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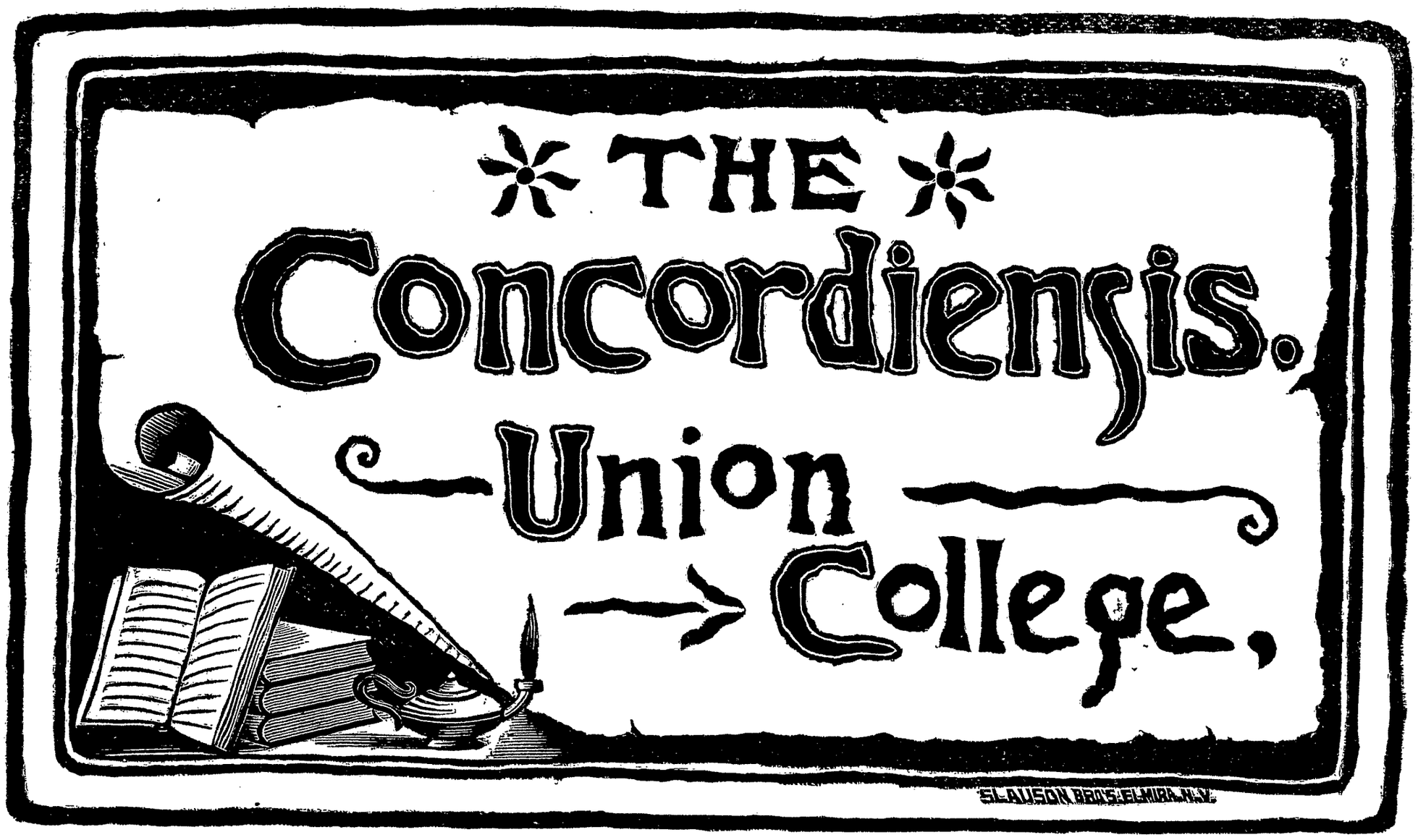

SCHENECTADY, N. Y.

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The Concordiensis.

Vol. XII. UNION COLLEGE, DECEMBER, 1888. No. 3.

