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thought can be
made fruitful."

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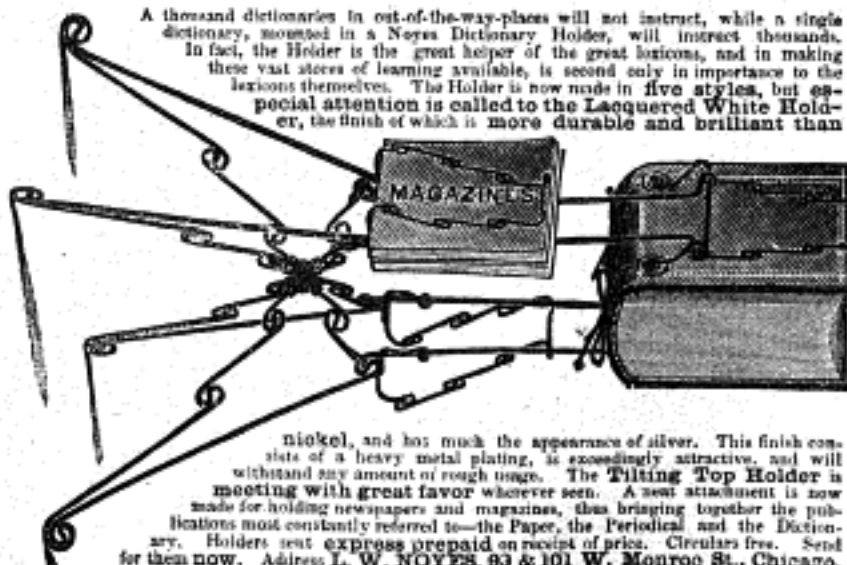
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THE COLLEGE SPECULUM.

Vol. II.

LANSING, MICH., AUGUST 1, 1882.

No. 1.

UTILITY.

In deepest wood
A flow'ret stood
'Neath unknown skies;
Its petals bright
Ne'er gave their light
To human eyes.

But laden fair
With beauties rare,
It called the bees;
And faintest veins
Revealed the gains
They stor'd in trees.

An honest man
With learning's ban
Espied the flow'r;
"Ah! little swain,
Thy life was vain
Until this hour."

But Nature knew
Of all that grew
Nothing was vain;
The restless tease
Of busy bees
Had render'd gain.

In honey'd raids
And stolen aids
That life began;
For Nature staid
Was never made
For haughty man.

Critics and Criticism.

BY LINCOLN AVERY, ECLECTIC SOCIETY.

The complexity of man's nature, the wide difference in the degree of completeness of development in his powers and capabilities, make him a critic and a subject of criticism.

Some men are selfish and criticise to be mean; many are thoughtless and use this common weapon, little noting the injury it causes; while a few criticise honestly, and are prompted to action by a right motive, productive of only genuine goodness. Performing our work, as we do, under the keen eye of these critics (for they are never absent), it is not strange that we seldom finish a piece of work that fails to draw out comments, perhaps complimentary ones, but more likely the pith and point is in showing defects and exposing absurdities. These unkind remarks are often passed on a production that has cost us much time and labor; when this is true they can but excite unpleasant feelings, and if we are of a sensitive nature they will certainly be a source of much annoyance, and may cause many evils. Some men have cheated life of its true purpose, because of their lack of power to divert attention from the criticisms heaped upon them. It may be safely said that our degree of success in whatever we undertake depends largely upon our power to take little note of unjust criticism, and to regard needless criticism as

the product of a mind governed by passion rather than discretion; when this is effected, we must learn to place the true value on that criticism which guards and elevates us, that tends to suppress our coarser nature, while it stimulates the finer to vigorous action, giving the mind absolute control of its powers and establishing personal independence.

Good opinions and good judgments are among man's most valuable acquisitions, and come only by elaborate toil; when these are shown to the public as defective, the originator can but feel that he has failed to accomplish his purpose; but in this he can be wrong, as there may be a want of ability in the critic to judge correctly. The person who is ready to criticise everything, and indulges much in criticism, should be called a talker rather than a critic; nothing of value comes from him. This kind of criticism should pass unnoticed; let it be regarded as idle talk, indulged in by men having influence in a circle of society composed of persons with no worthy aim for a motto.

A more common kind of criticism is that which is uncalled for. It seems very natural for some persons to indulge in commenting on others; but back of this fault we find something to admire and respect. The critic in question is likely to have a strong understanding and a solid judgment; but even with these commanding qualities he is disliked, simply because he indulges largely in needless criticism. Even our best friends suffer under this common lash; but he who uses it cannot further his own cause. It has a reflex action. This same friend will undoubtedly have accomplishments that we secretly admire; they also have their defects; but we are given to expose the defects, while the perfections pass without praise. This criticism comes through habit and thoughtlessness, and cannot be taken as the true estimate we have for the person. Even the professors, in our best educational institutions, are not exempt from this habit. A student rises to recite; through fear he blunders along, only to resume his seat after making a miserable failure. This often occurs when the student has a clear idea of the subject; but knowing the professor is ever ready to smile at his blunders, he is unable to concentrate his thoughts on the lesson. In time the student may be indifferent to remarks of this nature; but it seems like a costly experience for a cheap benefit.

But the day of raling by scorn and sneers is nearly past, and the effective work being done by the just critic is now in the advance. Every person should have, and the wise and unselfish person will have, much respect for the critic whose brain is stored with the knowledge and wisdom of ages, working to reform defects in our nature. To profit and grow stronger under this instruction we must throw aside that important air, which stifles progress instead of aiding it, and learn to regard the humiliation as an expression of our desire to become more like the ideal man; this done, we are fitting subjects to instruct with little danger of bringing discredit on the instructor. These are studied critics, and as such they effect a

development in our abilities of more than ordinary perfectness; a perfectness not merely of beauty, but of strength; like a butress, however relieved with tracery, adds an air of solidity to the building it props.

Man and Society.

BY W. E. HALE, PHI DELTA THETA.

To reveal precisely how far society unfolds and gives direction to individual minds, and to estimate all the impressions an individual makes upon his age, would be a difficult task. So inaudible, to the external world, are the many voices that speak, so invisible are the motives and impulses that move it, and often so difficult is it to trace the course in which thought communicates its power and accomplishes its purposes, that it is vain for us to hope for a perfect disclosure of the subject. Still there are some bright features and some striking manifestations.

Society is necessary to the perfect development of man. How could a person living in solitude, remote from all association with his fellow men attain to an elevation equal to that which the social system is designed to give him? In such an isolated state some of the higher faculties of one's nature must be partially, if not entirely, inactive. True, he might have some kind of a conception of an author of his being—the savage and barbarian have this—still he could not accomplish the design of fellowship which is necessary to develop every element of his nature that is to act in the attainment of noble objects.

It has always been the tendency of man, consciously or unconsciously, to work for the good of society. As men's views become broadened they are coming to understand that there is no climate, or soil, on whose productions they do not have to depend; no country in whose prosperity they are not interested. Not only are men of every race at work for the good of society, but they have been since the dawn of history.

The commercial intercourse of nations has had a tendency to introduce and correct all new conditions of progress. During the early periods of national existence there were many manifestations of man's original power. Homer arose at the time when the predominant principle was "might makes right," and in advance of this age wrote his songs, which in the highest advancement of the future the genius of learning will ever learn to turn back and consult.

Michael Angelo, with no models of the past, originated the glories in painting which have never been excelled.

Frequently society has made some severe variations in native genius and effected partial transformations without crushing all the high endowments of nature. Pascal for a time enriched society by the brilliancy of his wit and his conquests in thought. While in his strength the path of society led him into the seclusion of the cloister, no more to enlighten society.

While the spirit of the age has done much to call forth the most splendid triumphs of the mind, it has crushed the most lofty. The song of the poet Burns, while he dwelt in his woodland home, remote from the prevailing tendencies of society, felt nothing but the joy elicited by the scenery of his native hills. But when he went forth beneath the dominion of public life, the joy of his former days faded away and in his song he commenced to breathe a plaintive lay.

There is within man a power which has exerted on society, more than anything else, a lasting influence. It is the power of thought; thought that gives to man dominion over the beasts of the field, the birds of the air, and the fish of the sea; the mighty instrument that moves the affairs of the world. It has embodied itself in language and found the means of its own preservation, so that the thoughts of ages past become the thoughts of this.

In society now and then some master intellect has appeared.

Before his achievements the work of ages trembles and above the desolation of ancient power waves the banner of truth and power.

Martin Luther left the monasteries for the halls of science. After delighting his audiences with his lectures on philosophy, the consideration of the state of society comes before his notice. With all the genius of his intellect he undertakes a reform and is victorious.

Thus some individual has exerted a controlling influence on society and again society has directed the man.

As each mind exerts its own influence, the character of society must depend largely upon what man makes it. If his views of life are elevated and he works for others' good as well as his own, then he is fulfilling the highest objects in life. Surrounded by the associations of a pure society, he breathes a purer and better atmosphere, and may cultivate the good qualities of both the head and heart.

Desirability of a College Education.

BY F. F. ROGERS, UNION LITERARY SOCIETY.

Many young men, about to quit the common or the union school and start in the business of life, have some thoughts of a college education. They may have much desire for one, but the idea of spending four years in the vigor of youth within the walls of some college too often forever banishes this hope. Others have equally strong desires, but lack of means seems to put such an education far beyond their reach. This is a mistake. Our colleges are full of students who are constantly proving that, in this country at least, young men of average ability, both physical and mental, can get a college education if they desire.

The loss of time spent in its acquisition is the greatest drawback. No person feels this more keenly than the young alumnus, with his diploma in hand, seeking for the first time some profitable work in an unappreciating world. Yet who ever heard a graduate regret the time he spent in college? If he has some difficulty at first, let us not be too ready to censure him while there are plenty of his associates, who spent the same time at work and enjoying life, whose present prospects are no more flattering. It is never mentioned when the young men who never made any pretensions in life meet with some misfortune that hurls them again to the foot of the ladder, but let the college man take the same fall and many make it a business to spread the news and condemn his education.

