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

Southern Illinois State Normal University

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SIXTH

ANNUAL REPORT

OF THE

PRINCIPAL

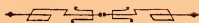
OF THE

Southern Illinois Normal
University,

WITH THE

Accompanying Reports of the Several Professors.

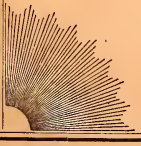
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REPORT OF PRINCIPAL.

To the Trustees of the
Southern Illinois University :

GENTLEMEN :

The term now closing completes the sixth year of the history of our University. The Giver of all mercies has bestowed with abundance his blessings upon us. The several members of the Faculty and the students generally have enjoyed excellent health during the year, though two of the families of the faculty have suffered irreparable losses, and one of the students died during the year.

In the aggregate number of students there has been a falling off, as compared with the last year, but the scholarship and permanent attendance have both advanced. In accuracy of learning, in diligence of study, and in obedient deportment, our pupils have deserved great praise. Some have indeed failed to improve their privileges and a few have been disposed to acts of indiscretion, and as a consequence some have been advised to accommodate us with the pleasure of their absence hereafter. Yet on the whole better work has been done and with less friction than in any year before.

Two things are to be especially noted, the large attendance of the children of farmers and laboring men, and the number who engage in teaching, during their course of study in the University. The records we have kept with much labor the occupations of parents, ages, and places of teaching after attending our school. While this has been a work of great care and labor it has been a source of satisfaction to us and has suggested many ideas valuable to the public.

Thirteen hundred and four students have been enrolled and studied for longer or shorter terms. The occupations of the fathers of these were as follows: Farmers, 721; Merchants, 167; Physicians, 88; Ministers, 42; Carpenters, 36; Agents, 32; Lawyers, 31; Teachers, 29; Millers, 25; Machanics, 16; Laborers, 15; Druggists, 10; Civil Officers, 8; Shoemakers, 7; Hotel Keepers, 7; Blacksmiths, 6; Livery Stablekeepers 5; Bankers, 5; Editors, 4; Jewellers, 4; Cabinet makers, 4; Telegraph-

ers, 4; Miners, 5; Tinsmiths, 3; Contractors, 2; Saddlers, 2; Manufacturers, 2; Painters, 2; Masons, 2; Clerks, 2; Surveyors, 2; Book Keepers, 2; Tailors, 2; Upholsterers, 2; Engineers, 2; Tobacconist, 1; Grocer, 1; Photographer, 1; Butcher, 1; Military Officer, 1; in all 1304.

The teachers record is even more gratifying; for we find that of these 1304 students 223 have been in our school the past term. More than 550 have paid tuition as the organic act permits, and have given no pledge to teach. Add these now in school to this number making 773, and subtract from 1304, and we have less than 531 who have received instruction under a promise to pay the State for it in services at a much higher rate than our trustees have charged.

But of these 19 are known to have died—a very small proportion.— Now we have authentic information concerning 682 who have taught our public schools; and without doubt there are some who have taught who have neglected to report themselves. We think such a statement is a proper refutation by the logic of facts to the oft-repeated assertion, that students educated in Normal schools do not fulfill their obligations voluntarily taken to teach if situations can be found with reasonable effort.

This is, however, not the most formidable objection made and repeated against Normal Schools. It is said in the first place that the course of study is not practical; and in the second place that it is not necessary for a teacher to be trained at all; indeed young persons taught in our common schools make better teachers, than those taught in Normal schools. It should be fully understood by this time at least and in this country that nothing so prepares for a specific work as honest labor in that work. It is this which made the old time apprenticeships so valuable in the trades as they are called, and then are still and undoubtedly will always be substantially insisted on as qualifications for business. A young man or young woman can never become a good teacher by simple study in school; and there may be a limit beyond which the pursuit of book learning alone will render the person timid and hesitating, or, on the contrary, will make him pedantic, or opinionated, theoretical and practically useless. No one pretends to deny that an education in a cloister unfits for public or practical business. A vast amount of speculative learning may render a man unwieldy in the ordinary duties of life, just as too much iron armor may render a ship of war clumsy and valueless. But how is a theory of any labor to be constructed which does not take into account that there is need of system and science in the minutest details, and a necessity for skilled labor in all professions and in all callings. As the work to be done increases in complexity and importance to the community so does a thorough knowledge of its laws increase. If it be said that genius will supply by a sort of instinct all the necessary tact to secure success as well as the knowledge of details required, the reply is very simple; there are not twenty thousand young men and young wo-

men of genius for the work of teaching in the State of Illinois. Nature has not supplied that number, and if she had done it, another answer is forcibly true, the plain commonsense workers can be taught by study and information to do better work than a genius can. The State has so hemmed in the teacher's calling by its restrictions of qualifications, reports, keeping of records, use of prescribed text books, and, in some measure methods of instruction as to hamper genius completely. Why has the public opinion justified these rules and restrictions and prescriptions? Because the men who have opened the work of schools have seen that they are a necessity. So many of the candidates for the teacher's place and profession have been found wanting in learning or in enthusiasm or in perseverance or in other essentials, that it has been decided almost unanimously to declare by law what teachers must know before hand, what they must do, and in some cases what they must not do. And in this way our school system has been growing into a very complicated affair, and it now demands many and varied qualifications in addition to genius to carry it forward. Two ways are open. The one to employ eminently skilled men to be overseers or superintendents, and less qualified persons to teach under them. The other to demand of all who enter certain qualifications antecedent and allow far more freedom to individual genius in the daily work of teaching. The superintendent's method would give to the common schools of a county one man or woman of superior ability and a hundred hired for simple cheapness and because they could blindly follow directions. The other will give to every rural district as well as to the high schools, teachers of considerable culture, of good character, and often of large enthusiasm and experience. When this latter idea, which is the plan largely adopted, is properly supplemented by thorough preparation in learning as the Normal school established by the State, proposes, it is seen at once how eminently reasonable is the system of the Normal. It diffuses the education best fitted to make teachers which the wisdom of practice has collected, and follows and enforces the system of examination, diligence and daily patience which the Legislator has found to be a necessity and has embodied in the law and commanded the citizens to enforce. The Normal School carries into a hundred remote districts the knowledge of the best methods of study and of communicating, and very much of information acquired at our school. But better than this it has brought together those who are to teach and has given to them acquaintance with others, and inspired them with a noble idea of the elevation of their work, and has made them far more enthusiastic in their duties.

But there is no occasion to urge this matter further. We have had additional reasons to know that our students are highly appreciated, in the fact that applications almost double any previous year have been made to us for teachers in the higher class of public schools. And we

rejoice to know that in most cases those whom we have recommended have given such proofs of ability to teach and govern as have become the best testimonials to the value and even the necessity of our school.

In conclusion I am happy to report the general faithfulness and efficiency of the several teachers. All have labored with great zeal and their success has been such that each one has justly merited and I believe enjoys, the confidence of the pupils under his care. I will not now particularize. They have all made reports of their departments which are herewith submitted.

The financial statement herewith transmitted shows very large items for Repairs and for Incidentals. The first has been owing to the work done on the roof and cornice. These were when built in many respects defective and can only be completely put in good condition by removing the sham iron cornice and substituting for it a stone or wooden structure. The stone would cost very largely. The wood is far preferable to what we now have in all respects save one—danger of fire. The work I think has been well repaired and will stand for several years. One thing may be said that from January till the storm of May 20 inst., we had no leaks from the roof or upper windows—a state of affairs very pleasant and never before known in our history.

Additions have been made to the Museum by some purchases and more by collections. These have now almost reached an amount which fills the room and will soon make it necessary to enlarge the cases and facilities for preserving the specimens. The library has been so far increased as to occupy nearly all the shelving and is becoming very useful to the students and faculty and to those who are making scientific researches.

Allow me to repeat, the year has been one of great labor on the part of the faculty and we think of earnest and careful study on the part of the students, and the signs of progress have seemed to multiply.

The faculty unanimously recommend the following students who have successfully completed the course of study prescribed by your By-Laws as proper and worthy candidates to receive diplomas, viz:

FOR DIPLOMAS IN CLASSICAL COURSE.

Henry A. Kimmell.
Wallace E. Mann.
Albert B. Ogle.
Frank P. Rentchler.
Charles E. Hull.

IN ENGLISH COURSE.

Lauren L. Bruck.
Joseph Gray.
Louis Heitman.
Lizzie M. Sheppard.
Gertrude A. Warder.

I remain very obediently your servant,

May 26, 1880.

ROBERT ALLYN, Principal.

Department of Latin and Greek.

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

DEAR SIR:—I have the honor to present herewith a summary of the classes and work in my department for the scholastic year 1879—80.

In the fall term the classes under my charge were as follows: Greek Rudiments—five members; Latin Elements, Section A.—nine members; Anabasis and Greek Grammar,—three members; the Aeneid of Virgil and Latin Grammar,—nine members; Caesar's Commentaries on the Gallic war, and Latin Grammar,—fourteen members; Latin Elements, Section B.—eighteen members.

In the Winter Term the classes advanced to the following: the class in Anabasis advanced to Memorabilia of Socrates; the class in the Commentaries of Caesar, advanced to Sallust's Catiline; the students in Virgil read the Orations of Cicero; the two classes in Latin Elements advanced to reading in Roman History and Latin Grammar; and the classes in Greek Rudiments passed to exercises in reading Greek Fables, Anecdotes, Mythology, Jests, Legends &c.

During the third term and at this writing, my classes are pursuing the studies in Anabasis and Greek Grammar, Homer's Iliad, Sallust's Catiline and Latin Grammar, Roman History and Latin Grammar.

During all the year I have had charge of one division of Section E, in Orthography, composed of thirty-two members.

It will appear from the above that there have been nineteen classes in this department during this scholastic year, comprising in the aggregate one hundred and ninety-six members. It gives 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 application, will fail to carry their work. The grades in most cases, from daily recitations and written examinations have been good. Some have been called home, and thus they have very materially interfered with the amount and progress of their class work.

The classical course embraces three years of the Latin and two years of the Greek. Five students will very honorably complete the full classical course, and three, will in like manner, finish the Latin.

The study of the Latin and the Greek is designed to aid in the preparation of teachers for the High schools of the State. The English language is, as is well known, a mixed tongue, embracing words from all the principal languages of the world. The Latin and Greek elements in our language are so numerous that they form the basis of not less than fifty thousand derivative words. They are so generally interwoven with the composition and etymology of English roots that a knowledge of them is absolutely indispensable to a thorough understanding of our own vernacular. The teacher of the English language

who is familiar with the historic and philologic etymology of the Latin and Greek, is all the better qualified for efficient work.

The method of presenting the lesson at each recitation looks to the practical. Each lesson is examined as to its etymology and grammatical structure. The aim is to cultivate at the same time accuracy in memory and judgment; 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 my duties of the school and recitation room, I have performed the labor of the Registrar of the Institution. I have carefully enrolled, in the aggregate, the names of seven hundred and eighty students, giving date of entrance, residence, parent's or guardian's name, date of birth, nativity, &c.; have collected all tuition and incidental fees, and have, on receipt, transferred the same to the Treasurer of the University; 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 the Registrar.

Respectfully Submitted.

CHARLES W. JEROME.

IV Higher Mathematics and Practical Pedagogics.

ROBERT ALLYN, L.L.D., *Principal Southern Illinois Normal University.*

DEAR SIR:—The following is a summary of the work in my department for the year 1879—80.

FALL TERM.

Elementary Algebra, E, one class	- - - - -	30 Members.
Higher Algebra, C, one class,	- - - - -	26 "
Elementary Geometry, B, one class,	- - - - -	18 "
Surveying, one class,	- - - - -	11 "
General Geometry, one class,	- - - - -	2 "
Practical Pedagogics, C, one class,	- - - - -	10 "

WINTER TERM.

Elementary Algebra, E, one class,	- - - - -	15 Members
Elementary Algebra, D, one class,	- - - - -	18 "
Higher Algebra, D, one class,	- - - - -	16 "
Elementary Geometry, A, one class,	- - - - -	12 "
Differential Calculus,	- - - - -	1 "
Practical Pedagogics, B, one class,	- - - - -	15 "

SPRING TERM.