LITERARY.

The Death of Love

'Tis sad to watch a dying friend,
To see that dear life ebb away,
No aid our human power can lend,
The cruel clutch of death to stay.

To see those poor eyes peer and strain,
To pierce the veil of shadow land,
To see the muscles stiff with pain,
To press the rapid chilling hand.

But through the inky mist of death,
We see another purer land,
Where he who faintly gasps for breath,
Shall soon all pure and spotless stand.

But when love dies no hope is left,
We cannot say, "we meet again,"
And then we doubly are bereft,
When Love, the pure, the true, is slain.

GEO. COMSTOCK BAKER.

At Last.

A VERY OLD STORY.

I.

A college student's room. Over the carpet as well as the table which stands in the centre, books and papers are strewn in promiscuous heaps. Everything indicates the genuine bookworm. In the midst of this litter lounges a senior in an easy chair, his feet stretched out to a blazing grate fire. A heavy volume lies unnoticed on his knees and he is gazing absently at the red coals.

A rap is heard at the door.

Murphy, vaguely: "Come in!"

The door opens and Brooks enters.

Brooks: "Hello, Murphy, what are you dozing over there? Got up Hoffman for tomorrow?"

Murphy, arousing himself with an effort: "Oh, after a fashion. That psychology is abominably tough. It strikes me it's about time they let up some on us seniors. I thought we were to take things easy this year, but I haven't found anything easy yet. Sit down and tell me what you know about the *non-ego*. Have a cigarette?"

Brooks, taking a chair and lighting the cigarette: "What I know about the *non-ego!* What I know about the south-pole! Precisely nothing. I heard somewhere the other day that novelists were psychologists, and hereafter I mean to learn my psychology from them—except of course what's necessary to pass up this examination."

Murphy, sadly: "I wish I could take things as easy as you do, Brooks."

Brooks: "Why the devil can't you? What's the use of burying yourself in such a mess of stuff as this!" He looks around contemptuously at the piled-up books and magazine. You don't get any credit for it, do you?"

Murphy: "No, most of the professors disapprove of trying to read much outside of the class books, I understand, but I have a kind of innate curiosity to find out how other people besides old Porter for instance, look at things. I suppose it is waste time!" He takes the volume from his knees and flings it impatiently down on the floor.

Brooks: "Thank Heaven, I haven't any 'innate curiosity,' as you call it, then. But, by the way, what kind of a time did you have at the Junior Assembly last night?"

Murphy: "Splendid. I thought it was very successful indeed, didn't you?"

Brooks: "Of course; the best thing those Juniors have done yet. I mean to encourage them to do it over."

There is silence for a moment. *Murphy*, slowly: "Brooks, what do you think of Miss Cameron?"

Brooks, knocking the ashes from his cigarette: "Why, she is pleasant enough as girls go I think."

Murphy, still more slowly and hesitatingly, half to himself: "I think she's a lovely girl. Brooks, I want to tell you something, and I want you to keep it perfectly secret. You know we have always been very close friends and perhaps you can help me—Brooks, I think a great deal of Miss Cameron—in fact, Brooks, I believe I am in love with Miss Cameron." He blushes furiously and bends over to plunge the poker into the fire.

Brooks, blowing forth a cloud of smoke and tipping his chair back against the wall in amazement: "Phew! The deuce you say!"

Murphy, still poking the fire and speaking with nervous haste: "Yes, I have been thinking a great deal of her lately—I have hardly been able to think of anyone else. And last night I had made up my mind to propose to her—I had made up my mind to do that any number of times before, but I couldn't." He throws down the poker and leans back in his chair continuing eloquently: "Did you notice how beautiful she was last night? Those brown eyes of hers were perfectly enchanting and ball-dress never showed more comely neck and arms. How splendidly she carried herself too, I don't think any girl ever walked or danced more gracefully, at least I never saw any. She has a magnificent figure! Don't you think her figure is very handsome, Brooks?"

