Physical Geography	14	3	8
Grammar	37	13	19
Grammar	26	4	15
Grammar, D	15	3	4
Primary Grammar	6		

Respectfully submitted,

ESSIE C. FINLEY.

XII. *Report of the Curator of the Museum.*

ROBT. ALLYN, LL.D., *Principal Southern Illinois Normal University.*

DEAR SIR:—I beg leave to submit the following as my report upon work done in the Museum during the year now drawing to a close:

When I took charge of this work, the first of July, I found a quantity of material already there that needed to be classified and labeled, but thought it advisable to leave this to be done during the winter months when little could be collected, and therefore spent all the time I could during the summer in collecting new material. During the month of July I devoted all my time to this work but after the special session began in August, only a portion of my time was devoted to collecting. After the regular fall term began in September, as much of my time as could be spared from the school duties was devoted to the same work until some time in November when the weather became too cool to find plants or insects sufficiently numerous to make further persistent collecting profitable. The collecting during the winter till the season opened this spring, was only occasional. As I have had more work in the school during the spring term I have had only a smaller portion of time for collecting.

Before speaking further of the collections made and of the other work done in this direction, it may be well to speak of changes made in the Museum for the purpose of preserving and caring for specimens. Among those may be mentioned first, a fine insect cabinet containing seventy-two drawers, 16x19 inches, with glass tops, for holding and preserving from injury of light and museum pests, the valuable collection of insects now on hand, and to which we expect to make additions from time to time. This is so made that the drawers are not only themselves tightly closed by the close fitting tops, but the whole is closed by two panelled doors. This was made by R. Romig, a cabinet maker in town, at a cost of \$95. This expense covered only the material and manufacture of the wood work and the oil finish given to the black walnut of which it is made. To fit it for use the drawers were to be lined with cork and the insides papered. Cork suitable to line about half of them was obtained from Philadelphia, and I have finished nearly a third of the drawers, the most of which are filled with insects, arranged as they occur in our systems of classification. Of these I will speak more fully under that subject.

That the plants of the herbarium might be cared for, five dozen new boxes, similar to the half dozen already in use, were purchased in Chicago at \$3 per dozen. Shelves have been arranged for these; and I have prepared labels for the whole sixty-six boxes, each label stating the number of the box, and its contents. Further mention will be made of the contents of the head of Botany.

Although a quantity of museum jars and bottles were obtained last year for the purpose of suitably caring for the alcohol specimens, all

the larger ones proved to be unsuitable for the purpose and were returned. In consequence of this the larger specimens were in jars and bottles where it was impossible to properly preserve them without too much of a waste of alcohol. To meet the want in this direction a quantity of jars and bottles of a recent pattern were obtained from Philadelphia. The materials in this department not already in suitable jars have mostly been transferred to the new ones, and with the exceptions of a very few species, have been named and labeled. This work was done mostly during the fall and winter. Besides the specimens in this department on hand at the beginning of the year, a few new ones have been added. These additions consist in a few specimens of fish, a few reptiles, mostly belonging to the order Ophidia or snakes, and a few species of Batrachians; besides I have deposited in the museum my private collection of this class of specimens consisting of about thirty bottles, a number of the species not being found there before.

It has been found that the insects that were exposed to the light in the wall cases were very much injured, some being so faded as to be of little value for the purpose of study or show. For this reason the specimens obtained during the year have not been put in these cases, but are part of them in the cabinet and part in boxes, where they can be kept from the action of the light until they can be classified and put in the cabinet. It is recommended that sliding doors be placed in front of these cases that the specimens may be kept from the light when not needed to be shown for class use or other purposes.

But little has been done during the year in taxidermy, as Prof. Parkinson has already prepared quite a number of birds and other animals, and it was thought best to bring up other parts of the work till they would compare partly at least with what had been done in this. Enough was done however, to illustrate the methods of doing this work to students on several occasions, and to preserve some rare specimens. Among the specimens mounted are a fine Bald Eagle (*Haliaetus Leucocephalus*, L), shot by W. W. H. Mansker of Fountain Bluff; and several specimens of the Southern Wax Wing (*Ampelis Cedrorum*, Bd), furnished by H. G. Easterly; a red bird (*Pyrrhula Aestiva*, L), by E. Sprecher, and a Flying Squirrel (*Sciuropterus Volucella*, Pall), by Walter Waggoner. The finest acquisition to the museum, however, in this line is the Alligator Gar (*Litholpis Spatula*, Lac). This was caught in the Big Muddy river, near Murphysboro, and was prepared by Prof. Parkinson and Dr. E. B. Chapin.

MINERALS, FOSSILS, ETC.

These cases are substantially as they were arranged by Prof. Parkinson previous to my taking charge of the museum work. We are indebted to the following persons for specimens placed opposite their names, which form a few of the additions that have been made during the year:

