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THE COLLEGE SPECULUM.

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WHOLE No. 11.

Use of Periodicals.

A. E. BROWN, DELTA TAU DELTA.

"Americans are great lovers of reading." "No people read more." With these and like expressions we are all familiar. And we find a satisfaction in being thus spoken of and so regarded by the people of other nations. And why should we not? Surely, who will question the educational value of the printed leaf? We find in it all the wisdom of the past; and the wise of the present invariably make use of it to perpetuate their thought. So we come to associate wisdom with print, and to think that whatever is published must be good. 'Tis thus the most trifling things, when printed, are read with eagerness.

Remembering, then, the respect which men entertain for any printed matter, it is not strange that many a person who has "too gude a conceit o' himself," will make every effort to appear in print as often as he can. The publisher recognizes this state of things, and the journal is at once suggested to him. He finds it an easy matter to secure contributors to his magazine; and he also finds that it commends itself to many persons because of its freshness and cheapness. It thus proves to be a great success, and now forms the staple reading of most of our people.

A few figures will best help us to judge of its influence. In January, 1880, we find that there were nearly 9,000 newspapers published in the United States. Of these between 50 and 60 are quarterlies, 17 are issued bi-monthly, 90 semi-annually, 40 bi-weekly, 7,000 once a week, 120 twice a week, 60 three times a week, and 800 daily. Some of the dailies have a circulation of 120,000 copies. Some of the weeklies reach the enormous edition of a quarter of a million. There is no class, sect, or profession but has its paper. And what impresses a stranger is that their reading is so universal. Everybody reads, is almost literally true.

In the club-room, on the train, in the shop, and wherever man can have a moment's time, there the paper is found. And, what is equally noticeable, the reading of not a few is wholly confined to the paper.

For much of such reading, people offer no other apology than that it is a source of amusement, or helps to pass away the time. And only a few exercise any choice whatever in their magazine reading, other than that dictated by their likes or dislikes. As if all such reading were equally good, or as if their taste would not improve by a selection of the best reading. Such purposeless and desultory reading is anything but productive of good.

"It weakens the mind like smoking," said Robertson of Brighton, "and is an excuse for its lying dormant. It is the idlest of all idlenesses, and leaves more of impotency than any other."

Even under the most favorable conditions, magazine reading is attended with many evils. "Periodicals and novels," said John Sterling, "are to all in this generation, but more especially to those whose minds are still unformed and in the process of formation, a new and more effectual substitute for the plagues of Egypt—vermin that corrupt the wholesome waters and infest our chambers."

The articles which the periodical contains must be too short to be thorough in the treatment of most subjects. They are often prepared very hastily, and with but very little thought, because they are intended for only a paper. Then, too, the popular nature of the magazine forbids that its essays be too heavily freighted with thought. As a result the reader is sure to be superficial in knowledge.

The conclusions which we reach through the reading of periodicals are seldom trustworthy; for the style of magazine writers is not often that of an enquirer. They do not strive to lead us in a search for truth, but instead are partisan and dogmatic.

Those who indulge in much periodical reading are sure to become mentally dissipated. It weakens the memory. We cannot but expect a treacherous memory if we persist in reading to forget, yet no one hopes to remember much of what he reads in a journal.

It weakens our power of attention, inasmuch as very little effort is needed to understand most periodical literature, and "Attention is the stuff genius is made of."

The reading of more worthy and instructive matter becomes distasteful to us, because it requires more exertion to be understood.

The journal, however, has many strong claims upon us. Our government could hardly exist without it, in its character of news-carrier. The people must have some means of receiving quickly reliable information, from widely distant places, in order to act intelligently in civil matters.

Moreover, it has done and is doing a great work in diffusing a general intelligence among all classes.

In a general way we may specify four cases, in any one of which the reading of a periodical may be profitable to us: When it contains news of general interest; when it contains important local news; when it gives us the advanced thought in our chosen field of work, that is the professional paper; and when occasion offers to make use of it as we would an encyclopedia. This last use is of most importance to the student and the writer.

No two readers will attach the same relative importance to these uses, so the value of the periodical will be found to vary greatly among readers. Some will make a wise and judicious use of it, while many will ever continue to be its slave.

THIS year's subscription to the SPECULUM is still due from many subscribers. Please make a note of this.

Advantages of Special Studies.

R. J. CORYELL, ECLECTIC SOCIETY.

The progress of education has already become marvelously great. It is almost an impossibility for one person to obtain a reasonable degree of proficiency on all subjects of any department of learning; but instead of relinquishing a part of the many branches and paying greater attention to a few, the tendency of our system of education is to pass over the same ground, the thoroughness in each study decreasing as the number is extended.

The general principles of a science or language are scarcely understood when the student is hurried on to other studies, thus leaving the one with only a few of its principal ideas retained for a little while in the memory, but forgotten long before they can be of any use.

If his time were spent on a few branches, the student would be led past the general principles to the inner details of those studies. Hidden principles are discovered,—new theories elaborated. By this process the student leaves the rôle of a follower and becomes a leader. He passes on to untrodden ground, but is guided in his course by known facts and theories, from which he proves other facts or deduces new theories. Precision is acquired, reasoning faculties are quickened, and self-confidence gained. The student, instead of cramming promiscuous definitions and facts in his memory, systematizes and arranges them with a throng of related ideas, that only awaits the reasoning power to call them to mind.

It is the mind of the student of special studies that has so advanced science, art, and literature. An idea brought under the whole force of one mind, that understands it in its full bearing, must yield its mystery and expose its truth or its falsity to him, while to others it would be as meaningless as ever. Thus, in the specialist the benefit of study is seen in its greatest value, for the mind is not burdened by its load, but is built up and strengthened by judicious use. The person becomes a real benefit to mankind. He extends the boundaries of knowledge; he opens new channels of enterprise; he contributes to the happiness of others, while for himself the training and self-reliance gained in deep original study are the best qualifications to insure success in life. From actual experience he learns the benefit of a thorough knowledge over a superficial view, and anything that is to affect his interest will be subjected to that thorough study. In the specialist we see force in hand with caution, force to overcome difficulties, and caution in drawing conclusions before the absolute truth is demonstrated. He acquires discrimination and stability, because in his study he has learned the danger of judging from deceiving appearances; in fact, his whole education is the developing, not burdening, of his natural faculties.

The world is always ready to open the doors of wealth to those who are perfect in their work, while those who possess only a general education are driven by their more proficient competitors from a lower round of one ladder to the same position on another.

We do not wish to speak against the benefits of a general education, but many, fearful that they will be termed narrow-minded, fall into the opposite extreme. We can safely say that this is the growing tendency of the present time. The sciences

and languages are taken up, dwelt on, and are passed; the real benefits of study are lost sight of. A student thus carried along has no reliance on himself, and in the words of Huxley, "Seeks no explanation by questioning his own reasoning powers, and prefers always to take another's opinions rather than elaborate one of his own."

Instead of spending part of their time in perfecting themselves in some one thing, many employ that time in broadening the foundation until the whole energy is expended,—the work is too stupendous for completion, and it remains the useless fruit of an ill-directed labor, rapidly crumbling under the leveling action of a busy life.

The same amount of energy applied in one direction would fit the person for one distinct position, and would remain a source of comfort, happiness, and wealth to the fortunate possessor.

Farming as an Occupation.

W. C. STRYKER, PHI DELTA THETA.

This is a vocation of which everybody knows something, for the work-shop in which it is carried on is always open; and whoever desires to look into the various operations, so far as man is concerned in them, is at liberty to do so.

From the time when Adam and Eve were placed on the first farm the vast majority of mankind have been engaged in tilling the soil. It is said that there exists inborn in the hearts of all men a love for rural pursuits; yet notwithstanding this, many who have wandered from the calling of their first parents are disposed to criticise and express unfavorable opinions of this occupation. If these opinions are founded upon reason and given by those whose minds are unbiased by other pursuits, we must admit that farming is not a good occupation; too often however such is not the case and thus false ideas are set afloat. Some contend that the farmer must necessarily lead a life of menial labor which is unfavorable to the cultivation of the nobler faculties. Others admit that the pursuit is possessed of some advantages, but that they are far overbalanced by disadvantages. Still others commend the calling to those who lack business tact or higher intellectual endowment. The trouble is that many forget to take into account the standpoint from which their observations are taken. A cube is always the same from whatever position you view it, but every move gives it a different appearance to the eye. Again the observations of many are too superficial and hence inadequate to the conclusions reached.

Every occupation has its disadvantages peculiar to itself. One may require the exercise of some faculty or power, to the exclusion and detriment of others. Another may compel the endangering of the health; yet another may in a degree combine the exercise of all the faculties of mind and body though under unfavorable circumstances. And so on through the whole line of occupations. Farming is in the list. There is hard work to be done. There is lack of social advantages. That sharp competition, which exists in many pursuits and spurs men on to greater endeavors, is wanting here. Other disadvantages might be enumerated, but these are accounted the main obstacles.