Brooks, who has been sitting with his chair tipped against the wall eyeing his friend with a half-curious, half amused air: "Well, when is it to come off, anyway? Are congratulations in order? If they are, accept mine."

Murphy, putting his hand to his forehead tragically: "Ah, that's just it. That's the trouble."

Brooks: "What's just it? What do you mean?" He bends forward to see that his friend is not gone crazy.

Murphy: "I haven't proposed yet. I can't get up courage—or rather I don't know how to manage it. I have gone to her house over and over again determined to tell her before ever I came home; and last night at the ball I thought I surely should, but someway I couldn't accomplish it. I can't bear to do anything in a bungling way and I was so afraid I should bungle over this that I didn't dare to try it. I've been reading high and low to learn the most graceful way but neither novelist nor psychologist from Spencer to Howells gives me any help." He shakes his head sorrowfully and covers his eyes with his hand.

Brooks, bursting into a laugh: "Well, I declare, you are the worst man I ever saw! What earthly difference does it make to you how you do it, so only you get her to accept?"

Murphy, looking up piteously: "But do you think she would accept me if I went blundering into such a question as that?"

Brooks: "Just you try her and see. If she is willing to take you, I guess the words won't matter much. I can imagine *myself* waiting to find out how to tell a girl after I was in love with her! It's just like you, Murphy. It all comes of your polling these books so much and always trying to be exactly correct about everything. You are getting to be a regular 'Langham' in embryo. Pretty soon you won't know whether you are in love at all or not!"

Murphy, smiling sadly: "You may laugh as much as you like, my friend, but it's a very serious matter to me, I assure you."

Brooks, impatiently, lighting another cigarette: "Pshaw! Smash right ahead, old fellow! You'll come out all right. That's the way I always do. But I say, can you lend me your crush hat; mine got filled with salad or something last night. That's what I came in for."

Murphy: "Of course. There it is on that hook."

Brooks rises and takes the hat but stops at the door laughing: "Remember now, smash ahead!"

II.

The drawing-room at the Cameron's. At the left sit Mrs. Cameron and the Rev. Dr. Devon. Miss Pauline Cameron and Mr. Murphy occupy a sofa at the right. On a large rug before the

wood fire, Miss Cameron's four-year-old brother, Tomie, is playing with a pug dog.

Murphy, enthusiastically: "You dance perfectly, exquisitely!"

Miss Cameron, demurely: "How very kind of you to say so! It is so pleasant to me to know that *my friends* like my poor attainments."

Murphy: "I never pay compliments, Miss Cameron, but what I am going to say now may sound to you like one. I trust though, you will not dislike it."

A moment's silence, then *Miss Cameron* encouragingly: "Won't you tell me what you were going to say? I should like to hear it so much."

Murphy, flushing nervously: "It's not worth saying. I know well enough what I mean, but I am afraid I can't express it. You—you are quite different from other girls, Miss Cameron. It—it would be quite impossible to—to think of you—with the—the ordinary—crowd of—of *dancers*. That's about what I was thinking though—I intended to express it differently. But in the way I have said it no one could possibly take it for a compliment, much less a—a—." He relapses into silence.

Miss Cameron, half-curiously, half-wickedly: "On the contrary, I do take it as a very decided compliment; especially when I think who it comes from. But after all, perhaps I should not accept it. The—my parents and my education should perhaps have the credit for my *dancing* well, Mr. Murphy."

Murphy, under his breath: "Oh, I thought I should have done it that time!"

Miss Cameron to herself: "Oh,—why can't he speak! He has only got a quarter of an hour left to stay at most! He has lost all this evening!" She glances impatiently at the hands of the little marble clock on the mantleshelf. "I could almost scream, just to relieve my feelings!" Her face suddenly brightens and she picks up a vinaigrette from her lap saying aloud: "I was so frightened last night. I thought I had lost this little vinaigrette you gave me. It is so pretty! I think everything of it!" She holds it caressingly between her fingers.

Murphy, embarassed: "I am so glad it pleases you. I—may I—hope—it—makes you think of—the—giver sometimes, Miss Cameron."

