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and thought can we  
make life better."

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# THE COLLEGE SPECULUM.

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WHOLE No. 12.

## Apostrophe to our Class-Room Skeleton.

CHAS. H. HOYT, '85.

Ye lifeless relic of an ancient clan,  
Ye ghastly home of a departed man,  
Why stand ye there a horrid sight?  
Our lives are just, our deeds are right;  
Back to our minds, you cannot bring  
A bloody corpse, or murdered king.  
Sometime, perhaps, in your old shell  
A noble inmate there did dwell.  
No more he'll need thy earthly crust,  
His spirit's fled, his body's dust;  
No more he'll need thy bony form,  
It ne'er again can ward off harm.

Long, long ago, within some quiet dell,  
The measured music of a solemn bell  
Called to the church thy friends and kindred dear,  
The soothing words of priest, or text, to hear.  
Then in thy grave, if thou didst own a grave,  
Thy wasting form from stormy winds to save;  
Secure in sleep, for coming years to stay  
Beneath the marble slab that marked the way.  
But no! Thy lot was not a peaceful rest,  
For men of science held thy bones in quest.  
Back to their place each whitened bone was laid,  
And of thy corpse a tool for science made.  
Class after class thy various bones have named,  
And ne'er has thy unsightly form been blamed.  
As some do gaze in: o thy staring eyes,  
To them, grim pictures of the past do rise;  
Methinks to them some horrid dream appears  
When dark and dreadful night awoke their fears;  
And some that look upon thy ribbed breast,  
Their vacant laugh proclaims their minds do jest.  
Still others, with a thoughtful mien, do scan  
The bony remnants of an ancient man.

Back to my mind, thy fleshless skull recalls  
Thoughts of the man that dwelt within its walls;  
Of all the joys and pleasures that he shared,  
Of all the sorrows that his life impaired;  
How often he for earthly gains has planned,  
How oft the mighty dollar filled his hand.  
Or, if more humble were his battles won,  
And to his fellow men good deeds he done—  
Perchance, some mortal that's alive to-day  
Will to his memory some homage pay.  
But why? It matters not what's been thy past,  
For years to come thy bony form will last.  
Then stand ye there! If thou to man can teach  
Thoughts of himself, and how these thoughts to reach;  
Then thou, to man, a higher gift have made  
Than if thy bones lay deep beneath the shade.

## Self Independence.

C. C. LILLIE, UNION LITERARY SOCIETY.

Some men are really independent; but a greater number are too often in every thought and act dependent. They drift with the tide of popular opinion, never thinking whether it is right or wrong, and whether it be their proper course or not, though they have the power within themselves of shaping an independent course and pursuing it—to their own advantage—to the end. They lack personality. They constitute a mass of beings, dependent in thought and act on the few. They are bound by bonds which, though seemingly weak and easily broken by one

strong impulse of the will, yet hold them securely in the embrace of dependance.

That man leads an independent life who marks for himself an individual course and pursues it; a course which gives him individuality among men. It may, perchance, resemble and even follow the very footsteps of another; but it is so from intention and choice and not from mere circumstance. He sees far off in the dim horizon, or it may be the very zenith, his star—it may be dim to others but it is bright to him—and towards this his life's pathway leads; he moulds existing circumstances and shapes events with a view to paving a way to this end. This man has personality and independence. He has something to work for; and he thinks and acts for himself. There is no drifting with the tide in this case, but with a strong aim and a mind not bound or burdened by dependency he forces himself along with or even against the surges of the flood.

We are apt to do what some one else does simply because they do it. One can, indeed, do the same thing or have the same opinion or belief on a subject that some one else had and still be independent. But how often do we hear offered as the only excuse for a certain act or course of action, that some one else did the same. We take a side on some question, not because we believe it to be right nor from any settled convictions of our own, but because some one else whom we may think possesses good judgment, takes the same side. Callings are chosen and followed from the same reason. Not that they are particularly adapted to us, or that we have thought about and considered the subject to any great extent ourselves; but from the fact that some profession, it may be, has become the rage, or that some one who has qualities and talents fitted for it and has gained attainments which we admire, happens to be working in that profession. The chances are that if we depend on others' thoughts and plans in starting we will depend more and more on their thoughts until finally no act is done unless we are sure some one else has done so, or suggested it. They will do the thinking and we act—if we do not cease to act at all—on their thoughts. Many, even if they are choosing for life, choose a trade or calling or some employment where the main influences brought to bear tend to pluck out or destroy the very nature of independence. A man may become a mere machine. Not one idea is pronounced or exercised unless suggested; not one advantage taken unless directed. This is caused by suppressed thought. One person's thought creates and directs all, and others which may be better are put down, kept down, smothered as it were, until the person ceases to think altogether and depends wholly on the other, following as directed, helpless and dependent. It is difficult to conceive of a more unfortunate condition than this, where men become mere tools. Having no thought, apparently, for their own welfare, they drift through life to serve other people's ends, making their own life tedious and wretched.

Many seem to possess the idea that to be inde-



pendent is to be opposed to everything, and that if one thinks and acts with others he is not independent. But if one studies the thoughts and acts of another, meditates upon them, forms his own individual opinion, and then acts with or against another, he is independent. If, however, he had followed the course without considering its significance, then that would not have been independent action. An independent politician may act with different parties on different questions, or he may act with the same party throughout. He first thinks, and then acts from his honest convictions. If an independent career is started and the end not reached, it is independence nevertheless. Circumstances have been shaped and turned in a definite direction by individual and independent thought, and that constitutes independence. It is far more of a failure to drift through life carelessly without thought or plan, even, if the end happens to be more successful, than to fail to do what one tries. The one is adrift in a mist and by chance is picked up; the other is battling bravely in a furious sea against unmanageable, uncontrollable circumstances.

To be independent one need not necessarily be continually and entirely striving for self. He can have the welfare of others at heart as well. But if he works for self he must necessarily help others by setting an example and stimulating thought and action. Moreover it is one's duty to work for self; to do all he possibly can, and do it honorably; to raise himself to power, influence, and esteem. This is not selfishness, but duty not only to one's self but to all who come in contact with him.

It is no easy matter to be independent. It costs—what is to some a great deal—exertion. One must be willing to labor if he takes a man's part in life. He must gain strength of character so that he will not be borne down by the eddies and whirlpools of society. To be independent takes will power and action. But is not independence ample compensation; is not the satisfaction of being a man among men a rich reward? Then, too, the only way one can gain self-power is by self-exertion. He who drifts thoughtlessly, carelessly, and without effort on the great sea of life, receives no strength of character or purpose, and may be borne down by the first great breaker; but he who ploughs his own course can receive sufficient strength to stand the most tempestuous sea.

### Reasons for a College Education.

F. L. CHAPPELL, ECLECTIC SOCIETY.

The uneducated and unlearned are those that fill our prisons and poor-houses; they are the uncouth rowdies to be seen anywhere. Knowledge and training seem to give men power to raise themselves from such degraded positions.

An uneducated man is inclined to take narrow and one-sided views of a subject. He often says that the wise and learned judge and the ignorant and unlearned ditch digger should be paid alike. He does not realize that years of study are required to fit the one for his profession, while the other has but to learn at which end the spade should be grasped.

The wise desire knowledge; it widens their views and rounds up the man. The first reason for attending college is the acquirement of knowledge. A comparatively small amount is obtained, to be sure, but the desire for it is increased ten-fold. The training of a college education enables us to more easily

obtain knowledge. More of a subject is remembered after it has been once learned. The powers of reason are increased; a man's mental arms are strengthened.

The training and knowledge are not all there is to be obtained from a college education although very important. A person with a fiery temper, after having associated three or four years with average college students, will find his temper much cooled. By the time he has shown himself in a fierce rage, and is made the object of ridicule for a few days he is forcibly impressed with the fact that it does not pay to get "mad."

Again, if a man "thinks that he knows all, is all, and that the remainder of creation is nothing," there is no better place for him to find out his mistake than at college. When he begins to think himself indispensable to his class, and to the institution generally, there will usually be some occurrence that will quite forcibly impress upon him the fact that he is not needed at all and is somewhat in the way. When this young man takes an intensely practical view of some science, as chemistry, or physics, and gives himself a shock of electricity, or dips his fingers in strong acid, he becomes painfully certain that he knows but little. Dr. Holland says: "I suppose that the first great lesson a young man should learn is that he knows nothing; and that the earlier and more thoroughly this lesson is learned the better it is for his peace of mind." The best place to learn this lesson is at college. On the other hand, if a young man lacks confidence in his own abilities, the college training will show him what he can accomplish.

The training obtained from association in college literary societies is highly beneficial. Speaking, writing, and declaiming are practiced and criticism is passed on the work. This is an advantage which is next to impossible to obtain elsewhere at this time of life, and it is one that affords training of the greatest importance. The friendships formed in these societies are close and lasting as are, indeed, those of the entire college. They are true friendships because they are between educated persons; the value of such friendships cannot be overestimated.

The average young man at the time when he should attend college, if he stays at home does little or nothing. If he intends to study at home, he does not. If he earns any money, he, as a usual thing, quickly spends it. This part of his life, so far as he is concerned, is barren. If a young man has the perseverance to study at home, his advantages are few. Dull facts, written in a duller style, are those which he has to deal with. Naturally he soon tires of this; should he persist, life comes to seem almost a burden to him. He has no one to converse with about his studies. At college he would have companions with whom to discuss facts; the memory would be aided by seeing things demonstrated. He would not be skeptical of some of the important truths of science because he could now comprehend them. He would see and believe.

True there are many eminent men who never attended college, but that is no sign that a college education would not have been a very great benefit to them. Those men were of metal that will not rust or spoil. However it might have been brightened and burnished by a college education. A large number of great men attended college when young, and it was a great benefit to them.

Since a college education will do so much for a man, and since at the age when most attend college they will do so little for themselves at home, it would seem that the best place for young men is at college,

although they may get along very comfortably without a college education.

### Redeeming Features of Forgetfulness.

C. E. SMITH, PHI DELTA THETA SOCIETY.

We are all endowed to a greater or less degree with certain powers and capabilities. We would deem ourselves fortunate if we had full and absolute control of all these powers, and whenever they fail to respond to the will's bidding the fact is noted with displeasure. Perhaps there is no more common failing nor one more universally regretted than the failure of memory to bring back to consciousness faithfully the events of the past. A perfect memory has its existence only in the realms of the ideal. Some of our failings, if not pleasant to contemplate, we can avoid. But the fact that we are exceedingly prone to forget is continually suggested to us. At every turn, in unexpected places, at inconvenient times, it meets us and compels a recognition. Some article mislaid eludes our most persistent search, an engagement is remembered only after the appointed hour is passed, a task to be performed is neglected or left unfinished, a thousand annoyances of every description, caused by this failing, befall us daily, and though the direct loss inflicted may be trifling yet they each serve as reminders of our unconquerable weakness.