Elementary Algebra, D, two classes,	- - - - -	16 Members
Higher Algebra, D, one class,	- - - - -	12 "
Trigonometry, one class,	- - - - -	11 "

Surveying, one class, - - - - -	10	"
Integral Calculus, - - - - -	1	"
Practical Pedagogics, A, one class, - - - - -	20	"
School Law, one class, - - - - -	21	"

Each of the classes in the foregoing statement continued one full term, except those in School Law, Trigonometry, and Surveying. The last two together made one class for one full term but reciting two hours each day, the labor of teaching them was quite equal to that for two classes and they have been so reported in the tabular statement.

To accommodate the pupils in the Elementary algebra, in the spring term, their books being different, two classes were carried on, one of which was quite successfully taught by Miss Mary Ida Buckley, who had completed our course in Higher Mathematics and Pedagogics.

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 Practical Pedagogics have done well. The time now given to that branch is sufficient to enable pupils to do easily and thoroughly all that is required of them in the study. The results for the year just closing are quite satisfactory.

At their meeting in September last, the Trustees entered into contract for new walks and required me to assume supervision of their construction. This I have done as fully as the care of a large number of classes, and a few other hindrances have permitted. A brief report of this part of my work has been submitted to the Board of Trustees.

In addition, the preparation for the planting of about two hundred and fifty trees was assigned to me and attended to in proper time.

Respectfully Submitted, JOHN HULL.

Department of Physics and Chemistry.

ROBERT ALLYN, L.L.D., *Principal Southern Illinois Normal University.*

DEAR SIR:—The following is my report for the school year just closed. The accompanying summary indicates the work done in classroom.

	FALL TERM.	No. Pupils enrolled.	No. Pupils passed.
B, Natural Philosophy	- - -	18	16

A, Natural Philosophy	-	-	-	25	20
Rhetoric	-	-	-	20	17
Analytical Chemistry	-	-	-	—	—

WINTER TERM.

B, Natural Philosophy	-	-	-	19	15
B, Chemistry	-	-	-	17	16
Logic	-	-	-	16	15
E, Grammar	-	-	-	24	18

SPRING TERM.

Geology	-	-	-	17	17
A, Natural Philosophy	-	-	-	18	14
Analytical Chemistry (two hours)	-	-	-	11	11

Besides the work indicated above; the records of attendance and spelling of the entire school have been in my charge. I have served as monitor in Normal Hall one hour each day; also in charge a part of General Exercise hour. Some attention has been given to taxidermy and the museum.

It will be noticed that no class in Analytical Chemistry was formed in the Fall term. A small class could have been organized, but on account of the expense of keeping the laboratory open and in working order it was thought advisable to defer that work till the Spring term.

By referring to the catalogue it will be noticed that a change has been made, giving the work in chemistry twenty-five weeks instead of twenty-one, which will undoubtedly be of great advantage to the class. During the year a commendable zeal has been exhibited, especially in the classes in Chemistry and Geology. The new book introduced in the Analytical work, has partly served its purpose. The work in Geology has been supplemented by some practice in the determination of minerals, with results highly gratifying. Our aim is to make the work as practical as possible. Putting the student at work with the material itself seldom fails to interest. The maxims of Horace Mann are verified every day both in the laboratory and in the department of physics. "What is seen is best understood. What is understood interests. What interests is remembered."

The subjects taught in my department are so extensive and inexhaustable, and the apparatus manufactured so complete, there is a great temptation to have what others have. But in this line our claims have been moderate and the lesson of making the most of what is at hand is taught daily. In fact this lesson of improving illustrations out of a meager supply of apparatus is many times of more value than a brilliant display with an expensive outfit. Possibly in the way of economy too much care has been exercised. The design has been to make the student familiar with the common chemical processes, and a good manipulator of apparatus, thereby better fitting him for the work of a teacher. This can be done without going beyond our province as a Normal School. You will pardon me if advantage is taken of this oc-

casion to mention some of the needs of the department. In the line of physical apparatus we are comfortably supplied. However, there is a want in the laboratory for a case for the purpose of protecting the chemicals from exposure and dust. Also a suitable place for exhibiting specimens of applied chemistry, such as paper in its several stages of preparation; the number of fertilizers for different crops, and various varieties of coal and other mineral deposits. Especially in the work of mineralogy do we need not only the specimens for class work but also a place to keep them without carrying them to and from the museum; which is so far removed from our place of work as to make it difficult to have the specimens needed just at hand.

Again should attention be called to the fact that the entire school is annoyed and the workers in the laboratory seriously affected by having no good escape for the noxious gases formed.

As a sanitary measure would I urge that provision be made at once for the erection of a hovel, which can be placed in the laboratory in connection with an old flue used in the former method of heating the building. This can be done at comparatively little expense and will add much to the comfort of all and much to the interest of those who are obliged to remain several hours in very impure air.

I might further state that the subject of optics could be made without much expense, much more interesting could we have a darkened room. For some years room No. 12 was used for that purpose; but it proved to be inconvenient each term to put it in proper order. Although my own room is an east room it could be so arranged as to answer. Therefore we urge that suitable curtains and other appliances be furnished said room for this purpose.

The degree of success that has attended the department of physics and chemistry in the past, warrants the assurance, that with the former experience and added facilities better results may be expected in the future.

Respectfully submitted,

D. B. PARKINSON.

Department of Literature and Elocution, Vocal Music and Calisthenics.

ROBERT ALLYN L.L.D., *Principal Southern Illinois Normal University.*

DEAR SIR:—I herewith submit my report for the year 1879—80.

FALL TERM.

Elocution, two classes, - -	Enrolled 39, Dropped 9, Passed 25
Reading A, - - - - -	" 30, " 4, " 18
Reading B, - - - - -	" 15, " 3, " 9
Reading C, - - - - -	" 14, " 1, " 8
Vocal Music - - - - -	" 50, " 6, " 24

SOUTHERN ILLINOIS

WINTER TERM.

English Literature, - - -	Enrolled 17,	Dropped 2,	Passed 14
Elocution, - - - - -	" 21,	" 6,	" 14
Reading A, - - - - -	" 27,	" 9,	" 12
Reading B, - - - - -	" 13,	" 1,	" 12
Reading C, - - - - -	" 15,	" 4,	" 11
Vocal Music, - - - - -	" 29,	" 3,	" 19

SPRING TERM.

English Literature - - -	Enrolled 15,	Dropped 1,	Passed 13
Elocution - - - - -	" 12,	" 3,	" 8
Reading A, - - - - -	" 27,	" 5,	" 20
Reading B, - - - - -	" 22,	" 7,	" 15
Vocal Music, - - - - -	" 28,	" 5,	" 18

In addition to the work of instructing the above classes I have, during two terms, had charge of the Normal Hall one hour a day and have continued to conduct the calisthenic exercises. Further than this, I have given private drill and instruction in higher Elocution to our students so far as I have been able. Certainly not less than one hundred hours of time outside of school hours have been thus devoted to pupils preparing for exhibition, contest, and commencement. My time has been so fully occupied with the routine duties of class instruction that I have been compelled to do less of this special work, so valuable to the advanced student than was needed.

I submit for your consideration the opinion that arrangement should be made for the special drill in higher elocution and oratory, of the members of the Senior class.

ENGLISH LITERATURE.

The first five weeks of the first term in Literature was devoted to American Authors, and the remaining term and a half to English Authors. The text book in use is "Shaw's Revised Outlines" which gives excellent satisfaction. Especial attention has been bestowed upon the remarkable periods and upon the great authors, and time was found for the reading by teacher and pupils of copious extracts from the best authors, and was most profitably spent. By this means interest was awakened and maintained and the love for good literature fostered and increased. The pupils in this delightful branch of learning have worked intelligently and faithfully, and have made commendable progress.

ELOCUTION AND READING.

As these differ but in degree repetition is avoided and brevity attained by including them under one heading.

It is a matter of regret to have to say that many of those who 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 expressions 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.

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 found a great aid. Breathing exercises have 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.

I am glad to say that better work has been done than in any other year and the progress of those under my tuition has been, in the main, satisfactory.

VOCAL MUSIC.

This branch has been raised to the dignity of a regular study and one term is devoted to it. The classes have been large and interesting. I have been occasionally assisted in the work of instruction by Miss Sarah Saul and Mr. Rajams. It has been my constant endeavor to so

teach the art of singing that the pupil will not only be able to sing from the score himself, but will know how to instruct others.

PHYSICAL CULTURE.

The time allotted to the calisthenic exercises does not exceed fifteen minutes a day and the cadets are relieved from all participation in these exercises.

The students enter heartily into the various movements, and their beneficial effects upon carriage, form and health, are too marked to admit of question.

It may be well to add that during the past year I have attended five teachers institutes in counties of Southern Illinois, and given between fifteen and twenty public readings in various parts of the State.

Very Respectfully yours,

JAS. H. BROWNLEE.

Department of Physiology and History.

ROBERT ALLYN, L.L.D., *Principal Southern Illinois Normal University.*

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

FALL TERM.					
Ancient History	-	-	-	-	15 pupils
Physiology (Normal Course)	-	-	-	-	21 "
U. S. History, Class A,	-	-	-	-	7 "
U. S. History, Class B,	-	-	-	-	44 "
WINTER TERM.					
Modern History	-	-	-	-	12 pupils
Physiology, (Preparatory Course)	-	-	-	-	24 "
U. S. History, Class B,	-	-	-	-	43 "
U. S. History, Class C,	-	-	-	-	42 "
SPRING TERM.					
Physiology, (Normal Course)	-	-	-	-	21 pupils
Physiology, (Preparatory Course)	-	-	-	-	22 "
U. S. History, Class A,	-	-	-	-	10 "
U. S. History, Class B,	-	-	-	-	35 "
U. S. History, Class C,	-	-	-	-	27 "
Total	-	-	-	-	323 "
Distributed by branches:—					
United States History	-	-	-	-	208 Pupils
Ancient History,	-	-	-	-	15 "
Modern History,	-	-	-	-	12 "
Physiology,	-	-	-	-	88 "
Total as before,	-	-	-	-	323 Pupils

During the past year, the classes in United States History have been unusually large and interesting.

The requirement that the study of Geography should keep pace with that of History has been constantly and rigidly observed and hence, the greatest attention has this year been paid to the drawing of sketch-maps (on both drawing-paper and blackboard) which would serve in any way to illustrate the campaign, and marches treated of in the text. With few exceptions all of these sketches were drawn by the pupils themselves. This constant attention on the part of the pupils to this work, I have found to be productive of very great good, serving as it does to impress on their minds, the location of every place mentioned in the text. And this by the law of the association of ideas more firmly fastening the events themselves on the memory.

Pupils have been required to commit to memory but few dates and these of the more prominent or important ones, but these with their corresponding events were expected to be thoroughly and accurately learned. It does seem to me that much precious time is often actually wasted in the attempt to commit to memory long lists of dates—time which might be devoted to better purposes but still generally some knowledge and in a few cases accurate knowledge of the location of an event in time is absolutely necessary to any one, who aspires to possess an ordinary understanding of what is taught in history and hence an attempt has been made in this department of occupying a middle ground. It is possible, I think to make judicious choice of fifty of the more prominent dates in the history of the United States, so disposed that they like mile-stones may serve to locate any event in time with sufficient accuracy, the pupil of course always knows between what two of these prominent dates such an event actually lies.

Students have been encouraged to seek outside the text book for many interesting facts not recorded therein and hence the many Encyclopedias, the larger works of Bancroft, Lossing, Barnes, &c., the special historical treatises of Draper, Greely and others which the large and excellent library of the University affords, have been diligently and constantly sought into for answers to many curious and interesting questions, propounded from time to time to the classes. It is to be regretted that many of the writers of text-books on history in the effort to make cheap books, leave out of them the instructing stories and episodes which give such flavor and interest to the larger works. It is indeed in the nature of things not to be expected that students will even become interested in the dry statement of events, and in the long array of dates which make up the bulk of most of our text-books in history. If by any means, the teacher can succeed in infusing into these dry details, the life and spirit of passing events students will be as interested in the branch as in any other in the whole curriculum of studies.