Miss Cameron, smiling mischievously: "Indeed it does, Mr. Murphy. And I assure you I think of him many times a day and of all his kindness to me. You know I tried to show my gratitude to you last night, I gave you *four* dances!"

Murphy, again aroused to the contest: "I shall never forget your kindness, Miss Cameron. I hope you won't be displeased at what I am going to say now, but I am afraid I can't express myself. I—I think you—handle your vinaigrette with such—exquisite—grace that—that I could—that I—would—like to have my sister learn to use hers from you!"

Miss Cameron, haughtily: "I am scarcely ready to begin lessons yet, Mr. Murphy!"

Murphy, eagerly: "I beg your pardon! I couldn't express what I meant to say!" To himself: "Another chance gone!" He rises to go: "Good evening, Mrs. Cameron, Good evening, Doctor."

Miss Cameron accompanies him into the hall, little Tomie and his dog following her unnoticed: "Are you going to the Rogers' to-morrow night, Mr. Murphy?" She leans against a small table waiting for Murphy to pull on his coat and as she does so, she unwittingly knocks off Dr. Devon's silk hat from where he has placed it. The hat rolls on the floor and before she can rescue it the pug has seized it and torn a great hole in the crown. "Oh, what shall I do! Do, do please help me!" She looks up at Murphy with an appealing, beseeching glance.

No time can be lost. The Doctor is already heard rising to go.

Murphy, his diffidence entirely melted by that look, seizing his own silk hat and holding it ready to place it where the Doctor's had stood: "Pauline?"

No answer.

Murphy: "Pauline?"

Miss Cameron, with a low sob: "Yes?"

Murphy, at last gathering courage: "Pauline, I—I want to help you always. I want to fight all your battles for you. I—I want to take all your troubles on my shoulders—to—to have you all for my own. Say one word won't you—you see I must have one word or else—But no,

never mind; I ought not to have spoken now only—only I can't help it, and if you will just—No, don't look at that door—no one one is coming—Only give me—a look—a sign—may I change this hat for the Doctor's—am I to be permitted to help you always—am I to be permitted? Pauline?"

Perfect silence. Miss Cameron's head bends lower and she toys with her rings shyly.

Murphy: "Pauline? Is it to be yes?"

Miss Cameron: "Yes."

Their hands touch for a moment, and then Murphy's arms are around her.

Tomie, who has been watching this scene with deep interest, running to the drawing-room door: "Oh, mamma, mamma, Mr. Murphy is kissing Pauline in the hall!"

Curtain.

An Unseen Power.

It was near the close of a drowsy day in June. The sun had left the streets, but still glistened on the church spires and tinged the far away hills with a soft argent glow. The robins were bidding each other a plaintive good night, as they sat red breasted on the highest trees to catch the last glimpse of the setting sun; while unseen insects droned a lullaby. The sun descended until the robins could see it no longer, and they flew twittering away, while in the east fleecy clouds blushed a rosy good night, until the very air seemed to take on a faint reflection. A single star showed a tiny luminous point, and twinkled and quivered with quiet pleasure.

Up in a bay window, where he could see over the city and down the river, which gleamed like molten silver in the starlight, sat a young man. He too had been watching the sunset, and as the last quivering, golden ray died out in the west, his handsome face took on a look of yearning reminiscence. He took his cigar from his lips and slowly blew a cloud of thin, blue smoke and watched the night breeze waft it away. His hand dropped to his side and he fixed his eyes on the far-distant, mysterious star, while his eyes seemed yearning to pierce the fair canopy of soft, blue sky. "Three years ago," he murmured, "Three years, yet it seems as if she died but yesterday." He slowly opened his watch and gazed long on the little photograph it contained. "It seems as if I could feel her presence now. She used to love roses," and he pressed the dainty rose he wore in his buttonhole to his lips. He rose and sighed, and leaning against the window sash, looked far down the river where tiny sparks blinked along the shore in the gray dusk.