As to the hard work of the farm, to one possessed of health and strength, a love of sunshine

and free air, the manual labor is the least formidable of the things with which he has to contend. The miner who has spent his life in the mines, complains of the dazzling light of the sun, and he has no desire to work beneath its rays. On the other hand, one accustomed to work out of doors keenly feels the need of sunlight. Nature soon adapts the body to the physical conditions affecting it. Farming may be dull enough, if he who follows it can put no heart in his work, can see none of the beauties which surround him, nor admire and appreciate the workings of the great forces which aid him. There are many mysteries connected with farming far from being solved as yet, problems not yet worked out which may well employ the wisest. Education then is necessary to the farmer. The modifying influence of conditions and circumstances must be taken into account. Knowledge of laws and relations is indispensable. Nature makes no promise to give a bountiful crop this year because you exactly follow the routine which gave you like results a year ago. Then study and investigation and careful judgment is as essential to farming as to other pursuits. Columella, eighteen hundred years ago laid down the maxim "Whosoever would devote himself to agricultural pursuits, must summon to his aid, prudence in business, the faculty of spending and a determination to work." We would add to the maxim in these days, education. Who has a better opportunity than the farmer to study nature in all her varying forms, and to accumulate knowledge of many of the sciences?

The lack of social advantages is made up in part by a more intimate acquaintance with surrounding objects. Each tree and shrub has its history. The birds that build their nests in the tree-tops year after year, become familiar, and a friendship springs up which is very proper. For do they not flutter behind your plow and drag from the fresh earth your insect enemies? And are not their songs your morning greeting?

The dwellers of the city annually expend large sums to maintain parks where they endeavor to escape the noise and bustle of the city and to breath air unmixed with noxious gasses. But the farmer need not employ artificial means to secure these blessings. Furthermore the surrounding influences in many instances shape the course of life. In the pursuit of riches and distinction the shortest possible route will be taken and the zeal for wealth exhibits itself in a passion that swallows up the man.

The farmer has at his disposal a goodly share of the pleasures of life. If possessed of health he may reasonably expect to retain it. He may employ all the ingenuity of his mind. He may account himself free from the influence for evil of the city, and he may be the possessor of all the nobler qualities of mind and heart.

Protective Tariff vs. Free Trade.

R. M. BATES, UNION LITERARY SOCIETY.

One of the political questions on which the student who is a voter is called to pass an opinion is that of the tariff. It does not matter whether he has yet had political economy or not, he must have an opinion, and should have reasons for that opinion.

On considering the question he is met with an

array of facts and arguments on either side that seem convincing.

On the side of protection is the fact that the United States has prospered under protection.

On the side of free trade is the equally significant fact that England has immense industries with free trade.

Protectionists claim that England has only selfish ends in view in urging us to adopt free trade.

While, on the other hand, free traders claim that our unparalleled success is entirely due to natural advantages instead of protection.

By one party it is claimed there is a reaction against free trade in England, while the others claim there is a similar reaction against protection in America.

Tariff, as defined by Mr. Stebbins, is a means of asking the foreigner to pay reasonably for the privilege of bringing their products, and at the same time building up home industries and giving employment and independence to the people, claiming that it employs labor at higher rates than elsewhere and at the same time cheapens products.

This may be true, but it is difficult to understand how an industry can be guarded from competition and at the same time make that article which is produced cheaper, or how the wages of the workmen can be raised and at the same time cheapen the price of the thing manufactured.

We know that in any market where there is no competition, prices are entirely in the hands of the monopolist, prices are raised, and the consumer has to pay the additional price. Now, it seems that between nations the prices would follow the same law. If America manufactures an article with which foreigners are not allowed to compete or were obliged to compete at a disadvantage, there would be the same rise in prices.

The claim made by protectionists that protection gives a solid base for a foreign commerce, may be well founded, but how it is possible is difficult to understand. If England can manufacture and ship to this country cheaper than America can manufacture alone, how is any system of protection in this country to help Americans to successfully compete with the English in a market foreign to both countries? Or how is a protective tariff in America to affect the price of the article when it is to be sold outside of that country?

If an article can not be produced in this country as cheaply as in England, there will be a loss of labor corresponding to the difference in the price of that article if manufactured in America.

For example: We can make a roll of cloth for \$50 and buy the same in England for \$45. Now, if we make the cloth, which we can buy for \$45, at an expense of \$50, there will be an actual loss of \$5, owing to the disadvantages under which we labored; but this same example is given as one showing a loss of \$50 to the country in case we buy instead of manufacturing, ignoring the fact that this labor could have been turned into other channels of business in which there was an actual profit. Now, how we are to lay the foundation for a healthy foreign commerce, by making up this \$5 loss to the manufacturer, is not easy to understand; or how this protection is to affect the price when the goods are sold in a market foreign to both countries.

America, it is said, has the greatest natural advantages of any country on the globe, and therefore needs her industries protected. We are told that England would flood this country with goods at ruinous prices, and drive Americans from the mar-

ket, but for protection; yet the same author, Stebbins, says, afterward, that England did make such reduction in prices at one time, and that America reaped the reward. If America has such superior advantages, why can she not compete in an open market? Or if high prices are an advantage, how did America reap a reward when England reduced prices?

"Our cotton England is obliged to have. We are not obliged to sell, but do send far the largest share to England as a matter of choice and profit." Can England monopolize the cotton market or drive Americans from the market, when she must first get the cotton from America, or how is it for the interest of America to manufacture this cotton at home, and at the same time a profit to send the raw material to England?

The advantages of keeping up the price of labor and at the same time of encouraging immigration, do not seem to be consistent, for the reason that every foreigner as soon as he arrives enters into competition with the American, the very thing protectionists try to hinder. The fact that farm labor is higher in America than in England is attributed to protection, rather than to its true cause, a lack of competition, which is owing to a rapid emigration to the west. In our own State, the rise in farm wages of the last few years can be directly traced to a sudden emigration to Dakota, and not to any system of protection.

Although it is expected the foreigner will pay the duties, yet the authority before quoted admits that sometimes the foreigner pays the duty and that sometimes we pay a part. Now, if the advocates of protection admit that the effects are so uncertain, may not we reasonably doubt the wisdom of such measures?

These are some of the reasons given in favor of protection, which, although they may be true, are still difficult to understand.

SCIENTIFIC.

Digestion of the Albuminoids.

Ever since the fortunate accident by which Alex. St. Martin's stomach was opened to examination, there has been no question as to the power of the gastric juice to digest or liquify the albuminous elements of the food. Since then hundreds of dogs, in as many physiological laboratories, have added to our knowledge of stomach digestion. The animal is etherized, and while yet insensible to pain, a silver tube is permanently inserted into the stomach. The animal seems little to feel the injury, and soon the wound heals, and by uncorking the tube which projects below the animal, the stomach or gastric juice may be secured at any time when digestion is going on. This gastric juice even in a test tube, at the proper temperature, will liquify all finely divided albuminoids, such as muscle, cheese, gluten, etc.

Direct experiment, then, positively proves that gastric juice can and does digest the albuminoids.

Much, however of the albuminous food leaves the stomach, and passing through the pylorus into the duodenum before its digestion is completed. It is interesting and important to know whether the digestion is completed by the gastric juice which accompanies it into the intestine or by some other digestive ferment.

That wonderful physiologist, Claude Bernard, was

the first to prove that the pancreatic juice, which is similarly procured by inserting a silver tube into the pancreatic duct would also liquify the albuminoids. Kühne in subsequent experiments found that in from half an hour to three hours, the ferment trypsin of the pancreatic juice would liquify the albuminous elements of the food. Kühne showed that this was actively performed if the pancreatic juice was alkaline, much more slowly if neutral, and almost if not wholly suspended if the liquid were made acid. Bernard, Kühne, and Dalton have all shown that the acid gastric juice coming from the stomach renders all the ingesta of the intestines acid. Quite recently Schmidt Mulheim of Germany has not only shown that the contents of the small intestine in digestion are not only wholly acid, even to its farthest limit, but that the kind of digestion is such as is wrought by pepsin and not by trypsin. In other words; contrary to what is taught in most of our physiologies, the gastric juice liquifies the albuminoids, unaided by the pancreatic juice, which latter only digests the starch and fats.

The conclusion is then that the usual—perhaps we may say the normal digestion—of the nitrogenous food elements, is performed by the gastric juice, but in case that juice is wanting, or for lack of acidity is impotent, then the trypsin of the pancreatic juice would step forward and perform this most important part of digestion. In so important a physiological function, nature seems not to be content with a single spoke to her wheel. She must have two.

One or two remarkable surgical operations within a recent period give support to this view.

One of these was a case of cancerous affection of the lower end of the stomach. The patient was a German and was operated upon by one of the first surgeons of that country. The diseased portion of the stomach was cut out, and the divided ends united. The operation was reported as successful; the union of the parts was complete, and the person seemed to get on without a part of the stomach at least. We can hardly believe that the remainder of the organ did much service, while the seat of such a capital operation. Later the disease reappeared, and the person died.

A more conclusive experiment is that recently performed by M. Ogata of France. This scientist removed the stomach of a dog entire, uniting the intestine to the cardiac orifice. The animal entirely recovered, and not only digested the albuminoids very thoroughly, but seemed in perfect health, and actually gained in weight. The feces seemed entirely normal. Ogata went even further, he injected food through a gastric fistula, by means of a tube, directly into the intestine, and then plugged up the pylorus. The albuminoids were even more thoroughly and more quickly digested in the intestine alone than in the stomach alone, and as quickly digested as though acted upon by both the gastric and the pancreatic juices.

The above conclusion then seems to be sustained. The gastric juice can and usually does digest the proteids. In case, however, that it tires out or strikes because of over work, then the pancreatic juice will come to the front and do the work. It would seem then, that too much has been claimed for the stomach; that while we might tolerate an inactive stomach without loss of temper, a diseased or disordered pancreas would be serious, as with its failure to act, the very fountains of all nourishment would be dried up.