- W. W. H. Mansker—Fossils, and on the grounds outside, Gov. Duncan's Wash Basin.
- J. G. Sims, and J. Martin—*Lepidodendron* fossils.
- Mrs. Mary M. Mitchell, of Corinth—Fossils, minerals, Indian relics and shells.
- S. M. Walker, Centralia—A large hornet's nest.
- A. M. Johnson, Centralia—Fungus from an oak tree.
- Sarah Saul—Several rare insects.
- Isaac Farner—Leaf and fruit of Yellow Nelumbium.
- Richard Toney—Bird's nest.
- G. W. Harwood—"Jagged iron ore," from Iron Mountain, Mo.
- Wm. Williams—Calcite and galena, from Missouri; also winged sweet gum.
- J. Wrightly, Cobden—Iron nodule.
- A. G. Jones and W. C. Dowell—Photograph of Indian pottery.
- Willie Reevis—Stone hatchet.
- Prof. S. A. Forbes, Normal—Casts of two fossils.
- Dr. F. R. Waggoner—Anatomical preparation and specimen of corn, etc.
- Ada Harwood, John Martin and Alicia Mulky—Snakes.
- May Copeland—A turtle.
- E. Kirkpatrick, Anna—Specimens of clay.
- Dr. G. M. O'Hara—Fossil fern, and insects.
- Dr. Allyn—Coal fossils, etc.
- Chester Penitentiary Commissioners—Minerals, etc.
- Mr. Tierney, the janitor—A number of specimens of insects.
- I. Caldwell—Specimen of corn, etc.
- S. E. North—Specimen of corn, etc.
- E. Palmer—Tall prairie grass.

Many of these are not to be found in the museum cases mentioned above, but are placed here to save a detailed enumeration elsewhere.

FISHES, ETC.

As intimated elsewhere, the principal work done with these has been to classify material already in the museum and get it into bottles more suitable for its preservation. A few new specimens have been added consisting of a few fishes, reptiles and other small vertebrates, collected by myself, with a few more collected chiefly by the students. I have, as opportunity afforded, made collections of specimens that will be useful in illustrating comparative anatomy in our zoology and physiology classes. As yet this part of the collection consists of parts of skeletons of different animals, some having been previously collected, and a few hearts and other organs in alcohol, so prepared as to show their internal structure, together with a number of microscopic slides, prepared to show some of those organs and parts of organs that are too small to be seen only by the aid of the microscope. It is my object to increase

this collection until it shall become an efficient aid to the class room work.

CONCHOLOGY.

To the collection of shells gathered together by Prof. Thomas and placed in the museum, additions have been made as follows:

Sarah Saul, of Cairo—Eighteen specimens of marine shells.

S. A. Forbes, from State Laboratory—A box of land and fresh water shells of the State.

This is intended to be, with what was in the museum before, a nearly if not quite complete set of the shells of the state. The specimens in this collection are not as yet arranged as we expect them to be finally.

BOTANY.

At the time of taking charge of the museum work, the herbarium consisted of 488 species of mounted plants. During the season I collected a little over 3,800 specimens, representing about 325 species. Of these 228 were new to the herbarium. These have been mounted and placed in the boxes. With the rest of the material, together with some duplicates from my own collection, exchanges have been made as follows: With Wm. West, of Bradford, England; Mr. Greene, Bristol, England; Rev. Thomas Morong, Ashland, Mass.; Dr. Geo. Vasey, Department of Agriculture, Washington D. C., Southern plants; H. N. Patterson, Oquawka, Ill., and of Wm. Harvey, Bradford, Ill., Oregon plants. As might be expected in receiving packages from so many parties the same season, there would be some duplicating each other. With the American plants there was very little of this, as will be seen by the table below, but with English plants there was more of it. The duplicates are not a loss however, to the herbarium, but are valuable for comparison, and for future exchange. Besides this I have a large quantity of duplicates in my private herbarium, from which I think I can find at least 500 species not now in the museum herbarium. Including this estimate, the herbarium contains plants as follows:

At the beginning of the year	-	-	-	-	488
From the year's collecting	-	-	-	-	228
“ Morong	-	Total received	52	New to herb.	52
“ Vasey	-	“	192	“	186
“ Patterson	-	“	36	“	33
“ Greene	-	“	260	“	250
“ West	-	“	405	“	247
“ Harvey	-	“	17	“	16
“ My duplicates					500
Total number species					2,000

The above is given in the order in which the packages were recorded in the herbarium catalogue, and of course each line shows what were new to the herbarium after those above it had been recorded. A quantity of paper has been obtained for mounting these plants, and what have not already been mounted will be done as soon as possible.

INSECTS.

The interest the general public has in these animals, together with the space given to them in our school works on zoology, have induced us to devote some time during the year in collecting and arranging this cabinet. At the opening of the year there was a considerable quantity of material in the wall cases, representing all the orders of insects. These had been placed there by Prof. Thomas in his double capacity as Curator and State Entomologist. It was expected that a set of these, or so far as needed, would remain in our cabinet while the rest would be used by him as State Entomologist. But little has been done with these specimens save what has been done by Prof. Thomas, and that consisted in saving out such as were needed in the museum cabinet as he selected from the boxes for his own work. In this he has set aside for us as complete a set as he had of the order Orthoptera. I collected and pinned, from the first of July to the close of the season, about 850 specimens, a majority of which were Lepidoptera. Besides these I placed in the cabinet several hundred specimens from my former collection, making over a thousand specimens added during the year. With the exception of a few hundred specimens these have all been named and labeled.