It is true that too high an estimate is often placed on a college education, and far too much expected of it, both by its possessor and others who long to be of that class. The graduate who thinks he will no longer have to toil, but that when he leaves his alma mater he will be looked up to and honored by a host of admirers, will yet have many important lessons to

learn by bitter experience. Nothing is more erroneous. The struggle for life is intense, and the busy world will trample on the timid graduate with no more thought for his rights and feelings than for those of the burly rustic who never saw a college. A familiarity with Latin verbs or a scanty knowledge of chemistry and botany will not give the possessor a passport to success. It is in only a few professions that people can gain a living by these, and not there without years of preparation. We are told that ninety-nine per cent of our population must gain a living by some kind of manual labor. But shall we leave all higher education to the remaining one per cent? It should not be expected that all who get a college education are to gain a support directly from it, and so long as that hope is cherished many will be sadly disappointed. A general college education does not fit a person for a particular profession, but merely makes a broad and cultured man. It does not unfit him for the active duties of any business, but leaves him free to cope with the world in life's great struggle; and with his culture as the servant, not the master, he may hope to gain a prominent social position.

This may seem like small pay for so much time spent in college, and perhaps it would be if this were all. The graduate may not get honors, he may not find work where his education comes into immediate use, and he may feel four years behind the young man who started in business when he entered college, but he now has something which money cannot buy, and which he only can fully appreciate. He has a mind at his command, disciplined by mathematics, familiar with the general laws of natural science, and well stored with the best thoughts of the best men of all ages. He has more than this. He has a fair estimate of his own powers, determined by association with his equals on terms where no caste is recognized, except ability. In no place will a person sooner find his own level than in an American college. Here the rich and poor meet on the same ground. Shams that pass current in the outer world are here soon discovered by fellow students, and the would-be deceiver sinks forever to his deserved plane. With all this the rougher edges of his nature are ground off, the student becomes a more agreeable companion, while he receives a stimulus to greater effort that nothing else can give. In fact, he lays a foundation for a character worthy of a man in any business or profession.

Now which life will be the more pleasant, nay, the more profitable, his who spent the four years at work, neglecting the culture of man's best faculties for other pleasures, or his who spent the same time trying to develop to the fullest extent those same heaven-born powers? Money is the goal toward which all mankind are struggling, and is the unit of value by which all earthly things are measured. This is not wholly wrong, for nothing but money will insure the comforts and most of the pleasures of earth, while its lack, no matter how great the culture and other attainments, will bring poverty, with all its suffering. Yet, with all this, money is of no value except for the necessities and luxuries it will bring. Its getting may be a pleasure, but the college man is not debarred from this.

As our country develops competition in all business and professions becomes more intense, and the successful man is he who is prepared for the contest, who understands human nature, who becomes disheartened at nothing, but perseveres to the end and "faints not." Such men are the majority

of those that our colleges are annually throwing upon the land. There is a sort of struggle in every college that is hard to describe, but which tends to bring out all the energies and aspirations its students possess. It gives self-confidence, without conceit, and a determination to succeed that is of no small value. This it gives in addition to the culture it bestows.

The graduate looks upon the world as a man of less education cannot. He sees through his glass, more or less clearly, as he may have ground the lenses more or less perfectly, all peoples of all ages and classifies them according to their merits as civilizers. He looks out upon the vast ocean of human knowledge, and though he has but a drop, forms a feeble estimate of its immensity, and feels that in his drop are some perfect elements of the grand whole. Such a hope inspires the college student while toiling for his education. If to realize it he loses a few years from other work, he may yet outstrip the one who plodded on continually. But should he never do that, he is living many lives in one, and when his day of work is over he will be fully persuaded that "That life is long which answers life's great end."

Talent and Labor.

BY ED. A. BARTMESS, DELTA TAU DELTA SOCIETY.

Is there any excellence without great labor? Or are we firm adherents to the old maxim, "Labor conquers all things?" While it is true that persons differ in ability for making rapid advancement in certain lines of work, or in intellectual power for pursuing certain branches of science, yet does it necessarily follow that superiority in any department of life is gained by little exertion?

There are some who contend that eminence is due more to natural ability than to the patient work of years; that greatness is a gift of nature rather than the wages of toil. Natural ability has done much, but labor has done more. Those who have become illustrious in the world have always reinforced their natural ability with so much intellectual exertion that it is safer to say that their greatness is due more to their untiring energy in continued toil than to what natural talent they may have possessed. Yet some, like the ancients, see in their imaginations that goddess of the Fates that carefully spins into the thread of life the fibers of destiny and immortal fame. Are they right? Is it true that we are born great, or is every man's rank mainly dependent upon his own exertions? Let the past decide.

The page of history is adorned by the names of men who have won their imperishable fame, not by rank or riches, not by chance or birthright, not alone by nature's gift, but by toilsome mental drudgery for years. Ask the inventor how that majestic machine, with its almost intelligent movements, was constructed. Ask the musician how she became able to call forth from the silent instrument those heavenly melodies. Ask the writer how that soul-inspiring poem came to flow from his pen. Ask the painter how he became able to place those almost breathing forms upon the canvas. Ask the scientist how the stores of science have been enriched. They would all answer in the language of Dryden—

"What the child admired
The youth endeavored, and the man acquired."

Adding to talent the patient toil of years accomplished these great ends. We, seeing the perfect

fruits of their labor, are too apt to account for them solely by saying that heaven has favored such persons with superior faculties. While this may be true, yet is this the only reason that they stand on the heights of eminence? Ah! no; it is not all due to superior faculties. Natural talent will never reach eminence unless carried up the rugged steps by labor. Men of fame seldom arise from families of the rich, but nearly always from those of humble rank. Instead of coming from that class which, generally speaking, hold labor in contempt, great men may usually be traced to families who live by labor. The rich man, surrounded by all the luxuries of earth, is not obliged to exert his powers to maintain himself, and he seldom does. Although he may possess as much natural talent as the poor man, yet that talent alone accomplishes naught. Therefore we do not trace the great men of the world to families of wealth. No, they come from lower rank. They learned to love labor, and labor won for them their way to eminence.

Our assertions here are not unsubstantiated. History will sustain us on this point.

Read the life of Stephenson, who built the locomotive; of Herschel, Kepler, and Copernicus, who swept the heavens with their telescopes; of Franklin, the scientist and statesman; of Spurgeon, Luther, Clay, and Henry, who swayed the people by the power of their oratory; of Hogarth, Sharp, Tassie, and Lough, who charmed the world with their art. All these men had to labor before they could eat. While struggling to support themselves and families, they were toiling with their studies. Have the world's greatest men been workers, or did natural ability accomplish all? These results are due to both labor and talent combined, but more to labor than talent. Some one has said: "A pound of labor with an ounce of talent will achieve greater results than a pound of talent with an ounce of labor." We believe it. History proves it.

The shores of fortune are to-day strewn with the wrecks of men of natural talent, who sank in sight of land because they did not toil to reach the port, while men of less abilities have, by dint of labor, anchored safely.

Although there are those in the world who fail to see that greatness is secured by labor, yet the men who have attained eminence understood that labor was required. Hear Calhoun's reply to his school-fellows who jeered at him because he devoted so much of his time to study: "If I do not improve my time while here, I shall not acquit myself well when in congress." He knew the secret of great men's success. When Michael Angelo was asked why he did not marry, he replied: "Painting is my wife, and my works are my children." Although he possessed great natural talent, yet he devoted all his time and energies to his chosen art.

Natural ability is a very useful instrument in hewing the way through obstacles along the road to success; yet an instrument is worth nothing unless in the hands of a live workman. The sluggard accomplishes nothing with the same tools that a diligent workman builds an edifice that causes the whole world to turn a wondering eye. A man may have natural ability, but will this make him great in spite of himself? No; "Mortar and stones are nothing but stones and mortar until the builder makes them something else." Talent will remain passive unless brought into activity by an active agent. The tiny germ in the acorn will not develop if it be not surrounded by favorable conditions; but when favored,

it becomes the mighty oak that defies the tempest and towers high above the surrounding country. So it is with natural talent. It remains dormant unless nurtured by culture. But when this talent is cultivated, we have an intellect that shines with a conspicuous brightness in the constellation of great men.

We hope the time will come when the fledgling from a mushroom institution will cease to plume his wings so that he may be borne by favorable winds to the pinnacle of fame. Nothing but labor will make our advance as constant as the light of sunrise.

The man who, when he has launched his bark on the ocean of life, takes simply his natural ability aboard to pilot him to some haven of greatness, soon finds that natural ability alone furnishes no motive power. His drifting bark is carried round and round, and the beacon light of the shining haven, which he so plainly saw when he first set out, is now hidden from view by the mists and fogs of disappointment and error. Other men sail by him and are soon out of sight. Round and round he floats, and finally his light goes out, and his cargo of precious talents, wrapped in the shrouds of despair, is swallowed up in the maelstrom of failure. The sullen waters close over him and not a spar of good is left behind to mark his existence. The world misses him not and it is as if he had not been.

But had he taken on board the enginery of labor, his course would have been direct, his progress constant, and buoyed up by success, he would have sailed his majestic craft safely and cast anchor with other men of renown in the harbor of greatness.

"The heights by great men reached and kept
Were not attained by sudden flight;
But they while their companions slept
Were toiling upward in the right."

SCIENTIFIC.

Care of Cisterns for Rain-water.

For domestic comfort and cleanliness an abundant supply of rain-water is indispensable wherever the soil-water is hard. The cistern and its surroundings require careful consideration to preserve the water in a sweet and wholesome condition. Of course it must be preserved from the inflowing of any filth from any source; it must also be preserved from all gaseous contamination from any sewer or cesspool in its neighborhood, because noxious gases and foul odors will readily be absorbed by water to such an extent as to render it unfit for use. These facts have long been recognized.

But there are other ways in which the water in a cistern may acquire an intolerable odor which are not so generally recognized. When trees grow in the vicinity of the house the waste materials of tree growth in the shape of blossoms, seeds, pollen, leaves, etc., fall on the roof and are carried by rain-water into the cistern; the waste of the shingles or "weather-beat" is also carried into the cistern. This accumulation of organic matter soon settles to the bottom of the cistern, where it undergoes slow decomposition—the water at the bottom of the cistern absorbs the products of this decomposition, and thus acquires after a time a very offensive odor, while the water at the top of the cistern may be almost entirely free from bad odor. The pump usually takes water from the bottom of the cistern; when this bottom water delivered by the pump becomes too offensive for endurance the decree goes forth to "clean out the

cistern," when only a comparatively small amount of dark brown organic matter is found at the bottom of the cistern. When the cistern is again filled with rain-water it remains odorless for a time, but in a year or two the same accumulation of organic matter will cause a return of offensive odors.