The classes in General History have this year been somewhat smaller than they were during the previous year. This branch not being one of those required by persons seeking teachers' certificates, few beside

those intending to graduate enter these classes, and yet hardly anyone will deny that a knowledge of both Ancient and Modern History would be of very great value to the teacher. Miss Emma Talheimer speaking of the value of Ancient History says: "If we look familiarly into the daily life of our fellow men thousands of years ago, it is to find them toiling at the same problems which perplex us; suffering the same conflict of passion and principle; failing it may be, for our warning, or winning for our encouragement; in any case reaching results which ought to prevent our repeating their mistakes. The national questions which fill our newspapers were discussed long ago in the Grove, the Agora and the Forum; the relative advantages of government by the many or by the few, were wrought out to a demonstration in the States and Colonies of Greece; and no man who can vote, no woman, whose influence may sway in the smallest degree, the destinies of our Republic, can afford to be ignorant of what has already been so wisely and fully accomplished."

In the classes in Anatomy and Physiology, the students have given this year very much attention to the dissection of animals. It needs not to be demonstrated that more can be learned of anatomy in a few minutes by the actual examinations of the organs themselves than by as many hours of the severest study of the descriptions and diagrams of text-books though as an aid to dissection, full and accurate description is not only important but necessary. Rabbits and other small animals, hearts, lungs, livers, kidneys, eyes and ears of sheep and oxen have been principally used. These have been given to the pupils themselves with directions as to what to find and how to find and the work so far has been productive of the very best results. Lately the dissection by the members of class of a few eyes of oxen and sheep with such accuracy that the delicate blood-vessels of both the Tunica vasculosa and of the Retina were disclosed to view elicited the most intense interest and it is likely that not one member of that class will ever forget what his own scalpel revealed to him.

For the primary classes excellent models of different portions of the human frame have been provided and have been in constant use throughout the year and these with three human skeletons, and parts and organs of the human body and of the lower animals, which have been collected and preserved in alcohol by Prof. G. H. French, make it a comparatively easy thing to interest and instruct those desiring a knowledge of the human frame.

In addition to my regular work in the class-room, I have taught throughout the year (a few weeks excepted) a class in spelling, and have as formerly attended to the duties of Librarian, in which latter work I have been ably assisted by Mr. Charles Hull, one of this year's graduating class.

Respectfully Submitted,

GRANVILLE F. FOSTER.

Department of Arithmetic and Astronomy.

ROBERT ALLYN L.L.D., *Principal Southern Illinois Normal University.*

The following is a summary of the work in my department for the year 1879 -80:

Number of classes,	-	-	-	-	-	17
Aggregate number of pupils in classes	-	-	-	-	-	464
First term,	-	-	-	-	-	161
Second term,	-	-	-	-	-	191
Third term,	-	-	-	-	-	121

About 75 per cent. were successful in their work. The character of the work is shown by the syllabus as published in the catalogue.

Besides the regular work in my department I have had charge of the spelling. In this work I have been ably assisted by Profs. Jerome, Parkinson, Foster, and Miss Candee, and a number of advanced Normal Students.

The whole work has been done in accordance with directions given by the principal. About one hundred words a week have been spelled. The lessons were all written. The words were not only required to be spelled correctly, but the true sound of each letter in the word was required to be learned, and the sound indicated by the use of Webster's Diacritical Works. Three sentences daily containing the words spelled were composed by the pupils.

Respectfully Submitted.

A. C. HILLMAN.

Department of Grammar and Book-keeping.

ROBERT ALLYN L.L.D., *Principal Southern Illinois Normal University.*

DEAR SIR;—The following is a summary of the work done in the department of Grammar and Book-Keeping, during the sixth year of our university:

FIRST TERM.

	Enrolled.	Passed.
Analysis,	19	15
B Grammar,	31	28
C Grammar, 1st Div.	30	27
C Grammar, 2nd Div.	23	20
A Book-Keeping	10	10
B Book-Keeping,	11	9
	124	109

SECOND TERM.

	Enrolled	Passed
B Grammar, 1st Div.	27	22
B Grammar, 2nd Div.	20	18
C Grammar, 1st Div.	24	18
C Grammar, 2nd Div.	21	18
A Book-Keeping,	9	8
B Book-Keeping,	13	13
	104	92

THIRD TERM.									
Analysis,	-	-	-	-	-	Enrolled	14	Passed	10
Grammar B, 1st Div.	-	-	-	-	-	"	24	"	15
Grammar B, 2nd Div.	-	-	-	-	-	"	20	"	10
Grammar C,	-	-	-	-	-	"	33	"	27
Grammar A,	-	-	-	-	-	"	15	"	12
Grammar D,	-	-	-	-	-	"	12	"	9
Book-Keeping,	-	-	-	-	-	"	13	"	8
							131		91
Total for the year.									
							369		292

From the above statement it will be seen that I have had six classes the first term, six the second term, and seven the third term, making in all nineteen classes. I have myself taught six hours each day of the first and third terms, and five during the last eight weeks of the second term, as for that time Professor Parkinsona relieved me of the division of Grammar C.

In A Book-Keeping Charles E. Hull did fine work the first term, and Joseph Gray in the B class of the same, as pupil assistants. H. W. Karraker did good work the second term in the same capacity in the Book-Keeping.

The third term E. L. Sprecher as pupil teacher of the D Grammar class. Having seven classes, I could not teach with him as I had done for those mentioned for the previous terms. I heard A grammar class three days each week, and spent the other two overseeing the work of Mr. Sprecher. He deserves commendation for his success.

Respectfully submitted,

M. Buck, Teacher.

Department of Geography and Elements of Language.

ROBERT ALLYN L.L.D., *Principal Southern Illinois Normal University.*

In the work of the department of Geography and Elements of Language assigned to me by the Trustees at their last meeting, my effort has been to awaken in the pupils under my care an intelligent interest in the studies they were pursuing.

By encouraging them to consult the various reference books provided for their use, and to bring to these classes information gathered in their reading, in addition to that afforded by the text-book, I have tried to aid them in forming habits of study and careful reading which will be of service to them throughout life.

In the Elements of Language I have endeavored not only to give the pupils a knowledge of the rules and principles of Etymology, but to make this practical in the correction of errors, in speaking and writing.

In the teacher's classes in Geo. by discussing the best methods of presenting different subjects, and by requiring the pupils frequently to conduct the recitation in their class, I have tried to aid in preparing them to become efficient and successful teachers.

I have spent in teaching six hours a day each term except the fall term. During that term the D class in Geography was taught by Mr. Philip Fager, who did very satisfactory work.

FAIL TERM.

A Geography,	-	-	Enrolled 14,	Dropped 0,	Passed 10
B Geography,	-	-	" 26,	" 2,	" 15
C Geography,	-	-	" 24,	" 6,	" 18
D Geography,	-	-	" 20,	" 4,	" 12
D Grammar, two classes,			" 68,	" 31,	" 38

WINTER TERM.

A Geography,	-	-	" 9,	" 0,	" 8
B Geography,	-	-	" 25,	" 4,	" 15
C Geography,	-	-	" 34,	" 5,	" 20
D Geography,	-	-	" 10,	" 3,	" 9
D Grammar, two classes,			" 69,	" 12,	" 38

SPRING TERM.

A Geography,	-	-	" 21,	" 6,	" 13
B Geography,	-	-	" 22,	" 3,	" 17
C Geography,	-	-	" 21	" 9,	" 8
Physical Geography,	-		" 13,	" 0,	" 13
D Grammar,	-	-	" 27,	" 7,	" 13
			302	74	247

Respectfully Submitted,

ESSIE C. FINLEY.

Department of Drawing and Penmanship.

ROBERT ALLYN L.L.D., *Principal Southern Illinois Normal University.*

DEAR SIR:—I beg leave to submit the following report of the work of this department, under my charge for the school year of 1879—80.

	Drawing.	Penmanship.
First term,	54	112
Second term,	28	90
Third term,	37	100

The pupils in drawing have manifested a remarkable interest in their work, considering the fact that the Trustees of the Institution have seen fit to exclude from the course, all that was purely artistic and ornamental, the part more attractive to the student. My endeavor has been to instruct in a complete free-hand course of drawing, such as should be taught by the regular teacher, from the Primary to the High

School; such a knowledge of this branch as is demanded of the teachers of public schools in many parts of our State and will be required in Southern Illinois when her school system is better established.

Seven pupils have completed this course of work, as requested by the Art Schools of our land. By patient and persevering effort this may be accomplished in one school year. Besides this work some of them have enlarged specimens for the use of classes in Zoology.

In the department of penmanship there has been a very laudable ambition to improve and as a consequence marked advancement has been observed, though but three or four have reached a degree of excellence sufficient to excuse them from this daily practice.

Respectfully Submitted,

JENNIE CANDEE.

Department of Natural History.

ROBERT ALLYN, L.L.D., *Principal Southern Illinois Normal University.*

DEAR SIR:—I beg leave to submit the following as my report of work done in the department of Natural History, during the year now near its close:

I have had charge of the following classes in Natural History; first classes in botany and zoology during the special session consisting of most of those who were members of the institute. The plan of work in recitation was similar to that of the preceding year, topics being given one day to be recited the next. No special text-books were used though those in use in the regular classes were preferred. As usual no class record was kept of these classes, but at the close of the session several were examined upon the studies for grades and passed. In addition to the work done during the hour of recitation practical work was encouraged outside of the recitation hours and with good results. This consisted in collecting and preparing various kinds of specimens of natural history for the cabinet and also analyzing in both botany and zoology.

During the fall term I had the regular class in primary zoology and a special class in advanced botany, with results as follows:

Elementary Zoology,	-	Number 10,	Left class 1,	Passed 9
Advanced Botany,	-	" 10,	" " 3,	" 7

In botany, Wood's Class Book is still in use. In zoology a little change has been made. Instead of using one book for both the elementary and advanced classes varying the work so as to adapt it as much as possible to the wants of the pupils, it was thought best to use two books, Tenny's small work—Natural History—was adopted for the elementary class; and Tenny's Principles of Zoology, a new work, for the advanced classes.

During the winter term I had only one class, Advanced Zoology. The number and condition of the class was as follows:

Advanced Zoology, - Number 26, Left class 0, Passed 26.

During the spring term I have had four classes, besides the two botany classes set down in the scheme of recitations for this term, I have also had two classes in zoology as follows:

Elementary Botany, - Number 30, Left class 6, Passed 24.

Advanced Botany, - " 31 " " 11, " 20.

Elementary Zoology, - " 14, " " 3, " 11

Advanced Zoology, - " 20, " " 6, " 14

There is so much call during the spring term for classes in natural history by those who have been teaching during the winter that classes in zoology as well as botany seem almost a necessity though it may be just as well to keep our scheme of recitations the same as now and make these special classes when there is a demand for them.

The increasing museum makes it possible to make the work in this department more efficient in illustration. In botany fresh specimens were used when they could be obtained, at other times those in the herbarium were used both for illustration and analysis. Our facilities for analytical work in zoology are better this year than they were last as we have obtained a half dozen Jordan's Manual Vertebrates and the tables of butterflies in Illinois which formed part of my report on work done in the museum last year. To further increase our facilities in this direction I have prepared as part of my work done in the Museum this year tables of the first three families of moths—Sphingidæ, Zygenidæ and Bombycidæ.

In addition to the regular class room work practical work has been encouraged during the year, as last year, and with good results. This has consisted, not so much this year, in collecting and putting up specimens, though some of that has been done, as it has in analyzing, learning to trace through the keys independent of a teacher. For this purpose fresh specimens were used in botany, but in zoology the duplicate specimens of birds, reptiles, fishes and insects of the museum were used.