Besides this material, representing quite a number of species in all the orders, insects have been obtained from other places as follows: A choice collection of 105 specimens of foreign Lepidoptera, representing 86 different species. These were purchased to represent genera not found in the state, for the purpose of comparison in study. Besides this, exchanges have been made in Lepidoptera with Adolph Conradi, Bethlehem, Pa.; J. S. Baily, M. D., Albany, N. Y.; G. W. Belfrage, Clifton, Tex.; J. Elwyn Bates, South Abington, Mass., and C. E. Worthington, Chicago, Ill., using the material collected after setting aside a set for the museum. By this means quite a number of species have been added to those obtained here; though in some cases only a small number of species were obtained from an exchange. During the past year exchanges have been made only in Lepidoptera, but it is expected to use the surplus material we have in the other orders hereafter in the same way until we have a good representation of all the orders. Just how many species are now to be found in the cabinet I cannot say; nor how many were added by the exchanges, as in some instances a few of the same species were obtained from different persons, and at the time a record was not made of it. I may here express my thanks for favors received in this department from A. R. Grote, Buffalo, N. Y., J. A. Lintner, Albany, N. Y., Herman Strecker, Reading, Pa., and Wm. H. Edwards, Coalburgh, W. Va.

As our text books on zoology contain no analytical tables, but little practical analytical work can be done in the class room by classes in that study for want of these. Even where tables are to be had in some of the groups of animals, as the birds and other vertebrates, by using

some other book only a single copy is often accessible; while in other groups, as of our insects, no such tables are to be had. To meet this want, that more thorough work may be done, it has been thought advisable that tables of some of the groups of animals of the State be prepared from time to time and published with the museum report that they may be accessible for use in our classes. In accordance with this idea, I have prepared and present below, such tables of the Diurnal Lepidoptera of Illinois, as the first of such series.

In arranging these tables my plan has been to include, not so much what I know to have been found in the State as those species whose food plants are found here in quantity, or whose geographic range bring them within our limits. With a very few species I have been obliged to depart from this plan because I have been unable to obtain the specimens to describe; but these instances belong mostly to the more obscure Hesperidæ, seldom seen, and hence will mar but little the usefulness of the tables. In the arrangement I have followed mostly the plan of the botanical tables in Gray's "How Plants Grow;" the first part consisting of tables of the families and genera, the second, tables of species. In this I have sometimes taken advantage of local restriction to use such characters as could not be used if the tables were made to include all known species instead of the species of our state.

ANALYTICAL TABLES OF THE BUTTERFLIES OF ILLINOIS.

- † Antennæ filiform, terminating in a knob or club — BUTTERFLIES.
 †† Antennæ variable, never terminating in a knob or club - - - - - MOTHS.

TABLE OF FAMILIES.

- A. Having six feet adapted for walking.
 a. Wings closed back to back and erect in repose.
 b. Colors black, white or yellow, size generally from medium to large - - - - - Papilionidæ, A.
 bb. Colors Blue, coppery or blackish, size generally small - - - - - Lycaenidæ, C.
 aa. Wings spread in repose, or closed and thrown far back - - - - - Hesperidæ, D.
 AA. Having four feet adapted for walking, the first pair aborted - - - - - Nymphalidæ, B.

NOTE. — That the terms large, medium and small as used here may not be differently understood, I will say that I have used the term small to designate the butterflies having an expanse of wings less than one and a quarter inches, medium from an inch and a quarter to two inches and a quarter, and large all above two inches and a quarter.

TABLE OF GENERA.

A. GENERA OF PAPILIONIDÆ.

- A. Hind wings tailed - - - - - Papilio, 1.
- AA. Hind wings not tailed.
 - a. Antennae abruptly terminating in an ovoid club.
 - b. Abdomen shorter than the hind wings, color white or yellowish white.
 - c. Under side of hind wings plain, or marked along the veins
 - Pieris, 2.
 - cc. Under side of hind wings covered with a greenish network
 - Anthocharis, 4.
 - bb. Abdomen longer than the hind wings, color bright yellow; small - - - - - Nathalis, 3.
 - aa. Antennae truncated at the end, or terminating insensibly in an obconic club.
 - b. Wings robust size medium or large.
 - c. Antennae terminating insensibly in a club - Callidryas, 5.
 - cc. Antennae terminating in a distinct obconic club, straight
 - Colias, 6.
 - bb. Wings thin, delicate; antennae slightly bent - Terias, 7.

B. GENERA OF NYMPHALIDÆ.

Danaine.

- * Palpi remote, not extending much beyond the head, discal cell of hind wings closed.
 - a. Hind wings of males with black spot in the middle of wing on a vein - - - - - Danaüs, 8.

Nymphalinae.

- ** Palpi nearly connivent, porrect, nails of tarsi strongly bifid, discal cell generally open, veins not dilated.
- A. Club of antennae flattened.
 - a. Outer margin of fore wings sinuous
 - b. Silver spot on the under side of wings - - - Agraulis, 9.
 - bb. No silver spots - - - - - Euptoieta, 11.
 - aa. Outer part of fore wings not sinuous.
 - b. General color (except female of Diana) fulvous, under side of wings (except Bellona) with silver spots - Argynnis, 10.
 - bb. General color black, marked with red and yellow Melitaea, 12.
 - bbb. General color fulvous, prominent black border, no silver spots - - - - - Phyciodes, 13.
- AA. Club of antennae not flattened.
 - a. Eyes hairy.
 - b. Golden or silver spots on the underside of hind wings - - - Grapta, 14.
 - bb. No golden or silver spots on the under side of hind wings.

- c. Apex of fore wings distinctly truncate, the angles sharp - Vanessa, 15.
- cc. Apex of fore wings somewhat truncate, the angles rounded Pyrameis, 16.
- aa. Eyes naked.
 - b. Apex of fore wings rounded, margin of hind wings more or less dentate.
 - c. Antennae terminating abruptly in a large obconic club - Junonia, 17.
 - cc. Antennae gradually terminating in a club.
 - d. Wings without eye spots - Limenitis, 18.
 - dd. Wings with eye spots - Apatura, 19.
 - bb. Apex of fore wings acute, hind wings tailed - Paphia, 20.