Suddenly there pealed out a glad song of triumph from a neighboring church tower. Louder and louder swelled the glad notes, telling of victory over doubt and despair, and of perfect faith and love. Slowly he turned his head as if in a dream, and listened, then he mechanically took his prayer book, which had lain unused for so long a time, and quitting the house, walked towards the church with the unconscious air of a somnambulist. When he entered the church, there were but few lights save in the chancel, and he sank unseen into a seat in the shadow of a pillar. The organ throbbed in a mighty agony, rose in anguish, and died away in moans. But he heeded it not, he sat in a semi-conscious state, and faintly, as through great space, came the words, "Let us humbly confess our sins unto Almighty God." He bowed his head but could not pray, his eyes were closed but he seemed to feel a great light, searching the inmost recesses of his soul. He found words at last and murmured, "God be merciful to me, a sinner." He raised his head and rested it upon his hand. He felt like a man who has run a hard race and won. His head seemed clear, and every muscle seemed endowed with new life.

Again the organ pealed forth, but this time in a glad pean of joy, a song of gladness. Suddenly he became aware of a voice whose tones, clear as a chime of silver bells, rose above all the others. He looked and saw a girl, or was it an angel? Her fair hair clung lovingly to her broad, white brow, and shone like silken strands in the mellow light. Her milk white dainty hands, with their pearly pink nails had dropped to her side, and her glorious eyes which mirrored the soft, intense blue of the June skies, were lifted to heaven in a gaze of love and trust. The creamy roses on her breast rose and fell as her bosom heaved, and her fair white throat trembled

with that exquisite melody. Pure she stood, all spotless, and sang only to God with the innocent rapture of a bird, who lifts its little head and pours out its tribute of praise to the Almighty Father.

His human nature said, "I love you madly, passionately; aye, with the intensity of my whole, strong being." Then came a self-accusing voice, "Art thou, man, worthy of her virgin love? Thou, whose only pleasure has been in unworthy things." "No, but by God's help I will be."

The service ended. A new man stepped out in the pale moonlight; his breast filled with as noble a resolve as ever entered human heart, the resolve to be worthy of the love of a pure woman.

* * * * * * *

"Agnes, little wife, do you know where I first saw you?"

"No, dear."

"It was in church, my darling. I do not know what power impelled me to go there that night, for I had not gone for three years, not since—" he checked himself hastily and then continued, "as I say, I saw you in church, your dear little face upturned to Heaven. I shall never forget how you looked that night. I loved you when I saw you first and I have loved you ever since."

"And I am happy, Frank, you don't know how happy, to have a love such as yours."

He bent his head, and smoothing back her clustering, golden curls, kissed her upon her fair white forehead, while the robins sang their good-night songs, and the river in its silver course flowed onward toward the sea.

GEO. C. BAKER.

Happiness in this world, when it comes, comes incidentally; make it the object of pursuit, and it leads us a wild goose chase, and is never attained. Follow some other object, and very possibly we may find we have caught happiness without dreaming of it, but likely enough it is gone the moment we say to ourselves, "Here it is!" like the chest of gold that treasure-seekers find.—*Hawthorne*.

Exchanges.

The Polytechnic is especially bright for December. Its articles are all interesting, and its alumni notes merit special praise.

The Christmas *Brunonian* contains, besides many other extremely interesting articles, an almost complete list of the colors and yells of the most prominent institutions.

The Campus is the only college publication that has a '90 man as editor-in-chief. The paper is well managed, and fortells great success for '90 in the world of journalism.

There can be no fault found with the literary work in the *Amherst Student*, but its general appearance is very poor indeed. Cannot the editors arrange to put their advertisements "under cover"?