Having tried this experiment of cleaning, watching, and smelling till the novelty had worn off, I discovered that the surface water remained free from bad odor even when the bottom water was intolerable. I then tried the experiment of raising the end of the lead pipe of the pump from the bottom of the cistern nearly to the top of the water, so that the pump would draw the water from the upper part of the cistern, when the offense ceased at once and did not return for three years. A few days ago complaint was made about the cistern water, when examination showed that the rope supporting the lead pipe had broken and the pipe had fallen back nearly to the bottom of the cistern.

I gathered specimens of water from the top and the bottom of the cistern for examination. The surface water was clear, odorless, and fit for use; the water from the bottom of the cistern contained exfoliations of the trees and a considerable amount of brownish-black organic matter too much decomposed to admit of ready identification; the water had a disagreeable odor, especially noticeable when it became warm; it was swarming with microscopic animalcules.

Analysis of the water showed that the surface water contained two milligrams of free ammonia in a litre, and yielded five milligrams of albuminoid ammonia to the litre; the bottom water contained five milligrams of free ammonia to the litre, and yielded fifteen milligrams of albuminoid ammonia to the litre. The bottom water is thus seen to contain three times as much nitrogenous impurity as the surface water. Nitrites were not detected in either water by Price's test.

Since the impurities are mostly at the bottom of the cistern and good water at the top, by keeping the receiving end of the pump-pipe near the surface of the water we avoid most of these impurities. The pipe may be suspended by a wire, or, better still, by attaching the pipe to a tin drum (air-tight), which will float the pipe at a certain distance from the surface of the water.

Many persons will justly regard with suspicion this layer of decomposing organic matter at the bottom of the cistern, and will ask how it can be avoided without emptying the cistern. Some recommend filtering the water through porous brick while it is pumped. For this purpose they make a filter box about two feet square by setting porous brick edgewise in water-lime mortar, so as to inclose a space in which the pump-pipe terminates, so that no water can enter this filter-space except by filtering through the brick. If this filter-box is made water-tight at the edges of the brick by cement, all solid matter will be excluded from the pump, but dissolved substances and odors will not be excluded.

A self-cleaning cistern may easily be secured by causing the surplus water or overflow to be withdrawn from the bottom of the cistern, so as to sweep out all bottom dirt whenever there is an overflow. In making a cistern excavate a small pit a foot deep and two feet wide in bottom of the cistern and directly below the place in the wall where the overflow drain is placed, and let the bottom of the cistern slope towards this catch-well, so that all solid matters will flow into this pit. Make an overflow pipe of galvanized iron in the shape of the letter f, this pipe three inches in

diameter, reaching nearly to the bottom of the pit, and the arched part of the top of the pipe passing through the cistern wall into the overflow drain. The top of the pipe is placed at the height where we wish to check the filling of the cistern; when the cistern fills to the top of our f the water will flow through this pipe as a syphon, but all the water which flows from the cistern must come from the bottom of our catch-well, and any dirt in this basin will be swept out by the first stream of water that overflows. Cisterns of the usual construction may be kept in very fair condition by causing the overflow to come from the bottom of the cistern, thus removing the cause of foul odors. By punching a small air-hole in the top of the overflow pipe all danger of emptying the cistern by the action of a syphon will be obviated entirely.

If the cistern is constructed so as to exclude all vermin, is made frost-tight, has a catch-basin and overflow pipe from the bottom, and the lead pipe secured to an air-tight tin drum which will keep the open end of pipe near the surface of the water, such cistern will keep itself in good condition for any length of time.

As the overflow is usually managed, it is only the comparatively clean surface water of the cistern that flows away, and the accumulated filth at the bottom is saved for domestic use. This is cheap, easy, and unsanitary. "Yet show I unto you a more excellent way."

Analytical Results in the Class-room.

The Sophomore class in their work in chemical analysis have combined work and play in the analysis of various substances which at different times have flooded the markets of our State. Some of the results already reached by the class are given here, with the cost of the article and the price at which it was offered for sale:

1. *Coaline*. Eight ounces of sal soda (carbonate of sodium) in a gallon of water, with a few drops of nitro-benzol to give it an agreeable odor. Costs 3 cents a gallon; retail price 40 cents.

2. *Silver Plating Fluid*. An ounce vial of solution of nitrate of mercury, which will form a temporary silvery coating when rubbed on brass, copper, or silver, which speedily tarnishes when exposed to the air. Cost 3 cents; retail price 50 cents.

3. *Nickel Plating Fluid* is the same as 2, except that a little nitrate of copper and nitrate of nickel are added to the solution of nitrate of mercury. Cost 3 cents; retail price 50 to 75 cents.

4. *Fire Test Powders*, to prevent explosions in kerosene lamps, the breaking of lamps and chimneys, and the danger of burning from the use of low-grade oil. These are pill-boxes containing one or two ounces of common salt, colored with analine red. Cost 1 cent a box; retail price 60 cents, or two for a dollar.

5. *Fire Proof Powder* from Wisconsin is water-lime. Cost $\frac{1}{2}$ cent; retail price not known.

6. *Silver Polish*. Pill-box filled with water-lime. Cost $\frac{1}{2}$ cent; retail price 25 cents.

7. *Ozone*. A package of about $\frac{1}{2}$ pound weight, consisting of pulverized sulphur, colored with lamp-black and scented with oil of cinnamon. Cost 4 cents; retail price \$2.00.

8. *Spear's Preservative Fluid* consists of one ounce of bisulphite of soda dissolved in a pint of water. Cost 5 cents; retail price \$1.50.

9. *Marie Fontaine's Moth and Freckle Cure*. For external use only. Put the contents of this package

into an eight ounce bottle, and then fill with rain-water. The package contains 32 grains of corrosive sublimate, or mercuric chloride. Cost $\frac{1}{2}$ cent; retail price 50 cents.

This is only a part of the nostrums examined by the class in chemical analysis, and other substances, such as Sozodont, Mrs. Allen's Hair Dye, and St. Jacob's Oil await their turn.

Meteorological Observations.

One of the characteristics of modern science is the close and even-plodding observation of natural phenomena for determining natural laws. In no department is this pains-taking method more necessary than in determining the meteorological conditions of any locality; the fact that 25 years' continuous observations are considered necessary simply to determine the average temperature of any place is one illustration in point. Many hold in light esteem the fruits of a harvest so slow to ripen, yet this is the price which must often be paid for valuable truth—all the more perhaps because its usefulness is not apparent to casual observation. Next to truthfulness the most characteristic element of the scientific method is patience. In matters spiritual we are told "he that believeth shall not make haste." In matters scientific we must not make haste if we would have aught worth believing.

As a slight contribution to the study of the meteorology of Central Michigan I present the following summary of 17 years' observations taken at the State Agricultural College, relating to the state of moisture in the air in the different months of the year, 1864 to 1880:

MONTHS.	Relative Humidity or percentage of saturation with vapor of water.	Absolute Humidity or number of grains of water present in each cubic foot of air.	Grains of water required in each cubic foot of air to saturate the air.	Tension in inches of vapor of water present in air.	Temperature of dew point.
January.....	79.00	1.38	.36	.114	16°.00
February.....	80.70	1.49	.37	.130	18°.37
March.....	77.10	1.84	.55	.155	24°.40
April.....	70.00	2.63	1.14	.228	35°.45
May.....	72.88	4.10	1.50	.367	49°.50
June.....	76.62	5.73	1.89	.520	59°.52
July.....	78.56	6.11	1.78	.611	64°.46
August.....	80.50	5.83	1.81	.532	60°.23
September.....	82.35	4.82	1.02	.429	54°.00
October.....	78.76	3.26	.85	.261	41°.14
November.....	78.60	2.07	.58	.175	28°.15
December.....	81.10	1.53	.36	.127	19°.03
Average.....	78.01	3.39	1.02	.304	39°.18

This table will repay careful study. The fact that the difference between the average temperature of dew point and the average temperature of the open air in the center of our State is less than 8°, and the fact that the average temperature of the summer months is less than 9° above the temperature of dew point for the same months, are conditions of vast significance in our meteorology. They show the action of some force which gives stability to our climate and saves us alike from the burning heats and parching droughts of the western plains. This equalizing and controlling force is to be found in the girdle of lakes clasping our borders, which, like the fabled Cestus of Venus, presents every symbol of beauty to woo the loving ministries of nature.

APPLIED CHEMISTRY.—Some of the alleged applications of chemistry in medicine as claimed in advertisements of quack remedies are of an astonishing nature, and would make Davy and Lavoisier "stare and gasp." But some of the applications of chemistry to agriculture are nearly as startling, especially in the line of patent fertilizers. A shining example has come under our notice: "*The Vitative Compound, or Seed and Plant Invigorator!*" This compound is purely chemical in its character and effects, containing in a condensed form those ingredients so generally deficient in the soil, and yet so essential to the immediate and certain germination of the seed, and the vigorous and rapid growth of the plant. Price \$1.00. Address Waugaman & Co., Blairsville, Pa. Patented April 21st, 1874."

The box contains between one and two ounces of a mixture of sulphate of zinc, acetate of lead, and alum. The cost of the materials to fill the box will not exceed two or three cents, while the price is \$1.00. The patentee is correct in saying that those ingredients are generally deficient in the soil—in fact the best of crops have been raised for thousands of years on soils which were destitute of sulphate of zinc, alum, and acetate of lead—yet he is very seriously mistaken when he claims that they are "essential to the immediate and certain germination of the seed and the vigorous and rapid growth of the plant." What possible influence can white vitriol, sugar of lead, and alum have on the germination of seed or development of the plant? Zinc, lead, and alumina form no part of the chemicals of agriculture. The intrinsic value of this mixture for the purposes stated is a nullity. But if any one wants to try their virtue he can obtain the materials for much less than a dollar an ounce from any drug store in the land. If any one will demonstrate the superior excellence of this chemical farrago as a "seed and plant invigorator," we will richly reward his industry and perseverance by presenting him with a copy of THE COLLEGE SPECULUM.

INFLUENCE OF LOCAL HEAT ON PLANT GROWTH.—The general fact that increase of temperature accelerates plant growth is well known, but the fact that heat locally applied may cause vigorous growth of some part of the plant while the rest of the plant remains dormant is not so generally known. Keepers of hot-houses have occasionally observed that a branch of a grape vine brought into a hot-house may unfold its buds even while the rest of the vine remains dormant while exposed out-doors, and the roots may be in frozen ground.