Satyrinae.

- *** Palpi close, elevated, very hairy; discal cell always closed; veins of fore wings usually dilated at base.
 - a. Wings entire, eyes hairy or naked - Neonympha, 21.
 - b. Wings dentate, hind wings strongly angled in the middle, eyes hairy - Debis 22.
 - c. Hind wings dentate, eyes naked - Satyrus, 23.

Lybythinae.

- **** Palpi several times as long as the head, contiguous, in the form of a beak; males four footed, females six footed.
 - a. Wings angular - Libythea, 24.

C. GENERA OF LYCENIDÆ.

- * Palpi projecting in front scarcely the length of the head, antennae reaching to the middle of the fore wings.
 - a. Color blue, black or blackish brown; the hind wings dentate, or with one or more tails - Thecla, 25.
- ** Palpi projecting in front more than the length of the head, antennae not reaching to the middle of the fore wings.
 - a. Colors above fulvous or coppery and black.
 - b. Wings fulvous, border of fore wings and base of hind wings black - Feniseca, 26.
 - bb. Wings coppery or purplish black with fulvous bands - Chrysophanus, 27.
 - aa. Colors above blue, or bluish black - Lycaena, 28.

D. GENERA OF HESPERIDÆ.

- A. Knob of antennae thick ovoid, or elongate ovoid.
 - a. Knob without a hook or bent projection at the end.
 - b. Last joint of antennae ending in a slender, very short spine - Ancyloxypha, 29.
 - bb. Tip of antennae conical, blunt, straight - Thymelicus, 30.
 - bbb. Knob rounded at the tip, straight or semilunar - Pyrgus, 33.

- aa. Knob ending in a hook or bent projection.
- b. Hook much contracted, nearly half as long as the knob - - - Pamphila, 31.
- bb. Hook slender, conical - - - - - Amblyscirtes, 32.
- AA. Knob of antennae spindle shaped.
- a. Palpi surpassing the front by more than the length of the eyes, gray below - - - - - Thanaos, 34.
- aa. Palpi surpassing the front by about the length of the eyes, white below - - - - - Pholisora, 35.
- aaa. Palpi surpassing the front by less than the length of the eyes, gray below - - - - - Eudamus, 36.

TABLE OF SPECIES.

PAPILIONIDÆ.

1. *Papilio*.

Head large; eyes prominent, palpi very short; body more or less hairy, free from the wings; wings robust, the hind wings of ours ending in prominent tail.

- a. Ground color black.
- b. Wings crossed by six or more greenish yellow bands - P. Ajax.
- bb. Wings crossed by two rows of yellow spots.
- c. Rows of spots marginal - - - - - P. Asterias.
- cc. Rows not marginal - - - - - P. Cresphontes.
- bbb. Wings crossed by a single row of marginal spots.
- c. Hind wings bright greenish black or black, spots faint above P. Philenor.
- cc. Hind wings dull black, a yellowish green or blue band in the middle - - - - - P. Troilus.
- aa. Ground color yellow, wings crossed by black bands - P. Turnus.

NOTE.—A female form of *P. Turnus* occurs in which the ground color is dull black with the darker black bands more or less distinct. This is var. *Glanca*.

2. *Pieris*.

Head rather small, short; eyes naked; abdomen slender, a little shorter than the hind wings; our common white butterflies.

- a. Fore wings with broad discal dash and submarginal row of spots - - P. Protodice.
- aa. Fore wings without discal dash.
- b. Wings without spots, dusky at base - - - P. Oleracea.
- bb. Fore wings with one or two round spots towards outer ends, tips black - - - - - P. Rapae.

3. *Nathalis*.

Small yellow butterflies with the slender abdomen longer than the hind wings.

- Tips and margin of fore wings, and anterior margin of hind wing, black - - - - - N. Iole.

4. *Anthocharis*.

White butterflies resembling *Pieris* but differing in having the tips of fore wings clouded with black either with or without yellow, and under side of hind wing with greenish network not following the veins;

- a. No orange patch on tips of fore wings - - - A. *Olympia*.
 aa. Orange patch on tips of fore wings - - - A. *Genutia*.

5. *Callidryas*.

Antennae of moderate length, nearly truncated at the extremity; wings robust; yellow butterflies with ferruginous and sometimes brown markings.

- a. Wings yellow, without orange.
 b. Ground color clear pale yellow, costa and outer end of fore wings edged with brown, two discal silver spots enclosed in ferruginous on under side - - - C. *Eubule*.
 bb. "Ground color pale dirty yellow" marks heavier - C. *Sennae*.
 aa. Wings dark yellow, patch of light orange on each wing - C. *Philea*.

6. *Colias*.

Antennae straight, short, rose red, terminating in an obtuse cone which is more than a fourth of the entire length; color yellow or orange with a black border, body and wings robust.

- a. Ground color yellow.
 b. Border broad, basal third of fore wings black - - C. *Saeson*.
 bb. Border narrow, base of wings yellow - - C. *Philodice*.
 aa. Ground color orange.
 b. The whole ground color orange - - - C. *Eurytheme*.
 bb. Central portion of ground color orange with yellow next the border - - - C. *Keewaydin*.

NOTE.—This is now regarded as a variety of C. *Eurytheme*.