Respectfully Submitted,

G. H. FRENCH.

Military Science and Tactics.

ROBERT ALLYN. L.L.D., *Principal Southern Illinois Normal University.*

SIR:—I have the honor respectfully to report that, for the collegiate year ending to-day the rolls of the cadet corps indicate that during the three terms one hundred and fifteen students have received instruction

in military science. The highest enrollment during any one month was eighty-six during October 1879.

The first term was devoted to drills in the school of the Soldier and Company by Cadet officers under my personal supervision and evolutions of the Battalion which I commanded assigning the effective force of the corps as three companies. In this organization at our annual public parade, inspection, review and exhibition drill the cadets acquitted themselves exceptionally well and called forth emphatic praise from experts present as witnesses. During the fall term four classes and during the winter term classes in military science made creditable progress notwithstanding the absence of any obligation by the rules of the school to reach any specified grade. In a series of bi-weekly lectures I compiled and epitomized a large amount of valuable information on the history of warfare, and military organization. Assuming man as a naturally aggressive being I traced the adoption and employment of accessory agent of offense and defense from the primitive sling, and club, the catapult, battering ram, &c., through all the stages of invention and improvement up to the present patterns of ordnance and small arms and the present methods of fortifying, laying and resisting siege. Hand in hand with this were given drills and lectures in field signalling and a description of the methods employed in various stages of the world's history for communication between the main army and detachments. Had it been made obligatory by the regulations of the University for cadets to take copious notes and be subjected "quizzing" for the establishment of a satisfactory grade the value of these lectures to them would have been manifold greater by compelling attention to matters that could not but have greatly benefitted them. I respectfully suggest in this connection that the time given by the cadets to military instruction be made to count in the permanent records of the school for or against them, according to their merits, as in the case of other branches. Thereby the most and least worthy will be in a position to realize their respective values from actual records which will also be a source of desirable information to their friends.

In conclusion I earnestly recommend that suitable shelter be provided for the two sections of artillery in use by the corps.

I have the honor to subscribe myself very respectfully,

Your Obedient Servant,

THO'S J. SPENCER, Capt. U. S. A. Prof. Mil. Science &c.

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 the work done in the Museum during the year now nearly closed.

BOTANY.

Near the close of last year I had received quite a large number of plants in exchange for those collected here and sent out. I have not collected so much in this department of natural history this year though this has not been neglected. Instead of collecting and making extensive exchanges as last year, I have spent the time set apart for botanical work in mounting the plants already received. I do not know just what number of the 2,000 species I reported last year as having, are now mounted and in the boxes, but know it is the greater part of them. Miss Jennie Clay, one of the students, has assisted me in this work by gumming some of the labels and plants to the papers. I have already made arrangements for further exchange next fall with one man for Northern Illinois and Vermont plants, and expect to make others.

CONCHOLOGY.

Besides plants mounted I have procured cards suitable and mounted about half, I should judge, of the shells belonging to the Museum. These are at present placed in some of the drawers of the insect cabinet where they can be kept very well till the space is wanted for insects, or the quantity mounted becomes so large that the surplus drawers will not hold them. Some suitable cabinet for the shells will be a necessity before long. As a means of increasing a cabinet of conchology, I have had a little correspondence with a conchologist in California to exchange some of our duplicate insects for shells. I think by thus using our duplicates of insects and plants a fine cabinet of shells may be obtained at about the expense of transportation.

ALCOHOL SPECIMENS.

In this department something is being done all the while as new specimens of some kind to be thus preserved are received every few days, and as fast as received they are labeled and put in place. Prof. Forbes of the State Museum of Natural History has promised us a set of the fishes of Illinois which will probably be received some time next fall. We have also here several kinds of California fruit, in alcohol, brought by Prof. Parkinson on his return last summer.

BIRDS.

A few birds have been put up from time to time all through the year, both for the sake of specimens for the Museum and for the purpose of teaching taxidermy to such of the students in natural history as desired instruction in it. Besides the work done by myself Prof. Par-

kinson has done some work of this kind. When the glass cases that occupy the floor of part of the room were made it was contemplated putting an addition on top of the central one. During the past year this has been done making a case of three shelves with glass doors and ends. The upper one of these shelves is to be used for birds and the other for minerals, many of both of which are already in place.

MINERALS AND FOSSILS.

Prof. Parkinson has during the last year taken charge of and arranged the minerals that have been received during the year, as well as made such changes as he thought best, with those on hand before. On this account I can not report in detail on all that has been done in these but will merely say that the finest part of the collection is the set of minerals brought by yourself from the Lake Superior Copper regions last summer.

Not a great deal has been done in fossils during the year. A few have been added to the collection from time to time. All the larger specimens can be conveniently arranged on shelves or the bottom of cases, but some more convenient method for arranging the small ones needs to be devised than the one now in use. Perhaps as good a method as any will be to place them in pasteboard boxes, with the labels, when they can be arranged in the case now containing them.

CONTRIBUTION.

I would take this opportunity to acknowledge our indebtedness to the following persons for the things placed after their names, received during the year. It is possible some have been overlooked in this enumeration, especially may this be the case with minerals, but our friends I hope, will understand that we are thankful for the specimens, and that the oversight was not intentional. We hope that our friends who may have or may find curiosities or other things valuable to the museum will continue to help us to make our collection a fit representative of the natural history, archeology, etc., of Southern Illinois.

Dr. Allyn, Plants from Lake Michigan, Minerals from copper region of Lake Superior, Reindeer Moss from Lake Superior, Rhinoceros Beetle, Black Rat (mounted), Silk wound from secretion of Maple Louse (*Lecanium Acericola*), Indian Mound relics, Sea Beans and large Marine Shells from Gulf of Mexico.

Miss Lula Haskell, Polyphemus Moth.

R. Tierney, *Smerinthus Juglandis*, *Nerice Bidentata*, 2 *Calocalae*, Luna larvae, several species of beetles, Imperial Moth larva, *Myrmelion Obsoletus*, *Nephelodes Violans*, 2 Sparrow Hawks, *Junonia Lavinia*, *Plusia Precationis*, and many others.

S. E. Harwood, Water Adder, Worm Snake, Common Garter Snake, Say's Garter Snake, Red Eve.

Prof. A. C. Hillman, *Danias* larvae.

Thomas E. North, Incrustations from Hot Springs, Ark.

- J. P. Jones, Sumner, Ill., Head of Tautog.
 Willie Bryden, Garter Snake.
 Dora Lipe, Fort Smith, Ark., Buffalo Clover, a Horse Tail Rush, Water Violet.
 John Marten, *Asplenium Pinnatifidum*, *Dryocampa* larvae, *Smerinthus* larvae, *Gaura Coccinea*, *Spiranthes Latifolia*, etc.
 Katie McCarthy, Rhinoceros Beetle.
 Wm. Gearing, Sumner, Ill., Little Brown Bat.
 A. W. Barber, Yankton, D. T., 41 specimens of shells.
 C. Lawrence, Royal Walnut Moth larva.
 W. P. Robinson, " " "
 C. Sheppard, " " "
 S. E. North, " " "
 John Sorrell, Makanda, Ill., White Heron.
 James Anderson, Larvae of Io moth and Hand Maid moth.
 Matilda Bird, larvae of *Asterias* butterfly.
 R. G. Sylvester, Ground Snake, *Pithecius chrysalis*, Calamite, *Cecropia* cocoon.
 D. B. Fager, *Catocala Nebulosa*, Large Spotted Salamander, *Cecropia* cocoon, etc.
 Mrs. J. Robertson, Large Staghorn Beetle.
 James Roberts, M. D., Blowing Viper, fossils, *Caesonia* butterfly, etc.
 Mrs. E. Robertson, Sphinx, and *Antiopa* larvae.
 Lou Saeppard, Five-Spotted Sphinx.
 C. Bernreuter, Nashville, Ill., Indian Pipe plant.
 Dallas Meisenheimer, " "
 Salla G. Booth, Sparta, Ill., " "
 S. Hewitt, White Line Sphinx, *Myops* Sphinx.
 Mrs. Kirkpatrick, Murphysboro, Ill., Sturgeon plates.
 Jennie B. Morrison, Odin, Ill., *Empretia* larva.
 George Brush, larvae of *Asterias* butterfly and several others.
 R. J. Fahs, Jerseyville, Ill., box of woods, minerals and fossils.
 Edwin Foster, *Tityrus* larvae.
 Mrs. A. B. Parmlee, Grand Tower, Ill., larva of *Amyntor* Sphinx, Zebra Pampas Grass.
 Dean Cline, *Arctia Rectilinea*, *Gryllus Abbreviatus*.
 Lillian Mitchell, a large spider.
 A. B. Parmlee, White-Line Sphinx larva.
 E. H. French, Summit Station, N. Y., Pickering's Tree Toad.
 J. K. Miller, Sparta, Ill., Pearl Millet, Garter Snake.
 Donaldson & Crowell, Double Crested Cormorant.
 Mrs. Wm A. Perce, Mocking Bird.
 Wm. A. Perce, several *Clytus Caprae*, *Polyphemus* cocoon.
 Adella Easley, Plainview, Ill., Crawfish.
 Henry Ingersoll, Indian arrow-head.

- Jennie Candee, Hair from the head of Miss Jane McCrea.
 John Poindexter and Benj. Brown, Royal Walnut Moth larvae in alcohol.
 J. M. Mercer, Lincoln Green, Ill., Indian Chunkey Stone.
 E. S. Glascock, Punk from hickory.
 W. R. Head, Chicago, Ill., *Sp. rifer Keokukii*, *Calymene Blumenhachii* and other fossils.
 A. B. Ogle, Belleville, Ill., *Polyphemus* cocoon.
 Sara Saul, Chester, Ill., *Selaginella Caesium*, *Eragrostes Capillaries*, *Cecropia* cocoon, Luna Moth, etc.
 S. North, Jr., *Cecropia* cocoon.
 E. Sweep, Chicago, Ill., Minerals from Roche Clare.
 E. J. Ingersoll, Indian Hide Scraper.
 George Eanison, Meadow Lark, Tent Caterpillers.
 Augustus Cline, *Cecropia* cocoon.
 Benjamin Laughlin, " " "
 S. Smith, Garter Snake.
 Robert Nairn, Marissa, Ill., Blow Snake.
 Rev. E. Palmer, Leeches.
 Prof. Cyrus Thomas, additions to the drawers in the insect cabinet of such orthoptera as he had to make our list more complete, also Mygale Spider.
 Prof. D. B. Parkinson, a number of kinds of fruit, sea shells, *Usnea* moss, botanical and other specimens from California, also a Blue Tailed Lizard with the tail double.
 S. C. Boad, Grand Tower, Ill., fossils from Chester.
 ————— Large horn of an old buffalo from Kansas, donor unknown.
 B. H. H., three specimens of wood from Jersey co.

INSECTS.

Collections of our local insects were made during the year in all the orders but more largely perhaps in the Lepidoptera. Large exchanges have been made with the duplicates of that order with Herman Strecker, of Reading, Pa., Adolph Conradi, Bethlenem, Pa., and J. Elwyn Bates, South Abington, Mass. The insects received from these parties were not alone insects from their localities but were from various parts of the United States as well as some from foreign countries. By these exchanges our collection in that order is about double what it was last year, and they are all but a few species in the families Pyralidae, Tortricidae and Tineidae named and arranged in the cabinet. Besides this I have named all but a few specimens of our collection of Coleoptera and have arranged and labelled all but a few species recently received, of our Orthoptera. John Marten, one of our students has taken up the study of the Diptera as a special study. During the winter term I worked with him one hour each day in naming the specimens in the cabinet belonging to that order, and he has done considera-

ble since beside some collecting so that more than half the species are now named. D. B. Fager, another student, has taken the order Neuroptera to work up in a similar manner, though beginning this term not so much has been done as with the Diptera. Besides this work done by these two for the mutual benefit of themselves and assistance to the museum, Misses Jennie Clay, Sarah Saul and Sallie Paul have assisted me in both insect and plant work during the year.