The events of former years, the impressions of childhood, the studies we have completed, the names of people we meet from day to day are all continually gliding away into the great gulf of unconsciousness, and memory refuses to recall them. In this, too, there is an element of almost despotic control, for the weakness is inherent in us and defies our power to remedy.

Each man in his passage through the world, the ablest scientists, philosophers, the most thorough students of every kind being no exceptions, has the greatest difficulty in grasping even an infinitesimal portion of the present, and this as in its turn becomes a past is all relinquished save a few chance fragments. Could any one of us be thoroughly conversant with a hundredth part of the knowledge once acquired and since forgotten we would have a much larger stock of general information than we now possess.

A failing which leads to such unwelcome and unpleasant results does not readily present itself to our minds in any favorable light, yet when closely examined there are few things wholly vile, few, if any, that do not contribute at least a slight portion of good. Accordingly, we look for some relieving features in the all-pervading vice of forgetfulness, and it is cheering to find them neither few nor inconsiderable.

It is not necessary to more than mention the many cases where the failure to remember has given abundant cause for thankfulness, where the exact fulfillment of our original designs would surely have ended in disaster. It is also a fact worth noticing that the negative way of conferring a blessing does not meet with favor among men. Whether it is not attended with sufficient glory, or because it is usually accompanied by a humiliating sense of weakness, it, at least, is seldom referred to with pleasure.

The soldier who is indebted to his escape from many a hard-fought battle to his insignificant stature, is not likely to dwell upon that point with pride; the man who is relieved from occupying some ardu-

ous position simply through inability to discharge the duties that the position calls for, is rarely jubilant over the fact, or held by his fellows as especially fortunate. So a good that comes through our failure to remember does not give the satisfaction that it would were it acquired through our sagacity.

To forgetfulness, in a great part, may be attributed much of our knowledge of one of the most interesting of modern sciences. Man cannot live long in a place without leaving traces of his existence. And the old implements of war, utensils, tools, and specimens of art that he inadvertently left after him furnishes the acute scientist of to-day sufficient data from which to locate his existence in remote geological epochs, and also to determine, with considerable accuracy, the extent of his civilization.

In another aspect, forgetfulness may be also credited as affording some practical advantage. The courage and efficiency of the soldier depends, in many respects, upon it. The mangled bodies of the battle field, the tears and heart-aches, and desolate homes of those who remain at home, must all be forgotten, or his whole power of action would be paralyzed. In the same manner it applies in the administration of justice. The conscientious judge and jury must utterly forget whatever might appeal to their sympathy. The feelings of the friends and family of the accused must be ignored, else the stern mandates of law fail to be executed and crime and its accompanying evils would soon defy the power of law.

Again, in still another sphere, forgetfulness has the appearance of being especially beneficial in its action, in that, by dulling the memory of injury it serves to mitigate hate. We can forgive but not forget, we often say, yet as the years roll by the recollection of past injury becomes less vivid, the bitterness and dislike with which we regarded the offending person loses its intensity. Our childhood's quarrels, which we think then we never can forget, if looked at in maturer years, seem mere childish whims and fancies. And many quarrels of older persons would be soon forgotten were it not that having made, in the heat of passion, wild assertions vowing eternal hatred, pride is too strong to allow us to retract those statements in our more sober moments, although our better nature prompts us to do so.

Although forgetfulness causes many misfortunes and failures, yet it has redeeming qualities enough to warrant the assertion that it is not at all to be regretted that we can forget. Were it not possible, far too much of life might be spent in vain and morbid broodings over trifling or fancied wrongs. Human nature has its inexorable laws of forgetfulness and growth. Time brings change to all men and this change is produced full as much by forgetting old ideas, as by acquiring new ones.

### Who is the Practical Man?

C. B. COLLINGWOOD, DELTA TAU DELTA FRATERNITY.

From all places where men are employed the cry comes up, "send us practical men," and naturally among those who are fitting for life's work there is the inquiry, "Who is the practical man?" What is practical for one purpose may be useless for another, it is therefore easy to see why there is so great a misunderstanding in regard to the "practical man." If a man's work through life were to consist of a certain number of motions performed a certain number of times, then an interval for rest, then more motion,



more rest, and so on, it would be easy to suggest a course whereby he might best be trained to perform his part and do it well. Such a man would be a good mechanic, as the word is used in its narrowest sense, he could never be anything more.

In the large factories and machine shops each mechanic has a certain work to do, perhaps it consists in fitting pinions to watch-wheels, or perhaps in polishing a boot heel. Such men are well trained, they can do something useful, but are they practical? The factory shuts down and the mechanic is thrown out of work, he can polish, perfectly, a large number of boot heels, but he cannot make a boot. His practical knowledge is useless to him outside of his special brand of work. The special training was probably forced upon him by unavoidable circumstances. It has done all that it can for him, and outside of it he may be an impractical and useless man. It is only a matter of regret that he has chosen to be simply a heel polisher.

It is with something stronger than regret that we look upon the heel polishers who are produced by a college education. Let us call such a man trained rather than educated. If he went to college to get an education he has either neglected grand privileges or he has had the misfortune to place himself in a training school rather than a college. It is either his fault, or the fault of the college. Perhaps both are to blame, but undoubtedly he is the principal cause as well as the greatest sufferer.

If the college has undertaken to superintend his simplest acts, if it gives him no freedom to select studies, if in short it treats him as a boy instead of a man, he goes into the world a boy and must learn some hard lessons. If the honors of the course are governed by a system of marking in recitations it puts in his path a temptation to work for honors instead of knowledge, to learn perfectly the particular point he expects to recite, instead of gaining information on the subject. If the college course tries to answer the cry for practical men, and sends him into the world well trained in one special branch, but so utterly impractical in the affairs of life that he is useless until he learns "things never dreamed of in his philosophy." Then the college is partly, at least, to blame. But mostly it is in himself, here is his chance and here he comes, half-formed, to prepare himself for real life. Heretofore he has been a mechanic, certain things were true because certain men said so. Now each statement can be questioned, proved to be either right or wrong. He can study the motives which actuated men in the past, he can study the motives which are at work to-day. He can study nature, not as one man sees it in fitting the laws to a theory, but as the phenomena exist, and as the causes must be. To gain breadth of mind he must have the mechanic's power of plodding; thus, and only thus, can he rise into original, active, and progressive work.

If, instead of improving his opportunity, the student seizes only a small corner of knowledge, learning mechanically because he has not acquired breadth to advance intelligently, losing all interest in men, past, present, and future, except so far as they go in his line, he becomes a machine and will never rise higher. He has unfitted himself for life because life is too varied to be understood from a sample clipped from a corner. He cannot even teach the subject for which he is trained, because he does not understand men.

What folly to talk of a strictly practical education. A course may be so arranged, or the atmosphere of the college may be such, that it will tend to create an interest in certain work. But if the work needs

special, mechanical, or mental training to perform certain parts of it, the special training should not be undertaken until breadth and power have been acquired sufficient to perform something more than routine work. If the most successful physician is he who, as soon as he could read, studied nothing but medicine; if the most successful lawyer is he who has spent all his time and energy in reading law; if the most successful farmer is he who has always lived on the farm and can plough the straightest furrow; if these and nothing else are necessary to the best and truest success, our colleges are failures. Such is not the fact. The most successful lawyers, doctors, and farmers are the men who combine the most thorough knowledge of the details of their work with a broad knowledge of men and things. In doing his work the man must live, why not lay a foundation for that?

If the tendency toward specialists made necessary a narrow and mechanical training it would indeed be a lamentable fact. It is not so. Other things being equal, he is the most progressive and most useful worker in any department, who lays a broad foundation of knowledge. Who then will undertake to strike all but the practical from a college education. Few on entering college know what their work through life will be, and yet they will talk glibly of the practicality of this or that study. Something more than the mere facts learned must be taken into consideration. The discipline may help to broaden the mind so that more and more important facts may be grasped. For progressive work facts without theories are as useless as theories without facts.

Knowledge is power only when the knowledge is broad and deep. The truly educated man is a power no matter what his work; so far as his education is true it will lift him from the plodding mechanic to the artist who originates and progresses. It is only by this breadth of knowledge that he can become the truly practical man.

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## SCIENTIFIC.

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### Localization of Function in the Brain.

Since the celebrated experiments of Flourens in 1822 when the hemispheres of the brain or the cerebral lobes were removed, in pigeons, and the subsequent actions of the birds carefully noticed, there has been no doubt of the function of the cerebrum. With the loss of this part of the brain, there is also a loss of memory, intelligence, and judgment. A pigeon with the cerebrum removed has still its sensation, power of motion, and all its senses intact; it hears, sees, feels, and moves, but its actions are of the stupid kind, seemingly entirely uncontrolled by intelligence. Pathology sustains the conclusions of Flourens. With softening of the brain the intelligence is lost. Accident, by which the cerebrum is greatly injured, either in man or the lower animals, proves the same. Comparative anatomy and physiology of different races of men and of different animals leads to the same conclusion.

Late in the last century Gall of Germany advocated the proposition not only of localization of function in the brain, but from empirical data, insisted that the contour of the surface of the skull would indicate the development of corresponding portions of the brain. Spurzheim became the ardent disciple of Gall, and early in this century brought the new doctrine to America, where a more credulous, but less cautious people gave quick ear to this fasci-

nating theory, and phrenology gained quite a foothold, though few scientists were deceived and so its adherents were principally of the non-scientific. At present the phrenologists themselves acknowledge that their determinations are quite unreliable. Granting localization of function in the cerebrum, the varying thickness of the skull and depth of convolutions, the great mass of the brain at the base entirely removed from the cranium, the difficulty of knowing the precise character even of our most intimate friends, and the rare opportunity of examining the brains, post-mortem, of those we know best, which would make the mapping out of the brain to represent the function of its several parts a long and most difficult undertaking, all stamp phrenology as pseudo-scientific, even granting that in principle it has a basis in fact. Therefore all scientists of this branch of physiology reject phrenology, even though they may accept localization of function.

In 1870, Fritsch and Hitzig of Germany, startled physiologists with the announcement that the cortex of the brain was excitable, and that by galvanizing certain portions certain definite results, either of sensation or motion, invariably followed. Thus we have the theory ably maintained by Professors Ferrier and Yeo of London, that physiologically the brain is divided off into small separate sections each with its own special function. According to this view the gray matter of the brain does not act as a whole as the seat of the higher mental faculties, but each locality has its peculiar and independent function. So many independent experimenters have sustained the point made by Ferrier, that irritation of a certain limited portion of the gray substance of the brain does invariably produce certain definite motions in special organs and parts, that nearly all physiologists accept the view and argue in favor of localization of function in different parts of the hemispheres. The above has been grasped as a crumb of comfort by the believers in phrenology. They say our theory is correct, at least, even if it is practically worthless.