7. *Terias*.

This genus differs from *Colias* in being smaller, the wings thinner, the body more slender and the antennae black with the knob slightly bent.

- a. Ground color orange - - - T. *Nicippe*.
 aa. Ground color yellow - - - T. *Lisa*.

NYMPHALIDÆ.

8. *Danaïs*.

This genus contains one large fulvous species with black veins and a black outer border, containing two rows of white spots, but no black line marking the outer third of the hind wing - - - D. *Archippus*.

9. *Agraulis*.

Fore wings prolonged at apex, color fulvous, about four black spots, pupiled with white, in the discal cell, large silver spots on under side -
 A. *Vanillae*.

10. *Argynnis*.

Head large; antennae terminated by a flattened, grooved club; abdomen shorter than the hind wings; color usually fulvous, marked with black, usually so lightly that the wings have a decided fulvous color; under side usually with silver spots.

- a. Under side of wings with silver spots.
 - b. Wings of male dark fulvous, female blue, outer third lighter in both - - - - - A. Diana.
 - bb. Fore wings fulvous, hind wings black - - - A. Idalia.
 - bbb. Both wings fulvous.
 - c. Basal part of wings plain brown.
 - d. Inner half plain brown, dark - - - A. Cybele
 - dd. Less than inner half plain.
 - e. Under side of hind wings with light submarginal band.
 - f. Color of under side of hind wings light brown - - - A. Aphrodite.
 - ff. Color of under side of hind wings maroon A. Atlantis.
 - ee. Under side of hind wings without submarginal band. - - A. Alcestis.
 - cc. Basal part of wings not differing from the rest, size medium A. Myrina.
- aa. No silver spots, size medium. - - - A. Bellona.

11. *Euptoieta*.

Resembling *Argynnis* but the outer margin of the wings are sinuous and the apex of fore wings more prolonged. Base of wings are dusky brown, the middle buff, outer part fulvous - - - E. Claudia.

12. *Melitaea*.

General color black, ours marked with red and yellow above, the silver spots of *Argynnis* replaced by yellow; the red on outer border and two spots in the discal cell - - - M. Phaeton.

13. *Phyciodes*.

Smaller or medium sized species of butterflies resembling *Argynnis* but quite heavily marked with a black, no silver spots on under side.

- a. Under side of hind wings fulvous, a central and basal band of buff spots, submarginal lunate spots white - - - P. Harrisii.
- aa. Under side of wings brownish or brownish yellow.
- b. Broad central band of white or light buff on under side.
- c. Submarginal row of dark brown spots pupiled with white, marginal lunules very irregular - - - P. Nycteis.
- cc. Submarginal row of spots not pupiled, marginal angular line of white instead of lunules - - - P. Carlota.
- bb. Central band narrow or wanting, submarginal row of spots small - - - P. Tharos.

14. *Grapta*.

Butterflies with wings excised and angled, the upper surface some

shade of fulvous, spotted with black, the lower surface veined with different shades of brown; on the under side of hind wings a small golden or silvery mark resembling the letters C, L, or an interrogation point, body robust; abdomen about half as long as hind wings.

- a. Spots in the middle of discal cell wholly or partially separate.
 - b. Fore wings with submarginal row of four black spots, the posterior double - - - - - G. Interrogationis.
 - bb. Fore wings with submarginal row of three spots.
 - c. Posterior spot double.
 - d. Silver mark, a distinct comma - - - - - G. Comma.
 - dd. Silver mark an open L.
 - e. Under side of wings nearly uniform brown - G. Satyrus.
 - ee. Under side brownish ochre, a central brown band - - - - - G. Gracilis.
 - cc. Posterior spot single.
 - d. Under side fawn color, marked with brown and lilac - - - - - G. Faunus.
 - dd. Under side dark brown, a light band crossing the fore wings - - - - - G. Progne.
 - aa. Spots in discal cell blended into a transverse dash - G. J. Album.

15. *Vanessa*.

Butterflies similar to *Grapta*, but no silver spots on under side of hind wings, and varying in color; clothed with long hairs; eyes densely hairy.

- a. Ground color maroon brown, outer margin yellow supplemented by row of blue spots - - - - - V. Antiopa.
- aa. Ground color brown, submarginal band fulvous - V. Milberti.

16. *Pyrameis*.

Apex of fore wing somewhat truncate, angles rounded, colors above reddish fulvous and black, variously reticulated below, with submarginal row of eye spots on the under side of hind wings.

- a. Ground color black, transverse line on fore wings, and outer border of hind wings reddish fulvous - - - - - P. Atalanta.
- aa. Ground color fulvous.
 - b. Five eye spots on under side of hind wings - - - - - P. Cardui.
 - bb. Two eye spots - - - - - P. Huntera.

17. *Junonia*.

Differing from *Pyrameis* in the eyes being naked, and the ground color being yellowish brown. Two eye spots on the hind and one on the fore wings above - - - - - J. Lavinia.

18. *Limenitis*

Head a little narrower than the thorax; antennae nearly the length of the body, terminating insensibly in an elongate club; wings wide, dentate, destitute of eye spots, and not tailed.

- a. Wings black.

- b. Without median white bands, two red spots at the apex - L. Ursula.
- bb. With white bands through the middle of the wings.
 - c. White bands narrow, only on fore wings - L. Proserpina.
 - cc. White bands broad, through all the wings - L. Artemis.
- aa. Wings fulvous, black border, hind wings with black line marking the outer third of wing - - - - L. Disippus.