As was anticipated last year the tables of butterflies of Illinois were of great benefit to us in the zoology classes, so much so that I feel justified in adding to the report this year tables of the first three families of moths of Illinois; Sphingidae, Zygaenidae and Bombycidae. In doing this I want no one into whose hands this report may come to consider this in any sense a list of the insects of these families belonging to the State but rather to consider that my object is to enable the student in the class room to identify such insects belonging to these families as may come before the class for illustration in this part of zoology. I doubt not there are a number of species to be found in the State not represented in these tables, as I had no lists to go to and not very much other means of knowing what there is here aside from my own observation and what I know to occur in the same latitude. For this reason the student may occasionally find a specimen he can not trace for want of representation in the key. On the other hand I may have introduced some that are not found in the State, being guided by latitude and in a few instances by the presence of food plant. The last may be the case with some of the species found more commonly in the Southern States.

Before concluding I want to take this opportunity to acknowledge, with thanks, assistance in my insect work during the year from Wm. H. Edwards, Coalburgh, W. Va., Herman Strecker, Reading, Pa., and A. R. Grote, Buffalo, N. Y.

In classification, I last year followed Edward's Catalogue of Diurnal Lepidoptera. In these tables I depart a little from the plan of most of our American systematizers, as in the first family, for instance, the genera are almost as numerous as the species and the characters of distinction too obscure for convenient class room use. For this reason I have grouped together many of these genera and taken such characters as my experience teaches me the student will most readily recognize. It is probable the tables would be better if I had united a few more genera, as for instance, Limacodes and its allies, and perhaps others. This plan was suggested to me by Herman Strecker, though I have not followed his arrangement in all its details.

NOTE.—To indicate size I use the same terms I did last year; small those having an expanse of wing less than 1.25 inches; medium, from 1.25 inches to 2.25 inches; large, all above 2.25 inches. In the Sphingidae I have used the term moderate to designate those expanding about 2 inches.

ANALYTICAL TABLES OF THE MOTHS OF ILLINOIS.

Belonging to the Families, *Sphingidae*, *Zygaenidae*
and *Bombycidae*.

† Antennæ filiform, terminating in a knob or club.

BUTTERFLIES.

†† Antennæ variable, never terminating in a knob or club.

MOTHS.

TABLE OF FAMILIES.

1. Body stout, spindle shaped, or more slender in small species; head free, not sunk in thorax; antennæ usually prismatic, thickened in the middle; wings narrow, hind wings much shorter than fore wings.

Sphingidae A.

2. Size medium; head large, free; antennæ simple or pectinate, slightly enlarged in the middle or towards the end.

Zygaenidae B.

3. Body usually large, thick; head small and apparently sunken into the thorax; mouth parts usually small or obsolete; antennæ pectinate or simple, placed higher on the head than usual.

Bombycidae C.

4. Body thick, thorax and abdomen often with dorsal tufts, antennæ simple or only slightly pectinate, wings folded like a flat roof over the body in repose.

Noctuidae.

5. Body slender, scales fine; wings broad, thin, spread out in repose; antennæ pectinate or simple, palpi small.

Phalaenidae.

6. Palpi in most species very long and compressed, wings deltoid in repose, or in some folded round the body.

Pyrallidae.

7. Size below the medium; palpi very short, beak like; fore wings oblong, crossed by bands that are often metallic.

Tortricidae.

8. Size small, many minute; antennæ long, filiform; wings pointed, heavily fringed on posterior margin.

Tineidae.

9. Fore wings narrow, trifold or bifid, hind wings trifold.

Petrophoridae.

NOTE.—Only the first three families are represented in the following tables of genera and species, but brief characters of the others are inserted that one using this may decide whether a given moth may be found in the tables or not.

Errata for Tables of Moths.

- Page 26, line 11, for bobby read body.
Page 26, line 12, for prismatic read prismatic.
Page 26, line 34, for Petrophoridae read Pterophoridae.
Page 27, line 6, for tuft read tufted.
Page 27, line 35, for Sessia read Sesia.
Page 28, line 18, for Finkish read pinkish.
Page 28, line 27, for Limacocles read Limacodes.
Page 31, line 36, for paint read faint.
Page 32, line 22, for gtay read gray.
Page 32, line 23, for Hylaens read Hylaeus.
Page 32, line 39, for pale read pale.
Page 34, line 2, for Deidamla read Deidamia.
Page 34, line 26, for Color read color.
Page 34, line 31, for Tennis read Tenuis.
Page 35, line 18, for Lybomorpha read Lycomorpha.
Page 35, line 44, for Fgrrugineus read Ferruginosa.
Page 36, line 40, for Virginia read Virginica.
Page 37, line 11, for Tessellata read Tessellaris.
Page 38, line 23, for Angelica read Angelica.
Page 40, line 19, for F. read T.
Page 40, line 26, for Polyphumus read Polyphemus.
Page 40, line 28, for annulate read annulate.
Page 45, line 44, for *Manestra* read *Mamestra*.

TABLE OF GENERA.

A. GENERA OF SPHINGIDÆ

- A. Bodies robust.
  - a. Outer margin of fore wings entire.
  - b. Abdomen not tuft at tip.
    - c. Color gray, sometimes tinged with brown. Sphinx, 1.
    - cc. Color not gray.
      - d. Ground color reddish fawn or greenish.
        - e. Dark brown or dark green triangular patch each side of thorax. Philampelus, 2.
        - ee. No triangular patch on thorax. Darapsa, 3.
      - dd. Ground color grayish yellow, hind wings black at base Choerocampa, 4.
      - ddd. Ground color dark olive, light longitudinal stripe through the middle of fore wings, center of hind wings rose Deilephila, 5.
    - bb. Abdomen tufted at tip, color dark brown. Ællopos. 12.
  - aa. Outer margin of fore wings dentate or sinuate.
    - b. Abdomen not tufted at the tip, Smerinthus. 6.
    - bb. Abdomen tufted at the tip.
      - c. Wings not transparent.
        - d. Ground color of fore wings ashen, hind wings brownish red. Deidamia, 7.
        - dd. Ground color of fore wings pale yellowish green, hind wings orange, Pterogon, 8.
        - ddd. Ground color dark brown.
          - e. Hind wings sulphur yellow at base and on the costa, Thyreus, 9.
          - ee. Hind wings reddish on the costa, Amphion, 10.
          - eee. Costa of hind wings the same color as the rest of wing. Enyo, 11.
      - cc. Wings transparent, robust, MacroGLOSSA, 13.

- AA. Bodies slender, wings wholly or partly transparent.
  - a. Hind legs densely hairy, Melittia, 14.
  - aa. Hind legs not densely hairy, Sessia, 15.

B. GENERA OF ZYGÆNIDÆ

- A. Ground color black.
  - a. Wings with light spots.
    - b. Two white or yellow spots to each wing. Alypia, 16.
    - bb. One white or yellow spot to each wing. Psycomorpha, 17.
  - aa. Wings without spots, Ctenucha, 18.
- AA. Color of base of wings yellow, outer border black.
  - Lycomorpha, 19.
  - Eudryas, 20.
- AAA. Ground color white.

C. GENERA OF BOMBYCIDÆ

- *. With wings.

- A. Antennae simple, or at least only serrate.
- a. Body not pilose, the shoulder tufts distinct.
  - b. Abdomen without dorsal or lateral row of spots.
    - c. Hind wings red with outer border black.
    - d. Fore wings red marked with black.
      - e. Fore wings with two long and one short black line. *Hypoprepia*, 21.
      - ee. Center and outer end of fore wings black. *Cisthene*, 22.
      - d. Fore wings light ochre with white transverse bands containing black dots. *Utetheisa*, 24.
    - cc. Hind wings not red.
      - d. Color ochre, fore wings tawny. *Crocota*, 23.
      - dd. Color yellowish white, or hind wings ochre with fore wings paler and marked with brown. *Callimorpha*, 25.
  - bb. Abdomen ochre or pinkish with dorsal and lateral rows of black spots, or blue with yellow spots.
    - c. Abdomen ochre or pinkish. *Arctia*, 26.
    - cc. Abdomen blue. *Epantheria*, 27.
- aa. Thorax at least pilose so as to more or less obscure the shoulder tufts,—mostly females.
- b. Expanse of wings not more than 2.50 inches.
    - c. Hind wings brown or brownish yellow.
      - d. Fore wings brown, or yellowish brown, with,
        - e. One or more green spots. *Eulea*, 33.
        - ee. Posterior part yellowish, or with yellowish transverse line. *Limacocles*, 35.
        - eee. Four transverse brown lines. *Datana*, 42.
        - eeee. Two transverse brown lines. *Nadata*, 43.
      - dd. Fore wings dark ferruginous, two white spots near the apex. *Eupretia*, 36.
      - ddd. Fore wings green, outer margin and part of base brown. *Parasa*, 34.
      - dddd. Fore wings bluish, marked with yellowish brown. *Phobetrus*, 37.
    - cc. Hind wings gray, or white with outer border dark gray.
      - d. Hind wings more than two-thirds as long as fore wings, the latter rounded.
        - e. General color of fore wings gray, with,
          - f. Basal and central transverse brown lines. *Gluphisia*, 44.
          - ff. Brown through the center, edged posteriorly with white. *Nerice*, 45.
          - fff. White along the outer half of costa. *Edema*, 46.
        - cc. General color of fore wings brown, gray along the costa. *Ceclodasys*, 47.

- dd. Hind wings about two-thirds as long as fore wings, the latter elongated at apex, general color gray.
Heterocampa, 48.
- ccc. Hind wings, as well as fore wings, reddish ochre, or white and rose,
Dryocampa, 50.
- b. Expanse from 2.75 to 5 inches.
  - c. Color yellow, marked with brown,
Eacles, 51.
  - cc. Color, at least of fore wings, green, red along the veins, a few yellow spots.
Citheronia, 52.
  - ccc. Color of fore wings brown with a purplish tint, large eye-spot on hind wings,
Hyperchiria, 59.
- AA. Antennae distinctly pectinate,
  - a. Pectinate to the tips.
    - b. Body not pilose, shoulder tufts distinct.
      - c. Abdomen with black dorsal stripe or row of black spots.
        - d. With black markings on the wings.
          - e. Hind wings white, reddish or ochre, at least two black spots near outer border.
Arctia, 26.
          - ee. Hind wings white, not more than one black spot near outer border.
Spilosoma, 28.
          - dd. No black on the wings, color gray, or yellowish white.
Euchaetes, 29.
        - cc. No black on the abdomen.
          - d. Wings not gray,
            - e. Pure white or with a few black points on fore wings.
Spilosoma, 28.
            - ee. Some shade of ochre, with lighter or darker markings on fore wings,
Halesidota, 30.
          - dd. Fore wings at least gray,
            - e. Expanse about 1.25 inches, wings broad,
Orgyia, 31.
            - ee. Expanse 2.50 inches or more, wings narrow,
Xyleutes, 61.
    - b. Body pilose, shoulder tufts indistinct.
      - c. Size medium, expanse not above 2 inches.
        - d. Wings opaque, general color not gray,
          - e. Yellowish white, dark on basal half of fore wings.
Lagoa, 32
          - ee. Pale ash red with minute black points, an oblique fus-cous line bent backward near the apex,
Perophora, 39.
        - ccc. Brown or yellowish brown,
          - f. Expanse about 1 inch.
            - g. Hind wings yellow, or brown with golden luster,
Limacodes, 35.