A good illustration of early growth of part of the plant by reason of local heat was observed on the College grounds early this spring. The south wall of Prof. McEwan's house is covered by a magnificent growth of Virginia creeper. The buds of most of the plant were waiting for warm weather and showed no signs of active growth, but the buds in front of an open chamber window showed a striking contrast. The window sash was raised about four inches and in this condition was left for many weeks. The warmer air from this chamber flowed over the leaf buds of the vine and called them into early activity, so that a fringe of green leaves bordered the window sill some weeks before the rest of the plant leaved out. This chaplet of living green was seen and admired by a large number of persons.

Not only may premature growth be secured by local heat, but increased growth throughout the season and earlier maturity of blossom and fruit

may be secured by local heat. This subject opens an interesting field for study and experiment to the florist and fruit-grower. The system of wall and terrace culture is only one illustration of this principle. A board placed behind a peach, pear, or bunch of grapes, by intensifying the sun's heat, may produce an earlier or more perfect ripening than would be possible by simple exposure in the open air.

THE COLLEGE SPECULUM.

Published Quarterly, on the 1st of August, October, April, and June,

BY THE STUDENTS

— OF —

THE MICHIGAN STATE AGRICULTURAL COLLEGE.

TERMS, 50 CENTS A YEAR; SINGLE NUMBERS, 15 CENTS.

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LANSING, MICH., AUGUST 1, 1882.

THE SPECULUM has successfully passed its first era and it is with renewed efforts and a feeling of increased confidence that it commences the second year of its existence. Organized as an experiment, it has proved itself worthy of the able support of both students and alumni. The success which it has attained is notably due to this support and to the admirable way in which it was managed. But the work must not stop here, as if we were content with these results. This is an age of progressive advancement, and it is only by continued and careful work that THE SPECULUM can expect to maintain its position with first-class college journals. What we need to do at present is to place it on a sure foundation and to make it as permanent as the college itself. To thus perpetuate the paper and to furnish its patrons with interesting reading matter will be our first aim.

It is with reluctance that the corps of editors assumes the duty of editing and sustaining THE SPECULUM, for it has become a very responsible work. While there is a chance for improvement in several directions, they can only promise to do their best to effect it. There is a growing tendency on the part of the students to think that THE SPECULUM is simply a product of the editors, which is an impression that should be immediately corrected. One of its commendable features has been the originality of the thought expressed, but if this be maintained it must also receive the universal support of both alumnus and undergraduate. It is the exponent of the students,

and proposes not only to express their particular needs, but to advocate those ideas that will ultimately benefit the college. When the students contribute more generally to the paper in a literary way, then will it have a stronger hold upon them and be assured of more general success.

The high standard of purity which has so far been a characteristic of the paper will be preserved in the future. Articles that possess no merit or have no direct aim cannot expect to be reflected in THE SPECULUM. Especial care will be taken to make the personals as full and interesting as possible, and it is hoped that the alumni will give material aid to the editor of this department by sending to him all personal items of interest. No very important changes will be made at present. The literary articles, instead of being solicited from the students at large, will be written by representatives from the four different literary societies, and will to a certain degree indicate the character of their work. By this plan we intend not only to receive good, readable articles without being troubled with the work of securing a writer, but also to encourage students in more effective society work. The tint of the cover has been changed for one more permanent and still equally attractive. We hope we may be assisted in our earnest efforts to publish a good magazine and that we may be kindly corrected wherein we are wrong, thus tending to make THE SPECULUM one of the best of college papers.

WE CALL attention to the present condition of our chapel and the need of a new one. To one who is familiar with the College or to one who has ever visited it, the fact need scarcely be mentioned. In the infancy of the College, when classes were small and exercises but poorly attended, our chapel accommodated all, and in appearance accorded well with the other rooms and buildings. But since that time it has strode rapidly forward, and the appearance of our chapel is now no longer in harmony with the newer laboratories and class-rooms. Classes have increased in numbers, and on some occasions, as at commencement, when we most need a pleasant, commodious chapel, it falls far short of accommodating those who desire to attend the exercises. In fact, a small party besides our regular students fills it to overflowing. In our daily routine we notice the defects of our chapel. Morning after morning we enter it and again and again notice its poor condition; the appearance of the room itself is so simple that it fails to awaken in us that feeling of reverence which is due. On Wednesdays even the terrified orator sees amid the confused ideas of his wandering mind its ill, unworthy appearance. None of the members of the College can be satisfied with it, and we hope that it will soon be replaced by one of which we may not be ashamed. We may claim for our College the honor of being the pioneer, that it has been, to a marked degree, an exemplar for the agricultural colleges of other States, and inasmuch as success has

always attended its efforts, nothing should be left undone that a prosperous appearance demands or that may add in any way to the effectiveness of its work. Neither should we be quietly supplanted by other States. We have but to look west to see the fine, commodious chapel of the Iowa or Kansas Agricultural College, both many years our junior. While we do not advocate any extravagance, we think that Michigan can well afford her Agricultural College a suitable chapel. The College is becoming better and more popular every day. Laboratories, with convenient and well-furnished class-rooms, add beauty and thoroughness and show much advancement. Our new library and museum we may speak of with pride. Large and commodious barns besides their usefulness add greatly to the looks of the farm. The general appearance of the College in all its departments indicates a thriving condition, and in order that it may continue to be blessed with prosperity so conspicuous a portion of the institution as the chapel ought not and cannot be neglected.

WE AGAIN urge each alumnus, who possibly can, to attend the coming reunion. It will be largely attended, over two-thirds of those who have answered the Secretary's circular saying they will come. The local committee will endeavor to make the alumni and their friends as comfortable as circumstances will admit. Transportation to and from town will be low. All the railroads entering Lansing that have been heard from—all have been heard from save one—grant reduced rates to those attending these exercises. So the expenses will be low. In order to get the reduced rates the alumni and their accompanying friends must have certificates from the alumni Secretary. Therefore, if you have not already done so, it is important that you write to the Secretary the number of friends coming with you and the road on which you will come.

With the assurance of a large reunion, few inconveniences, and low expenses, every alumnus within reach ought to be present. It comes at a time when you can well afford to break loose from daily duties for a short time and visit Alma Mater. You will be interested in revisiting the College and freshening the memories of some of the most pleasant years of your life; in meeting and becoming acquainted with other alumni, in clasping the hands of old college friends and classmates, and learning of their trials and successes in life.

Come!

Do not let little things prevent you from coming, but put everything aside for at least one day and attend the reunion.

ONE OF THE prime objects of our labor system is to illustrate the principles taught in the class-room. To do this there must be an intimate relation between the teacher and the superintendent of the work. In fact, the only way to carry this out effectively is to

have each kind of work in charge of the professor who teaches the study relating to it.

Under the present condition of affairs the horticultural department is not as valuable, practically, as it should be. In the class-room we are taught the most improved and economical methods of growing fruit, caring for orchards, and other similar operations pertaining to horticulture. If, then, while at work, we could make a direct application of these theories they would become valuable to the student. But, to our loss, this cannot be done. He who has charge of the work adopts a system differing, in nearly every particular, from the one taught us, so that what was learned in class becomes of no value as an aid while at work. It thus becomes a matter of importance that he who imparts instruction at one time should direct its application at another. The college has grown to such an extent that there is plenty of work for professors of both botany and horticulture. The prosperous condition of affairs on the farm department illustrates the effectiveness of the principle. It is hoped that this matter will not only receive thought from the proper authorities, but action that will benefit both students and college.

IT IS GRATIFYING to the friends of this college to know that it is very popular throughout the country and that its work is appreciated for its real value. Its growth has not been rapid but it has been sure. Those who were engaged in founding this college pursued their work with untiring energy. The way in which difficulties were met and overcome in this task and the one that followed in placing the school on a solid basis, indicates the spirit that accompanied the labor. Men who have spent the best part of their lives for the sake of this college are just beginning to reap their rewards. It is strange yet it is true that some of the most radical opposition comes from the farmers. Their lack of sympathy for this kind of education is simply due to ignorance. They overestimate the amount of money that it costs the people of the State to support this institution, and they underrate its value to the agricultural classes. But since self praise is not very weighty, perhaps one would be better able to pass judgment if he knew how we were esteemed by those who live outside of our State. It is testimony that speaks for itself. A late issue of the New York Tribune says: "An institution like the Michigan Agricultural College, or that of Iowa, is worth to the farming interests of this country a dozen 'Departments of Agriculture' like the one at Washington, which the country pays for at the rate of say half a million dollars a year." Another paragraph advises, "farmers and others who have sons to educate to apply for and read the annual catalogues of the following excellent institutions: Agricultural College, Lansing, Mich.; Agricultural College, Ames, Iowa; * * *". At the time Clawson wheat was introduced into this State it proved to be a very valuable variety for the

farmers to raise. But in order to defraud them it was not graded as first-class wheat. A prominent Chicago paper said recently that when Dr. Kedzie exposed this fraud and proved the wheat to be of a superior quality, he saved more money for the farmers of Michigan than it has cost to maintain this College since its foundation. Very complimentary notices indeed, but considering the source they cannot be regarded as meaningless. Farmers of Michigan this College is looking out for your best interests. It has already done enough to merit your hearty support. In the future use your influence in its favor and thus aid it in doing valuable work for your people.

MANY VALUABLE ideas are derived from the lecture which is delivered before the students once each fortnight by some member of the faculty. But of late there has developed a desire to hear professors from other colleges or some of the public lecturers of note. To supply this demand we have been favored, under the auspices of the Young Men's Christian Association, with two excellent lectures. While upon this organization must be conferred the honor of introducing the project, yet in the minds of many there seems to be a more satisfactory method of operating it. The better way of having a course of lectures is through the means of an association formed for that special purpose. If, then, it has for its prominent features the remedied objections to the present system, it is something that should be established here at once. The lectures are at the expense of the students and should consequently be under their control. Then, too, with a more general organization, composed of most of the students, one would be justified in engaging the more expensive speakers. The most costly is seldom the best, still there are some professional lecturers whom we would like to hear, but this could only be done at a considerable outlay of money. The objection to the present system is that the Young Men's Christian Association has only a few members, the number being limited in consequence of the fact that no one can join who is not already a member of some church. This places the whole matter in the hands of a few, when, instead, the wishes of all should be consulted in order to gratify their taste as far as possible. A lecture association would obviate this, and at the same time have a more solid financial basis. If this matter should receive the prompt attention of the students, it would result in many highly entertaining lectures.