19. *Apatura*.

Eyes large; antennae terminated by an elongate cylindrical club, the end of which is yellow; wings slightly dentate, apex of fore wings prolonged, color yellowish or russetty brown, with eye spots.

- a. Eye spots on both sides of both wings - - - A. Celtis.
- aa. Eye spots absent from the under side of fore wings - A. Clyton.

20. *Paphia*.

A coppery butterfly, with the apex of the fore wings pointed and the hind wings tailed - - - - - P. Andria.

21. *Neonympha*.

Head small; antennae very short; annulated with white; palpi densely clothed in front with long, bristly hairs; wings entire, eye spots at least below.

- a. Wings brownish black.
- b. Eye spots above. - - - - - N. Eurytris,
- bb. No eye spots above - - - - - N. Sosybius.
- aa. Wings russetty, eye spots prominent on both wings - N. Canthus.

22. *Debis*.

Differing from *Neonympha* in the wings being dentate, and the hind wings being strongly angled in the middle, eyes hairy - D. Portlandia.

23. *Satyrus*.

Eyes naked; tibia long, with a spur at the end; one or two veins on the fore wings dilated, hind wings dentate; color brown or black, usually with a broad whitish or yellowish band containing eye spots towards outer end of fore wings, under side of hind wings marked.

- a. Fore wing with eye spots in yellowish band - - - S. Alope.
- aa. Eye spots without yellowish band - - - S. Nephele.

24. *Libythea*.

Black, middle of the wings fulvous, with three white spots near the apex of the fore wings - - - - - L. Bachmanni.

LYCENIDÆ.

25. *Thecla*.

Palpi nearly straight, the last joint naked, head narrower than the thorax; antennae with elongate clubs.

- a. Hind wings with two slender tails.
- b. Upper side deep blue with black border - - - T. M. Album.

- bb. Upper side dusky or blackish brown.
- c. Two orange crescents on hind wings above and below, one above indistinct - - - - T. Humuli.
- cc. Dark brown above without marks.
- d. Crescents on the under side of hind wings continuous, three or more white stripes on under side of fore wings - - T. Strigosa.
- dd. Crescents separated by the blue space, two white stripes on under side of fore wings - - - - T. Calanus.
- ccc. Color yellowish brown, crescents and lines similar to Calanus T. Edwardsii.
- cccc. Slaty brown above, yellow mark at anal angle, gray beneath T. Acadica.
- ccccc. Middle of wings yellowish, green beneath marked with brown and white - - - - T. Smilacis.
- bbb. Black above tinged more or less with blue, red line beneath edged with white . - - - - T. Poeas.
- aa. Margin of hind wings simply dentate, no orange crescents beneath.
- b. Brown beneath, outer half lighter.
- c. A fine dark brown line separating the two colors - T. Augustus.
- cc. A white line marking the separation - - - - T. Irus.
- bb. Dark brown, beneath two light bands on the hind wings and one on the fore wings edged with white - - . T. Nippon.
- aaa. Hind wings entire, the anal angle sharp; dusky brown, beneath two rows of black dots, and a row of orange spots on the hind wings - - - - - T. Titus.

26. *Feniseca*.

Resembles *Chrysophanus* except in markings. Wings entire, marked beneath with brown spots circled with white - - F. Tarquinius.

27. *Chrysophanus*.

Palpi straight, last joint naked; head narrow, colors coppery or coppery black.

- a. Color above black with a coppery tinge, gray beneath with black points.
- b. Size medium, half row of orange crescents on under side of hind wings - - - - - C. Dione.
- bb. Size small, crescents faint - - - - C. Epixanthe.
- aa. Color distinctly coppery, orange border on hind wings above and below.
- b. Size medium - - - - - C. Thoe.
- bb. Size small - - - - - C. Americana

28. *Lycaena*.

Colors above blue or bluish black, usually gray beneath marked with rows of black points, structural characters the same as *Chrysophanus*.

- a. Hind wings without tails, color delicate azure blue with slight violet reflection, females with black border to fore wings.
- b. Under side gray brown, with black spots circled with white - - L. Lygdamus.
- bb. Under side light gray, females with heavy black border on upper side of wings, hind wings of males with distinct outer border of blue.
- c. Expanse of wings from 1.2 to 1.4 inches - L. Pseudargiolus.
- cc. Expanse 1.1 inches - - - - - L. Neglecta.
- bbb. Under side with large blackish spots, and a blackish outer border - - - - - L. Lucia.
- aa. Hind wings with a thread like tail; color blue, or black tinged with blue; hind wings with two orange crescents - L. Comyntas.

HESPERIDÆ.

29. *Ancyloxypha*.

Tibiae of hind legs with middle spurs; knob of antennae elongate, ovoid, rounded at tip, last joint with short slender spine; last joint of palpi free, long, erect; costa of hind wings longer than the posterior margin of fore wings, color, fore wings brown, with yellow each side of discal cell, hind wings yellow with brown border - - A. Numitor.

30. *Thymelicus*.

Tibiae of middle legs with a series of short spines; last joint of palpi half concealed, ascending; antennae half as long as fore wings; males with discal stigma on fore wings; color brown, yellow along costa, white on veins of under side of hind wings - - - - T. Garita.

31. *Pamphila*.

Last joint of palpi conical, nearly concealed by hairs of the second; body stout, abdomen as long as the head and thorax; fore wings triangular.