Evolution of Man.

A very interesting and suggestive article appears in the current volume of the *American Naturalist*, page 1st.

It is shown that the erratic distribution of the valves of the veins in man is easily explained, if man was evolved from the lower animals. This arrangement is very nearly the same as seen in the inferior mammals. Where the animal walks on all four members the arrangement is excellent, and such as will conserve its well being. In man, the highest result of evolution, the arrangement is not well adapted to the individual. Thus hemorrhoids, and other diseases of the rectum, which are so common in human experience are very rare indeed in the lower creation. In man the erect position makes valves in the hemorrhoidal veins very necessary, while in the lower animals, gravity relieves the pressure in the capillaries of the rectum, and so even with no valves the tendency to congestion and inflammation is slight. In the same way it is easy to account for the frequency of hernia, displacement of the uterus and the difficulty attending human parturition. The erect position, which on the whole is an immense advantage, is attended with faulty structural peculiarities, which while they served admirably in the pristine posture, are illy adapted to the changed attitude.

Under the old theory of special creation, we could look upon these imperfect structures as showing a lack of wisdom in the Creator. From an evolution standpoint, we only see that evolution as yet has not perfected the structure, but can surely hope that progressive development will add valves, or strengthening ligaments and so remove the imperfections.

The Creator's laws work slow, but they ever work, and the goal will be perfection.

Darwin's Theory of Coral Reefs.

A few scientific theories, like Agassiz's glacier theory of the formation of drift, and Darwin's theory of the origin of species have been so in accord with known facts and laws, and have so fully explained natural phenomena, that, though fairly revolutionary in their influence, they have gained quick and general acceptance.

Darwin's beautiful hypothesis to explain atolls and other coral formations is another example of the same kind.

For years the explanation of the rings of coral, known as atolls was that their foundations were craters of extinct volcanoes, and as these craters were more or less circular the atolls must be so. Even Sir Charles Lyell gave this explanation in the early editions of his *Principles of Geology*. When we consider that such craters would have had to be scores of miles in diameter, we do not wonder that people were ready for a more plausible theory.

Darwin in his voyage around the world, studied these atolls, and in 1837 explained their formation, on the ground of a general subsidence of the ocean bottom in all regions of lagoon islands. He showed what is certainly true, that coral animals will not thrive in deep water. They can only fasten their rock formations a few fathoms—less than 100 feet—below the surface. The puzzle then to be solved, was, how can there be a uniform sea bottom with-

in 100 feet of the surface, as the myriad atolls demand, and what should give the circular outline. Darwin's explanation was very simple. Each atoll had been commenced about an island, which may have been above the water or submerged a few feet. This reef once commenced, would continue to rise as the coral secretion advanced. As the coral animals on the outer border of the reef would be constantly bathed with the fresher, more open currents, they would flourish, while the inner ones would languish and die. Now if the ocean bottom should sink—carrying of course the island with it—as fast as the coral should rise, soon the island would be buried and the ring of coral come to the surface, when the wind and the waves would build it up and prepare a soil for vegetation. As Darwin beautifully expressed it, the numerous atolls mark a cemetery of buried islands. This explanation seemed so simple and reasonable, that Dana and all other students of coral formations at once adopted it.

Just lately this theory has been called in question by several very able investigators. Dr. Semper, Mr. Murray of the *Challenger* expedition, Prof. Alexander Agassiz, one of the greatest students in the world of this subject, and Arch. Geikie, the great Scotch geologist, all maintain as the result of direct investigation, that in many cases at least, there has been no sinking of the ocean bottom. They maintain that by the erosion of submarine mountains or by the building up of the ocean bottom by the host of simplest animal organisms, many of which are found by deep sea dredging to exist and secrete lime even to a depth of 1000 fathoms, a platform has been erected for the coral animals to build upon. Thus the foundation is not necessarily the submerged border of an island but the raised sea bottom elevated through the agency of wave action and lime secreting life.

Once started, the colony of coral architects will only thrive on the outer border of the reef, as only free ocean currents will bring sufficient food to sustain the animals in a thriving condition. As the inner border of the reef whether an atoll, or a barrier reef, as just suggested would not increase, it would be dissolved or worn away, and so the outer ocean border, or the outer rim of the prospective atoll would constantly and rapidly increase while the inner would decrease.

Here then we have a new theory supported by able authority, which in part at least, promises to replace the beautiful hypothesis of Darwin.

Arch. Geikie says: "Many have long been accustomed to regard Darwin's theory of coral formation as a masterpiece of exhaustive observation and brilliant generalization. Some, indeed, may be inclined to resent, almost with the warmth inspired by a personal injury, any attempt to show that it can no longer claim general applicability. But the example of Darwin's own candor, and overmastering love of truth, remains to assure us that no one would have welcomed fresh discoveries more heartily than he, even should they lead to the setting aside of some of his own work."

The Red Sunsets.

The colored skies of the past winter at sunset and sunrise have excited popular attention and caused general inquiry as to their origin and cause.

They were first seen Aug. 27, in the region of the East Indies. From here the appearances

seemed to spread in all directions. Thus at Seychelles to the west, Mauritius to the southwest they were seen Aug. 28; at New Ireland to the east Sept. 1; Sandwich Islands Sept. 5; Japan Aug. 30; India Sept. 8. The appearances traveled very rapidly westward, but slowly north and south, for while they were seen at Gold Coast, Africa, Sept. 1, in the West Indies Sept. 2, they did not reach Florida until Oct. 8, and the United States as a whole, Nov. 27.

Accompanying the brilliant sunsets, and due to the same cause, were novel appearances of the sun; as, blood red at Yokohama, blue and bluish-green at various places; green in Ceylon, India, Panama, England.

The manner of its progression seems to point to the East Indies for its cause, and the last of August for the time. In that region, from May 20 to Aug. 26, Krakatoe was in eruption, throwing out great quantities of ashes. The last convulsion was on Aug. 26, when the neighboring coasts were altered and thousands of lives destroyed. The fine ashes thrown up to a high level, supported by their own fineness and possibly electrical influences, as suggested by Mr. Preece, have been carried in all directions by the unknown currents of these higher levels, and with great rapidity.

The presence of such fine dust would be able to give such appearances both to sunset and to the sun. In China, dust storms are followed by glowing sunsets.

In Detroit, 1762, the sun was blood red, through a yellowish-green atmosphere; the sun has appeared blue through the fine dust of a Sahara wind; green through steam and mist; and green (1880) and purple (1856) through cloud of dust from volcano of Cotapaxi.

The agricultural station at Wageningen, Holland, found in the sediment brought down by rain, the same materials that were contained in the ash brought direct from the volcano. Like results were obtained at Madrid and Paris.

During July and August, 1831, Graham's Island arose in the Mediterranean sea. Its volcano was most active Aug. 7. The writer finds that at Malta colored skies similar to ours lasted for some time; that on Aug. 11th a blue sun was seen at the Bermudas, and Aug. 13 at Mobile; that extraordinary sunsets were seen in Alexandria, Va., as late as Oct. 12. Also after the eruption of Mt. Hecla, in Iceland, in 1783, similar appearances were seen in all Europe.

The vapor of water and meteoric dust have been advocated as causes, but if so, such sunsets should be common. The facts that the dust emitted was sufficient to cause such appearances, that the phenomena appeared immediately after the eruption and spread from this center, together with the evidence of ash found in Holland, and of previous eruptions being followed by similar appearances, give much probability to the supposition that the volcanic eruption was the cause of our glowing sunsets.

Silos and Ensilage.

There are few topics connected with agriculture which are receiving more discussion at farmer's clubs or in the agricultural press than this one of ensilage.

If green food,—usually corn or grass,—is cut up, sometimes it is put into the silo without cutting,

put into an air-tight box and subjected to heavy pressure, it will become compact, and will be preserved with little change, except that slight fermentation may ensue.

The silo is a strong, air-tight box, made either of masonry or plank. In filling, the material is well packed down, and when the silo is full the whole is closely covered with boards and heavily weighted with stones or some other heavy material.

There are various opinions as to the value of ensilage. The Agriculture Chemist says that ensilage contains only such elements as are found in dried fodder, except that the water has not been driven off, and as water is without value, as it is cheaply secured in separate form, therefore ensilage is no whit better than dried corn stalks, hay, etc.; except, then, that ensilage can be secured in any weather, however wet; it has no superiority to hay, and is secured with more labor and expense.

The practical man, on the other hand, says: I know better than that. I have tried both, and find that ensilage is greatly superior, and far more than pays the extra cost of handling before evaporation has been completed.

The Animal Physiologist suggests that ensilage, though no more nutritious, so far as the chemist can determine, may be more easily digested and readily assimilated, and may be so acceptable to the organs and tissues that by its use a greater thrift is secured. Uncooked potatoes contain just as much starch as cooked ones, but no one would argue that they are as digestible.

Even our College Professors seem widely at variance on this subject. Prof. F. A. Gulley, of Mississippi, says: "There is no evidence as yet to show that a crop ensilaged is worth any more for feeding than the same crop would be if perfectly cured dry without loss of leaves, etc. The green-cured food may be more appetizing, but careful investigation does not show any greater nutritive value when fed to the cud-chewing animal."

Prof. Phares, of the same College, holds that it will largely prevent sickness, and claims that it is far more wholesome and healthy than dried food. After asserting that it is more available, as it is more readily digested and assimilated than dried fodder, he adds: "Their health is greatly promoted, consequently, by its use; all their organs act more vigorously, their spirit, elasticity, and activity are greater."