But is this localization of function proved? It is well-known that white nerve fibers run everywhere to the gray nerve cells. We also know that the nerves from every organ run to the cerebrum passing through the peduncles. We feel certain that each fiber unites with some cell, probably by a pole of such cell. How do we know then, in these various experiments of Fritsch, Hitzig, Ferrier and others, but that this nerve connection is irritated? We would thus get motion of some definite part, the same as if we galvanized the lateral white columns of the spinal cord.

Again animals and persons have had a considerable portion of the cerebrum removed, or destroyed by disease, and upon recovery, would seemingly recover their full intellectual power, although the destroyed portion of the brain was never restored. This would be easily understood if the brain acts as a whole, but is inexplicable on the theory of localization of function. The same fact holds true of the cerebellum; a portion of which has been permanently extirpated, and yet full coördination was restored after the lesion was produced. Without doubt what is true of one part of the brain in this respect is true of all.

It may be asked, would not the fibers from certain organs be cut off in case of such lesions, and how could such organs ever act again? We can easily believe that such fibers would unite with other cells. Such union would be far less strange than many well-known physiological phenomena, as gestation in the abdominal cavity.

But lately this matter has been seemingly settled by experimental evidence.

Prof. Goltz of Strasburg and Ferrier of London each submitted to a committee of experts, the first a dog, the latter a monkey, both of which animals had had a considerable portion of the hemispheres removed. The actions of the animals were closely observed for some time, after which they were killed and the brains carefully examined.

The conclusion of the committee is as follows: The monkey furnished by Ferrier (who strongly believes in localization, and would surely present as strong a case as possible) presents no evidence in favor of localization. From the dog on the other hand, exhibited by Goltz, the conclusion is warranted, that large portions of the cortex can be removed, without producing any of those effects which would be expected if the theory of localization were true; and at the same time the removal of portions of the cortex diminishes general intelligence.

Of course farther investigation is necessary to settle this matter. Yet at present we feel that the view of the cerebrum as the seat of general intelligence, and that it acts as a whole, seems to be ahead.

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### A New but Terrible Insect Pest in Michigan.

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About three weeks ago we received from Bay City letters to the effect that a "black worm" was devastating the market gardens of that city to an alarming extent. Almost everything in the vegetable line was being appropriated by these alarming pests. As indicative of the alarm felt by the horticulturists we may state that in four days five letters and three telegrams were received asking for information and help. At the same time specimens of the marauders were received from the infested district. The caterpillars—for such the insects proved to be—were at once recognized as something new, which fact, together with their exceeding numbers and promiscuous appetites—they will even eat mullein, and care so little for their breaths that onions are quickly seized upon and devoured by them—give to the raid an unusual interest. We at once concluded to move to the front and inspect the army in the field. We arrived at Bay City at 10 o'clock p. m., and set out at once to inspect the enemy. At midnight we were in the centre of a fine garden and found the insects banqueting on every vegetable within reach. Strawberry vines were being cut down by myriads of jaws; peas were being mown off by wholesale. A fine onion bed was being sacrificed to the insatiable appetites of these thousands of caterpillars, the buds of the pear and apple trees, grass and clover; and even the very weeds were being consumed by these nocturnal devourers. We found that the insects feed for the most part by night, and hide in the grass, under leaves, or just within the earth by day. They also feed on cloudy days.

The caterpillars are striped with longitudinal lines of black alternating with light lines. At first the velvety black predominates so that the larvæ are called black. Along the back is a black line. On each side of this is a lighter line made by dashes and dots of white intermixed with black. The uppermost dashes of white often have, especially when nearly mature, quite a yellow or brown cast. The lower border of these lines are formed by quite a regular line of white, which is often interrupted, however, by the black. On each side, below these lighter lines, another black line is seen. Below this another light



line bordered above and below with a white line quite irregular along the margins, and somewhat interrupted by black. All four of the light lines have a central line of black, which, especially the lower ones, are somewhat interrupted by cross lines of white. The legs, about the mouth, and the sides of the head are brown; the underside of the body is black. These larvæ feed about five weeks, attain a length of 3.75 cm. ( $1\frac{1}{2}$  inches). After the last molt, the black almost disappears, its place being taken by grayish or brownish lines. The dorsal line is dark, much broadened on the back part of each segment. On each side of this is a pinkish brown stripe which runs the whole length of the larva. With a magnifier this is found to be mottled, made up of olive brown, white, and pink. Below, these lines are bordered by narrow dark lines below which the white line, the lower border of the light stripes in the earlier stages, is still seen. Below this is an olive gray line which has replaced the old lower black lines. The lower light lines are now olivaceous with greenish white borders. The whole underneath is now olivaceous. The prothoracic shield and the centre of the head are still black, while the sides of the head are deep brown. The entire length of the insect is now  $1\frac{1}{2}$  inches, or 3.75 cm.

The chrysalis is  $\frac{3}{4}$  of an inch long, brown in color, and terminated by a forked spine. The insect pupates in the earth.

They belong to the Noctuidæ family of moths, and so are closely related to the cut worm and army worm moths. Undoubtedly they are well-known to entomologists in the moth state, but have never been numerous enough before to attract attention as larvæ. If they continue to come in such overwhelming numbers, they will become one of our worst insect pests. Most insects feed on a few special plants, as the potato beetle on potato, the codling moth worm on the apple, etc., while these larvæ take everything; and when we remember that they are often so abundant that we may destroy a hundred by one step, we appreciate the magnitude of the evil.

The remedies are difficult to find. Poisoning is not practicable; we may poison a million, but what good, when a billion stand ready to take their places. It may be possible to keep them off by use of gas tar water, or carbolic acid mixture. The former is much prized in Europe for such purposes, and is found valuable at Bay City.

We have now heard of this insect as very harmful at Bay City, Portsmouth, Saginaw, Alpena, and Traverse City. We should like to hear from other places in northern Michigan.

There is something very strange and interesting in the fact that many common insects, usually harmless, all at once come in armies and lay waste whole regions. The explanation probably lies in the fact that their native food plants are destroyed as civilization advances, in the varying number of their enemies—insects, birds, and mammals—and in peculiar seasons which are specially conducive to the development and spread of the insects.

It is not probable that this new "army worm," the "black army worm," will come in such abundance another year, or at least not for a series of years.

### Podura in a Well.

Mr. A. Collins and others of Union City in this State, are much annoyed by the presence of a small insect, a Podura, in their wells, in such prodigious numbers that they sometimes appear like scum on the water.

The Podura or Spring-tail is a wingless insect, which is often classified by entomologists in an order, Thysanura; which word means fringed tail. All insects of the order Thysanura are wingless. Some naturalists place the Podura and their congeners among the lace-wings or Neuroptera, regarding them as degraded species of that order. The common names Bristle-tails, Spring-tails, etc., as also the term Thysanura refer to the tail-like appendages at the tip of the bodies of these insects. In the family Poduridæ, this tail is bent under the body, and by using it as a spring-pole, the insect is able to make prodigious leaps, hence the term Spring-tail. These Spring-tails are often seen in damp cellars, under boards.

The Poduridæ are elongated insects and closely resemble the larvæ of aquatic Neuroptera. They have antennæ which are four or six jointed, six legs terminated with claws; and are covered either with hair or scales. Sometimes these scales are covered with very minute markings, which make them admirable as test objects in determining the power of objectives. These Poduræ are very prolific—a single female can produce more than 1,000 eggs. No wonder then that they appear quickly in a well, in great numbers, even though the water was nearly all pumped out only a short time before.

The species which is troubling the people of Union City is probably new to science. To the tip of the antennæ it is 1.4 m. m. long. The antennæ are four jointed and not quite as long as the head. Just back of each antenna are four eyes, in two oblique rows. There are a few hairs on the body but no scales. The bristle is quite strong. Each foot is tipped with two claws; one being longer than the other.

Dr. Packard has described a species as Podura ambulans, which much resembles this one, but he speaks not at all of the eyes, a marked feature of this species.

Poduræ are known to infest wells in Europe. They are entirely harmless, and but for the disagreeable thought connected with this sort of flavoring, might be left in the water with no disquietude. Where they are so numerous as to give anxiety they may be removed by use of a strainer. Since hearing from Mr. Collins, we have found these little white Poduræ in several wells, though not in such great numbers as are seen in the wells at Union City. The well of Mr. Collins is 38 feet deep, and is tiled from top to bottom.

By having a permanent strainer affixed to the water pail, these insects could always be removed from water which it is desired to use, and their presence do no harm, not even cause an unpleasant thought.

### Correspondence.

The following selection from the Grand Haven Herald will be read with interest. It rather contradicts the old saying that the civilization of a place is measured by the quantity of soap used:

The following letters passing between one of the pastors of this city and the Professor of Chemistry in the State Agricultural College explain themselves. In some parts of this city, formerly quite marshy, the wells we learn are very shallow, the water therein being on the level of the original marsh. Such impure water must be still further contaminated as such districts become more densely populated, since the porous nature of the soil allows it to absorb



and distribute the filth constantly cast upon it in increasing quantity.

And now to all this there comes an additional source of impurity, arising from sawdust as shown in these letters. Medical opinion inclines to the view that the resinous soap found in such water will at length unfavorably affect the kidneys. None too soon have steps been taken to supply the city with pure water.

GRAND HAVEN, MICH., February, 25, 1884.

Prof. R. C. Kedzie, Lansing:

DEAR SIR,—The enclosed sample represents a scum which rises in large quantities when the water in this part of the town is boiled. If you can tell me what it is you will do me a favor and perhaps help me in inducing people to try and get pure water to drink, with some benefit, as I trust, to the general health.

Yours respectfully,

CHR. VANDERVEEN.

LANSING, MICH., March 18, 1884.

Rev. C. Vanderveen:

DEAR SIR,—The sample of scum that rises on Grand Haven water is a light brown powder, insoluble in water. It burns with a bright smoky flame like rosin and giving a very marked odor of rosin during combustion. The proportion of resinous and combustible matter is 88.64 per cent, leaving 11.36 per cent of ash which consists almost entirely of lime and oxide of iron. *The material is an insoluble resinous soap with lime for its chief base.*

The fact that the soil water of Grand Haven contains a natural rosin soap which becomes insoluble and separates on boiling the water is very surprising. But the large quantity of pine sawdust and mill waste rotting in your city seems a cause of this surprising appearance. It naturally sets one to thinking about the influence of such water on the public health. Are other sawdust cities drinking an infusion of sawdust soap in their well water?