- a. Hind wings yellow, with brown border not more than one-third the length of the wings.
- b. Fore wings yellow above.
- c. Border not more than one-fourth the length of the wings.
- d. Males without central black dash or stigma on fore wings.
- e. A black spot near the apex - - - P. Zabulon, male.
- ce. No black spot at apex - - - P. Delaware, male.
- dd. Black dash or stigma through the middle of fore wings, border strongly dentate - - - P. Phylaens, male.
- cc. Border nearly one third the length of the wings.
- d. Fore wings with central yellow band containing discal mark P. Delaware, female.
- ccc. Fore wings with the brown occupying more than one-third the length, rather dark.
- d. Stigma with a brown spot at its outer end - - P. Sassacus

- dd. Stigma in a large brown spot - - P. Huron, male.
- bb. Fore wings brown, a row of yellow dots making the outer third and one in the discal cell - - P. Viator.
- aa. Hind wings brown with a central yellow band, fore wings brown marked with yellow.
- b. Fore wings with yellow dots near the apex and in discal cell, and oblique yellow line below stigmata, yellowish along the costa - - - - - P. Leonardus
- bb. Subapical spots rather large, a dash of yellow in the discal cell and near the hind margin - - P. Huron, female.
- bbb. A row of subterminal dots and one in the discal cell-P. Peckins.
- aaa. Hind wings brown, the center with a more or less distinct wash of yellow; general color of fore wings brown.
- b. Fore wings with subterminal row of yellow spots.
- c. Row of spots, more or less distinct on the under side of both wings.
- d. Under side of body and base of wings a distinct wash of yellow - - - - - P. Egeremet.
- dd. Body beneath gray, no yellow wash - - P. Verna.
- cc. Spots only on the under side of fore wings - P. Manataaqua.
- bb. Fore wings without subterminal row of spots - - P. Metacomet.

NOTE.—P. Pontiac and P. Bimacula may occasionally be found in the State. I have not included them in the table because I could not obtain specimens from which to make description. P. Vitellius is reported from Iowa, but I do not know of it being found in Illinois.

32. *Amblyscirtes*.

Terminal joint of palpi a little prominent; thorax and femora roughly hairy; middle tibiae spined; abdomen thin, scarcely reaching the anal angle of hind wings, color dark brown or black, subterminal row of yellow spots on both sides of both wings, somewhat indistinct above on hind wings - - - - - A. Samoset.

NOTE.—Possibly A. Vialis should be included.

33. *Pyrgus*.

Brush of hairs at base of antennae longer than half the diameter of the eyes, palpi surpassing the front by more than the length of the eyes, tibiae without spines, color black, tessellated with white spots of which those in the center of the wings form a more or less complete band - - P. Tessellata.

34. *Thanaos*.

Knob of antennae spindle shaped, semilunarly curved; brush at base of antennae longer than half the diameter of the eyes; last joint of palpi thick, bluntly conic, nearly covered by the bristles of the second joint, gray below; abdomen as long as the head and thorax. General color black or dark brown.

- a. Fore wings without subterminal row of transparent spots, on the under side two rows of white spots near the outer end of both wings.
- b. Two rows of large dark spots crossing the middle and outer third of fore wings, each spot washed with white, terminal row of small dots indistinct - - - - T. Brizo.
- bb. Irregular row of large blotches, washed with white, through the middle of the wing; three rows of small, distinct spots outside of this - - - - T. Icelus.
- aa. Fore wings with a subterminal row of five transparent spots, four near the costa and one near the middle; a sixth in the discal cell.
- b. Subterminal row of dark spots triangular.
- c. Spots in the terminal row about one-third the size of those in the subterminal row.
- d. Color rather light brown - - - - T. Lucilius.
- dd. Color almost black, the fore wings considerably washed with white scales - - - - T. Persius.
- cc. Spots in the terminal row about one-fourth the size of those in the terminal row, color clear brown, spots towards the base irregular but distinct - - - - T. Martialis.
- bb. Subterminal row of spots with the angles rounded so that they appear ovate instead of triangular, dull dark brown, spots towards the base indistinct. - - - - T. Juvenalis.

35. *Pholisora*.

Similar to *Thanaos*; last joint of palpi more prominent, snowy white below, abdomen longer than the head and thorax. Black with a row of white dots near apex of fore wings; size small.

- a. Hind wings entire - - - - P. Catullus.
- aa. Hind wings dentate - - - - P. Hayhurstii.

36. *Eudamus*.

Antennae a little longer than half the costa of fore wings; knob very slender, spindle shaped, bent beyond the middle and extended to a long fine point; brush at base one fourth as long as the diameter of the eyes; abdomen not reaching the anal angle of hind wings, color brown black.

- a. Fore wings with two short rows of contiguous dots extending back from the costa in its middle and outer third.
- b. About two very small dots behind the outer row - E. Pylades.
- bb. Three distinct dots in a triangle behind the outer row - - - E. Bathyllus.
- aa. A yellow band through the middle of the fore wings,
- b. Hind wings with a broad white border beneath, more intense at the anal angle - - - - E. Lycidas.
- bb. Hind wings with a broad silvery band through the middle of the under side. - - - - E. Tityrus.

In the arrangement of the above tables I have followed Edwards' Catalogue of the Diurnal Lepidoptera. Even in one or two instances where more recent opinions make species varieties of other species, I have followed the catalogue, but in the case of the variety *Egeremet* of *Pamphila* *Otho*, I have deviated from this plan, giving it the rank of a species, partly from my own observation and partly from a note from Mr. W. H. Edwards, in which he says it is doubtless a good species.