Considerable has been said against the present workings of the labor system in the horticultural department. In the whole discussion we do not remember to have heard one word in its favor. There can be no doubt that the work is very poorly superintended, owing perhaps to the fact that one man is obliged to look after everything. We believe, however, that the students could do much to improve the system, if they really desired. Good, honest work would surely help. Try it. It is but just to say that the grounds look much better than they did at this time last year.

COLLEGES.

Union College has made President Arthur an LL. D.

Harvard has received over \$300,000 in gifts during the past year.

Phi Beta Kappa has recently established a chapter at Cornell University.

Senator Joseph Brown has given \$50,000 to the State University of Georgia, the interest of which is to be used to aid in educating poor young men.

Columbia is the wealthiest college in the United States, and one of the largest in number of students. She has had during the last year 1587 students.

Over one hundred students graduated from the Medical Department of the Michigan University at the last commencement, and forty from the School of Pharmacy.

At Yale's commencement, all the alumni of more than fifty years' standing were invited to take seats on the platform. Half a dozen or more old gray-headed men came forward.

The ladies' hall at Olivet, which was destroyed by fire last spring, is being rapidly rebuilt. It is intended to have it ready for occupancy at the opening of the winter term in December.

The Hon. Thomas F. Bayard delivered an oration on "Daniel Webster" before the Phi Beta Kappa society at Dartmouth commencement, in commemoration of the centenary of Webster's death.

At the Mass. Agricultural College great attention is given the nursery, and in a manner that makes it quite an important source of revenue. Over 16,000 young fruit trees were sold from there last spring.

Prof. Howard, who, for the past two years, has had charge of the musical department of Olivet College, closed his labors there in June to accept a more lucrative position in the Boston Conservatory of Music.

J. K. Myers, of Louisville, Ky., has been elected Professor of Chemistry and Physics of the Agricultural and Mechanical College of Miss., to fill the vacancy caused by the death of Prof. R. F. Kedzie, of class of '71.

The first college paper ever published in the United States originated at Dartmouth. It was called the *Gazette* and made its appearance in August, 1799. Daniel Webster was at one time a contributor to its pages.

Dr. Chadbourne, the new president of Massachusetts Agricultural College, is a D. D. He was at one time president of Williams College, where he served some time as a professor, and has also been president of Wisconsin University.

The students of Iowa Agricultural College must have had an excellent opportunity to observe the effects of drainage. Under the supervision of Prof. Knapp over five miles of drain tile have been laid on the college farm during the present season.

Frank F. Jewett, for the past two years Instructor in Chemistry in Oberlin College, has been appointed Professor of Chemistry in that institution, to fill the vacancy caused by the death of Prof. W. K. Kedzie, a graduate of this College of the class of '70.

Prof. Wm. Trakese, of the Wisconsin University, a prominent writer on botanical subjects, who visited our college a year ago, has recently taken unto himself a wife from among the fair daughters of Madison. We congratulate the Professor and also the fortunate lady.

The honorary degree of Ph. D. has been conferred on Miss Alice Freeman, the newly elected president of Wellesley College, by Michigan University. Six members of the faculty of Wellesley are graduates of the University. It speaks well for western institutions when the East looks to them for instructors.

Prest. Seelye, of Amherst, is suggested by some of the Massachusetts papers as a possible candidate for Governor, and Prest. Elliott, of Harvard, is also spoken of as a congressional candidate. It is seldom that we see prominent educators taking an active part in politics. Perhaps it would aid in purifying the system if we had more.

The average annual expense for the four years of the graduating class of Michigan University has been \$439. Their heavy man weighs 210 lbs., while one member looks down on the world from a height of 6 ft. 4½ in. Their average age is 23 yrs. 2 mos.; the oldest member being 29 yrs. 9 mos., and the youngest 19 yrs. 6 mos. Out of 202 persons who entered only 64 graduated.

The average age of the graduating class of Yale is 22 yrs. 1 mo., the youngest member being 20 yrs. 1 mo., the oldest 39 yrs. 5 mos. One man weighs 200 lbs., one is 6 ft. 2½ in. in height, and one wears a 7½ hat, having the largest head on

Yale's record. Thirty-eight intend to be lawyers, 17 doctors, 8 teachers, 4 missionaries, and 29 business men. The average expense for the course was \$867 for the Freshman year, \$923 for the Sophomore, \$1,048 for the Junior, and \$1,063 for the Senior.

It is impossible for us who have never witnessed such a spectacle to realize fully the loss Grinnell College, of Iowa, has suffered by the terrible cyclone that passed over there a few weeks ago. Two of their main buildings were completely demolished and a third was consumed by fire, caused by the combustion of some chemicals in the laboratory. It will take them a long time to recover from this blow, but with true western energy they have set about obtaining funds sufficient to rebuild. It is to be hoped that its alumni and friends will respond liberally in this her darkest hour.

The meeting of the Teachers of Agriculture was held at the Iowa State Agricultural College July 4-7. The attendance was not large; but the meeting was one of interest and profit. The time was occupied in the discussion in an informal way of the following topics: Farmers' Institutes; Courses of Study for Agricultural Colleges; Labor of Students, Shall it be Compulsory? Is it Better to have the College Farm Large or Small? Shall it be Used for Experiments or Farmed for Profit? Co-operative Experiments; Apparatus for Illustration in Teaching Practical Agriculture; etc. A wide diversity of opinion and practice was apparent in the remarks of delegates from the different colleges. Compulsory student labor was only required at our College (Mich.), and this is the problem which other colleges as well as our own must solve. Prof. Townsend, of Ohio, was elected President and Henry, of Wis., Secretary. The next meeting will be at Columbus, Ohio, in June, 1883.

The Iowa Agricultural College, though young in years (organized in 1869) has taken a place in the front rank of our agricultural schools. It is located about two miles from Ames, a pleasant village in the central county of the State, Story. The approach to the college, through the spacious campus, gives a stranger a pleasant impression of the buildings and surroundings. The buildings, with the exception of the main edifice, are plain in external appearance, but finished and furnished for convenience in use. The farm department is most ably managed by Prof. Knapp, who is giving special attention to the cultivation of the grasses to which the farm seems adapted, and is breeding Short-horn and Holstein cattle, Percheron horses, and Southdown sheep. An experimental creamery, to be enlarged soon, is used in making some experiments and in giving instruction in the best methods of making butter and cheese, two of the great staples of Iowa agriculture. The field experiments are on quite a large scale, some forty acres being devoted to this purpose. Evidences of order and system were apparent everywhere on the farm premises. Prof. Budd, who has charge of the horticulture, is in northern Europe, sent there by the Iowa State Board of Agriculture to study the hardy fruits of that region. He is doing valuable work and developing his department in a most creditable manner. Prest. Welch, who has been the President of the College since its organization, is well known in Michigan as a former Principal of the Normal School and a member of the State Board of Education.

COLLEGE NEWS.

The new tool shed is completed.

Subscribe for THE SPECULUM; Vol. II.

Send for the *Commencement Annual*.

Come to the Alumni Reunion August 16th.

The new News Gatherer makes his bow to the public.

The roof of old College Hall is being repaired by Mr. Mohn.

The number of visitors to the College is larger than ever this year.

The farm department recently purchased a "Buckeye" twine self-binder.

Dr. A. J. Murray, of Detroit, is lecturing to the Seniors in veterinary science.

Vol. II of THE SPECULUM will be printed at the office of the *Lansing Republican*.

A large black dog recently attended a lecture in meteorology. He seemed to enjoy it.

Prof. Cook recently delivered an exceedingly practical lecture on "Smoking and Drinking."

The Seniors have secured Spell's orchestra, of Detroit, for commencement and class-day.

The chemical experiments with regard to the amount of sugar in sorghum will be repeated this year.

The commencement exercises will be held under canvas. A large tent has been secured at Battle Creek.

During its first year the College legal bar has only tried one case. Is the new system a failure, or are we growing more orderly?

Prof. Bessey, of Iowa, gave the class in entomology a short talk recently. He urged chiefly the importance of laboratory work.

A large party of students attended the commencement at Ann Arbor. The University is a great place, but "there's no place like home."

The Juniors enjoyed their short course in apiculture. Prof. Cook has a national reputation as an Entomologist, and is a decided enthusiast.

The old ball grounds have been given up, and a new "diamond" laid out on the other side of the road. The striker now faces to the southeast.

The various literary societies will probably hold banquets and reunions at commencement. The Deltas will celebrate their 10th birthday Aug. 14th.

The Eclectics held the only literary meeting in College July 1st. Delegations from the other societies attended and enjoyed the hospitality of the lively "Ticks."

An effort will be made to publish the Senior class-day exercises and orations in pamphlet form for the benefit of those who desire some souvenir of the occasion.

The 24th national convention of the Delta Tau Delta Fraternity will be held at Cleveland, Ohio, Aug. 24th. Quite a number of delegates will go from the chapter here.

Work has at last been started on the road between Lansing and the College. By the memory of many a long and muddy walk from town, we hope the good work will go on.

Mr. H. H. Harrington, of Miss., is taking a special course in chemistry with Dr. Kedzie. Mr. H. was assistant to the late Prof. R. F. Kedzie at the A. and M. College of Miss.

Prof. Samuel Dickie, of Albion College, lectured before the students June 2d. His subject was "Robert Burns," and the lecture is considered one of the best ever delivered here.

Mountings, including driving clock and right ascension and declension circles, were recently received from London for the telescope. These, when put in place, will add much to its use.

A Junior with a bug net and bottle is the most impressive sight of the term thus far. Seekers after the beautiful are respectfully referred to a dignified member of '83 in full pursuit of a butterfly.

The College garden, though hardly equal to last year's, shows in some departments the result of good management. Potatoes, peas, and onions look best. Considerable celery has been set out of late.

Many Freshmen are doing excellent work in botany this year. Each one will prepare a thesis showing the results of original investigations. This branch of the study grows more popular with each year.

Dr. Kedzie gave the Juniors three hours of experiments in electricity recently. "The Charge of the Heavy Brigade" was a very small affair by the side of the charge of electricity he gave the class in a body.

The Sophomores are having a good drill in rhetorical under Mr. Harrower. Each one delivers two original declamations before the class. We expect a tremendous outpouring of eloquence from them next term.

Fishing at Pine Lake is all the rage. Quite a number of student parties have been out, but most have returned with the traditional "fisherman's luck." The largest fish thus far has been caught by Mrs. Mallory.