It may be a sanitary practice to "wash thee with nitre (soda) and take thee much soap," but it is hardly the the thing to take the soap in daily drink.

Yours for pure water,

R. C. KEDZIE.

### Phin's Dictionary of Practical Apiculture.

We are very greatly pleased with this admirable little work. It is a fit companion of that valuable volume, "How to Use the Microscope," by the same author. The work shows great labor and pains. Not only are all the dictionaries and lexicons consulted, but the work shows intimate knowledge of all the old bee books from that of Markham of 1610 down to those just from the press. The book gives a very full list of terms used in apiculture, and its criticisms on improper terms are most excellent. It shows the absurdity of such terms as metal rabbits, which are really no rabbits at all, but only supports. The use of the word "hatch," referring to emergence of the imago, and of the word "fertilize" in place of "fecundate," and of "drone eggs," etc., are all very justly condemned. We can hardly conceive how the work could have been better done. In quite a close reading we have yet to find a criticism in the work to which we take exception.

THE COLLEGE has recently received some very curious wool from the woolen factory of Vassar, Tuscola county. It is black wool, but the middle of each fiber for a distance, varying from  $\frac{3}{8}$  to  $\frac{1}{2}$  of an inch, is white.

It is not difficult to explain this physiological freak. For some time, while the white part of the fleece was growing, the sheep was diseased, so that less pigment was secreted. Therefore the wool was white. After the recovery, the formation of the pigment was resumed, and hence the natural hue was restored.

Sickness often produces quite similar results in human hair. After a period of thorough bleaching, the natural color will again appear.

### Biology at Cornell.

CLARENCE M. WEED.

The country around Ithaca, New York, is generally admitted to be one of the most picturesque regions in the United States. The towering hills, the deep ravines and gorges, the gurgling brooks and rushing waterfalls, the tranquil lake, and the variety of animal and vegetable life, all combine to endear it to the lover of nature. The founders of the Cornell University chose wisely indeed in selecting such a spot for an institution in which the biological sciences were to take so prominent a part. It would seem as if they realized that the age of the book naturalist had long since passed; and that the science of to-day requires of every devotee an actual communion with nature in the field and by the stream, as well as in the closet and laboratory. And the spirit of the instruction in the various departments of biology accords well with these environments. In every thing the aim is to instruct the student to observe for himself, and to inspire him with a love for original research, rather than fill his mind with a mere book knowledge that would be worse than valueless.

Of especial interest to the readers of the Speculum is the botanical department under the supervision of Prof. A. N. Prentiss, a member of the first class that graduated from our own college and afterwards Professor of botany and horticulture here. Prof. Prentiss is ably assisted in his work by Prof. W. R. Dudley, a "Cornellian" of the class of '80.

The student of botany at Cornell is especially favored; not only on account of the fact that the contour of the surrounding country is so varied that he may cull his treasures from five distinct floras, those of the uplands, lowlands, bogs, rocks, and lake, but also because of the excellent facilities for instruction and original research afforded by the University. Although not, as with us, possessing a separate building, the department occupies a suite of rooms admirably adapted for the purpose intended. The rooms occupy the east wing of Sage Hall; the lecture room being entered first leads into the laboratory, which is large, well lighted and equipped. Among other things it contains an herbarium of the local flora for students to refer to, and an aquarium containing such aquatic plants as may be desired for study. To the right as one enters from the lecture room, are the Professors' studies, both of which are carpeted and contain excellent libraries. Beyond these a door opens from the laboratory into a magnificent conservatory, which, if the old saying be true, must indeed be "a joy forever." Here are to be found sensitive-plants, various forms of pitcher-plants, Venus fly-traps, and many others of equal interest. Re-entering the laboratory, a flight of stairs leads to a second laboratory, beyond which is the botanical museum containing the herbarium proper, fruits, grains, and models of plants and parts of plants. Off of this is the drying room for pressing and mounting specimens.

The course of instruction in botany is very complete. Besides the ordinary courses of systematic and histological botany, there are courses for the study of fungi and algæ, the higher cryptogams, arboriculture and forestry, and woody-plants. Of course many of these are only taken by such students as are making a specialty of the science, and consequently some of the classes are very small; thus the present term there is but one person studying woody-plants. The course in economic botany deserves special notice; in it the whole of systematic



botany is gone over and the economic relations of the principal plants are given.

The department of entomology and invertebrate zoölogy is one of the most rapidly developing departments of the university. At its head is Prof. J. H. Comstock, for two years the United States entomologist and the greatest authority on the family of Coccidæ, or scale insects, in the United States, if not in the world. The laboratory is a large and well-lighted room, off of which are work-rooms, store-rooms, etc. The insect collections are rapidly increasing; among them, the recently established biological collection, representing the whole life history of each insect and the collection of Coccidæ, the largest and finest in the world, deserve special mention. Prof. Comstock has given much thought to methods of laboratory work and has devised several desirable improvements. One of these is the block system for biological collections; the different forms of each species of insect being pinned to a small block which can be transferred from case to case with ease and safety. He also devised a bottle for small alcoholic specimens which are desired to be kept horizontal. The body of the bottle is square, with the neck circular and bent upward; thus preventing the leaking of the alcohol. The value of the courses of instruction in this department are greatly enhanced by the large series of glass and other models, as well as by the collections in the general museum.

#### Notes on Lameness Among Horses.

Those who have had much experience among horses, more particularly in towns and cities, often say that lameness gives them more trouble than any other group of diseases which horse-flesh is heir to. For although the condition may not wipe out the animal, as do other diseases, yet when we come to consider the various losses one is put to by the depreciation in value, the loss of work, the expense and trouble of treatment, the uncertainty, in many instances, of a perfect cure, etc., we can form some idea why this subject should receive so much consideration from veterinarians and others interested in these animals.

To be able to detect the limp in the early stage of its existence, is a very valuable gift to the horse owner, for by judicious management and the application of rational remedies in the proper time, serious after consequences will be obviated, and the career of permanent diseases often "nipped in the bud."

The readiness with which some people can detect faulty action is marvellous, in comparison with the difficulty others have in perceiving anything wrong. It was said of Prof. Dick (one of the most distinguished veterinarians of his day) that when a horse was moved in front of him for a short distance, he could tell where, and from what disease the animal suffered; happily, however, this is a gift which can be acquired by almost any intelligent person by perseverance and care while watching the movements of lame horses. Of course, it takes time and practice to become proficient in this matter, but we are encouraged from the outset by feeling that we are becoming more and more expert in our undertaking, and finally we will be gratified to find that we can diagnose a case of lameness at a considerable distance off, by simply watching the movements of the animal; to do this we must be thoroughly conversant with the various symptoms of individual diseases, but as these can scarcely be discussed in detail here, it may be well only to notice those which are of most

importance. In some diseases the animal comes out of the stable sound, or nearly so, but after being driven for a mile or two, more or less, it begins to go lame, and the halt increases with progression; on the other hand, animals will be brought out of the stable "stiff and sore," but after being driven for a time will begin to get better, and eventually drive out of the lameness; but if such an animal be rested for an hour or so the lameness will return, to disappear again, however, on progression. We find by observation that the first class, those that get lamer as they go, are often affected with disease of binding ligaments, or muscles, sprains of various descriptions; while the second class, those that drive out of their lameness, are generally chronic diseases of joints, and often difficult to overcome.

The first thing to be done when examining a case of lameness is to determine the disabled member, which is not always such an easy matter as one at first sight might suppose, indeed animals have been brought under our notice which have gone through various forms of treatment for supposed diseases in one leg, when the opposite one was the culprit. Again, when a horse is lame in say the off fore leg, if it is trotted from a person will appear as if lame in the nigh hind leg, that quarter rising and falling in a very irregular manner; but when such an animal is reversed and trotted towards the observer it will at once be seen that the irregularity of movement depends upon the ascent and descent of the fore quarter, showing that a horse should always be trotted to and from the observer, especially a beginner, before an opinion is formed, and to determine which limb is at fault observe which leg the animal drops the weight of its body upon during progression, that will be the healthy one.

In the stable a careful observer will see that the animal bears more weight on the sound leg than the lame one.

A few years ago before veterinary surgery was studied systematically in colleges, as it is now, nearly all occult lameness in front was supposed to be in the shoulder, and that in the hind leg pronounced to be in the hip. This was certainly a very natural error to make by persons not as well acquainted with effects of disease, as most veterinarians are at the present day, for in chronic cases of lameness at the distal extremity of the leg, the muscles in the neighborhood of the shoulder or hip invariably waste, so is it to be wondered at that these points should be thought to be the seat of the disease? But dissections have shown time and again that this atrophy occurs with chronic diseases of the foot or hock. Animals lame in the shoulder or hip usually have a difficulty in bringing the foot forward and do so, as a rule, in a sort of rotary manner. Animals lame in the knee often walk sound or nearly so, but the nodding of the head at the trot is very perceptible. Horses lame in the foot generally point that organ when standing; when lame in the hind foot, if from a puncture, they take a peculiarly long step during progression. If an animal is lame in both front feet it will progress in a stumbling sort of way eloquently termed "groggy." If lame in both hind legs it will move in an awkward stiff manner.

It must be remembered that nearly every disease which causes lameness has its own characteristic symptoms, and as they are so numerous the above can only be looked upon as a few very general remarks upon this important subject. Indeed, as the study of veterinary science advances so does the study of lameness, and some colleges now properly provide a separate chair for this very important and interesting branch of the profession.

E. A. A. GRANGE.



THE OPERATIONS of nature proceed on all sides of us, but not often do we stop to think that these quiet ordinary phenomena are great manifestations of forces, which, without terrorizing as do the more intense forms of forces, as in the avalanche or tornado, are yet comparable in magnitude with them. All the phenomena of plant life are manifestations of force, and while the force shown in the putting forth of a single leaf or a single blade of grass may be said to be insignificant, yet in the thousands of leaves of a tree or the millions of blades of grass of a field the aggregate of forces may be stupendous.

Plant assimilation is a process of deoxidation which can take place only in cells having chlorophyll and under the influence of sunlight. Carbon and hydrogen are wrested from the grasp of oxygen, and this requires an expenditure of force which is furnished by sunlight. The force required for separation may now be said to be stored in the particles of carbon and hydrogen or in the new compound, just as the force required to lift a stone to a given height is stored in that stone, since this force puts it in a position that by letting it fall the same amount of force is given out. In the one case work is performed in opposition to the attraction of the earth, in the other in opposition to the attractive force of chemical affinity. As the force required to raise the stone may be measured by the force given out in its descent, the work equivalent to the heat produced by combustion gives a measure of the amount of work performed by light in the chlorophyll cells of the plant. As an illustration of these forces let us find the force that has been used in the growth of an acre of wheat, taking the not uncommon yield of 30 bushels, the weight of the straw being 3,160 pounds. In combining with oxygen a pound of carbon gives out force enough to heat eight thousand pounds of water one degree centigrade, and the force that may be given out by burning a pound of hydrogen is over four times as great. The force required to heat a pound of water one degree centigrade is equivalent to the force taken to raise nearly fourteen hundred pounds one foot. Thus if carbon dioxide loses only one of its elements of oxygen in the chlorophyll cells of the plant, as supposed by Boussingault, the work that has been performed in the growth of this acre of wheat is sufficient to raise 19,121,000,000 pounds one foot. This force is equivalent to the force of a ten-horse power engine running continuously ten hours a day for ninety-seven days, or it would build a stone pyramid covering the acre 162 feet high, and the force required for the growth of only 4,500 bushels of wheat and its straw would be sufficient to raise the great pyramid of Cheops.