- gg. Hind wings brown, slightly reddish, fore wings with white or brown transverse lines, Clisocampa, 53.
- ff. Expanse from 1.50 to 2 inches.
  - g. Fore wings with 3 or 4 transverse brown lines, Datana, 42.
  - gg. Fore wings with 2 transverse brown lines, Nadana, 43.
- dd. Wings opaque, general color gray.
  - e. Wings dentate, fore wings angled below the apex, Apatelodes, 40.
  - ee. Wings not dentate.
    - f. Hind wings more than two-thirds as long as fore wings the latter rounded.
      - g. Fore wings with base and central brown lines. Gluphisia, 44.
      - gg. Fore wings brown through the middle, edged posteriorly with white, Nerice, 45.
      - ggg. Fore wing with 3 transverse white lines and 2 brown shades. Ichthyura, 41.
      - gggg. Fore wings white along the outer half of costa. Edema, 46.
      - ggggg. Veins, outer margin, central shade and thorax white. Tolyte, 54.
    - ff. Hind wings about two-thirds as long as fore wings, pale orange spots on fore wings and thorax, Cerura, 49.
- ddd. Wings transparent, body black. Tayridopteryx, 33.
- cc. Size large, expanse more than 2 inches.
  - d. With transparent eyespots near the middle of both wings.
    - e. Green, hind wings tailed, Actias, 55.
    - ee. Russety ochre or russety ferruginous, Telea, 56.
  - dd. Eye spots near the tips of the fore wings, spots in the center opaque.
    - e. Abdomen not ringed with red and white, Attacus, 57.
    - ee. Abdomen ringed with red and white, Samia, 58.
  - ddd. Hind wings with large eyespots in center, Hyperchiria, 59.
  - dddd. No eyespots, wings black with white band through the center containing black spots, Eucronia, 60.
- aa. Antennae not pectinate to the tips, the apical half or third simple.
  - b. Size medium, expanse less than 2 inches.
    - c. Fore wings with green in the center, other parts brown.
      - d. One or more green spots, Euclea, 33.

- dd. Whole middle of wing green from costa to posterior margin,
Parasa, 34.
- cc. Fore wings gray or grayish brown,
  - d. Light gray along the costa, Coelodasys, 47.
  - dd. Oblique light dash near the apex, or uniform gray.
Heterocampa, 48.
  - ddd. Fore wings brownish ferruginous, or rose and white,
often partly transparent, Dryocampa, 50.
- bb. Size large, expanse more than 3 inches.
  - c. Yellow with brown markings. Eacles, 51.
  - cc. Green, red along the veins with a few yellow spots.
Citheronia, 52.

** Without wings, females.

- A. Color gray, having rudiments of wings and weak legs,
Orgyia, 31.
- AA. Color yellowish, no rudiments of wings and without legs,
Thyridopteryx, 38.

TABLE OF SPECIES.

SPHINGIDÆ.

1. *Sphinx*.

Size from very large to moderate; body long, tapering, not tufted at the end; wings entire; color gray, sometimes marked with brown, or tinged with yellowish brown.

- A. Sides of abdomen with yellow spots, black between the segments.
  - a. Yellow spots large, hind wings with 5 transverse black lines.
  - b. Third and fourth lines from the base distinct. S. Celeus.
  - bb. Third and fourth lines, and often the first and second, blended
a white spot at base of fore wings. S. Carolina.
  - aa. Yellow spots small, fore wings crossed by two broad light bands
which unite behind. S. Rustica.
- AA. Sides of abdomen black, light between the segments.
  - a. Hind wings with two distinct black lines.
  - b. Fore wings nearly uniform gray, containing 4 or more oblique
black lines, the last reaching the apex, S. Chersis.
  - bb. Color more or less brownish gray,
    - c. First line from the base on hind wings paint, second broad
and heavy, S. Luscitiosa.
    - cc. First line of hind wings distinct.
    - d. Fore wings light brownish gray, S. Kalmiae.
    - dd. Fore wings dark brownish gray, clearer through the middle
from the base to apex, S. Gordins.
    - ddd. Dark brownish gray, paler along the costa, several
black intervenular lines, line in middle of hind
wings somewhat double, S. Amyntor.

- aa. Hind wings evidently with two lines but these indistinct on account of the general black color.
- b. Fore wings pale gray with white lunate stigma and oblique black mark from middle of costa to near the posterior angle,
S. Jasminearum.
- bb. Fore wings gray, no stigma, 6 black oblique marks.
S. Plebeia.
- bbb. Fore wings drab gray, crossed by 3 double lines of slightly darker shade, black subapical line,
S. Catalpae.
- aaa. Three black lines on hind wings.
- b. Median line single.
- c. Fore wings with distinct transverse lines, rather pale.
- d. Transverse lines in two pairs, light and dark lines on hind wings distinct,
S. Lugens.
- dd. Transverse lines in three pairs, light and dark lines of hind wings rather indistinct,
S. Undulosa.
- cc. Fore wings without transverse lines but having black inter-venular marks.
- d. Expanse less than 3 inches,
S. Eremitus.
- dd. Expanse 3.50 inches,
S. Plota.
- bb. Median line appearing somewhat double, color dark brownish gray, fore wings with more or less distinct transverse lines of white spots.
S. Hylaens.
- aaaa. Hind wings black, without lines but lighter at the base.
- b. Fore wings gray with distinct subterminal line from which two black dashes extend inward near the hind margin.
S. Coniferarum.
- bb. Fore wings pale gray with several black and brown transverse lines.
- c. Rather dark, only a little of the base of hind wings pale,
S. Harrisii.
- cc. Light, space within subterminal line nearly white, nearly half of hind wings pale,
S. Bombycoides.

NOTE:—Sphinx Celeus, is usually called S. Quinquemaculata, or by more modern scientists that and S. Carolina are placed in the genus *Macrosila*.

2. *Philampelus*.

Large insects shaped very much like Sphinx; antennae long, slender, tapering at the extremity into an ample hook with seta; color pale green or rosy fawn with large triangular dark patches each side of thorax and other dark patches on the wings.

- a. Color rosy fawn
P. Achemon.
- aa. Color pale green
P. Pandorus.

3 *Darapsa*.

Size moderate, body rather slender and tapering; head small, narrow, almost sessile; antennae slender, ample hook without seta; color of hind wings ferruginous.

- a. Fore wings green, marked with lighter transverse lines and shades, D. Versicolor.
- a1. Fore wings brownish red, marked with, D. Myron.
- b. Transverse shades of olive green, D. Choerilus.
- bb. Transverse shades of brown,

4. *Choerocampa*.

Size moderate, body long, tapering; antennae tapering suddenly in a short hook and seta; color of fore wings russet with longitudinal darker lines, hind wings black with submarginal row of yellow spots, C. Tersa.

5 *Deilephila*.

Body stout, thick; antennae somewhat clavate, terminating suddenly in a minute hook and seta; fore wings dark olive with longitudinal pale stripe, hind wings rose in center

- a. Stripe of fore wings entire, D. Lineata.
- aa. Stripe of fore wings sinuate, D. Gallii.

6. *Smerinthus*.

Size moderate or large; head small, sessile, eyes small, scarcely visible from above; outer margin of fore wings dentate or sinuate, hind margin excavated before posterior angle.

- a. Hind wings without eyespots, general color pale dusky gray.
- b. Nearly uniform gray with shades of darker, S. Juglandis.
- bb. Basal third of fore wings pale gray, hind wings dusky rose with bluish gray anal patch preceded by a black line. S. Modesta.
- aa. Hind wings with eyespots, general color of fore wings brown or brownish.
- b. Blue ocellus single.
- c. General color of hind wings rose, S. Excaecatus.
- cc. Ground color of hind wings yellow.
- d. Base of fore wings brown, S. Myops.
- dd. Base of fore wings yellow, blue patch along outer half of hind margin, S. Astylus.
- bb. Blue ocellus double, fore wings gray with brown shades, hind wings rose, S. Geminatus.

7. *Deidamia*.

Size moderate; head small, sessile, abdomen slightly tufted at the tip; outer margin of fore wings angulated in middle, truncate at tip; general color of fore wings ashen, hind wings reddish brown, the first crossed by a number of brown bands. D. Inscripta.

8. *Pterogon*.

Size and body similar to *Deidamia*, general color of fore wings pale yellowish green with dark brown shades and marks, hind wings orange,

P. *Gaurae*.

9. *Thyreus*.

Body obtuse, broad and stout, abdomen a little more than one and a half times as long as the thorax, tufted at tip and sides; fore wings angled and dentate; color dark brownish gray, the anterior part and base of hind wings sulphur yellow,

T. *Abbotii*.

10. *Amphion*.

Size below the moderate; body short, robust, large tufts at the end; head large, dark brown, fore wings dentate anterior part and base of hind wings brown sh red.

A. *Nessus*.

11. *Enyo*.

Size moderate; body tapering, tufted; head large, eyes very prominent; fore wings dentate; dark brown with a grayish tinge, fore wings with a central light transverse line and a small brown ocellus,

E. *Lugubris*.

12. *Ællopos*

Size moderate; body not tapering, tufted, head broad; fore wings entire, dark brown, two faint light lines across the fore wings and one across the abdomen

Æ. *Titan*.

13. *Macroglossa*.

Size not above moderate; body robust, short, tufted; head large, antennæ somewhat clavate, wings transparent, outer margin entire.

a. Ground Color brownish red.

M. *Thyiste*.

aa. Ground color dark brown thorax yellow.

b. Dorsum of thorax brown.

M. *Diffinis*.

bb. Dorsum of thorax olivaceous.

c. Inner edge of outer border of fore wings entire.

M. *Tennis*.

cc. Inner edge of outer border dentate.

M. *Axillaris*.

14. *Melittia*.

Size small, body moderately robust, hind wings and base of fore wings transparent, hind legs thickly covered with hair which are red near the body and rest black; color black, wings golden black.

M. *Cucurbitae*.

15. *Sesia*.

Size from medium to small; body slender, black, often banded with light; hind wings, and often the fore wings, transparent.

a. Fore wings opaque.

S. *Exitiosa*, female.

aa. Fore wings transparent.

b. Opaque part of wings steel black,

S. *Exitiosa*, male.

bb. Opaque part of wings yellow or yellowish black.

- c. Abdominal tufts black, three yellow abdominal bands, the last at base of tufts, S. Tipuliformis.
cc. Abdominal tufts reddish orange, S. Acerni.

ZYGAENIDAE.

16. *Alypia*.

Size medium, black, shoulder coverts and two large spots in each fore wing pale yellow, two spots in each hind wing white,

A. Octomaculata.

17. *Psycomorpha*.

Size small, black, one irregular lunate patch to each wing, those on the fore wings white, those on the hind wings orange,

P. Epimenis.

18. *Ctenucha*.

Size medium; color black, the collar orange, abdomen steel blue, antennae pectinate wings rather narrow.

a. Hind wings transparent in the center, C. Fulvicollis.

aa. Hind wings not transparent in center, C. Virginica.

19. *Lybomorpha*.

Size medium, wings rather narrow, body black, base of wings yellow outer portion black,

L. Pholus.

20. *Eudryas*.

Size medium, fore wings and shoulder coverts white, hind wings pale ochre; dark reddish brown border extending round the hind and outer margin of fore wings and basal half of costa, and part at least of outer margin of hind wings, edged internally with green on fore wings.

a. Border of hind wings extending from anal angle to apex.

E. Unio.

aa. Border extending half way to apex,

E. Grata.

BOMBYCIDAE.

21. *Hypoprepia*.

Size small, fore wing rather narrow; hind wings red with black border, fore wings wholly or partly red, two long and one short black stripes.

a. Basal two-thirds of fore wings yellow, outer red, H. Fuscata.

aa. No yellow on fore wings, H. Miniata.

22. *Cisthene*.

Size small, hind wings red with black border, fore wings with broad black stripe through center, filling the whole of the outer border but with large indentation near apex and posterior angle. The rest of wing reddish, or with part of posterior margin black,

C. Subjecta.

23. *Crocota*.

Size small, wings moderately broad, color ochre, fore wings somewhat tawny.

a. Only a black spot at anal angle of hind wings, C. Ferruginous.

aa. Hind wings with outer border of black spots, C. Rubicundaria.

24. *Utetheisa*.

Size medium, fore wings buff crossed by several white bands containing black dots, hind wings pink with outer border of black.