In *Outing* for January, a worthy Holiday number of this enterprising Magazine, we note the following principal articles: "Among the Taurus Mountains," by L. B. Platt; "Mask and Foil for Ladies," by Chas. E. Clay; "Fast Ice Yachts," by Col. Chas. E. Norton; the "Lake Champlain Yacht Club," by Fred. G. Mather; and "Hints to Foot-Ball Captain," by Walter C. Camp. In addition to these we find the concluding installments of two excellent papers, the first of the series on "American College Athletics," Harvard University, by J. Mott Hallowell, and "Sport—Past, Present and Future," by Alexander Hunter; "Mr. Perker's Bear; or, Mr. Bear's Perker," by the popular cycling writer, President Bates; "The Breaking of Winter," a seasonable and captivating story by Patience Stapleton, and some excellent poetry, "California Lyrics," by Minna C. Smith, and "The Faun Dance," by M. Gorham. The Editorial Departments and Records are as bright and attractive as usual, while the former contains an interesting statement of affairs in the Athletic world, which gives the public a better chance to understand the Athletic Union's position in the controversy, than has hitherto been afforded by any publication.

A little learning is a dangerous thing;
Drink deep or taste not the Pierian spring;
Then shallow draughts intoxicate the brain,
And drinking largely sobers us again.—*Pope*.

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EDITORIAL.

THE college at large can only re-echo the sentiment expressed in the *Mail and Express* regarding the condition of affairs at Union at the close of the first term of Dr. Webster's administration. There has been in every department of work, renewed zeal in the performance of duties on the part of instructors and students. If the work done, with the spirit displayed in its doing be considered, if the obstacles that have been met and surmounted be weighed, the most severe critic must acknowledge that the college is about to enter upon a future of renewed prosperity and usefulness, under a leader in every way qualified for his position.

* * *

NEXT to a goodly endowment, Union needs a thorough and effective organization of its alumni. The existence of the latter is assured. May the benefits and blessings of the former speedily follow! The meeting and banquet of the New York City Alumni Association, the early part of the month, was in every sense of the word, a success. It recalled to the many who were there assembled, the good old days of yore, it brought together in a common cause, around a common board, men of divers aims and pursuits, and it revived, as nothing else can revive, the old love for Alma Mater. From another standpoint, however, the meeting was profitable, which, though of secondary importance, is a thing by no means to be overlooked, namely, it brought the college before the world as a *living* institution, and as a potent factor in our national progress.

* * *

THE present library regulation which prohibits students from drawing books from the college library proper, is a condition of affairs that is much to be regretted. It does in many ways, place a check upon a man's acquiring that polish, and refinement which can only be obtained from communion and fellowship with the "kings" that haunt and throng library shelves. The permission that is granted the students of reading the books in the library, where one has to choose between sitting in a room large and cold, or one close, crowded and badly arranged, is surely not much of a privilege. The appeal has been frequently made before, and is, we believe, made with more vehemence this year than ever before, for the opening of the library to the students use, and for the systematic arrangement of its contents that one may search without labor lost for the book he wishes to consult.

College News.

We give below a full account of the great banquet of "Old Union's" alumni, at Delmonico's, Friday, Dec. 14, for which we are indebted, in a large measure, to the New York *Mail and Express*.

About 125 of the graduates came together between 6 and 7, and the business meeting was held in the parlors adjoining the dining-room. William H. H. Moore called the meeting to order, and the Rev. Dr. Charles D. Nott was made temporary chairman. The election of

officers for the ensuing year resulted as follows: President, Hon. Hooper C. Van Voast; vice-president, Hon. John Bigelow; secretary, Robert C. Alexander; treasurer, William B. Rankine; executive committee; Rev. Dr. John D. Wells, Frank Loomis and William H. McElroy. On the adjournment of the business meeting the company betook themselves to the brilliantly illuminated dining room, and proceeded to dispose of a dozen of Delmonico's courses. At the raised table at the end of the room sat the toastmaster, Wm. H. McElroy, of the *Tribune;* on the right, President Webster, and on his left, Hon. Warner Miller. At the same table were Judge George F. Danforth, of the Court of Appeals, Rev. Dr. Chas. D. Nott, Hon. John H. Starin, Rev. Dr. George Alexander, Chauncey B. Ripley, LL. D., Prof. Wm. Wells, Gen. Daniel Butterfield and Rev. Dr. Wm. Irvin. At four other tables at right angles to the first sat the representatives of fifty-four classes, ranging from '34 to '88. The two Allen boys, twins, of the class of '34, were the oldest graduates present, and were given seats of honor.