L. G. CARPENTER.

THE MUSEUM has received a small quantity of the ashes of the celebrated eruption of Krakatoa of Aug. 27, last year, through Mr. Beecher, a sailor. He states that at 10:30 A. M., while 200 miles from the volcano the noise of the explosion was heard, followed by a shower of ashes lasting from three o'clock until four o'clock the next morning. This shower covered the decks eighteen inches deep, and when falling most rapidly one could not see his hand before him. These ashes, as the dust from volcanoes is generally called, are not products of combustion but rock in a very finely divided form; they form a very light, grayish powder of crystalline and vitreous particles. Mr. Beecher's description corroborates the accounts of this eruption, making it one of the most violent ever known. Mr. Beecher was 200 miles from the volcano and describes the report as tremendous, so that one may give credence to the testimony of

many at greater distances. It is even said to have been heard at Ceylon, 2,000 miles away, and in the north-western portion of Australia. Actual showers of the dust fell several thousand miles away, and in sediment from rain in Holland, Spain, etc., have been found crystals very much resembling those shown by the microscope in these ashes.

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LANSING, MICH., JUNE 1, 1884.

WITH THIS ISSUE the present board sever their connection with the active workings of the "COLLEGE SPECULUM." We have enjoyed our year of office, although it was coupled with no small amount of work. We do not claim to have accomplished great things, but have all done our best and shall all ever take a lively interest in the future of our paper, and feel certain that its permanency and success have been established beyond a doubt.

We are thankful for the honor that has been conferred upon us in selecting us to act in this capacity, and are aware that it is the greatest gift that is in the power of our fellow students to bestow. We have felt this and appreciated it from the first, and in return flatter ourselves that we leave no regrets behind of work half done.

None can ever feel more interest in the paper than we, past, present, and future, who have been connected with it shall feel. We shall always regard it in the light of an old friend who will ever be a welcome visitor to our firesides, reminding us of our alma mater and the happy and profitable years passed at college.

WE THINK that the introduction of French and German in the college would be hailed with delight by all. For years the students were granted a year of French in the course, but now even that has been abolished.

This claim rests not upon the usefulness of these languages to farmers, professional men, or others,

and not on their merits as languages alone, but on the magnitude and worth of the literatures, and on the unquestionable fact that facility in reading these languages is absolutely indispensable to a scholar, whatever may be his department of study.

Until within a century or two scholarship had a common language, the Latin; so that scholars of all the European nations had a perfect means of communication, whether in writing or speaking.

But the cultivation of the spirit of nationality and the development of national literatures have brought about the abandonment of Latin as the common language of learning and imposed on every student, who would go beyond the elements of his subject, the necessity of acquiring at least a reading knowledge of French and German.

Indeed, the advanced student of our day can better dispense with Latin than with French, German, or English, for the most recent publications (and consequently the best) in all the sciences are printed in some of these modern languages.

There is probably no difference of opinion among American scholars as to the need of mastering the French and German languages. The philologists, archæologists, metaphysicians, physicians, naturalists, chemists, engineers, and economists all agree that a knowledge of these languages is indispensable to the pursuits of their respective subjects beyond the mere elements.

Every college professor who gives a thorough course of instruction in any department finds himself obliged to refer his pupils to French and German authorities. In the reference library of any modern laboratory, whether of chemistry, botany, philosophy, or zoölogy, a large portion of the books will be found to be in French or German.

Without a knowledge of these languages it will be impossible to get at the experience of the world upon any modern, industrial, social, or financial question.

With these few facts before us we cannot but see the importance of at least an insight into these languages. If a short course could be instituted into our curriculum it would unquestionably add to the popularity and lead to an increased attendance at our college. Even if this had to be done at the expense, and in the place, of some studies now being pursued it would probably prove advantageous to all concerned.

IT IS DUE to the college and the efficient professor in charge to refer editorially to the excellent course of veterinary science now being pursued here. For years the friends and supporters of the college have discussed the question of a veterinary professor at this institution, and at last we have one, and one who is eminently fitted for the position, and who is doing good work. The student is now granted a year's course in this branch, in which time he is taught the symptoms, causes, and treatments of all of the common diseases to which the domestic animals are heir. They also receive thorough instruction in

materia medica and theory and practice as relating to the domestic animals, and this department, though now in its infancy, promises to become one of the important ones of our college course.

THE FOURTH annual convention of the Inter-Collegiate Society Association of Michigan, was held in Lansing, June 5, 6, and 7, and was attended by delegates from the Alpha Nu Society, of Ann Arbor, Amphityon, of Hillsdale College; Erosophian, of Albion College; Sherwood, of Kalamazoo College, and Eclectic, of our own College. The banquet given the association by the Eclectic Society at the Lansing House, on the first evening, was the occasion of much pleasure to all concerned. The enjoyment being largely added to by the kindness of about thirty Lansing young ladies, who assembled to assist the home society in entertaining her friends.

The day following was devoted to business meetings at the college, consisting of the presentation of papers upon subjects of interest and importance to the association. In the evening the regular literary programme was presented to a large and appreciative audience, at the Congregational Church.

On the morning of the seventh the annual election of officers took place at the Lansing House parlors, after which the association adjourned to meet at Ann Arbor in one year from this spring.

The meeting, on the whole, may be considered a decided success, if the opinions of the participators and observers is any criterion by which to decide.

THE RECENT LECTURE of Rev. Joseph Cook at the opera-house, under the auspices of the "Literary lecture bureau," was one of the finest ever delivered before a Lansing audience.

The lecturer chose for a subject, "Does death end all?" and the manner in which he handled his theme showed the immense power and learning of the man.

His arguments were founded on conscience, science, and revelation. And he produced them in such a manner that none but the most bigoted skeptic could fail to agree with him that death does not end all.

A GENERAL AIR of neatness and repair pervades the institution this spring. The grounds are receiving much attention, buildings being painted and repaired, and the chapel now presents a very respectable appearance with its new floor and carpets, and decorated walls and ceilings. Many other improvements have taken place of late, which, though slight in themselves, present a general indication of activity and taste which we are all glad to observe.

The interest students feel in their literary societies is manifested in the amount of money they are willing to spend to make their rooms appear attractive, as well as in the readiness with which they perform society work. The amount expended in this direction by the Eclectic, Union Literary, and Delta-Tau-Delta societies near the close of last term and the first of this would probably exceed \$400.



## COLLEGE NEWS.

'84 expects to graduate a class of thirty.

Crops on the farm are promising well this spring.

The lane on the farm is now extended back to the railroad.

Prof. Harrower spent a portion of the spring vacation at Ann Arbor.

The new horse lawn mower finds plenty to do upon the lawns this term.

A new Mason & Hamlin organ has been purchased for the College Chapel.

Nearly \$30 worth of aquatic plants have been planted in the wild gardens this spring.

The College Band played Hail Columbia, for the Lansing people on Decoration day.

Dr. Kedzie is preparing an electro-magnet, the lifting force of which will be about one ton.

First-class board was furnished in the clubs, last term, at a cost of from \$2.40 to \$2.71 per week.

The Class Fountain was painted and bronzed during vacation and now looks even better than when new.

Prof. R. C. Carpenter and Mr. L. G. Carpenter spent their spring vacation at their old home in Orion.

The hard frost on the night of May 28, did much damage to the fruit and plants on the College grounds.

Dr. Beal congratulates himself on having one of the most conveniently arranged studies in the country.

Mrs. E. J. MacEwan, who spent nearly all of last term with her sick mother in Kalamazoo, is home again.

Work progresses slowly on the new Boiler House, but according to contract, it must be completed by Sept. 1.

The topographical survey of the College grounds, which was begun a year ago, is being carried forward this term.

A barn for experimental feeding of cattle and sheep is to be erected on the farm this summer. Size, 34 by 48 feet.

The fourth annual convention of the Inter-State Collegiate Society Association meet at this College on the 5th, 6th, and 7th of this month.

The twelfth thousand of Prof. Cook's bee book has been published and over half were sold in the first three weeks after they were published.

Prof. Cook spent the fore part of his recent vacation in studying up the new insect pest of Saginaw valley. The latter part he spent on his farm.

The newly finished and very conveniently arranged rooms for quantitative analysis are being occupied by the senior class, this term, for the first time.

The sheep and cattle barns have been very much improved in appearance by a new coat of paint. All the Farm buildings are to be painted the same color.

The commencement orators for next August are, J. R. Abbot, C. Baker, E. C. Bank, W. D. Barry, Miss Allie Johnson, C. C. Lillie, C. E. Smith, and B. C. Porter.

The students have laid about one hundred rods of 4-inch tile on the experimental grounds in No. 3, this spring and have nearly two hundred more to put down.

We do not remember of ever having seen the lawns and flower beds about the Green House in so good a condition early in the season as they were this spring.

We feel a little suspicious of how some of our professors intend to spend their summer vacations. Two of them, at least, have purchased high blooded trotting horses.

The students are maturing arrangements for field day exercises which it is expected will take place on the College grounds, near the middle of the present month.

The foot-ball is again booming on the College campus, but the seniors are fast losing interest in the sport; for the freshmen have learned to give as good as they take at shin kicking.

The State Board made the College a visit the first of the term and it was pleasing to notice the look of satisfaction that rested on their genial countenances as they strolled about the College grounds.

Prof. Harrower very kindly favored the seniors, last term, with several evening talks on free trade and protection. Some of the staunch protectionists among the members of the class became sufficiently interested to stay late to the after-meetings without even an invitation. Whether or not they are laboring under conviction, it is difficult to say, but they claim not to have been converted.

An engine of 3 horse power has been placed in the basement of the Chemical Laboratory to be used in running the new dynamo-electric machine. With this power very brilliant electric lights are produced.

Mr. A. C. Redding, '83, lately presented the College with an ear of corn on which several kernels had grown at the center of the cob near the tip. A similar specimen was presented last year by Mrs. M. J. C. Merrill.