U. Bella.

25. *Callimorpha*

Size medium; wings ample; antennae simple in both sexes, ciliated two strong setae at each joint; abdomen concolorous with the hind wings.

a. Wings white costal margin yellowish, C. Lecontei.

aa. Hind wings ochre yellow.

b. Fore wings yellow, margined with brown, which is interrupted at posterior angle and apex, C. Interrupto-marginata.

bb. Fore wings pale yellow, margined with brown and having a network of brown near the apex, C. Clymene.

26. *Arctia*.

Size medium; stature robust; antennae slender, rather long, simple or pectinate; hind tibiae with four spurs, fore tibiae simple; abdomen with dorsal and lateral row of black spots which are sometimes blended into stripes.

a. Ground color of fore wings black and of hind wings red, fore wings marked by longitudinal and transverse carneous lines, the outer of which makes an M at the end of wing.

b. Hind wings bright red.

c. Two transverse lines on fore wings besides the M.

d. Transverse lines at base of the M bent, A. Virgo.

dd. Transverse line at base of the M straight,

A. Rectilinea.

cc. Only one short line at base of M, A. Nais.

bb. Hind wings pale flesh color, the black of fore wings in small angular spots, A. Arge.

aa. Ground color ochre, A. Isabella.

aaa. Ground color white, hind wings of male ochre. A. Acraea.

27. *Epantheria*.

Size large, body robust, abdomen blue with rows of yellow spots, wings white, the fore wings thickly spotted with black rings.

E. Scribonia.

28. *Spilosoma*.

Small or medium, abdomen yellow, with white at the ends and rows of black and white spots, or white without spots, wings white with one black spot to each wing, or without any.

a. Abdomen yellow with spots, S. Virginica.

aa. Abdomen white, small, S. Textor.

29. *Euchaetes*.

Size medium; abdomen yellow with rows of black spots; antennae pectinate, color gray or yellowish white.

- a. Ground color drab gray, no marks on wings, E. Eggle.
- aa. Ground color yellowish white,
  - b. No marks on wings, head yellowish, E. Oregonensis.
  - bb. Costa of fore wings and prothorax yellow, E. Collaris.

30. *Halesidota*.

Size medium, body stout, wing long, abdomen extending about a third of its length beyond the hind wings.

- a. Ground color ochre,
  - b. Very pale, fore wings crossed by several rows of contiguous darker blotches which, with the shoulder tufts, are edged with green, H. Tessellata.
  - bb. Moderately dark, fore wings crossed by several rows of brown contiguous blotches, H. Maculata.
- aa. Ground color brownish yellow, fore wings with several rows of white spots, H. Caryae.

31. *Orgyia*.

Size small, female wingless, wings of male ample, and antennae heavily pectinate; color gray with more or less of brown.

- a. A white crescent near the posterior angle of fore wings, C. Leucostigma,
- aa. Fore wings paler with numerous whitish patches so that the white crescent is not prominent, O. Leucographa.

32. *Lagoa*.

Size from small to medium; body short, stout, very pilose; antennae pectinate; fore wings wooly, especially on the basal half, costa and base of fore wings dark,

- a. White tinged with yellow, expanse a little more than one inch. L. Crispata.
- aa. Pale yellow, expanse 1.50 inches or more, L. Opercularis.

33. *Euclea*.

Size small, body rather stout, pilose, antennae pectinate, wings moderately broad, outer margin rounded; color brown, fore wings with one or more central green patches.

- a. Fore wings with one central green patch indented on posterior side, E. Paenulata.
- aa. Fore wings with two green spots,
  - b. Posterior spot longitudinal, deeply indented behind, E. Querciti.
  - bb. Posterior spot triangular, E. Quercicola.

34. *Parasa*.

Structure the same as Euclea, Fore wings green, outer border and costal patch at base brown, P. Chloris.

35. *Limacodes*.

Structure similar to Euclea except that the female antennae are simple, color brown or yellowish brown.

- a. Posterior and outer border of fore wings yellow. L. Scapha.
 aa. A white irregular transverse line beyond the middle of fore wings. L. Fascicola.

36. *Empretia*.

Structure similar to *Limacodes*, the female antennae being simple; fore wings dark ferruginous with two small white subapical spots,
 E. Stimulea.

37. *Phobetron*.

Structure as in the last; forewings bluish, more or less clouded with dusky, transverse wavy bands of yellowish brown; hind wings brown,
 P. Pithecium.

38. *Thyridopteryx*.

Female wingless; male wings transparent, expanding about an inch, body black or dark brown,
 T. Ephemeraeformis.

39. *Perophora*.

Body stout, thickly clothed with short hairs, antennae pectinate; wings rather long, pale ash red with minute black points, a dark brown oblique stripe bent backward before the apex,
 P. Melsheimerii.

40. *Apatelodes*.

Size medium, body robust, antennae pectinate, wings dentate, fore wings angled, and apex pointed. Color gray with two dark transverse lines, a subterminal row of light spots and two subapical white spots,
 A. Angelica.

41. *Ichthyura*.

Size medium, body long, the abdomen extending one third of its length beyond the hind wings, color ashen, fore wings with three obscure white transverse lines, two oblique brown shades and a yellow or reddish subapical patch,
 I. Inclusa.

42. *Datana*.

Size medium; body rather stout, abdomen longer than hind wings; male antennae pectinate, female simple; color brown or yellowish brown, fore wings with four or five transverse brown lines, thorax dark brown,
 D. Ministra.

43. *Nadata*.

Color and characters similar to 'Datana.' Two transverse lines to fore wings, thorax not dark brown,
 N. Gibbosa.

44. *Gluphisia*.

Size small, body moderately robust, abdomen but little longer than hind wings, antennae pectinate; color gray, the fore wings with a brown line at the base and one near the middle, bordered each side by light with rudiments of a third line.
 G. Trilineata.

45. *Nerice*.

Size medium; thorax tufted, antennae pectinate; color gray, fore wings with broad brown space through the center edged posteriorly

with white, two teeth extending back on posterior side shading out into the gray. N. Bidentata.

46. *Eidema*.

Size medium; body rather large, abdomen longer than hind wings; male antennae pectinate, female simple; color gray, white along outer half of costa, E. Albifrons.

47. *Coelodasys*.

Size medium; body only moderately robust abdomen extending one third its length beyond the hind wings; color brownish gray, dark through the middle of fore wings with a light stigma and costal and posterior margins, hind wings light with brownish inner and outer edges. C. Cinereofrons.

48. *Heterocampa*.

Size medium; body moderately robust, abdomen extending a third of its length beyond the hind wings, basal three-fourths of male antennae pectinate, female simple; fore tibiae dilated; general color gray.

- a. Fore wings bright ash gray marked with brown or greenish.
- b. Basal and posterior part of fore wings marked with black and shaded with green, H. Pulverea.
- bb. Basal and posterior part of fore wings gray; an oblique white mark near the apex, shaded behind with brown. H. Obliqua.
- aa. Dull gray without marks. H. Marina.

49. *Cerura*.

Size medium; antennae pectinate, a delicate gray moth, fore wings crossed by rows of orange and black dots on the veins, hind wings white with outer border of black dots, C. Borealis.

50. *Dryocampa*.

Size medium; body stout, densely pilose; antennae shorter than thorax, male pectinate more than half its length, female simple.

- a. Body ochre yellow, fore wings with one white stigmatal spot and oblique purple line.
- b. General color reddish ochre, purplish on outer border, D. Stigma.
- bb. General color ochre, faintly tinged with purplish red, fore wings of male partly transparent, D. Senatoria
- bbb. Fore wings purplish brown, male with large transparent space in the fore wings, D. Pellucida.
- aa. Body brownish gray with ochraceous tinge on the thorax and fore wings, two white stigmated marks, hind wings crimson, D. Bicolor.
- aaa. Body straw color, fore wings rose with white oblique band. D. Rubicunda.

51. *Eacles*.

Size large; body large stout; female antennae simple, male pectinate two-thirds of its length; wings ample, color yellow with oblique purple stripe to each wing and many other purple spots.

E. Imperialis.

52. *Cithèronia*.

Structure similar to *Eacles*. Color of fore wings dark green, veins red, with six or more yellow spots.

C. Regalis.

53. *Clisiocampa*.

Size from small to medium; body robust, densely pilose; wings ample, rounded at the ends; antennae pectinate;—color brown. Our tent caterpillar moths.

a. Fore wings with two transverse yellowish white lines.

C. Americana.

aa. Fore wings with two brown transverse lines.

C. Disstria.

54. *Tolyte*.

Size medium; structure similar to *Clisiocampa*, color gray; the ax, veins, terminal, subterminal, and basal lines, and band across wings white,

F. Velleda.

55. *Actias*.

Size large, wings green, costa and outer margin dark purple, discal transparent eyespot to each wing, hind wings with long tails. A Luna

56. *Telea*.

Size large, color russety ochre or russety ferruginous, transparent discal eyespots to each wing, circled with yellow, blue and black, the latter very prominent on hind wings.

T. Polyphamus.

57. *Attacus*.

Size large, antennae deeply pectinate, abdomen not annulate with white and reddish fulvous apex of fore wings rounded but somewhat produced, an eyespot near the apex, usually a discal lunate or angular spot.

a. Ground color dusky greenish yellow, or olive, A. Cynthia.

aa. Ground color brown, or reddish brown, outer margin drab.

b. Submarginal row of spots on the hind wings oblong,

A. Promethea.

bb. Submarginal row of spots on the hind wings crescent shaped especially those near the anal angle,

A. Angulifera.

58. *Samia*.

Our largest moth. Body reddish fulvous, abdomen banded with white, wings grizzled dusky brown, margin clay yellow with subapical eyespot, discal spots lunate,

S. Cecropia.

59. *Hyperchiria*.

Size large; body robust; male antennae pectinate, female simple; females purplish brown, males yellow, a large eyespot in a yellow field

on each hind wing.

H. Io.

60 *Eucronia*.

Antennae pectinate; black, tip of the abdomen red, each wing with a broad white transverse band, containing a black discal spot, the wings not thickly clothed with scales.

E. Maia.

61. *Xyleutes*.

Size large; body robust, antennae moderately pectinate; wings rather narrow, the fore wings much longer than hind wings and outer margin oblique, fore wings gray with a network of black lines, hind wings of male yellow with a black base, female gray.

X. Robiniae.

Poison Bottle.

I have so many calls for a method of preparing this that I can perhaps do no better than before closing add a brief description of the process. First, into a large mouthed bottle put several pieces of cyanide of potassium, the quantity depending upon the size of the bottle, and pour in water to the depth of about half an inch. Next, put plaster of Paris slowly into the bottle until all the water is taken up and you have a solid cake in the bottom of the bottle with some dry plaster on top of the cake. Tip the bottle on its side and turn it till the dry plaster has taken up all the moisture round the sides of the bottle. After this wipe the insides of the bottle from the mouth to the cake with a dry cloth, turn out the plaster and wipe again and cork the bottle when it is ready for use.

Those working in insects will find it convenient to have several of these bottles, one for killing in and one or more to which they may be transferred after they are dead, especially if the insects captured belong to the order Lepidoptera, otherwise they will become mussed and worthless. Lepidoptera should remain in the bottle from twelve to twenty-four hours before spreading that they may be relaxed from that after-death stiffness which renders it difficult to spread them soon after they are taken without injury.

New Insects, etc

In order to get perfect specimens of some of our insects, especially in quantities desirable, it is necessary to rear them from the larvae or eggs. During the past year I have reared a large number of several kinds for that purpose, several hundred of which I wintered over in the chrysalis state. In doing this I have sometimes found larvae that I have been unable to find described in any books to which I have had access, as well as reared parasites that were important as they destroyed injurious insects. Two of these parasites, small hymenopterous insects, were found to be new to science and were described in the Canadian Entomologist, Vol. 12, page 42, as follows:

Microgaster Utilis, French.