Prof. Johnson, of our own College, takes the middle and a doubtless more correct ground. He thinks that ensilage is very desirable to combine with dried food, and for this use is far preferable to turnips or ruta bagas. He further believes that it is no more expensive than the same material would be preserved in a dried form, and that it costs no more to preserve ensilage than the same amount of dried fodder.

Among the adverse criticisms on ensilage is that it sometimes taints the milk of cows to which it has been fed. Dr. M. Miles, in his experiments at the Massachusetts Agricultural College finds, as others have found before, that in some cases the injurious fermentation does not take place, and suggests that the fungoid germs that cause this fermentation may be killed by delaying the covering of the silo till heating has commenced. Just the amount of heat necessary to destroy the bacteria and time to secure it, must be determined by experiment. Dr. Miles gave some experiments that seemed to sustain his position. He thinks that a temperature of 113° to 120° for two hours is suffi-

cient to destroy the kind of fermentation that produces injury to the ensilage.

Reform in Nomenclature.

Attention has recently been called by a number of prominent horticulturists to the cumbersome and inappropriate names of many of our fruits and flowers. Some of these names have become identified with prominent varieties and will probably cling to them as long as they are cultivated. The majority of them, however, may be easily modified and made more simple and appropriate, to the great advantage of every lover of brevity who has anything to do with catalogues of fruits and flowers, or anything to do with their description in any way.

The American Pomological Society at its last meeting inaugurated a reform in the naming of fruits, which is certainly a step in the right direction. This reform has been seconded by our own State Horticultural Society, and by others of a similar nature. The plan is to drop all superfluous and awkward parts of names that have no special meaning when applied to the particular variety, like "beurre," prefixed to many pears, and "seedling" as attached to many varieties of all classes of fruits. To drop long and superfluous parts of names, as in Beurre Gris, D'Hiver Nouveau, all of which is superfluous for any practical purpose of identification in this country, except the Hiver.

In the naming of new fruits, let each name be simple, short, appropriate. Let it not suggest any vulgarity or monstrosity like "Big Bob" or "Jumbo." Let it not suggest any incomparable excellence. We have in our trial grounds a strawberry named by its originator "Mammoth Excelsior," a name sufficient to condemn a much better berry. Other originators of new fruits have a desire to name their favorites Pride of the World and other similar names, until all adjectives applicable to earthly things are exhausted and they will be obliged, as J. J. Thomas says, to seek among the heavenly bodies for names to express all the wonderful imaginary qualities of their favorites.

Although these reforms are not strictly in a scientific direction, they are in the interests of simplicity and conciseness, and are worthy the careful consideration of every practical horticulturist. The application of names that are simple, brief, and appropriate, should be sought by every person making a recommendation, and by every society that takes it upon itself to give a name to any new fruit or flower.

Report of Prof. J. A. Lintner.

The first report of Prof. Lintner, as State Entomologist of New York, gives added proof of the value of such an officer. The report is replete with valuable and interesting facts and suggestions. After showing graphically the need of more attention to economic entomology, Prof. L. gives a very full and able discussion of insecticides. Each article is described, the mode of application given, and those insects named which may be destroyed by its use.

Full descriptions, with admirable illustrations, are given of such insects as have lately invaded or become serious pests in the State. The great number of these and the extent of the damage done are suggestive facts. When we see so important a field crop as red clover threatened with destruction

by minute insects, all of which are new comers, we see the necessity of more attention to practical entomology.

A unique feature in this report is the complete bibliographical references in the consideration of each insect. Prof. Lintner is also very careful to give all due credit to other entomologists.

SOME WORK FOR AN EXPERIMENT STATION.—Why are not the grasses better known? Farmers have tenaciously held to old practices in regard to the grasses used and their treatment. New ones have often been recommended, perhaps by selfish men. Seed has been ordered, but whether it was true to name, or whether it ever grew or not, the farmer never knew. He returned to the varieties which he did know. The grasses are very difficult to recognize in their various stages of growth and in various soils and climates, especially by a novice. They look much alike and differences are not recognized until carefully compared. How can the farmers procure good seed true to name? The difficulties have been pointed out, and many now begin to think that there are other grasses worth trying, that there may be something better for certain purposes than any now in common use. The leading seedsmen keep giving advice, but they are interested in making sales. The Royal Agricultural Society employs a consulting botanist to examine samples of seeds offered in market. He has small fees for the work. Seedsmen of England are now advertising to guarantee seeds in accordance with the standard fixed by the consulting botanist. This has given the farmers confidence and has nearly or quite put a stop to "doctoring" seeds. If railroads find it necessary to employ engineers, if trustees think it best to employ a landscape gardener to lay out a park or cemetery, if builders employ architects, why should not the farmers employ a consulting botanist, which can be done at a trifling expense to each. Farmers think nothing of employing a surveyor to lay out their farms, grade a road or stick the stakes for a ditch or a tile drain. There is a botanist attached to the boards of agriculture in several of the States. In no way could such an officer make himself more useful than by testing the seed sold to farmers. Some States already have experiment stations, and this is an example of the work they can do for the farmers. A similar work is already done in the case of commercial fertilizers in Connecticut, New Jersey, North Carolina, and Ohio. Other States are following. This is beneficial to both the seller and the buyer. More fertilizers are sold because the standard is guaranteed. The same rule would hold good in case of grass seeds.

RECENTLY PROF. FORBES, State Entomologist of Illinois, discovered that great numbers of the larvæ of the cabbage butterfly (*Pieris rapæ*) were dying. In a letter to Prof. Cook he states that "The caterpillars affected first become pale, finally before death an ashen green, and in the later stages of the disease are somewhat torpid. They die upon the leaves and decay with astonishing rapidity, soon being reduced to a blackish semi-fluid mass, which dissolves at a touch. The softened worms may be found upon the leaves in every cabbage field in this vicinity." An examination of the College cabbage fields shows that to a certain extent at least the same disease is prevalent in this locality. Four of the dead worms were found present-

ing the same appearance as those described by Prof. Forbes. The disease is probably caused by germs similar to those causing the fatal Pebrine which at one time threatened the silk industry of France with destruction. It promises to become a great help in fighting that deadly foe of the cabbage-growers, *Pieris rapæ*.—Clarence M. Weed.

THE COLLEGE SPECULUM.

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

BY THE STUDENTS

— OF —

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LANSING, MICH., APRIL 1, 1884.

WITH THIS NUMBER we present the first issue of 1884.

For the past years our readers have probably observed how very chary we have been in making promises of what, in the future, we had in store for our patrons.

Therefore it seems more satisfactory, at least to us, that the future should be judged by the past. But, in so judging, the examination should go back to the early issues of the SPECULUM, and then compare them with what we present to-day.

We do not say this with a feeling that the present management or corps of editors is in any manner superior or better adapted to this work than our predecessors; but formerly the paper was conducted rather as an experiment, while now it is an established and successful enterprise.

To those who have more recently become subscribers, and who are therefore not familiar with the various stages of advancement through which we have passed, we need only say that we shall ever strive to merit their good wishes, and by our efforts to please secure their kind recommendation of our paper and a continuation of their patronage.

Could we call around our editorial table the several hundred readers of the SPECULUM, we would gladly clasp their hands and hold friendly converse with them about many things which in our hearts it would give us great pleasure to say, the chief of which would be to express our hope that in the future we should be daily reminded of their friend-

ship and fraternal good-will by receiving, directly or indirectly, through their influence, a goodly number of new subscribers.

By a judicious coöperation and combination of our literary societies, a lecture association has been formed at the College. The executive committee consists of four members, one elected from each society. It will be their aim to secure a number of prominent and able speakers, each term, who will lecture upon subjects of science, literature, history, and other topics of interest to the student. The net proceeds, if any, are to be divided equally among the societies; while each has pledged itself to stand one-fourth of any losses incurred.

This enterprise is a noble one, and one which we have long felt the need of, and should receive the hearty support of every student, that its success may be insured and its permanency established.

ANOTHER new organization which we hail with delight is the Chemical Club. This is composed of members from the Senior and Junior Classes, who have organized for the higher study of chemistry and physics, under the efficient management of the Professor and Assistant Professor of Chemistry. The Club meets—in sections—two afternoons of each week, from four to six, and is engaged at present in making philosophical instruments, as barometers, thermometers, micrometers, telephones, etc., and in the liquefaction of gasses, and analyzing of substances. In addition to these, the members are taught skillful manipulations with glass, in the preparing of flasks, test tubes, and other apparatus used in the laboratory. Our new laboratory is thoroughly complete in every department, having no equal in Michigan and but few superiors in the Union. And we students cannot over-estimate the value to be derived from this Chemical Club.

A COLLEGE EDUCATION is not complete without the discipline and culture of a well-organized, active literary society.

Such a society affords training which cannot be given by any professor, and knowledge which cannot be gleaned from any books.

No department of the college is of as much importance and real value to the student as the society. The value of the rhetorical work of the college course is hardly superior to the rhetorical and literary benefits to be derived from an active membership of a society.

Text-books, class-work, and lectures furnish the necessary food for the mind, while the literary work of the society develops and expands the intellectual and reasoning powers. More than this, it is in the society that the young man becomes acquainted with human nature and with his fellow student, lasting friendships, attachments, and rela-

tionships are there established, which could not possibly be formed in the college as a whole, or even in the class.