The rumor has recently been started that one of our Seniors is married. We trust it is without foundation. We look to the class of '82 for example and inspiration. Such an example should be discouraged at once.

The Wednesday afternoon rhetorical are generally well attended by students. It is hard to expect students to listen with profound attention to old farmers' institute lectures, as they are sometimes called upon to do.

The College band provided music for the celebration of Decoration Day at Lansing. Much of the dignity was taken from their departure from College by the appearance of the mule team sent from Lansing for their conveyance.

The cattle on the farm were never in better condition than at present. The popularity of the herd is evinced by the number of orders received. The demand for Herefords and Galloways is best. Considerable stock is sold to old students and alumni. Orders have been received this term for seventeen Southdown lambs, seven going to Judge Marston, of Saginaw.

The fine Hereford calf on the farm was recently sold to a Lansing business man. The sale was the shortest on record. It took just sixteen words to complete the bargain: "What's that calf worth the day he's one year old?" "\$300." "I'll take him."

At the Shorthorn sale in Chicago last June Prof. Johnson secured a bull and three yearling heifers for the College herd. They are Col. Arcourt 2d, by 2d Duke of Northumberland, bred by Winslow Bros., and Mary, Roan Duchess, and Imported Harriet, bred by A. J. Streeter & Son.

The College band played at Pine Lake at the Fourth of July celebration. They returned in an exhausted condition on the morning of the 5th. Their music was all blown away, and they seemed most eminently "fit for treason's stratagems and spoils." Their music during the day was excellent.

The condition of crops on the farm may be described as follows: Hay an excellent crop and well secured. The average yield will be about two and one-half tons per acre. The wheat is fine. Potatoes, oats, and roots good. Corn is somewhat backward, as it is in all parts of the county.

Capitol Grange, of Lansing, held a picnic on the grounds June 5th. The students that helped themselves to a picnic dinner were not entirely satisfied with their feast, and will probably not repeat the experiment. The faculty said grace in an impressive and somewhat expensive manner.

Prof. Cook takes a pardonable pride in the appearance of his plum trees. He spent ten minutes for fifteen nights in illustrating to the Juniors his method of destroying the plum curculio, *conotrachelus nemphar*. As a consequence he has more plums on two trees than the whole College orchard can show.

Group pictures seem to be the style. Last year the SPECULUM Eds. cracked the photographer's instrument badly. He has secured a new one, however, and the rush begins again. The Freshmen lead with a picture of their class officers, and the College choir, anxious to perpetuate their fame, come next.

Rev. L. B. Platt, of Owosso, lectured before the Y. M. C. A. July 21st on "The Pawnee Indians." The lecturer had spent some time with the Pawnees, and his descriptions of the buffalo hunt, Indian battle, etc., were very entertaining and instructive. After the lecture Prof. and Mrs. Cook entertained the Juniors at their home, where the aspiring entomologists passed a very pleasant evening.

Quite a number of students turned themselves into canvassers last vacation. The honest farmers of Clinton and Shiawassee counties are just recovering from the wind created by these book-agents in endeavoring to show forth the beauties of "The Royal Path of Life." Students who have returned alive from the scene of conflict state that while large sums of money are to be made at canvassing, they are perfectly ready to give up their chance.

The Ex. Committee of the State Ag'l Society, with members of the Pioneer Society, the State Grange, etc., visited the College June 8th. After several hours spent in examining the College and grounds, a meeting was held in the chapel. Short speeches were made by President Abbot, Governor Jerome, Philo Parsons, and others, which were well received by the students. The advice of Governor Jerome, "don't think of leaving Michigan," was particularly good.

The alumni reunion promises to be a great success. Every alumnus and old student should plan to be here.

"Come back to your mother, ye children; for shame,
Who have wandered, like truants, for fortune and fame!
With a smile on her face, and a sprig in her cap,
She calls you to feast from her bountiful lap
Take a whiff from our fields, and your excellent wives
Will declare it's all nonsense insuring your lives."

The College Pun and Conundrum Club, whose doings were chronicled in Vol. I, has gone the way of all flesh. It was easy for its members to compose puns, but so much time was spent in explaining them that the project proved unprofitable. Its last addition to literature is worthy of note. The remark was made to the President of the club that the College orchard looked very picturesque. A gleam of light flashed for an instant in the dull eyes of the chief as he answered, "Yes, I have often *picked* *per* *esc*-ulent fruit there."

Prof. Cook is conducting a number of curious experiments this year. The Juniors follow the experiments with original investigations. He will try to find just how poisonous Paris green and London purple are, and if anything can be found to take their places. Small quantities of Paris green will be placed on young apples and other fruits to see how much can be used with safety. In the apiary efforts will be made to discover the nature of the droppings found at the bottom of the hives. Do bees ever breed without pollen? How much honey is used in making comb, and can the queen become fertilized in the hives?

The experiments on the farm are progressing finely. Five varieties of wheat were received from the Department of Agriculture, at Washington, and eight from Prof. Lazenby, at the Ohio State University. Of the varieties received from Washington the Bennett & Arnold's Gold Medal promise the best, while of the other the Champion Amber and York White seem preferable. The plot of Bailey's Ensilage corn is the wonder of the neighborhood, and in fact the whole space devoted to experiments is a model for order and thrift.

Dr. Beal spoke in chapel recently on the subject of fruit-picking. Considerable damage has been done in the past by students carelessly helping themselves to fruit laid aside for experimental purposes. It is certainly hard to have one's experiments ruined in this way. If the experimental lots were labeled plainly "Experiment" we do not think they would be much molested. The matter of strawberries was mentioned in particular. Students were forbidden to enter the patch. We have had strawberries at the boarding hall from the College garden just twice. Berries have rotted on the vines. It is hard to see vegetable matter decay when the students could easily have prevented decomposition.

A "Union Meeting" of the four literary societies was held in the rooms of the Union Literary Society July 7th. Each society orchestra played two selections, and a short literary programme was given as follows: Essay by Mr. Page, of the Eclectics; poem by Mr. Bailey, of the Phis; story by Mr. Eldridge, of the Union Lits, and recitations by Mr. Collingwood, of the Deltas. The music and literary exercises were excellent, flute solos by Mr. Rauchfus being particularly good. After the exercises, the heavy literary weights forgot their dignity in a general dance in the armory. We understand this was the first meeting of the kind ever held in college. It was a decided success, and reflects much credit upon its originators. May there be more to follow.

It is amusing sometimes to watch a stranger to the institution attempt to drink some water from the sulphur spring, known as a well, near Williams Hall. We saw such an attempt made by an honest farmer last week. He had walked about the grounds till heated and thirsty; he spied the pump, with its tempting-looking dipper hanging so picturesquely from the nail. As he joyously worked the handle, visions of "The Old Oaken Bucket" and the home of his childhood flashed through his mind, but when he took one taste of the solution of "sulphide of hydrogen" that came gushing from the pump, a pained expression came over his face, and he walked away a sadder, equally thirsty, and wiser man. Students of Williams Hall either drink this water or travel to Wells Hall and enjoy a solution of clay and ammonia.

The various class-day exercises promise to be unusually interesting this year. The Seniors will hold their exercises at the College, while the three lower classes will celebrate at the Lansing House. The officers are as follows: Seniors—President, J. H. Irish; Orator, J. W. Beaumont; Poet, J. M. McClear; Historian, T. F. Millspaugh; Prophet, E. A. Murphy; Statistician, W. H. Coffron; Toast Master, L. H. Bailey, Jr. In the same order the Junior officers are—W. F. Hoyt, A. C. Bird, A. C. Redding, L. A. Buell, C. P. Bush, J. T. Mathews, and A. M. Bamber; date, Aug. 11th. The Sophomores—C. C. Lillie, C. E. Smith, W. D. Barry, C. P. Gillett, O. S. Bristol, J. D. Hill, and W. B. Kirby; date, Aug. 4th. The Freshmen—H. W. Meeker, D. J. Stryker, E. R. Lake, J. B. Leonard, W. D. Watkins, F. B. Otis, and E. S. Antisdale; date, July 28th.

The members of the new Editorial Board take the liberty of introducing themselves to the readers of THE SPECULUM. Our innate modesty prevents our saying anything in regard to the personal appearance or literary attainments of the new Board. Politically we are somewhat divided, there being four Republicans, two Independents, and one Democrat. On the subject of co-education four are most decidedly in favor and three equally decided against; the negatives, though in the minority, occupy much the position of the Irishman who was "willing to be convinced, but I'd like to see the man that could convince me." We shall endeavor to stay by the helm and steer the new SPECULUM in much the same course she took last year, looking to students and alumni for help and encouragement. In this department we shall try to present "College News" in an attractive form, and at the same time keep our eyes open, ready to commend what is good and criticize what is wrong—"for some must watch while some must sleep; so runs the world away."

Co-education is probably destined to become the great issue in College politics. The question has been somewhat discussed, but thus far we think no expression of feeling in the matter has been taken. It is said that straws show which way the wind blows, and recently a SPECULUM man sharpened up his pencil, and started out to canvass the College, or in other words to toss up a "straw." The result shows that a perfect tornado is blowing in favor of co-education. 167 students were interviewed.

Of these 157 are in favor and 10 are against. The vote analyzed shows that one Freshman, two Sophomores, one Junior, and five Seniors oppose the measure. Various theories are advanced to explain away the fact that one-half of the opposition comes from the Senior class. The advocates of the measure claim that the Seniors, being about to close their College course, are insensible to the advantages and charms of the society of ladies. On the other hand, it is claimed that the psychology and logic of the Senior year have brought the Senior to the bottom of every question, and hence they have discovered arguments against co-education that cannot be seen by Freshmen. A majority of the faculty are also believed to favor the measure.