Length .11 of an inch. Head, thorax and abdomen of the males uniform black, the females the same with the exception that the under side of the second and third basal joints of the abdomen are tawny. Antennae fuscous, somewhat rufous at base. Legs and feet tawny, rather pale, the knees of the hind pair dusky, the most so in the male. Wings hyaline; costa, stigma and veins fuscous except the two veins extending from the substigmatal cells to the outer margin, which are hyaline. Ovipositor partially exerted. All parts of the body, wings and antennae, moderately covered with a very short whitish pubescence, to be seen on the wings only with the aid of the microscope.

The cocoons are compact, except a little loose silk around the outside usually only partially surrounding the dense portion. When spun the most of them are detached from the caterpillar in which the larvae have been parasites, and they are not placed together in any regular order.

This description was taken from eleven males and four females reared from a larva of 'Sphinx Carolina,' and five males and seven females reared from a larva of a species 'Leucania.'

Macrocentus Iridescentis, French.

Length .13 of an inch. Head piceous, the mouth parts, including the clypeus, tawny; antennae rufo-cinereous, the basal joint yellowish. Thorax light rufous, darkest on posterior part, paler beneath. Wings hyaline with strong iridescence, the veins costa and stigma fuscous. Feet and legs straw color, the last tarsi of hind feet a little darker. Abdomen rather slender, rufo piceous, under side of middle joints slightly tawny. Ovipositor not exerted. Under the microscope a fine grayish pubescence is seen on all parts of the insect, sparse on the abdomen and legs, but profuse on the antennae and wings but not interfering with the iridescence on the latter.

Described from five males and seven females reared from two larvae from an elm tree that were taken to be 'Eugonia Subsignaria.'

A species of *Arctia*, that I described in the same periodical a little more than a year ago, is so commonly found here that it may not be out of place to reproduce the description here.

Arctia Rectilinea, French.

Average length of male .50, of female .55 of an inch. Expanse of wings of male 1.30, of female 1.50 inches. Head reddish flesh color, or in some lighter; eyes and palpi black; antennae dark brown or brown black. Prothorax and thorax the same color as the head, the first with two, the second with three longitudinal black lines. Abdomen bright scarlet the dorsum either a broad black stripe dentate on the sides, or broken up into a series of oval black spots, one to each segment; a row of black spots at the sides.

Fore wings black marked as follows with the same shade of flesh as the head and thorax; all the veins, the costa and hind or inner margin, a line running from the base of the wing to the end of the third median veinule—this may be called the subdiscal line—and three transverse lines that extend from the costa to this subdiscal line. The first or inner of these transverse lines is nearly in the middle of the wing, the second crosses the wing at the end of the discal cell. These two lines are straight, The third pursues a zigzag course, starting on the costa between the second line and the apex, extends to near the base of the fringe between the second and third disco-cellular veinules, makes an acute angle and joins the second line at the juncture of the first and second median veinules with the median vein, from this it extends to the end of the subdiscal line.

Hind wings bright scarlet with a narrow outer and costal border of black, and a large black discal spot and three large spots of the same color near the outer border. Of these the middle of the three spots is free but the discal and the first and third of the submarginal spots are usually blended with the border.

The under side is so much like that of other Arctians of the group to which this belongs that it is not necessary to describe it here.

We have in the books a fair description of the mature larva of the *Cresphontes* butterfly, but I have not seen any description of the caterpillar in the different stages through which it passes. As I have recently reared quite a number of them from their first hatching through all their stages and will append a brief description here of such of the points as may be new.

Papilio Cresphontes, Cram. Larva.

When first hatched the larva is of a brown color, having a large white or yellowish white spot on the back about the middle of the body and another of the same color on the posterior part. The surface of the body appears velvety, under the glass this is seen to be caused by minute tubercle like projections that are found all over the body. The anterior part of the body is larger than the rest, being of about the same proportion that it is through all the larval period. When the skin is cast the velvety appearance disappears and the skin is smooth and appears as though wet. As it increases in size there is some gray mixed with both the brown and the white and there is a white strip extending along the sides of the thorax and over the neck.

In the South this caterpillar feeds principally upon the orange and lemon trees but with us prickly ash forms its usual food. It takes about 22 days to pass through its larvae state and it remains in its chrysalis from 16 to 22 days. This applies to the larvae found on the bushes the last of May or the first of June, and which come out as butterflies in July. There is another brood in the fall that pupate in October to come out as butterflies the last of April or the first of May.

Orgyia Leucographa, Wlk. Larva.

Length one inch. Body gray, dorsal line black. On each segment there are 6 tubercles from which proceed thick tufts of hair, those tufts along the sides long, the rest short and matted. The dorsal tufts on joints 4, 5 and 11 are black, all the rest are light gray. Besides these there are two long black pencils of hairs extending out from each end of the body.

This was found on a persimmon tree, May 26, 1879. It pupated in a loose cocoon between leaves July 19, molting twice in the interval but retaining the same characters. August 4 the moth appeared. While in confinement it fed most of the time on elm leaves.

Heterocampa Pulverea, G. — R. Larva.

Length 1.25 inches. General color bright green, head gray, a little lighter through the center. Joint 1 contains two dark purplish black warts on the back, reddish purple at the base and whitish between them. From these a purplish brown line extends backward, at first about a sixteenth of an inch wide but diverging to the region of the subdorsal at the posterior part of joint 4, from this extending to the back part of joint 6. This purple brown color extends over the posterior part of the dorsum of joint 6, the whole of joint 7, and all but a little of the posterior part of joint 8, where it separates and runs as a line each side of the back to the posterior part of joint 9. On joint 4 a spur is given off that runs to the third thoracic leg, another runs to the first abdominal leg on joint 6, with another downward spur on joint 9. On joint 3 begins a dorsal orange patch that reaches back to joint 6 filling the space between the purple lines. On joint 9 is another orange patch that sends the spur down the side with the purple brown spur. Joint 10 has no purple, and only a little orange below the stigmata. It has also a faint yellowish dorsal line. Joint 11 has purple brown subdorsal lines with orange on the back. These lines unite on joint 12 and form a broad dorsal line. Feet and legs purple. The body is deeper than broad, tapering a little from the middle to the head, but more posteriorly.

Found June 30 in Union County on an oak tree; July 6, it went into the dirt of the breeding cage to pupate. The moth appeared August 6. While in confinement it ate the leaves of both the red and the scarlet oak.

Clisiocampa Disstria, Hub. Larva.

Length 1.25 inches. Body rather slender, color greenish gray with a series of orange ochre patches on the back and faint stripes on the sides. All over the body were sparse gray hairs somewhat clustered in tufts.

This was brought me by George Brush May 20. The 24th it spun a cocoon of ochre colored silk in an upper corner of its cage, and the moth came out June 5. While in confinement it ate rose leaves.

Dryocampa Pellucida, A.-S. Larva.

Length about 1.25 inches. General color pale dull green striped with five red stripes, being substigmatal, subdorsal and dorsal, the last very pale so as to be almost obsolete. Head with a slightly yellowish tinge. On each segment there are six short black thorns or sharp points, the two on the back of joint 2 being about a quarter of an inch long, but the rest much shorter.

These were handed me by John Marten September 15. Two days after they moulted when the green was changed to black, the red stripes remaining with small white dots all over the body, and the head changed to a yellowish olive. They were found on oak and fed on the same in their cage, any species of which they seemed to eat readily. October 2nd most of them had gone into the dirt to pupate. They came out as moths at intervals from May 10th to May 21st.

Harris in his "Insects injurious to Vegetation," gives a description of this larva that may apply to some of its earlier stages but does not apply to the ones I had after I received them and hence I gave the above description.

Acronycta Rubricoma, Guen. Larva.

Length 1.25 inches. Color of body yellowish green, a blackish dorsal stripe bordered each side with a yellow line. Head black. From the back of joints 3, 4, 5, 6, 7 and 11 arises a thick tuft of hairs about one-fourth of an inch long. These are white in the younger specimens but blackish in the older. Tufts of light hairs about half an inch long cover the rest of the body though not very thickly.

These were found June 9th curled up in the center of hackberry leaves. June 10th the oldest began to spin in an upper corner of the cage. They hatched from July 14th to August 5th. More of the caterpillars were found in September but were not reared.

Agrotis Lubricans, Guen. Larva.

Length about 1.25 inches. Color grassgreen marked with white and black as follows: A broad substigmatal line of creamy white that is edged a little above with black in the anterior part of the body; and below, in the middle of each segment, by a little clouding of the same. On some there is a very faint subdorsal line of greenish white, edged below with black, but on most only the fine black line is perceptible. Dorsal line very narrow, greenish white, Piliferous spots very small, faintly black, Stigmate edged with black.

Found in gudea September 3, September 6th the first disappeared beneath the dirt, and the first moth appeared October 8th. Fed mostly on grass,

I published the substance of the above description in the Canadian Entomologist, Vol. 12, page 14.

Manestra Distincta, Hub. Larva.

Length about 1.25 inches. Color bright green, irregularly mottled

with greenish white and five longitudinal lines of the same. These are a very faint dorsal line bordered each side with dark green, subdorsal more distinct and not bordered with darker green, stigmal line faint. Head of the same color as the body, but of a more uniform green.

This was found feeding on a grape vine June 22. It soon pupated below the surface of the dirt of its cage, and the moth emerged the 21st of the following March-

Leucania Phragmitidicola, Guen. Larva.

Length about 1.25 inches, body thick and robust. Ground color a light gray, mottled somewhat with fine brown. Dorsal line fine, with a brown shading each side; subdorsal line dark brown, quite distinct. Between these lines, or in what may be called the dorsal space, there are several fine brown lines that scarcely interfere with the general ground color. Just below the stigmata is a flesh colored line. The lower half of the space between this line and the subdorsal, which may be called the subdorsal space, is occupied by two faint lines, mottled with the ground color. These lines are separated by a fine line of pale buff. The upper half of the subdorsal space is occupied by two pale buff mottled lines, separated by a fine pale brown line. The space from the stigmal line to the feet, or the substigmatal space, and the under part of the body are a little lighter than the general ground color. Head gray, striped with several brown stripes, inverted Y narrow, light cervical shield obsolete, piliferous spots small.

These were found March 20th and 21st of various sizes. They began to pupate subterrean April 1st and the first moth appeared April 21st. They were fed on several kinds of leaves but ate only grass.

Chloridea Rhexiac, Westw. Larva.

Length about .75 of an inch, color brownish gray, obscurely striped on the back with fleshy yellow, the stigmal stripe more distinct. Piliferous spots black, distinct, the two dorsal on joints 4, 5 and 11 much more prominent than the rest. The head in most of them a little darker than the dorsal part of the body, with a dark patch on the neck. A few scattered gray hairs over the body.

These were found September 22 on a bouquet that had been standing several days. They fed a few days on Snap Dragon and Pelargonium when they went beneath the surface of the dirt to pupate. The first moth appeared March 30th.

Amphalocera Cariosa, Led. Larva.

Length 1.20 inches; moderately robust, tapering slightly from joint 3 back but more abruptly forward. Beginning on joint 2 is an orange dorsal stripe that reaches to the posterior part of joint 11. The stigmal stripe is orange, both of these rather broad. All the rest of the body is black. The dorsal stripe has three rows of pale spots, one central and one each side, making almost continuous lines. The black

space between the orange stripes contains five white spots to each segment, two long ones forming a nearly continuous subdorsal line. Head spotted with white. The body is smooth with the exception of a few small brownish hairs.

These were found September 21st in the leaves of pawpaw. In feeding they fasten several leaves together with silk and live in the enclosure. I found all the central leaves of this mass dead, usually one or two green or partly green leaves attached to the outside. Upon these the insect seemed to feed at night. The last one had entered the dirt to pupate October 2nd. The moths issued at intervals from May 31st to June 26. The chrysalis upon examination was found to be in a tough cocoon of silk mixed with dirt on the outside.

I presume I have descriptions of other larvae that should be added here but the moths of some have not emerged yet and I have not for want of time made a careful examination of some to see whether they have been described or not. Besides these I have reared quite a number of larvae whose history is well known and from which I have secured a fine lot of insects, among which may be mentioned a perfect pair of the Royal Walnut Moth.

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

G. H. FRENCH, Curator.

san.
as fr

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