Society meetings afford recreation from study, and at the same time are productive of the very best mental improvement, by bringing the members into social contact for the discussion of topics of general interest.

To make life a success it is necessary to possess more than simply a knowledge of science, literature and the classics. One must have that which is obtained from high intellectual and social associations, sufficient self-confidence and an acquaintance with human nature.

All of these are obtained in the well-ordered literary society to a much larger extent than elsewhere during a college course.

THERE CAN be little doubt that in the death of Wendell Phillips our country has lost the most perfect orator that has ever graced her platforms.

In one way or another he may have had many superiors, but all in all, as showing the fullest and rarest combination of gifts that go to make up oratory, it is doubtful if he has had his peer among us. If Patrick Henry had more fire he had less culture, less wit, less tact, less grace, and less charm of person; and much the same contrast is to be made between the Boston orator and Kentucky's favorite, Henry Clay. On rare occasions, these older orators may have surpassed him; but for every occasion where other attributes of eloquence than enthusiasm are in large demand, his triumph would be much more signal than theirs.

WE, THE editors of the Speculum, feel the need of a room set apart for the general transaction of our business, and for the office of the editor-in-chief and business manager. We then might have a fixed place for holding our board meetings, rather than holding them, as we now do, wherever an opportunity presents itself.

If such a room could be appropriated by the College the business manager could there keep his books, and appoint a certain time each day to be there to receive business calls. Moreover, the back numbers and accumulated exchanges could then be systematically filed in cases rather than be stored away in the closets of the business manager and exchange editor as is at present the case. We sincerely hope that the College authorities will act upon this suggestion, and before the next issue set apart a good light room, either in Wells or Williams Hall, for our use.

WE ALL have reason to congratulate ourselves, and each other, upon the entire absence of hazing this term.

We have not heard of a single instance in which a freshman has suffered the slightest indignity

from the hands of an upper classman, or of a case in which any student has received treatment, either in action or word, other than that which one gentleman might expect to receive from another.

Surely all of us are more highly pleased and have more self respect and real enjoyment under the present condition, than when there is an existing ill-feeling and strife among the classes.

We are here associated together for the best four years of our life, and it is much more manly and pleasant to live in perfect harmony, than to be constantly studying up some childish scheme to perpetrate upon the naturally confiding and unsuspecting freshman.

THAT WHICH is most especially noticed by persons in visiting a place is the appearance of the neighboring surroundings. It is a fact which cannot be denied that the grounds in the immediate vicinity of our boarding halls present, at times, anything but a neat and tidy appearance.

This condition is principally the fault of the students themselves, who, many of them, have fallen into the habit of precipitating from their windows any article not required by the inmate of the room, whether it be in the form of demolished furniture, cast off clothing, newspapers, or any other superfluous matter.

In looking over the volume of rules several may be found which bear upon this subject, but as they are not enforced by the proper officers they lose their effect as rules, and the evil continues.

It is not only a useless but it is a disagreeable habit, and is probably an outgrowth of the lazy proclivity of some of our students. But it is hardly just or right, and not in accordance with the utilitarian principles upon which ideal societies are founded, that the mass of students and, we may say, the reputation of the College should suffer from the careless neglect of a few.

Let each one of us from henceforth use our personal example and influence in suppressing this noxious habit, and by so doing both improve and beautify our grounds, and increase our self-respect and respect for each other.

THERE is a growing feeling of dissatisfaction among the farmers and supporters of the Agricultural Colleges of several States at present, and especially in Wisconsin, Ohio, New York, Nebraska, and Minnesota, because of the close alliance of the State Universities and State Agricultural Colleges.

There may or there may not be cause for such a feeling, but assuredly the mere existence of such antagonistic elements evinces the fact that the principle is to some extent and in some departments faulty.

With regard to the present system in the States above named, it must be remembered that the best system will not be free from evil. Even the Divine

government of the world does not exclude the existence of evil.

That the present system has evils is no valid argument against it, unless it can be shown either that these outweigh the good, or that some other system can be devised which shall possess all the good with less of the evil of the present system.

Of late a strong party has grown up among the farmers of some of the above named States, who believe that where the two institutions are combined, the Agricultural College loses its individuality, and is more or less absorbed into the University, and that the objects for which the former was established are, to a great extent, lost sight of so long as it remains a branch of the University.

They have even, in Wisconsin, gone so far as to demand that the College property be sold, the amount contributed by the citizens of Madison (the present site) be refunded, the endowment fund withdrawn from the University, and another institution separate in all particulars, be established in another part of the State, which shall be purely an Agricultural College.

As an example of what can be accomplished by an Agricultural College separate and independent from the University, we point with pride to our own—which stands preëminently at the head—and to those of Kansas, Colorado, Iowa, and several other States.

ALTHOUGH the action of the State Board in refusing the petition of the senior class, requesting the abolishing of the present system of conducting commencement exercises, may be unsatisfactory to the entire class, yet we cannot but see upon carefully weighing the matter that they were right, and their action was taken with a view to the best interests of the College.

The petition requested that, as a substitute for the present plan of student orations, some prominent speaker or orator be secured to deliver an oration or address before the graduating class and others assembled. The reasons for asking this change were several: That the experiment had been successfully tried and adopted by some of our principal colleges and universities; that many of the class considered that, by the present mode of choosing commencement orators, some of their best men would be omitted; and also that the extra work of preparing a commencement oration was, with their multitudinous regular college duties, more than they desired to undertake. There may be good reason and logic in all of this, but on the other hand there would be much dissatisfaction among the patrons of the College and others, as commencement is the only time when others than those connected with the College have an opportunity of witnessing the practical results of the literary training afforded by the college course.

Many people possess the idea—it may be errone-

ously—that the criterion of a College education is the graduating oration. As this is the opinion of many it would be difficult to dispel it, and the substitution of any other form of commencement exercises would be looked upon with disapproval and disapprobation.

Unquestionably the attendance and popularity of our commencements would be materially diminished if the proposed system were adopted. Able addresses may be heard at almost any time by every one; not so with college commencement orations. To exemplify, we would cite the instance of our last commencement; during the orations in the forenoon the chapel was crowded to overflowing, many being unable to obtain admittance; whereas the address before the literary societies in the afternoon, although in itself a model of excellence, and delivered by one of Michigan's ablest and most popular men, was comparatively thinly attended.

The parents and friends of many of the students would not take the time and trouble to attend commencement but for the expectation of hearing orations from the members of the class. Very few, in fact, from a distance would care to come here simply to listen to the address of a stranger upon a subject, it may be, devoid of all interest to them.

Although we may not, at present, be able to see the justice of the refusal of this petition, it is probable that ere we graduate we will feel grateful to the State Board for doing as they did, for in their superior judgment and experience they probably knew better than we what would be for our interest and that of our College.

COLLEGE NEWS.

The College Chapel is to have a new organ.

The Chemical Club has eighteen active members.

Give Mrs. Merrill credit for the interesting Library Notes.

The Freshman class has received sixteen new members this term.

The class of '84 has not lost a man since one year ago this term.

The class of '84 expects to bear away twenty-nine diplomas on August next.

Prof. Cook spent most of his time during the winter preparing a work on Economic Entomology.

A new Bailey's Astral Lantern has been added to the apparatus belonging to the mathematical department.

The cases in the new Museum are not sufficient to hold the specimens, and two new ones are to be added soon.

A fine dynamo-electric machine, manufactured in Paris, has been added to the apparatus in the Chemical Laboratory.

The College has been promised a signal service station, provided the bill before Congress for appropriations is granted as asked.

Prof. Johnson is very hopeful that the College will soon have a building erected in which to carry on experimental stock feeding.

The State Board has asked for a post office to be established on the College grounds. It certainly is but right that their petition be granted.

Dr. Beal spent most of the winter on his book on Grasses. The book will treat of all the grasses growing in North America north of Mexico, with illustrations of at least one species of each genus.

The skeleton of the mastodon dug up near Corunna, Shiawassee county, last fall, has been purchased by the College, and will soon be on exhibition in the Museum.

Dr. Manat, Chancellor of the Nebraska University, and for years Professor of Greek at Marietta, Ohio, spent a few days at the College this term as a guest of Pres. Abbot.

In an analysis of skum taken from the well water at Grand Haven Dr. Kedzie found it to contain a lime soap with rosin. The rosin is probably due to the action of the hard water on sawdust.

Prof. Cook was called to Owosso the fore part of this term to attend the funeral of his father. Mr. Cook was in his 86th year, and up to within a short time preceding his death enjoyed excellent health.

The Juniors are congratulating themselves on being the only class in College that has among its members a married man. Another strong argument in favor of teaching winter schools where the big girls attend.

Messrs. F. J. Hodges and H. D. Luce of the Eclectic Society have been appointed delegates to the Inter-State Collegiate Society Association, which meets at Ann Arbor in May next. Mr. Hodges is chairman of the literary committee.

Dr. Kedzie and Prof. Carpenter attended a meeting of the State Brick and Tile Makers' Association, which met in Adrian the second week in March. Prof. Carpenter delivered a lecture before the Association on Drainage, and Dr. Kedzie on Sanitary Drainage.

That species of mammalia, known as *felis domestica*, is becoming remarkably scarce in the College neighborhood. In other words the Juniors are putting in their best work carving cats, for which we understand Prof. Cook will pay the highest market price in cash.