In front of the chairman was a large basket of flowers, while a boutonniere lay at each plate. The menu cards were tastefully tied with a bow of garnet, the college color, and on the third page appeared the familiar "Song of Old Union," which has opened the exercises of every commencement for thirty years, and which was sung by the alumni with as much energy as their repleteness permitted:

Then here's to thee, the brave and free,
Old Union smiling o'er us,
And for many a day, as thy walls grow grey,
May they ring with thy children's chorus.

Chairman McElroy, in opening the after-dinner speaking, said in part that the one thing which made him sad upon this joyous occasion was the realization that the function of a presiding officer was not to talk, but merely to be the cause of talking in others. He was loaded with a speech warranted to last an hour, which he longed to explode. [Laughter.] Several winters had elapsed since the alumni of Union had dined together. During the interregnum they had kept asking after the health of their common mother with ill-concealed anxiety. They knew she was immortal [cheers,] but they realized that temporarily she was not feeling first rate. [Laughter.] How could they have an appetite for the high jinks of Delmonico's while she was suffering from arrested vitality up there at Schenectady? [Cheers.] To-night they met with the glad assurance that she is herself again. [Loud cheers.] We have rallied to celebrate the revival of learning in the old halls. Bold, bad men had characterized Union and some other institutions as "fresh water" colleges, but all schools of medicine held that fresh water as a steady beverage was more nourishing than the other sort. [Laughter and applause.] No college in the country had done a larger or a better work than Union [cheers]; none had a greater number of illustrious names upon its alumni roll [Cheers.] If the college is true to what is worthiest in its past we need not worry about its future. [Cheers.] Mr. McElroy paid a high compliment to the new president, Harrison E. Webster, and closed by proposing his health.

PRESIDENT WEBSTER'S SPEECH.

The cheering which greeted Dr. Webster when he arose to speak in behalf of the college could have been heard blocks away. Vociferous inquiry was made as to his symptoms, and as vociferous was the answer that he was "all right." The president makes no pretensions to oratory, and claims to have gone through college without making any kind of a speech in chapel or on the commencement stage, but his class-room "talks" are celebrated wherever he is known, and it was one of these plain, practical talks that he gave the New York Alumni. He said that his heart and life were bound up in Union College and there the best part of his life had been spent. He never wanted to go away. [Laughter.] He was never contented while he was away and he was glad to get back and go to work. He spoke in the highest terms of the earnest support he was receiving from the faculty, and of their faithfulness and devotion during the interregnum of the presidency. The students, too, were doing their work cheerfully and well, and no infractions of discipline had occurred during his administration. Several

reforms in the curriculum would be made during the year, more especially in the chemical and scientific courses. The greatest need of the college was an endowment in aid of the general educational work of the college, until its own resources became more available. Most of the endowments of the college are so tied down by conditions that they can be used only for the purpose for which they were specificially given. The situation, he said, was full of encouragement and promise, and he predicted an era of great success in the near future.

WARNER MILLER ON EDUCATIONAL METHODS.

Senator Miller was then called upon and received a greeting which led him to say: "I have just now but one regret, and that is that there were not on November 6th, 650,000 graduates of Union College in this state, for I think I should have had all their votes. [Cheers.]

My recollections of Union College go back to its palmiest days. The class of '60, in which I graduated, was one of the largest ever registered at Union. It was, I believe, the last class whose diplomas bear the name of Eliphalet Nott. Soon after that year came the civil war, which crippled so many of our colleges, North as well as South. The Southern students, of whom there were many at Union, withdrew to join the ranks of the Confederacy. Hundreds of others, among whom was the boy you now call President Webster, [cheers] dropped the text book and shouldered the musket. One of the professors recruited a company on the campus and led it to the front, never himself to return. Union never fully recovered what she lost during the war. The times since then have not been conductive to polite learning. Few who left college to enlist returned, as did President Webster, to complete the course with younger men. The times, too, were intensely practical. The profits of business, emoluments of office drew young men away from literary pursuits. Now, however, times are changing. Prosperity and leisure are bringing back a more general desire for a good collegiate education. New colleges are being built and old colleges are filling up. In this general revival of learning I congratulate "Old Union" that she is joining, and that we have found the man most eminently fitted to lead that advance, and by his firm hand and his vast personal influence bring out the best qualities of the students who flock to her halls."