We clip the following from the *Detroit Free Press*: "At the Agricultural College, where hundreds of boys attend annually, very rarely are heard any of the mischief-makings usually occurring in such institutions."

Prof. Scribner of Girard College has sent Dr. Beal twenty specimens of grass seed from the most promising varieties grown in Montana. Prof. Scribner is assisting Dr. Beal in preparing his book on grasses.

The seniors take astronomy at 7 o'clock in the morning this term. This is not as the study was catalogued, but was changed to this hour to allow those to take both astronomy and quantitative analysis who wished to do so.

Three of the clubs kept open during the spring vacation and about forty of the students remained on the grounds, most of whom spent their time laboring to earn a few honest dollars to help them on in their college course.

There can be no doubt but that the editors of the SPECULUM all rejoiced to know there is no hazing to be reported in this number, but a little excitement of that sort is often a very productive source for college news and editorials.

The Museum has lately received a specimen of cinders thrown out by the recent Java eruption. These cinders were taken from the deck of a ship, 200 miles from the scene of the eruption, on which they fell to the depth of one and one-half feet.

Probably the College never had a better base ball nine than at present. Last term, they purchased uniform suits throughout and now are anxiously waiting an opportunity to test the strength of their battery by putting it against almost any good battery willing to play them.

The students are very thankful to get reduced rates to go home, during the spring vacation. It is evident, however, that the Faculty intend these tickets shall serve a double purpose; for since they are only good during vacation, they make the boys very prompt in returning on time.

Dr. Beal has received an ear of corn from Mr. L. D. Watkins of Manchester, Mich., who obtained it from the chief of the Seminole Indians of Florida. These Indians say that the corn is the same that their tribe has always raised, and it is quite likely this variety of corn is aboriginal.

Prof. Satterlee has given considerable attention to the appearance of the lawns this spring, which on account of the copious rains are now in very good condition. The paths upon the borders have been laid with fresh sods and the requests to "Keep off the grass" are well heeded by the students generally.

Dr. Kedzie has sent out over 400 half-pound packages of sorghum seed this spring, that the value of this plant for forage and the production of sweet, in this state, may be extensively tested and the results reported to him. It is especially desirable to test its adaptation to the light sandy soils.

The improvements that were begun upon the Chapel last term and completed during vacation, have added to its appearance very much. The room has been re-floored, newly painted, plastered, and frescoed; the old seats were varnished and replaced, the rostrum newly carpeted and a new organ placed upon the platform.

The term of office of the present corps of SPECULUM editors expires with this number. The editors chosen for next year are: Prof. E. J. MacEwan from the Natural History Society, R. M. Bates from the Union Literary Society, F. L. Chappell from the Eclectic Society, D. J. Stryker from the Phi-Delta-Theta Society, and H. E. Thomas from the Delta-Tau-Delta Society.

As usual, many substances are being received by Dr. Kedzie for analysis. A man in Freemont, Mich., thinks he has struck a gold mine and sends a sample of the precious soil to be analyzed. His gold, however, under chemical tests turns out to be only mica, valued at about two dollars an acre. Others sent substances requesting immediate analysis without even sending money to pay return postage, saying nothing about paying for analyzing.

Four of the five students, who were Stewards last term, were members of the senior class and consequently not eligible for reelection; so their places were necessarily filled by those who were in-experienced, but for whom we prophesy the best of success. The Stewards elected for this term are as follows: Club "A," R. M. Bates; "B," C. B. Collingwood; "C," A. C. Himebaugh; "D," J. E. Hammond; "E," J. R. Newton.



The State Board of Agriculture, together with the executive committees of the State Grange and the State Horticultural Societies, will meet at the College on the 11th of June. The members of the State Fish Commission are expected to be present at the meeting of the State Board to ask permission to establish the central fish station and hatchery on the College grounds, provided the water of the Red Cedar will permit. We understand that the Board are very willing to grant such a request.

The last SPECULUM stated that one of the boarding clubs would be discontinued this summer term. Since then the Students' Organization has held a meeting and decided to continue all the clubs this term. The students seemed to fear that if they lessened the price of board by lessening the number to cook for them there would be a corresponding deterioration in the quality of board, and it is rather a difficult matter to convince a young man with a good appetite that he should take measures to secure poor board.

After last term had closed and most of the students gone home, a challenge was received from the Olivet students for nine of our boys to play them base ball and eleven to play them foot-ball on their field day, May 19. The challenge was accepted and those who attended the exercises report a very enjoyable time, although the day was an unpleasant one. Only two of the College Nine could be got to attend and the game resulted in a score of 20 to 9 in favor of our club. For want of time the game at foot-ball was not played.

A choice lot of chemically pure substances, costing 391 marks, have recently been purchased from Germany and placed in the Chemical Laboratory. Among these substances are crystallized specimens of the metals potassium and sodium, hermetically sealed in glass tubes, also 15 specimens of other metals and 72 specimens of the alkaloids beautifully mounted and displayed in velvet lined cases, and exact representations of the three largest diamonds in the world, and numerous other things valuable for instruction in class.

Rev. Joseph Cook of Boston, lectured in Buck's opera house, Lansing, on the evening of May 26th, under the auspices of the College Literary Societies' Lecture Bureau. The lecture, though an excellent one, did not pay expenses, but it probably would if the night had been favorable. The students would gladly procure one or two of the best lecturers the country affords each term, if the people of Lansing and vicinity would patronize them, but otherwise they can not; for they are only had at a high price and students' dollars are none to plenty.

A few weeks ago the students were pleasantly surprised by the appearance of the "Young Ladies' Band", who spent some little time at the college viewing its various attractive points. They favored the students with a very finely executed piece of music, which reflected much credit upon themselves. This band is composed of young ladies from various parts of Michigan, and is just starting on a tour through the Western States to the Pacific coast. The young ladies are accompanied by Miss Lura Barden, of St. Louis, Mich., an elocutionist of considerable prominence, and we predict for them a successful and pleasant trip, and hope to see them here again some day.

### Natural History.

At the last regular meeting of the Natural History Society, Mr. L. G. Carpenter gave an account of the Java eruption, illustrating by charts the changes in the coast and bottom of the sea in its vicinity. Krakatoa, a small island five miles long by three miles wide, was the seat of the disturbance. The eruption, which brought it into prominence, took place on the 26 of last August, and was one of the greatest ever known. Matter was ejected sufficient to cover the sea for miles with a light pumice stone, and to fill the atmosphere of the world with dust sufficient to cause the brilliant sunsets of last winter. Showers of ashes actually fell thousands of miles away. The eruption ended with a terrific explosion, splitting the island in two parts. Where land stood 2,500 feet high before the eruption, the sea now prevails, at a depth of 3,000 feet. A vast wave, reaching in some places a height of a hundred feet, inundated the neighboring coasts and is known to have destroyed nearly 35,000 people. A very curious effect, which serves to indicate the intensity of the eruption, was a great wave of air, shown by self registering barometers, to have receded in all directions from the eruption, at a rate of 700 miles per hour, and to have made three complete circuits of the earth before becoming unnoticeable.

Mr. Dart, in his article on the comparative anatomy of the cat and woodchuck, said the two animals were about alike in size, the woodchuck, being a rodent and burrowing animal, has,

for strength, much larger muscles on its head; its brain is much smaller than that of the cat, and is almost entirely destitute of convolutions, both of which indicate that the cat is an animal of higher intelligence; for the higher we go in the animal kingdom the larger is the brain and the deeper its convolutions, compared with the size of the animal. The alimentary canal is much larger and more complex in the woodchuck. The cœcum is larger, and in size and shape resembles the stomach. The arteries are generally larger and differ somewhat in their manner of branching; otherwise the anatomy of the two animals is very similar.

In Mr. Badeock's article we were told that the pollen grain usually consists of a single cell, containing a semifluid granular matter, which is enclosed by two coats, the outer, thick and often curiously ornamented; the inner, a thin, transparent, and very elastic membrane. The grains of different flowers vary greatly in size, the diameter of the largest being about fifty times that of the smallest; their greatly varying shapes are also very remarkable. After alighting on the stigma of a flower of the same sort as that which produced it, the grain slowly sends out a root, or rather a tube, formed by the expansion of the elastic membrane. This tube grows down the style into the ovary (in doing so, often traversing the distance of several hundred times the diameter of the grain), and there deposits its contents which fertilize the ovule. Pictures of several different kinds of pollen were shown.

Mr. Hodges, in his article on Tests for Cellulose, said cellulose is the proximated principle of which the wood cells of plants are always composed and is chemically  $C_6H_{10}O_5$ . It is found in all plants, but not confined to plant life. In early life the cell is made up almost entirely of cellulose, which is easily detected, but later mineral and organic substances are added and reagents have to be employed, the principal of which are iodine and sulphuric acid. Moderately strong acid acting for a limited time changes cellulose to amyloid, which resembles starch and is colored blue by iodine. Strong sulphuric acid changes cellulose to dextrine, which by being diluted with water and boiled takes up a molecule of water ( $C_6H_{10}O_5 + H_2O = C_6H_{12}O_6$ ) and forms grape sugar. Iodine colors dextrine brown with more or less intensity, depending on the amount of free acid present. If boiled, it changes to dextrose. Dextrine dissolved in sulphuric acid is thrown down as a white precipitate by absolute alcohol. In young cells the acid often has no effect until hydrochloric acid is added. Cellulose treated with an aqueous solution of alcohol or iodine gives a brown color on drying, which changes blue when water is added. These tests, though reliable in the majority of cases, are not always absolute.

Buds of Woody Plants, was Mr. Everhart's subject. He said, to study buds, one should have specimens of different ages and sizes from which to make his sections, in order to get a correct idea of their structure at different stages of development. Sections should also be made from different parts to show the difference of arrangement in the individual bud. Care must be taken not to disarrange the parts in making the section. Most buds contain a fluid substance, while some, as those of the chestnut, are very dry and brittle; from such buds sections are made with difficulty. The sticky substance found on many buds, which is gathered by bees, and known as propolis, or bee glue, often prevents the cutting of thin sections by causing them to adhere to the razor blade. The best time to study buds is just as they begin to develop in the spring.

## PERSONALS.

THE Editor of this Department desires the earnest co-operation of the alumni in aiding him to fill these columns with interesting items. Give occupation since graduation, what offices held, whether married or not, etc. Let this receive prompt attention from every alumnus.

L. S. Mills-paugh, '85, is in Astoria, Oregon.

J. H. Tibbits, '73, is teaching at Palo, Mich.

Harry Danville's, '83, present address is Newark, Dakota.

W. S. Delano, '81, was married Dec. 16, '83, to Ada A. Crawford, of Tuma.

Ezra Carshall, once of '79, is married, and farming in Waterford township.