Dr. Kedzie amused himself last winter in the laboratory liquifying a number of different gases. While preparing some liquid carbonic di-oxide a few days ago the tube burst with violent explosion, and the fragments of glass inflicted several slight cuts on his hands and face.

The College Y. M. C. A. had four representatives at the State convention held at Albion last February. A very interesting and profitable meeting is reported. The names of those who attended are G. C. Lawrence, W. D. Watkins, W. M. Badcock, and C. P. Gillett.

The College herd of over 80 head have come through the winter in good condition. There is a good demand for the College stock, three Shorthorn bulls have lately been sold, one to the Iowa Agr'l College, one to a graduate, Frank Hagenbuch, and one to E. Ballentine of Homer.

The bees at the College Apiary have come through the winter so far in fine condition. Sixteen colonies were put up in the cellar, all of which are doing well. Four strong colonies were put up outside, great care being taken to have them securely packed, one of which perished. This experiment seems to point decidedly in favor of cellar wintering.

Most of the students were engaged in teaching last winter, in consequence of which many are late in getting back this term. Judging from the many letters some of them are receiving and answering each week, we are led to infer that it is still customary for big girls to attend district schools in the winter time.

Since the issue of the last SPECULUM the Rev. L. L. Langstroth of Ohio has visited the College and occupied the pulpit; W. D. Wishard, International Secretary of the College branch of the Y. M. C. A., has addressed the students in the College Chapel; and Prof. Winchell of Ann Arbor has lectured to the students on his favorite topic, "The Decay of Worlds."

The students and faculty of the College listened to a very interesting and pointed lecture in the Chapel Wednesday afternoon, Mar. 13, by Mr. Giles B. Stebbins on "Free Trade and Protection." Mr. Stebbins is decidedly in favor of protection, and his talk of less than an hour in length was full of arguments and suggestions, founded on historical facts, rather than theory.

The loyal, patriotic spirit, so dominant among the boys of '84, finds an outward manifestation in the way of black silk ties on the heads of several members of the class. It is astonishing what an air of dignity a silk tie will give a Senior, although he may wear a sheep's gray coat and cowhide boots below. Of course such an accompaniment could not be found among the boys of '84.

The literary societies last term instituted a lecture bureau, to be known as the Literary Societies' Lecture Association. A lecture committee was appointed, consisting of one member from each society. The societies are responsible for the expenses of the association, and in case of profits will share

the spoils. In a similar manner the SPECULUM was started and has been successfully maintained. All we hope for is that the Lecture Association shall prove equally successful.

To our florist, Mr. Knapper, is due much commendation for the present excellent condition of things in the green-house. The plants came through the long severe winter in splendid condition. The great amount of cloudy weather has retarded flowering somewhat, but the foliage looks fresh and vigorous and many plants are in bloom. Every room is filled to overflowing with plants, among which are over 1,000 roses which Mr. Knapper has propagated from stock imported from Germany.

The steam whistles attached to the engine in the boiler-house are a source of much annoyance to the students. If the whistles could be blown at about five minutes before breakfast, instead of an hour before, it would have a tendency to make the boys more regular in their habits. Under the existing conditions the students are awakened at half past five, and what is usually the sweetest hour's sleep is an hour spent in napping and drowsily listening for the ringing of the breakfast bell.

All who are interested in the advancement of agriculture must be interested in the bill before Congress, which provides for the establishment of experimental stations at the Agricultural Colleges throughout the United States. Col. W. B. McCreery of our own State Board of Agriculture is at Washington to urge the passage of the bill. The object of the bill is to get Congress to appropriate \$15,000 a year, to be expended in the Colleges where the experimental stations are to be established to carry on such experiments and investigations as shall further the interests of agriculture.

At a meeting of the Students' Organization, held Feb. 22, several important motions were passed regulating the management of the clubs. The object the students had in view was to lessen the cost of board without deteriorating its quality. It was decided to curtail the expenses next term by running four clubs instead of five, by allowing the cooks free board for two instead of three, and by giving the cooks 20 per cent of the money paid for extra meals instead of 40 per cent, and that only on occasions when a considerable number are being fed extra. It was thought this would not lessen the real wages of the cooks, as they have forty cents a week for each boarder. On the other hand it will lessen the cost of board by cutting off eight free boarders, five dollars range rent per term, expenses of heating, lighting, etc.

Dr. Beal, Secretary of the American Pomological Society, has just edited the proceedings of the 19th biennial session held at Philadelphia last September. Colonel Marshall P. Wilder of Boston, Mass., President of the Association, is over 85 years of age and still an active worker in the interests of improved pomology. He lays great stress on planting the most mature and perfect seeds of the most hardy, vigorous, and valuable varieties, and also on crossing and hybridizing choice varieties to secure greater excellence. The volume contains a letter from Prof. Budd of Iowa Agricultural College, in which he gives a very interesting account of his trip in Russia in search of fruits suited to the Northwest. He believes there are many good varieties of pears, apples, cherries, apricots, and plums which will endure the extremes of Minnesota and Dakota. The next meeting of the Society will be held in Michigan. Hon. C. W. Garfield, class of '70, is one of the four members constituting the executive committee.

Natural History.

At the meeting held Nov. 9, 1883, Mr. L. G. Carpenter spoke of Shooting Stars and Star Showers, with especial reference to the November shower, which the class in astronomy were soon to observe. Meteoroids, whose entrance in our atmosphere cause shooting stars, are scattered irregularly through space. They vary in size from a grain of sand to a weight of many tons, and are separated from each other by an average distance of about 250 miles. These bodies travel about the sun, and the earth encounters twenty millions daily, most of which are burned and completely dissipated by the resistance of the atmosphere. They sometimes appear in great showers, as Nov. 13-14, 1883, and Nov. 27, 1872, which is due to the earth's passing through a ring of them. Smaller showers appear annually, as Apr. 20-21 from Lyra, Aug. 10-11 from Perseus, and Nov. 13-14 from Leo. The collections of meteoroids which form star showers are traveling in the same orbits as comets, and seem to be portions of the comets that have lagged behind.

Mr. Park read an article on the Organic Structure of a Blade of Grass. The structure was wonderfully complete. A

thin tenaceous membrane, called the epidermis, covers the whole leaf, and like our own skin is divided into two layers, the derma and the cuticle. The derma, lying under the cuticle, is composed of rows of transparent gaseous cells of nearly uniform size in the same leaf, except on the mid-rib, where they are much smaller. The stoma, appearing on the epidermis of both upper and lower sides of the leaf, are little holes which probably act as organs of respiration. The position of the hygroscopic cells on the upper side of the leaves determine whether the leaves will fold up like the covers of a book or roll when cut. The harshness of a grass depends on the number of hard woody cells it contains. Mr. Park deserves commendation for the admirable drawings with which he illustrated his paper.

Mr. Mathews gave the results of his experiments in the Chemical Laboratory to determine the amount of water soils of different texture will take up and hold. The samples to experiment with were obtained by taking gravelly soil and sifting it through a sieve having twelve meshes to the square inch. This was then taken and sifted on a sieve with 121 meshes to the square inch, and what could not pass through was called No. 1; what passed through was put on a sieve with 256 meshes to the square inch, and the residue called No. 2. What passed through was again sifted on a sieve with 1584 meshes to the square inch and the residue called No. 3, and what passed through No. 4. Then 100 grains of each was carefully weighed out, put in funnels, and water allowed to drop on them until they were saturated. On weighing it was found No. 4 had taken up 30 per cent; No. 3, 29 per cent; No. 2, 18.8 per cent, and No. 1, 8.95 per cent of their own weights. It was also found that the soil which takes most water gives it up most slowly, hence the importance of a soil of fine texture is evident.

Mr. H. E. Thomas gave his experiments to determine the vertical heights through which soils of different degrees of fineness would raise water by capillary attraction. The soils used were prepared in a similar manner to those used by Mr. Mathews in the previous experiment with fully as marked difference in favor of the finely divided soils.

The following is an extract from Mr. Hershiser's paper on Plant Lice and Honey Dew. During the autumn months, after the early frosts have killed the fall bloom, it often becomes a question of no mean importance to the bees where the needed supply of honey is to come from. Man can do much to overcome this difficulty by planting herbs and shrubs at such seasons of the year, that they will bloom during this season of scarcity. During this honey dearth the bees endeavor to supply themselves with honey from plant lice. These lice secrete a sweet substance, which exudes either through the skin or little tubes or nectaries on the upper posterior portion of the abdomen. The plant lice the past autumn were most numerous on the Tulip and Larch trees. The leaves of the Tulip trees were sticky with the sweet substance. It appears on the Larch trees in little transparent drops suspended from the leaves. This appearance has often been mistaken for honey-dew. Though plant lice afford a small amount of honey of doubtful quality in seasons of scarcity, they should, if possible, be exterminated. They are very detrimental to the apiarist. They destroy much of the vigor of herbs and trees and consequently detract much from the otherwise abundant bloom the following season, besides almost ruining some of our most beautiful ornamental trees. Were it not that they rarely appear in large numbers two years in succession, they would become a very serious enemy, and many of our best honey-producing trees would be killed or rendered worthless to the apiarist.

At the meeting held March 14, Mr. C. Baker gave an address on the Comparison of the Cellular structures of Hard and Soft Woods. Specimens of basswood and ironwood were taken as types, and their cross-section studied under the microscope.

Basswood makes about twice as much growth in a year as ironwood. The medullary rays are straight in basswood, in ironwood wavy and more numerous. The ducts of basswood are very numerous and are irregularly arranged, in ironwood fewer and tend to arrangement in groups.