With this I have the honor to be very truly yours,

GEO. H. FRENCH, Curator.

Military Science and Tactics.

ROBT. ALLYN, LL.D., *Principal Southern Illinois Normal University.*

DEAR SIR:—I have the honor respectfully to report in reference to my department as follows:

Upon entering upon my duties, having the apparent prospect of opportunity to form a battalion at an early day, I deemed it best to effect at once, in the case of officers, such organization.

Professor James H. Brownlee was selected for and cheerfully accepted the Adjutantcy.

From the beginning the command habitually assembled as in company formation for drills and, after roll calls, were divided into squads and placed under my own charge and that of selected cadets who imparted only such instruction as they had previously accurately learned and executed under my personal direction. By frequently reminding the corps that there were many steps from these elementary lessons before they would be able understandingly to enter upon the "School of the Battalion" and yet—later on—by giving them an idea of the formation through formal assembling and the publication of general instruction or information in general orders by the Adjutant, I believe ambition to progress rapidly, and early learn what was beyond, was very generally inspired, and, as a result, before the end of the first University term I had the pleasure to command them through a two hours exhibition, infantry drill, in company movements, before a committee of the leading citizens of Carbondale, which throughout was most excellent. In this connection I respectfully submit herewith a copy of the resolutions referring to the same, passed unanimously by said committee, a majority of whom were efficient officers of volunteers during the War of the Rebellion. After considerable delay and negotiation a neat and soldierly uniform, consisting of a cap, sack coat and pants of cadet gray, similar to the West Point "undress," was obtained, made to measure, for the very low price of \$12.50 per suit and was adopted. By removing the buttons it becomes a tidy citizens suit of military cut. The West Point system of gold chevrons to designate cadet officers has been adopted.

With the beginning of the second term two companies were organized and a rule was made requiring cadets of the first term to alternate in drilling parts of their respective companies in the school of the soldier whereby they learned how to correctly impart what had been previously taught them. A part of each drill hour was thus applied and during the remainder I in person exercised them in company movements.

During this term gun detachments were formed and instruction in the "Manual of the Piece," with our three inch cannon was given.

During the spring term much attention was devoted to rifle practice firing with ball cartridges and when the general unfamiliarity with fire-arms at the start is considered the scores made by the cadets seem astonishing. I ascribe it largely to their skill acquired in manipulating their rifles in the bayonet exercise and their confidence acquired in previous blank cartridge practice firing. Throughout the year, and interspersing the drills at suitable interims, addresses on army organization, strategy, grand tactics, staff administration, and illustrative lectures on field signalling have been given. During the second term I also taught a class in constitutional and military law. The further details of the plan of instruction outlined in the University catalogue of last year will be developed in their proper sequence hereafter. Referring to the same I invite your attention to the accompanying letter from Gen. Wm. T. Sherman, commanding the United States army.

The armament of the military department consists of 200 cadet rifles, extra parts and necessary accoutrements complete, two 3-inch field artillery and caissons with required implements—and equipments—and before the opening of next year, we will be in receipt of 100 light cavalry sabres. Each year, for practice firing, the United States furnishes 100 artillery blank cartridges, 1000 infantry ball and 1000 infantry blank cartridges. We hope by next fall to be equipped with an outfit for field signalling. The Governor of Illinois having indicated that at the end of each year he would confer the complimentary rank of captain in the I. N. G. on the four cadets graded highest in the corps I have nominated for your approval the gentlemen I regard after careful consideration, entitled to that preferment.

I have the honor to subscribe myself very respectfully

Yours to command,

T. J. SPENCER, U. S. A. Prof. Mil. Science and Tactics.

NORMAL CADETS

On the occasion of the public parade of the cadets of the Southern Illinois Normal University, on Saturday November 9, A. D. 1878, Col. D. H. Brush, chairman of the local board of visitors, on motion of W. H. Woodward, appointed a committee of three for the purpose of expressing the views of said local board as to the merits of the drill of said battalion, which is as follows:

RESOLVED, That we, the local board of visitors of the cadets of the Southern Illinois Normal University, have witnessed with great pleas-

ure the parade and drill of said battalion, on Saturday, November 9th, 1878, in the city of Carbondale, Illinois. We are gratified in being able to say that said parade and drill much more than met the expectation of this board, and as we believe, that of the most ardent friends of said battalion. It was in every way complimentary to the officers and members of said battalion, and especially so to Capt. Spencer, the worthy instructor in military tactics in said university. When the time said battalion has been organized is taken into consideration (only seven weeks) connected with the perfect movements and soldierly bearing of officers and men, we can truly say it was much beyond our expectation, and, as we believe, a surprise to every one.

W. H. WOODWARD, }
E. J. INGERSOLL, } Committee.
F. A. PRICKETT. }

WASHINGTON, D. C., October 17, 1878.

CAPT. THOS. J. SPENCER, U. S. A., *Instructor Military Science, Southern Illinois Normal University, Carbondale, Illinois.*

CAPTAIN:—I am directed by General Sherman to reply to your communication of the 15th September, embodying your plan of military instruction at Southern Illinois Normal University, and inform you that he considers your programme a most excellent one, and hopes you may have the necessary assistance to carry it out in all its details.

I am very respectfully,

A. McD. McCook,
Colonel and A. D. C.

In charge of subject on Education in the Army.