E. C. McKee and Miss Jessie M. Laylin were married Jan. 16, '84, at Alaledon.

A. A. Crane, '75, is President of Gaylord village and county clerk of Otsego county.



Ed. J. Rawson, '78, is in the grain business at Marcellus Mich., and is very busy.

Ira B. Gage, '76, is engaged in tilling his father's farm at Dowagiac. He is still unmarried.

Albert Mather, '83, is going to Union City, Dakota. His business is not known by the SPECULUM.

Chas. F. Lindsley, '73, is working his father's farm in Oakland Co., and is also school inspector.

Elmer Stowell, once of '79, is a prosperous farmer, and township treasurer in Waterford, Oakland county.

O. C. Howe, '83, is at home, but expects to be away in June, as he has been appointed Census Enumerator.

Arthur Jones and Harvey Price, both of '81, have gone to Muskegon to establish themselves there as lawyers.

R. B. Barber 3 years with '82 is again able to be out. He has scarcely been able to leave his bed since he left College.

Mr. Tsuda, '84, our Japanese student, went to Chicago lately and spent a day with the Ex-President of the Japanese Senate.

C. T. Gage, three years with '79, has bought out his former employer, and now owns the drug store at 333 Woodward Ave., Detroit.

Geo. W. Brewer, class '74, is teaching school in Bunkerhill township, Ingham county; and a letter addressed to Leslie will reach him.

Chas. F. Shilling, '78, is a druggist at Decatur, Ill. He bought out his partner last March, and is doing well, and likes the business.

E. D. Brooks, '76, spent the winter at Las Vegas, New Mexico, for the benefit of his wife's health. He practiced medicine last year at Wayne.

Dwight Harrison, '68, was married May 28, '84, to Miss Bertha Longwell, of Paw Paw. His future home is to be at Kalamazoo, Mich.

C. W. Clark, '81, of Orion, as well as conducting his father's large farm, is secretary of the Grange, and a director in the Orion Park Association.

Ransom M. Brooks, '73, has moved to Ashley, a thriving town on the Owosso & Northwestern R. R., and is engaged in hardwood lumber business.

A. E. Smith, '81, completed his course in medicine at the Rush Medical College, Chicago, last winter, and is now practicing at New Buffalo, Mich.

E. P. Clark, '83, is at present travelling in Dakota; he likes the country very much, and will not return to Michigan but will settle either there or in Nebraska.

J. H. Smith, '83, principal of the schools at New Buffalo last year, was elected School Inspector this spring. He expects to spend the summer at home on the farm.

W. S. Hough, formerly of '83, will graduate at the University the coming commencement. He then expects to spend two or three years in the German Universities.

Atwood McCormack, once with '78, the centennial poet, spent the past winter attending a Business College in Detroit. He owns considerable land in Northern Michigan.

James Troop, '78, for three years assistant to Dr. Beal, has recently been appointed Instructor of Horticulture and Entomology, at Purdue University, LaFayette, Indiana.

J. L. H. Knight, '81, was married May 14, '84, to Mary McKee, a sister of E. C. McKee of '81. Mr. Knight will go directly to Nebraska, where he has a fine farm of over 800 acres.

S. S. Rockwell, for eight years Steward at our College, is now permanently settled as a merchant at Vermontville, in this state, the firm name being, Barber, Ambrose and Rockwell.

During the last year the degree of Master of Science has been given to John E. Taylor, '76; Eugene Davenport, '78; Louis G. Carpenter, '79; Chas. F. Davis, '80, and Frank A. Gully, '80.

R. Haigh, Jr., class '69, although following insurance most of the time, occasionally puts in a week at Landscape Gardening. This season he has done good work of this character at Grand Rapids.

R. A. Clark, of class '76, has purchased a very fine farm near Lansing, on which he is putting in practice, by proxy, the theories learned at his old alma mater, but still follows his chosen profession.

F. E. Skeels, class '75, is with Chas. W. Garfield, at Grand Rapids. Together they purpose developing a fruit farm, and are planting quite largely this year of apples, plums, cherries, and small fruits.

Secretary Garfield says that twelve graduates of the Michigan Agricultural College are officers in the State Horticultural Society, and its branches.

The wife of A. W. Bahlke died a short time ago of heart disease, in Bismark, Da. Albert was once with '83; he is now on the police force at Bismark.

T. A. Parker, '87, M. V. Clark, '86, W. Q. McClintock (special), and W. D. Watkins, '85, do not return to College this term. We have, however, one new freshman, his name will not be found in this year's catalogue.

W. B. Kirby and C. D. Phelps made the College a visit last spring. Kirby, once with '84, is still in the Bank of Nesbit and Miller, Schoolcraft, Mich. Phelps, '81, is back at the University of Michigan, his health is much improved.

Rev. Martin T. Ramer, the pious man of class '76, is located at Creston City, Iowa, where (writes a graduate) his time is divided between entertaining his wife, converting the natives, and cultivating a small piece of ground for pastime.

Alva Sherwood, '81, was principal of the schools at New Troy (his home) last year. His success was so marked, that this spring he was offered a much larger school and better pay at Three Oaks, Mich., which place he has taken for one year.

A. L. Seeley and J. P. Letts, formerly of '81, graduated at the Detroit Medical College, in the spring, and are practising medicine, the one at North Branch, the other at Romeo. Dr. Seeley was married the day of his graduation to Miss Anna Chariton of Orion.

Geo. E. Breck, '78, recently purchased two acres of land in Paw Paw, and has planted on it thirty-nine varieties of our forest trees, all that he could find in that vicinity. He expects to spend a part of the summer in Connecticut, combining business with pleasure.

A very excellent article on embellishment of school grounds, may be found in the last Michigan Horticultural Report, written by Prof. James Cassidy formerly superintendent of our greenhouses, now Professor of Horticulture and Botany at the Colorado Agricultural College.

Chas. McCurdy, '81, returned to college last term but remained but a short time. He has gone back to his school at Old Mission. A gentleman recently here from that region speaks in very high terms of McCurdy's ability as a teacher, and of his excellent work outside his school.

W. F. Hoyt, '83, is at Columbus, O. He is assisting Prof. Halderman in his hospital work during vacation. He will also assist the Professor in his class clinics next winter; this virtually places Hoyt at the head of his class in that department. He will probably be here next commencement.

Mrs. C. W. Garfield, who imbibed a love of horticulture through early association with Profs. Prentiss, Tracy, and Beal at our College, makes an able assistant to her husband in his work for the state, not only this but she is prosecuting a series of experiments of her own in the culture of the rose.

H. W. Collingwood, '83, besides attending to editorial matters, is teaching a class in elocution at the Agricultural and Mechanical College of Mississippi. He is also manager of the Starkville base ball club, of which Richard Gully, '78, is President. They expect this club to scoop everything it meets.

J. W. Beaumont, '82, who is pursuing the study of law with Wood & Joslin, of Saginaw, spent several days with us last week. He was in attendance at the Inter-Collegiate Society Association meeting. "Wes." received a hearty welcome from the faculty and boys, as probably no graduate ever left more friends behind him than did he.

J. D. Carpenter, once with '79, has recently had a leg amputated, because of disease of the knee joint, a recurrence of the trouble which caused him to leave his course here. He has been a physician in successful practice at Rolla, Mo., but on account of his limb was forced to change his location to a place where his practice would involve less horse-back riding. His office is now at Springfield, Mo.

Arthur B. Peebles, class '78, is prosecuting missionary work at Salt Lake City, but while earnestly following his work as minister of the gospel, so far remembers the training of his alma mater that he purposes putting out a peach orchard between Salt Lake City and Ogden, having already made preparations for it. He is chairman of the General Fruit committee, in Utah, for the American Pomological Society.

Harry Emmons, '78, flour and feed merchant, Detroit, writes us that owing to the constant increase of his business, as well as his family, which at present numbers four, he finds it necessary to have more room; and consequently is building a new

brick house, three stories high, and fitted up with all modern conveniences. It is situated on Warren avenue west, corner of Crawford street, where all his college friends will find a hearty welcome.

Geo. W. Mitchell, '74, is living near Leatherwood, Ind., where he has a fine farm of 200 acres, but thinks of moving to Oregon to go into fruit raising; he says Oregon is as good as California for most fruits, though grapes and peaches do not do as well. He lost by death in '77, one child, and in '82 his wife and a child, but has married again since. On May 30, he and his wife started on a trip to Washington, D. C., to be gone for about ten days.

## COLLEGES.

There is only one student in the agricultural department at Yale.

Six billiard tables have been placed in the gymnasium at Amherst.

Fifteen of the first thirty-two governors of Connecticut were Yale men.

Monmouth College is to hold its commencement exercises on the Campus.

Stevens Institute admits only the fifty passing the best entrance examinations.

It is stated that nine-tenths of the college students in the United States are Republicans.

Judge Cooley has resigned the deanship of the law department at the Michigan University.

Fifteen hundred dollars have been subscribed at Amherst for the support of the base ball nine.

The Medical class at the University of Michigan has seventeen married men in its possession.

The president of Yale consider that the student's zeal for culture is improved by indulgence in athletic sports.

The Class dress of the Seniors of Wabash college is the sailor suit. All will appear at commencement in class costumes.

In order to meet graduation and other expenses, the senior class of Cornell has taxed its members thirteen dollars apiece.

The classmates of Allen Arthur at Princeton, are angry at the favoritism shown him merely because he is the President's son.

In the last ten years over \$35,622,000 have been donated to colleges in this country, and since 1847 more than fifty millions.

A large portion of the Junior class at Dartmouth is threatened with suspension on account of dishonesty in the recent examinations.

The largest observatory dome in the world is being made for the University of Virginia. It measures forty-five feet at the base and weighs ten tons.

Chauncey M. Depew told the Yale alumni, at their dinner in New York recently, that there are 3,000 college graduates in that city who could not earn a living.

The London Spectator says that Professor Sylvester, late of Johns Hopkins University, but now of Oxford, is, with possibly one exception, the greatest mathematician alive.

Two hundred Princeton students took part in the late city elections, and elected the Democratic candidate, as an act of retaliation for fines imposed upon them by the Republican Mayor.

There are 81,000 masters and mistresses teaching in the public schools of France, and out of this number no fewer than 48,043 receive salaries below \$200.00 a year, while 579 receive salaries above \$520.

One of the best Greek scholars in the country, during a recent lecture on the benefits of a classical education, said that there does not exist a graduate of an American college who can properly affix the accents to a page of printed Greek.

At Dartmouth two new prizes have been offered; one of \$40 for the best essay on "Free Trade", and the other of \$50 for the best one on "Protection." This seems to point to the fact that it is worth more to get up a good essay on the subject of "Protection than it is on the subject of "Free Trade."