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. A. Lilly, '77, will be here commencement week.
 DeWitt C. Postle, '75, is farming near Columbus, Ohio.
 A. S. Hume, '74, has bought a large farm near Lansing.
 C. B. F. Bangs, '76, is now located on a farm near Lansing.
 J. A. Briggs, '79, was admitted to the bar at Monroe in April.
 James Brassington, '76, is a farmer and teacher at Hart, Mich.
 Frank L. Carpenter, '73, is practicing law in Grand Rapids, Mich.
 J. W. Higbee, '74, is an apiarist at Walla Walla, Washington Territory.
 B. D. Halstead, '71, is one of the examiners of schools in Passaic, N. J.
 J. L. H. Knight, '81, is pleasantly situated on a farm near Myrth, Neb.
 Orrin Harris, for one year with the boys of '83, is teaching near Pontiac.
 D. W. Andrews, once with '79, is in the insurance business at Stanton, Mich.
 M. S. Thomas, '79, is the candidate for the class cup at the coming reunion.
 George A. Young, for nearly two years with '74, is a machinist at Battle Creek.
 B. F. Halstead, '73, is a lawyer at Harbor Springs. He is also Justice of the Peace.
 W. E. Plimton, formerly with the class of '72, is practicing law in St. Joseph, Mich.
 C. Pirnie Cronk, '79, entered the Signal Service Department at Fort Myer, Va., July 1.
 A. E. Calkins, '72, graduated in the department of medicine at the University last June.
 George D. Faxon, a member of '76 for three years, is a prosperous farmer near Lyons, Mich.
 C. F. Davis, '80, is Professor of Chemistry and Mathematics in the Agricultural College of Colorado.
 T. E. Dryden, '79, entered into partnership with his father in the hardware business at Allegan, March 1st.
 L. W. Dickerson, once with '72, has recently been "coining" money through the rise of Detroit real estate.
 A. E. Smith, '81, is selling goods in Illinois for a Chicago firm. He will enter the Rush Medical College this fall.
 H. W. Wixon, once with the class of '78, has been in the hardware business at Crosswell for the last five years.
 W. L. Kelley, for three years with the class of '75, is farming in Kansas. He is married and has two children.
 Daniel Strange, '67, has expended over \$5,000 in improvements on his farm at Oneida, during the past year.
 C. E. Bush, '81, intends to spend next winter in the South, principally in Florida, for the benefit of his health.
 Staley N. Chapin, for two years with '71, is engaged in the dry goods business in Chicago. He is not married.
 C. L. Bemis, '74, superintendent of schools at Portland, Mich., has had his salary raised to \$1,000 per annum.
 Prof. Johnson attended the Association of Professors of Agriculture held at the Iowa Agricultural College, July 4-7.
 "Dusty" Oakes, '74, has given up farming, and is now studying law in Ionia. He takes quite an interest in politics.
 John E. Taylor, '76, is a prosperous farmer at Belding, Mich. He is chiefly interested in stock raising. He is married.

William Sloss, '76, is summering at Petoskey. He thinks of locating there permanently. He is not in very good health.

Miss E. F. Sherwood, one of the teachers in the public schools at Alpena, is here taking a course in manipulation in physics.

James W. Gifford, once with '78, owns a large claim in Idaho, where he is engaged in mining. His address is Albion, Idaho.

Byron J. Robertson, once with the boys of '82, was married to Miss Rosamond Gray, of Breedsville, Van Buren Co., July 23.

David E. Hinman, who was a student here when the college first opened in 1857, is a prominent lawyer in Buchanan, Mich.

Dr. J. T. Frazer, '72, has relinquished his veterinary practice, and is confining himself wholly to farming at Fowlerville, N. Y.

Arthur Elsby, once with '82, graduated from the Grand Rapids Business College in '81. He is now teaching at Oakfield, Mich.

E. C. Spalding, for two years with '82, made the College a short visit last week. He had just returned from a trip through the West.

H. C. Sessions, once with the class of '70, is a prominent candidate for congress from his district. His address is Ionia, Michigan.

Henry Palmer, formerly with '83, is a railroad surveyor in Oregon on the Northern Pacific R. R. His address is Pendleton, Oregon.

F. E. Miller, more definitely, "Major Miller," once with the class of '69, is pleasantly located on a farm of his own near Grand Rapids.

C. B. Charles, '79, the very successful farmer of Bangor, is this year "cutting tons of grass" where two years ago was a tamarack swamp.

Just as we go to press word comes from F. W. Hastings, '78, stating that "she is healthy and weighs seven pounds." She arrived on July 24.

R. T. McNaughton, '78, is studying landscape gardening at Chicago, to better prepare himself for his work on the cemetery grounds near Jackson.

H. A. Haigh, '74, has written a series of articles on Rural Law, which have been published in the late numbers of the American Agriculturist.

A. B. Peebles, '77, completed his theological course at Oberlin, Ohio, last June. He has settled at Mackinaw as pastor of the Presbyterian church.

W. S. Hough, once with '83, took a prominent part in the French play, "Les Plaideurs," which was acted at the University commencement week.

L. A. Strong, a student here for nearly two years with the class of '83, has been teaching and farming since leaving. His address is Vicksburg, Mich.

Miss Ella Wood, formerly a member of '82, who has been spending the past year at President Fairchild's in Kansas, has returned from her western trip.

Dwight B. Waldo, with '85, has been obliged to leave College for this term and next on account of poor health. He expects to return again next spring.

Art. Turner, '81, was a successful teacher last year. He contemplates taking a trip to Northern Michigan to prospect a little. He says he will take in the triennial.

C. W. Gammon, '79, owns a large elevator on the Sacramento River, and is doing a thriving business. He is one of the State Commissioners of Horticulture of California.

The early graduates will be pleased to learn that John S. Strange, '69, has recently introduced military on his farm at Oneida. His forces consist chiefly of light infantry.

W. W. Bemis, '76, taught school for some time after graduating. He is now farming near Ionia. He intends hereafter to make sheep raising a specialty. Married Oct. 9, 1878.

W. C. Morden, once with '83, was compelled to leave College on account of poor health. He is now farming near Clyde, Sanilac Co. It is rumored that he is soon to be married.

It is reported that W. W. Daniels, '64, Professor of Chemistry in the University of Wisconsin, is again visiting Europe during his summer vacation. He is completing his travels of a year ago.

E. B. Fairfield, '71, and wife, formerly Mary L. Jones for two years with '73, have moved from Tecumseh to Grand Haven, where Mr. Fairfield has been appointed superintendent of schools.

George E. Breck, '78, and wife, of Paw Paw, are taking a wedding tour through Wisconsin and Minnesota, and around the Great Lakes. They will return in time to be here at alumni reunion.

John J. Bush, Jr., once with the boys of '83, has left college to take charge of his father's business at Pentwater. He now expects to return next year and complete his course with '84.

L. A. Potter, once with '78, after leaving here, taught school for two years. He afterwards took a course of study in the Detroit Medical College, graduating in 1880. He is now located at Hitchcock, Iowa.

Dr. J. B. Griswold, one of the most prominent physicians of Grand Rapids, and U. S. Medical Examiner for his district, was a student here in 1863. He took a select course, making a specialty of chemistry.

Frank Benton, '79, recently shipped over three hundred Syrian and Cyprian queen bees to D. A. Jones, Ontario, Canada, all but two of which died en route, owing to the vessel being caught in the icebergs.

Mrs. M. J. C. Merrill, '81, has bought a piece of land near Jackson, which she will set out to small fruits, taking charge of the work herself. She is one of the leading officers in the State Temperance Association.

J. B. Ware, once with '82, has just returned from a business trip to Mississippi. He is soon to move from Grand Rapids to Big Rapids, where he will have charge of the central office of three large lumber firms.

E. V. Reynolds, once a member of the class of '72, completed the scientific course in Yale College two years ago. He has just graduated from the law school of Columbia College. His present address is Old Mission, Mich.

A. N. Potter, assistant in mathematics at the University, spent a few days looking over the College some weeks since. He is preparing a series of articles on Michigan schools and colleges for a Pennsylvania school journal.

S. T. Elliott, once with the boys of '82, is chief book-keeper in the treasury department of the Massachusetts Benefit Association, the largest coöperative life insurance company in New England. Mr. Elliott is located at Boston.

Edwin Fairchild, son of President G. T. Fairchild of the Kansas Agricultural College, recently spent Sunday at the College. He is accompanying his father on an eastern trip, and while his father went on to Oberlin he came via Lansing.

J. W. Macklem, for nearly three years with '78, taught school for three years after leaving College. He then entered the law department of the University, where he remained for one year. He is now practicing law at Minden, Sanilac Co.

O. H. Hovey, once with '78, is a graduate of the Cincinnati Conservatory of Music. He edited a musical journal and was a music teacher for several years. He is at present located at Reed City, and is editor of the Reed City News.

William Caldwell, '76, spent the first year after graduating in reading and in making a special study of some of the branches of his college course. In '77 he engaged in farming at Commerce, where he still remains. He is unmarried.

L. A. Hurlbut, '67, has been recently making extensive improvement in his orange grove, and is now one of the largest orange culturists in Florida. His property is situated within the corporation of Crescent City, and is very valuable.

C. L. Ingersoll, '74, has resigned his position as Professor of Agriculture in Purdue University. He has accepted the Presidency of the Colorado Agricultural College, where his work begins August 1. We congratulate Colorado on her choice.

E. J. Wiley, a member of '73 for two years, recently visited the college. After leaving here he entered the Illinois Industrial University, graduating in 1873. For the last three years he has been principal of the public schools at Sault de Ste. Marie.

Herbert Bamber, '81, has returned from Utah, where he has been engaged for the past nine months as a railroad surveyor. He intends to enter the University this fall to take his proposed course in civil engineering. He will be here at the alumni reunion.

R. B. Barber, for over three years with '82, is very sick at his home near North Lansing. He was taken with gastritis while teaching last winter, the disease assuming a very dangerous form, and becoming more complicated by the setting in of diabetes.

C. E. Bessey, '69, Professor of Botany in the Agricultural College of Iowa, recently spent a few days at the College. He was one of those employed to lecture in the scientific department of the Peabody Institute, Salem, Mass., during the summer course.

J. P. Finley, '73, was taken severely sick in Missouri while studying up the tornadoes that have recently passed over that State, and was brought to his home in Ypsilanti. He is now gradually improving, and hopes to be able to be here at the alumni reunion.

L. F. Ingersoll, '74, left Sutton's Bay April 1 and took a two months' tour through the East, visiting New York, Boston, and Washington. He has since been prospecting in Colorado and has finally settled at Fort Collins, where he continues the practice of medicine.

William E. Frazer, '70, graduated at Rush Medical College, Chicago. He located at Lockport, Illinois, where he was very successful. Several years ago he was obliged to go south for his health, and has since been practicing at White Sulphur Springs, Hamilton Co., Florida.

Oliver R. Foote, who was drowned at South Haven, July 13, was for two years a member of the class of '78. He was considered by all who knew him as one of the most promising students in college, and his many friends formed while here will be deeply grieved at the sad news.