The difference in the size of the cells at the beginning and end of the year is well marked in basswood and hardly noticeable in ironwood. The cells of ironwood differ from those of basswood in being regular in outline, regularly arranged in rows, and having thick walls. Different specimens of the same kind of wood, one brash, the other tough, will show the same differences to a less degree.

President Abbot gave a short but very interesting address on the Ascendency of Aristotle. He said that ascendency of military or religious leaders was not uncommon, but Aristotle was the only great philosophic writer he knew who ever gained ascendency over the whole world. He spoke of Aristotle being for twenty years a student of Plato; of how

his works appeared in Spain after the dark ages, and how from the twelfth to the fourteenth centuries he reached his greatest ascendancy in Europe. At this time the Professors in the universities of France and Italy had to take oath to teach according to Aristotle. He seemed to have a notion of the difference between induction and deduction, and deductive logic remained almost as he left it until the beginning of this century. A reaction took place when physical science began to be studied. Lord Bacon in his inductive methods challenged comparison with Aristotle. And to-day, although Aristotle is no longer authority, he is still well worth study.

Mr. C. M. Weed described the methods of microscopic section cutting with reference to animal tissue. As an example the spinal cord of a cat was taken and the process described to prepare permanent sections. He spoke of a new method of section cutting practiced by Prof. Gagae of Cornell University.

For Mr. L. G. Carpenter's address on Red Sunsets see the scientific department of this issue.

Library Notes.

What book is out most? Columella on Husbandry.

The Chemical Club, note book in hand, consults case three morning, noon, and night.

What shall we do with the cats and dogs? Me-ow! me-ow! bow-wow-wow.

Some of us want books that are not here.

If our floors were covered our rooms would be among the pleasantest ones in the State.

Our English friend keeps us posted in affairs in Soudan. See the Illustrated London News for war in Africa.

A considerable sum of money will be expended for books during the month of April.

The Freshmen class are among our most discriminating readers.

The library is to have vases for flowers. Our friend, the florist, kindly remembers us with the rarest white pansies, and lilies, and roses. He shall have all our old papers in return for his kindness.

A fire in the grate and an easy chair ought to induce a reading habit.

Young lady from town: "Where is the curiosity?" (Meaning the museum.) Convulsed librarian: "Ah-h! Oh! Just at the head of the stairs; you will find it a great curiosity."

The State Board thought we must have scrubbed the floor. They never had seen Mr. Goodwin sweep and dust.

H. W. Collingwood sends us the Southern Live-Stock Journal with many articles over the initials H. W. C. We all read them, and so we do those that come up from the orange groves of Southern California. Mr. Voigt will please notice.

Visitors often mention the "room at the top" in our library but the books are creeping upward.

Any alumnus who wishes to do his alma mater a favor may go in search of certain reports from the Bureau of Education. The librarian will furnish a list; also lacking reports from other States.

Only one magazine lost from the reading room since July 1, 1883.

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.

H. F. Buskirk, '78, has a little girl four months old.

J. A. Porter, '77, is a teacher at Ogden Station, Mich.

G. W. Thompson, '82, is studying law at Minneapolis, Minn.

Victor E. Bailey, here in '77 and '78, is farming at Prescott, Wis.

Oscar Clute has lately had added to his family a fine 11 lb. baby girl.

Glen Smith, once with class of '86, has gone west to spend the summer.

John T. Brown, here in '72 and '73, is an attorney at law, Detroit, Dak.

F. P. Arthur, here in '77 and '78, is a minister at Bethany, West Virginia.

Clarence Weed, '83, has been spending the winter at Cornell University studying entomology, but has returned and will continue his studies here.

H. K. Lum, a special here last year, is studying medicine at Ann Arbor.

E. J. McAlpin, once with class of '77, is principal of schools at Pierceton, Ind.

R. M. Young, once with class of '74, is a poultry man near Battle Creek, Mich.

H. A. Danville, of '83, has joined our former steward, Con. Mallory, in Dakota.

George G. Torrey, here from '57 till '59, is now living at 214 Park street, Detroit.

Amos Troop, of '81, graduated last February at the Rush Medical College, Chicago, Ill.

A. G. Gulley, '68, is with C. T. Monroe, here in '57, raising seed for D. M. Ferry of Detroit.

Jos. B. Ware, for two years with class of '82, is at Grand Rapids in the firm of Ware & Hecox, lumber and shingle dealers, operating at Pinconning, Mich.

N. P. Graham over three years with class of '79, is now at Flandreau, Moody county, D. T.

Geo. C. Nevins, '73, is employed in a mill company, and is also teaching at Cheboygan, Mich.

Cyrus T. Crandall, '80, is practicing and studying law at Adrian, Mich. He has a fine baby boy.

Chas. W. Ball, for three years with class of '74, is book-keeping and studying law at Ewart, Mich.

Bart Nevins has a fanning mill and woodwork factory at Kalamazoo. His business is quite extensive.

Jay D. Stannard, '76, has a farm of 80 acres at White Water, Wisconsin. He is married and has one child.

Byron D. Halsted, '71, is still editor of the American Agriculturist. He is married and has a little girl.

Frank Robson, of '78, is now in the law firm of Olds & Robson; office in postoffice block, Lansing, Mich.

C. R. Dewey, once with '85, is a student in the Department of Medicine and Surgery at the University of Michigan.

Albert Bahlke, once with '83, has been looking around in the west; when last heard of his address was Denver, Colo.

S. K. Griffin, here in '73 and '74, is farming two miles west of Caro; he says it is a beautiful farming country up there.

M. A. Porter, here in '60 and '61, is at Northville, Mich. He is of the firm of Sands & Porter, furniture dealers and upholstering.

Chas. S. Armstrong, three years with class of '79, died Oct. 6, 1883, at Lyndon, Kansas, where he had recently purchased a farm.

Fred Storrs, once with '85, is engaged by C. N. Storrs' Lumber Co. to sell out a stock of goods for them at North Muskegon.

Frank Prudden, once with class of '81, has for the last few months been in Lansing helping his brother Will in his real estate office.

O. E. Augstman, '75, has removed his law office to 43 Campau building, Detroit. He says business is good and prospects bright.

Charles Gammon, '82, made the College a short visit this winter. He is very busy speculating in wheat and oranges in California.

Boyd Skelton, here in '69, made his friends at the College a visit this winter. He thinks Colorado is the State for young men to go to.

Carl English, once with '84, was married Dec. 6, 1883, to Miss Rodgers of Lowell. He owns and is working a farm of 70 acres at Lowell, Mich.

John J. Kerr, '71, was married in May, '83, to Miss Zoe Emuell. He is now living at Ennis, Montana, where he is teaching and practicing law.

F. H. Brown, here in '73 and '74, is at present examining lands for the Detroit, Mackinac, and Marquette R. R. His address is St. Ignace, Mich.

Asa Rowe, '73 has at last found a partner; he was married Nov. 26, 1883, to Miss Anna Burges of Iosco, Mich. Only two bachelors now in class of '73.

C. B. Collingwood, once with '83, and who left in the fall of '81 to go on a railroad survey in Utah, has returned to College and will graduate with '85.

Ralph D. Sessions, of '78, Deputy County Clerk at Ionia, married Miss Kenyon of Ionia, December, 1882, and now has a beautiful baby girl at his home.

Dr. Carl V. Hinman, of '78, was married Jan. 23 to Miss Mary Corey, eldest daughter of D. R. Corey of Lansing. Dr. Hinman is a druggist at Portland.

C. H. Flynn, once with '84, and who left to study veterinary at Iowa Agricultural College, has graduated, and is now a veterinary surgeon and physician at Decorah, Iowa.

A. L. Kerr, once with '78, recently purchased a valuable farm of 180 acres in Monroe county, N. Y., where he will move about the 1st of April. He has a son ten months old.

John R. Shelton, '82, was united in marriage Dec. 20 to Miss Hattie Handy of Lansing. Several of his old classmates and College friends were here to witness the happy event.

Prof. Georgeson, '78, having resigned his professorship of Agriculture in the Texas Agricultural College to take charge of his farm, is now intending to enter into partnership with his wife's brother, Mr. Lovett of Little Silver (near Long Branch, N. J.), in the nursery and greenhouse business.

Cass. E. Herrington, three years with class of '78, was married last fall to Miss Belle Manning. She is the daughter of Judge Manning, one of Pontiac's most esteemed and wealthy men.

F. M. Woodmansee, of '85, being weary of traveling life's path alone took occasion this winter to get himself a wife. The young lady's name was Julia Birch, from Middleville, Barry county, Mich.

E. D. Parshall, here in '76, is opening up a stock farm of 320 acres, called the Spring Brook Farm, situated at Gros, Clark county, D. T. He also owns 160 acres near Columbia, Brown county, D. T.

E. H. Bradner, '69, is at present at Sacramento, California, but expects soon to go on to a fruit farm at Oleta, a place about 50 miles from Sacramento. His health is still poor, but he expects to gain strength on the farm.

Orlando Markham, here in '58, is living at Clarksville, Ionia county. He and his brother Mortimer, also here in '58, entered the army in '62. Orlando remained in the army till '65, but Mortimer was killed at the battle of Fair Oaks.

Chas. McCurdy, '81, has been spending the winter teaching at Old Mission. He managed to keep from being lonesome by taking active interest in a teachers' association, in temperance meetings, and farmers' institutes. He will return to College this spring and continue his studies under Dr. Beal.