The Northwestern College students at Naperville, Ill., are having trouble with the faculty. The boys adopted a uniform similar to that of the bicyclers, and the faculty refuse to allow them to be worn in the class-room, while the boys claim it does not belong to the business of the faculty to superintend their dress.

After much opposition on the part of both professors and students of the Canadian universities, the Ontario Legislature has decided that women shall be admitted as students in the Toronto Provincial University, which is the leading seat of learning in Canada, and it is looked upon as a certainty that most of the universities in the other provinces will follow the example.

The class of '75, of the University of New York, has recently made that institution a present of over two hundred and seventy-five photographs of sculpture, of Roman Architecture, of modern architecture, of celebrated paintings, etc. Some are very striking and beautiful and will certainly help to cultivate a taste for the æsthetic.

## EXCHANGES.

The Critic, a new paper published at the University of Ohio, comes to us. It is a new departure in the line of college journalism, and what it is can best be learned from its leading editorial, which reads as follows: There is certainly a demand for a college newspaper. It is therefore the proposition of the class of '85 to publish a weekly newspaper, not in opposition to the Lantern, or any college organization, but for the benefit and improvement of all. We enter upon the enterprise with college spirit rather than class spirit. We propose to publish a college organ, not a mere partisan class organ. It is not our object to antagonize the Lantern or Makio, but to aid and assist each. Above all else it is the desire of '85 to exclude all partisan feeling, and to make the Critic impartial and fair in its dealings with every one. Our columns are open to all, and contributions from all quarters, on all topics, are earnestly solicited. We propose to put forth our best efforts to make the enterprise a thorough success, and ask the aid of all public spirited students. And now, "with malice toward none, and charity for all", the Critic starts on its career, and takes its place among the enterprises originated by the students of the O. S. U. Whether this venture will be a success or not is still to be proved, but it seems to us that, as a newspaper, the college production cannot be a success. The college paper has a particular office to perform, and this office corresponds to that of the newspaper only as it embraces news of the institution at which it is published, and of other institutions of like nature. A paper published by attendant students cannot enjoy the facilities for gathering general news that the average newspaper does; and furthermore, it is not expected that it should. The college paper has its particular sphere of action, and any attempt to leave that sphere is liable to result in failure. We shall watch the career of the Critic with interest, and hope that it may be a success.

The Ariel thus exhorts the Juniors of the University of Minnesota: The close of the school year is drawing near. The Senior has finished his work for good or ill. If he has worked faithfully, he can look back upon his college life with satisfaction; if he has wasted his time in college, it is now too late to complain of or repair the loss. But it is well that we, of the lower classes, should consider our situation at such a time as this. We have still some time left before the close of the term to make up for our past neglect and prepare ourselves for the final trial of the year. Although we should awake with awakening nature, and take a lively interest in the sports of the field, let us remember our studies and never forget the bad effect of conditions at the beginning of a new year. Besides there is a year or more of college life before us and now is the time to resolve to employ it properly, and not deny ourselves the pleasure and satisfaction of saying at the end of our course, we have done our best.

The various colleges are preparing for their annual commencement exercises, and the various college papers will soon be full of extended accounts of that great event. The land will be filled with the sound of commencement oratory, and class historians will bring forth their praises and exaggeration of college life and the doings of the class of '84.

The column of communications occupies a prominent position in the make-up of the College Courier, and shows that the alumni take some interest in the running of that paper. The SPECULUM would gladly publish any communications if the alumni would be kind enough to send any, as we think it is quite a necessary department of a college paper.

The Academy News is a very creditable sheet, published at the Orchard Lake Military Academy. It is a new venture and we gladly place it upon our exchange list.

A recent number of the Notre Dame Scholastic contained a very extended and interesting lecture on Oliver Goldsmith.



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## IONIA CITY LAUNDRY.

*Collars and Cuffs a Specialty.*

GOOD WORK GAURANTEED.

COREY & OLMSTEAD,

IONIA, - - - MICH.

# W. R A P L E E,

WHOLESALE AND RETAIL DEALER IN

Jewelry, Watches, Clocks, Diamonds,  
Silver and Plated-Ware.

119 WASHINGTON AVENUE, - LANSING, MICH.

REPAIRING NEATLY DONE.

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## HUDSON HOUSE,

M. HUDSON, Proprietor. - LANSING, MICH.

RATES, \$2.00 PER DAY.

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## J. F R A Z E L,

NORTH LANSING,

## BAKER AND CONFECTIONER.

A FULL LINE OF CANDIES, CAKES, OYSTERS, ETC.

FINE CAKES A SPECIALTY.

Customers will find it to their advantage to call and see me.

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## SHEARER'S LAUNDRY

takes the lead on

## COLLARS AND CUFFS.

We use no hardening in our starch, therefore we break no collars.

TRY OUR WORK  
AND SATISFY YOURSELF.

TWO DOORS FROM POSTOFFICE, EAST, LANSING, MICH.

STUDENTS:—It will Pay You to Call on W. G. PATTERSON for Boots, Shoes, and Rubbers.

REPAIRING NEATLY DONE.

Washington Avenue, Lansing.

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## T A Y L O R & C O . ' S

ONE-PRICE BOOT AND SHOE HOUSE,

# PECK, ESSELSTYN & CO.,

MANUFACTURERS OF AND WHOLESALE DEALERS IN

## CRACKERS, CAKES, SWEET GOODS,

AND CANDIES OF ALL KINDS.

LANSING, . . . MICHIGAN.

JOHN HERRMANN,

Opposite Opera Block,

MERCHANT TAILOR,

KEEPS THE LARGEST AND BEST STOCK OF

**Merchant Tailor's Goods**

IN MICHIGAN.

BEST FIT FOR THE LEAST MONEY.

Students, Come and See Me.

HEADQUARTERS FOR COLLEGE BOYS!

**GEO. T. DAVIS'S**

Bakery, Confectionery, and Restaurant.

ICE CREAM AND OYSTERS IN SEASON.

Lunches at all Hours.

CIGARS AND TOBACCO.

BANQUET ORDERS PROMPTLY ATTENDED TO.

103 Washington Avenue, Lansing.

## ABER'S SHOE STORE

Takes no Backward Steps, but is

ALWAYS AT THE FRONT

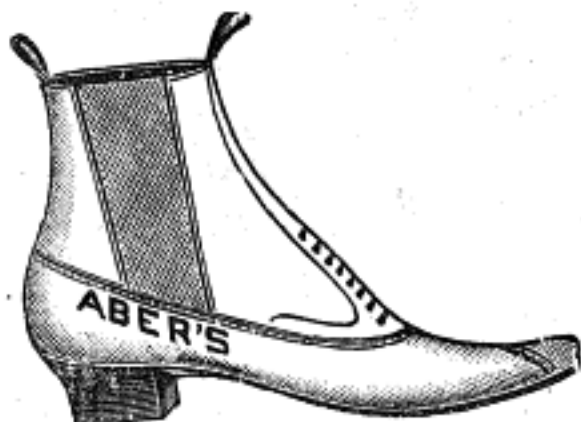
FULLY STOCKED WITH A FINE LINE OF

### BOOTS

Excellent in Quality.

Students' Interests have the Preference.

A. ABER.



### SHOES!

Moderate in Price.

Repairing Promptly Done.

A. ABER.

=== B. F. SIMONS, ===

127 Washington Avenue,

DISPLAYS THE FINEST AND LARGEST STOCK OF

## DRY GOODS AND CARPETS

THAT IT HAS EVER BEEN OUR PLEASURE TO OPEN IN THE CITY.

YOU WILL ALWAYS FIND GOODS JUST AS REPRESENTED, AND OUR PRICES AT THE BOTTOM.



**E. W. DART,**

DEALER IN

**HEAVY AND SHELF HARDWARE, GLASS, ETC.,**

ALSO THE

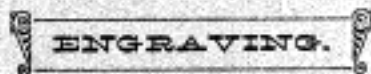
**CELEBRATED GASOLINE STOVE,  
GOLDEN STAR AND GARLAND STOVES AND RANGES.**

ALSO AGENT FOR

Fuller & Warren's, and Richardson, Boynton & Co.'s Furnaces.

B. P. RICHMOND,

**JEWELER,**



LANSING, MICHIGAN.

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**CROCKERY, CHINA, LAMPS.**

124 WASHINGTON AVENUE,

LANSING, - - MICH.

**TONSORIAL PARLORS,**

No. 108 Michigan Ave.,  
LANSING.

STUDENTS SURE OF EXCELLENT WORK IN ALL ITS  
BRANCHES, BY FIRST-CLASS ARTISTS.

MORT CURREN, } Artists.  
WM. BATAMAN, }  
FRANK SOBBIO, }

ELI BIDELMAN, Proprietor.

**FINE CIGARS AND TOBACCO**

IN STOCK AT ALL TIMES.

**FIRST CLASS LIVERY.**

STUDENTS' PATRONAGE SOLICITED.

JIMMY MARKEY.

**D. W. & M. J. BUCK,**

THE LARGEST AND MOST EXTENSIVE FURNITURE DEALERS IN CENTRAL MICHIGAN,

**Keep an Immense Stock and Sell the Cheapest,**

And You will Always Find What You Want

**AT PRICES TO SUIT YOU.**

**UNDERTAKING A SPECIALTY.**

193 and 195 Washington Avenue, Corner Ionia Street, Opposite Opera House, Lansing.

# SPRING AND SUMMER

STUDENTS AND OTHERS

WILL REMEMBER THAT

## LEDERER & SONS

ARE HEADQUARTERS FOR

# FINE CLOTHING,

AND ALL THE LATEST NOVELTIES IN

Hats, Caps, and Gents' Furnishing Goods.

LARGEST STOCK,

MOST FASHIONABLE GOODS,

LOWEST PRICES.

This is our reputation, and we have maintained it for twenty years.

H LEDERER & SONS, The Clothiers,  
WASHINGTON AVENUE.

*Lansing, June 1, 1884.*

## HULL BROTHERS,

DEALERS IN

# Fancy and Staple Groceries,

Fresh and Smoked Meats, Canned and Farinaceous Goods,  
Colgate's Toilet Soaps and Waters, Lubin's Perfumes,  
Toilet Powders, Champagnes, Imported Cigars;

MANUFACTURERS OF

## FINEST CONFECTIONS IN THE WEST

SELECT BAKING POWDER,

SELECT FLAVORING EXTRACTS,

KETTLE RENDERED LARD;

*Roasters and Grinders of the*

**FINEST COFFEES AND SPICES!**

And Curers of Sugar-Cured Ham, Bacon, Dried Beef, Smoked Tongues, etc.

None but Finest Goods kept, and all goods sold to the Consumer at less than Wholesale Prices.

**HULL BROTHERS,** - - **Opera House Block, Detroit, Mich.**