Prof. S. M. Tracy, '68, of the University of Missouri, in company with two other professors, started for the Iowa Agricultural College to attend the meeting of the Professors of Agriculture, recently held there, but was obliged to give up his trip on account of the wash-outs on the railroads.

C. J. Strang, '78, completed his course of study in theology at Andover, Mass., last June, but was not granted a diploma on account of entertaining certain religious views in opposition to those taught at that institution. His present address is Decatur, Mich. He will be here commencement week.

Oscar Clute, '62, has a flourishing class in apiculture, for which his large apary, thorough knowledge, extensive library, and intelligent experience admirably fit him. Heretofore our own State has been alone in this kind of work, and we are glad to hear that Mr. Clute has made the commencement in Iowa.

Hon. C. W. Garfield, '70, recently visited the College. He is urged to run again for the Legislature, but positively declines, owing to the pressure of his other duties. It is currently reported that Mr. Garfield was offered the position of Professor of Agriculture at Purdue University, after the resignation of Prof. Ingersoll.

Our business manager, Mr. D. C. Holliday, Jr., has been absent from College for the greater part of this term, on account of sickness. He went to his home at New Orleans, La., to receive treatment from his father, Dr. D. C. Holliday. He is now greatly improved in health, and expects to again be with us before the close of the term.

Henry Lapham, who was a student here in '65, paid the College a visit a short time since. He took a select course in chemistry and botany, and has since been farming at Milwaukee, Wis. He is son of the late J. I. Lapham, who was one of the most eminent scientists of Wisconsin, and for many years president of the State Historical Society.

E. M. Preston, '62, has been obliged to give up his proposed visit to the college during commencement week, on account of the unsettled state of business in the mining regions throughout California. Mr. Preston is a banker at Nevada City, Cal., and is not directly connected with mining; but as all business in that locality is to a considerable extent dependent upon the mining interests, he thinks best not to leave.

James P. Lewis, '78, has been engaged in farming since graduating, until last March, when he sold his farm and went into the hardware business in Firth, Nebraska. He is very successful and likes the business much better than farming. He has lost all his patriotism for Michigan, liking Nebraska much better; but he still retains his love for his Alma Mater. He is not married and expresses great respect for a bachelor's life.

It always does the hearts of the friends of our college good to hear of the prosperity of its graduates, especially if they are perfecting their college education on a farm. Mr. Frank P. Hagenbuch, '79, is surely doing this. No young farmer in Michigan is more fortunately situated than he. A beautiful farm, immense barns, a convenient and tasteful house, and a pretty and intelligent wife, are enough to make any man happy. He will be with us commencement.

G. F. Beasley, '68, taught school the winter after graduation. In the spring of '69 he received the appointment of deputy clerk of Genesee Co., which position he held for one year. He then entered the law office of Geo. H. Durand, Flint, Mich. In '70 he was admitted to the bar and began the practice of law at Lapeer, where he remained for two years. Since '72 he has been located at Detroit, where he has a good practice. He takes an active interest in politics. He is still unmarried.

Dr. Kedzie, Prof. Cook, and Dr. Beal, and possibly President Abbot, Secretary Baird, and Prof. Johnson will attend the American Association for the Advancement of Science, to be held in Montreal, Aug. 24-26. Dr. Kedzie will present to the society an article on "The sources of nitrogen in plants." Prof. Cook will present articles on "Danger in the use of Lon-

don purple and Paris green as insecticides," and "Do bees void their feces in the dry state?" Dr. Beal will give an article on "Testing seeds."

We have received and read with great pleasure the commencement edition of the Brazos Co. (Texas) paper, which gives in full the exercises at the recent commencement of the Texas Agricultural and Mechanical College. We were especially pleased to note the high and generous praise that was given to the agricultural department, under the supervision of Prof. C. C. Georgeson, '78. There are frequent references, on the part of the President, editor, and Board, to the excellence and progress evinced in the management of this department.

On the evening of June 14 occurred the formal opening of Prof. Prentiss' new botanical laboratories and conservatories at Cornell University, there being a company of about two hundred and fifty present. The Professor received many congratulations on the success of the department since placed in his care. On July 1 he and Mrs. Prentiss sailed for England, where he will spend his summer vacation. He stays in London and at Kew for three weeks, and the rest of the time in South England, principally on the Isle of Wight. He will return about Sept. 16.

REVIEWS.

INSECTS INJURIOUS TO FOREST AND SHADE TREES, BULLETIN NO. 7 OF THE ENTOMOLOGICAL COMMISSION OF THE DEPARTMENT OF THE INTERIOR. A. S. Packard, Jun., M. D., Washington, 1881.

This important work is a fit associate of the reports that have been previously issued by the able Entomological Commission of the Interior Department. It contains 258 pages, and is well illustrated. The fact that it is mainly a compilation and contains but little original matter, is no serious criticism. Dr. Packard has, in a very able manner, brought together the facts that were already known in regard to the various pests that attack our forest and shade trees, so that now for the first time the practical men can get at them without securing a large library. The descriptions are full, the illustrations accurate and admirable, and the indexes of species attacking different trees, and the general index, can but prove of great value to entomologists.

In this connection, we take pleasure in calling the attention of our entomological readers to the several reports that will be found of great aid and interest in the pursuit of entomology, especially to those interested in the economic phase of the subject. First in importance and value are the reports of Riley, the Missouri State Reports. There are nine volumes of these reports, and the rank of the author as the first economic entomologist in the world, his admirable skill as an artist, and his great opportunity, having devoted his time exclusively to this study, and having a wide correspondence with the practical agriculturists of the country no less than with the scientists, make these reports of exceeding value to the practical entomologists of the country. It is to be regretted that these reports are out of print, and must be secured at second hand. The full set can be had at from \$21 to \$24. Prof. Riley has just got out an index for the whole set of the reports, which adds materially to their value.

The reports of the Entomological Commission connected with the Department of the Interior, are also of much interest and value. Prof. Riley is chief of this Commission, and is ably supported by Professors Thomas and Packard. The reports of the Entomological Branch of the Agricultural Department, especially those of Dr. Riley and Prof. Comstock, are of exceeding value. All of these may be secured at the Departments from which they proceed. If one fails to secure them by personal application, he may insure success by procuring the aid of a member of congress.

Rivaling the reports of Riley in value are the reports of Illinois. These were commenced by the lamented Walsh, whose grand work in practical entomology stands unequalled, and whose influence in this field has extended wide through our country. After the death of Walsh the work was ably continued under Le Baron, and after the latter's death by Thomas, who has just issued the eleventh report. It is presumable that these reports can be secured through the state department of Illinois. If not, they can be procured at second hand book stores.

Last but not least we mention the 14 reports of the late Dr. Asa Fitch of New York. Dr. Fitch was long the honored state entomologist of New York, and the early reports are specially desirable.

The American Entomologist, three volumes, is also of no little value to the working entomologist. These volumes, as also the reports of Fitch, must be secured at second hand.

EXCHANGES.

On assuming the position of exchange editor, and as one by one we glance over the contents of our exchanges and notice the almost universal feeling of regret expressed by the retiring editors, we wonder if they regret the leaving more than we do the commencing. But fate decrees that we say something in this department and so we must.

Most of the last numbers of our exchanges are filled with interesting matter relating to their commencement or Senior class-day exercises. Some contain glowing accounts of the anticipated pleasure during vacation; others review the past and draw lessons for the future; a few tell of misfortune and disappointment. All seem to welcome with gladness the closing of another college year and a few weeks' recreation.

The last number of the *Chronicle* is especially interesting, containing the rather lengthy Senior class-day exercises in full. Each exercise is well written, but we think the class history is worthy of special mention.

The *News Letter* contains a well-written article entitled "A Plea for Western Culture." Considering the misfortunes under which they have labored, all its departments are very creditable.

The material inside the *Varsity* in a measure atones for its ugly and uninviting external appearance.

The *College Journal* remarks that it is a growing custom among college papers to give their last number to commencement exercises, and that, believing it to be a good idea, they have adopted it. As a matter of fact, ten pages, including the cover, are filled with advertisements and only eight devoted to reading matter. Quite a number of our exchanges might be criticised for this. They devote so much space to advertisements that they resemble an advertising circular more than a college journal.

The *Knox Student*, as usual, is readable and entertaining. The synopses of the class-day orations are especially pleasing. Usually we consider the synopsis of an oration rather dry reading, but these are exceptions. The *Student* will be published bi-monthly during the coming year. We hope it will not lower its present high standard of excellence by so doing.

We think it is the experience of most college students that when they sum up their expenses at the close of the year, they find them considerably more than that mentioned in the catalogue of their respective institutions. We notice an editorial in the *College Transcript*, published at the Ohio Wesleyan University, upon this subject which so well accords with our views that we reprint a portion of it: The writer speaks first of the desire that all young men have of obtaining the most they can for the least money and the consequent strife among colleges to herald abroad the lowest possible figures. Its own catalogue gives the average annual expense of each student as one hundred and fifty dollars. In regard to this the writer says: "The faculty does not intend to deceive, but the figures furnished are misleading. They are like all catalogue figures, and tell what a student may spend, but not what he does spend. There is something down deep in every American that tells him he must live like those around him. While he is a student he must do as his class does, as his society does, as the majority of the students do, and thus expenses often depend less upon tuition and board than upon the prevailing disposition of the students and the customs of the college." The writer then gives statistics from the graduating class, showing that their average annual expense had been two hundred and seventy-five dollars, and of the class of '80 two hundred and twenty-five, and concludes that the annual average expense of each student is two hundred and fifty dollars. This exceeds the catalogue's figures by the moderate sum of one hundred dollars. We were pleased to read the above article in the *Transcript*, as it furnishes just the information every young man wishes to obtain of an institution before he enters it, but which cannot be given in a catalogue's estimate of expense.

The July number of the *University Quarterly* is just at hand. It contains a portrait of Prof. Henry Draper on the frontispiece, and gives quite an extended account of his career. It contains, also, several light but rather entertaining articles. The *Quarterly* has concluded to abolish the exchange department and gives its reasons therefor. We think the personal department of the *Quarterly* rather incomplete, if its editors wish to enlist the hearty support of its alumni.

The ex. man of the *Niagara Index* says he feels kindly towards every one. This will please the papers that he has been raking over the coals so much lately. We like his style of finishing up. He comes out squarely with his farewell and says he is glad to say it, and nothing could induce him to stay longer.

We acknowledge the receipt of all our exchanges and extend to them a cordial greeting for the coming year.

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