Howard Holmes, '81, has left the Lansing Republican office and has entered the office of the State Board of Health to fill the vacancy caused by the leaving of Mr. Rauchfuss, '79. Mr. Rauchfuss is now traveling for Bement Bros., manufacturers of farm implements at Lansing.

We recently received a card which read: S. C. Hedger, notary public and dealer in real estate, final proof papers carefully written, U. S. land office business a specialty, insurance in first-class companies, money loaned. Detroit, Brown county, D. T. Mr. Hedger was a student here in '73.

The "Mississippi Live Stock Journal," which a short time ago did not pay expenses, has become, under the management of some of our graduates, one of the leading agricultural papers of Mississippi. Herbert Collingwood of '83 is editor, Richard Gulley of '78 business manager, and Prof. Frank Gulley is a stockholder and correspondent. The SPECULUM congratulates the managers on their success.

We have received the following card:

STANTON, MICH., FEB. 4, '84.	
-o-	
LOUISE ANDREWS.	
8½ pounds on the hay scales.	
DAN W. ANDREWS.	ANNA ANGEL ANDREWS.

The readers of the SPECULUM will be pained to learn of the sorrow which has befallen their friend Chas. Parker, '75. November 8 he lost by death his only son, a bright and beautiful boy of 6 years, and the next evening his wife died also of consumption.

The *Sturgis Journal* of November 15 says: "Seldom has so heavy a stroke of affliction fallen upon a young husband and father. Only eight months has passed since the loss of a rarely beautiful boy, filled his heart with anguish, and now another has been taken upon whom bright hopes were centered, and for whose future prosperity and happiness it was his pleasure to plan and anticipate. Only twenty-six hours later the strong ties were severed which bound him to his chosen companion for the journey of life, the one chosen and upon whom his affections were fixed in his boyhood days."

We are pained to learn, just as we go to press, of the death of F. S. Sleeper, who graduated in '68, on the morning of March 25. It is supposed, but not known, that he committed suicide by firing a straw stack and then burying him-

self in it, during an attack of temporary insanity. Since graduating Mr. Sleeper has been a most attentive farmer, and has often written for the entomological papers. He was a close and accurate student of entomology, making a special study of the *coleoptera*, on which science he was excellent authority.

Joseph A. Briggs, '79, was universally beloved for his quiet, honorable, self-directed conduct in College. He was from first to last room-mate of Mr. Sumner of the same class. They were two of the founders of the Eclectic society and helped sustain it in courses of historical readings and discussions, which were very valuable. Mr. Briggs studied law at Ann Arbor, and was admitted to the bar in April, '82. Ill health drove him west; soon after we find him a resident graduate of Colorado Agr'l College, and afterward at the great resort for health seekers, Los Angeles, Cal. He returned to die at his home, White Center, Monroe county, Jan. 21, '84. News was not received here in time for any of his college friends to attend the funeral, but his memory will long be cherished in many hearts at the College, and among his classmates.

COLLEGES.

The Class of '86 at Columbia are \$635.15 in debt.

Three hundred and fifty colleges in the United States have no publications of any kind.

A new chapel is expected to be built at Columbia. (May the same be done for the M. A. C.)

Princeton has the honor of possessing the identical electrical machine which was used by Dr. Franklin.

Stevens Institute will hereafter admit to the Freshman class only the fifty passing the best entrance examinations.

At Amherst a student's excellence in the gymnasium counts just as much for him in his record as excellence in any study.

The University of St. Andrews, the oldest university in Scotland, has conferred the degree of LL. D. on James Russell Lowell.

In accordance with the will of the late Lewis Morgan \$160,000 will go to the Rochester University, to be used for the education of women.

The first tragedy ever written in America was from the pen of a Harvard student, and was first played by the students of that university.

A petition has been going around at Harvard asking that it be left to the option of the students to choose between Greek and the modern languages.

The American colleges derive two-fifths of their income from tuition fees, which is four times the proportion which the English universities get.

The oldest university student in Berlin, and probably in the world, is sixty-nine years of age. The oldest student at Notre Dame University is fifty-five.

John Guy Vassar has presented \$10,000 for the benefit of the cabinets of physical and chemical apparatus in the Vassar Brothers' laboratory at Vassar College.

Wendell Phillips was a graduate of Harvard, class '31, and of the law school, class of '34. He is said to have been the first scholar and general athlete in college.

The Sophomores of Cornell recently achieved the commendable feat of disposing of a class supper ordered and paid for by the Freshman class of the same institution.

The whole number of students in the collegiate departments of the United States is more than 30,000, while there are more than 7,000 American students in German universities.

The new building of the medical department of the University of Vermont, erected by John P. Howard at a cost of \$30,000, was dedicated recently. The medical class numbers two hundred students.

The New Hampshire legislature has passed a bill granting Dartmouth College \$5,000 per year, to be applied in aid of indigent students. This is the first money granted by the State to the institution in one hundred years.

The students of Lafayette College enjoy the privilege and reputation of using more "ponies" than do the students of any other college in the land. (If they can lay over the average Sophomore in Mechanics they can indeed do well.)

A Republican Central Committee from the college classes has been appointed to make arrangements for holding a mock convention sometime in the spring, to nominate a President and Vice President of the United States. So says the Oberlin Review.

EXCHANGES.

There seems to be a growing tendency among the various college papers to fill their literary department with light literature, even bordering on romance. Whether this is to be encouraged or not, is a question. The College Rambler makes the suggestion that every department of knowledge pursued in college should be represented in the columns of the college paper. It is the College thought rather than the local matter that interests the alumni. While we agree with the Rambler in the first statement, we differ somewhat with regard to the last. There is no doubt that the alumni read the local matter with as much or greater interest than they do the laborious thought of the student, exemplified in the literary department. That the college paper should represent every department of knowledge pursued in the college, stands above criticism. What department of knowledge is represented by the short stories, and even serials, with which many of our exchanges fill their literary department? As novels they rank not the highest. If we must take them as outgrowths of the line of thought pursued in an institution, it rather reflects upon the institution. Perhaps the latter is the true explanation, as we notice that most of the papers that support this kind of literature are published in "co-ed." institutions. The Coup d'Etat says that the occasional and discriminating use of representative essays and orations as literary matter is to be encouraged. Is the college paper published for the purpose of encouraging a novel-writing class of students? We think not. The student is generally supposed to pursue a different line of thought than that exemplified in the romance or serial story. Perhaps a person needs a little intellectual recreation after reading the Hesperian Student, Carson Index, and others of that ilk, but even then he should seek to obtain it from a more profitable source than the average college journal.

We quote the following from the Oberlin Review, as it applies forcibly to a number of our students. Speaking of learning a lesson it says: "A book is opened. Perchance the eye is directed toward it (if not out of the window), but the thoughts, where are they? In the realms of space, mayhap, but not upon the lesson. In other words we do not acquire the habit of concentrating, but fritter away time on what is virtuously called studying. How much time is lost in pursuing fleeting nothings, when the thoughts should be directed to the lesson! How much time might be given to reading or to other profitable pursuits if it were rescued from the grasp of dreamy nonentities!" As a remedy the Review says that "when we study we should earnestly apply the mind, and forbid all airy flights. It is an excellent plan to allow one's self a certain length of time for learning a lesson, and then make a great effort to accomplish the work in the time specified." Which advice is very good and might be profitably appropriated by many.

The *Student*, from Cumberland University, is one of the few College papers that are published in the regular newspaper form, but nevertheless the *Student* fills its pages full of as attractive and interesting articles as do many of the papers that support a more attractive form. The editors evidently do not believe in putting the best on the outside.

To those readers of the SPECULUM who crave knowledge on the subject of the study of Latin and Greek in our colleges and universities we recommend them to peruse carefully the stock of winter's exchanges. One of the best articles upon this subject is to be found in the February number of the *Alabama University Monthly*.

Just as we go to press we are in receipt of the *College Times*, a monthly, published by the young ladies of Milwaukee College. This is one of the few papers published exclusively by lady students, and is indeed a very spirited little sheet, and we hope to hear from them again.

The *Acta Victoriana* advocates the holding of commencement exercises at the beginning as well as at the ending of the college year. The January number contains a very well written article on the value of college societies to the students.

The *College Mercury* contains a very extended account of college journalism in the College of the City of New York. We should say that there had been no dearth of papers in that institution.

The *Ariel* has given up the plan of an item box as inexpedient, the number of items put into it being exceedingly small.

The February number of the *Normal News* started off with a very neat little poem.

A late number of *Student Life* contained personals to the number of three.

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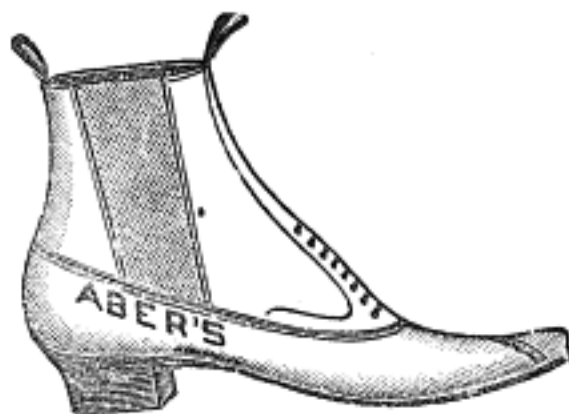
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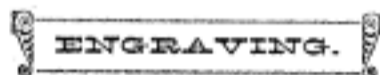
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