Continuing, Mr. Miller said in parts: "If I should give an opinion of the present course of instruction in many of our schools, preparatory schools especially, colleges and universities, I should say that the great fault was in attempting to force every intellect in one mould. I believe Dr. Nott's wonderful success as an educator was due to the fact that he did not try to fit a round man into a square hole, or a square man into a round hole. To that fact I also attribute the great success in life of so large a proportion of his pupils. He was a practical educator. He found out just what a boy was good for, and bent all his resources to develop his talents along that line.

ELEVATING COLLEGE STANDARDS.

In my day the requirements for admission were such that a boy could generally enter college at 16 and graduate at 20. He could thus get a start which would enable him to enter upon his professional or business career before he was bald-headed. [Laughter.] Now, however, things are so that few men can graduate under 23. Then came three or four years in the professional school or in post graduate study, and before the college man is really skilled in his profession or business, he is well on toward the average limit of human life. I am not in accord with the present tendency of our colleges in making the course constantly broader and more difficult.

THE CLASSICAL COURSE THE BEST.

Another tendency of college faculties of to-day is the gradual substitution of scientific studies and modern languages for the good old classical course. In many colleges it is possible for a student to obtain the degree of Bachelor of Arts without having opened a Latin grammar or knowing the Greek alphabet. A careful review of the system of education here and in Europe shows that the best results are produced by making the classical course the foundation of every education. In many of our schools and colleges to-day they are simply teaching trades from beginning to end, and they begin at the wrong end. They take a boy before he has any

education whatever more than the rudiments of the English language and put him into something called science. The undertaking thus to educate and cultivate young men is in ninety-nine cases out of one hundred a failure. If you want to teach a boy the carpenter's trade put him in the shop. I do not mean to be found inveighing against modern science, or the teaching of the polytechnic institutions; but I say that any man, to be a great engineer, an investigator of electricity or any of the modern sciences, will be a thousand times more certain to accomplish it if his early education, say from the age of 10 to 20, shall have been given absolutely and thoroughly to the old classical course. (Cheers.)

CHAUNCEY'S PLASTER LEG.

At this point Mr. McElroy read several letters from the alumni or invited guests who were prevented from attending. Chauncey M. Depew was still confined to his house by a sprained ankle, but sent the following characteristic letter, the reading of which was frequently interrupted by shouts of laughter and applause.

"I had a plaster of Paris leg built for me yesterday by one of the most eminent medical artists in town, over the one which has done me service for about half a century, with the promise that it would carry me safely to and through the Union College alumni dinner, and afterward be placed in the Metropolitan Museum of Art as a model for the sculptors of the future. That leg has broken. I am therefore prevented from attending the Union banquet, and American art has suffered an irreparable loss.

I am very glad that the sons of "Old Union," after playing for so many years the part of the prodigal son in feeding upon the ordinary husks of life, have at last joined the Epicurean school to which the alumni of Yale, Harvard, Columbia, Princton, Williams and Dartsmouth in this city have become most earnest disciples. Hereafter the Union man of New York, without losing the acuteness and wisdom for which he is justly famous, will exhibit the full and captivating appearance of metropolitan jocundity and rotundity.

As a Regent of the University of the State of New York, I have always taken a deep interest and felt a patriotic pride in the oldest and most progressive child of the Regents. Union was the first college they chartered, and this fact, with her territorial position to the capital, has always made her an especial care for the statutory educational authority of the state. As the Regents look back over the nearly completed century of Union's existence, her magnificent educational work during that period, the number of men distinguished in every walk of life whom she has graduated, and the accumulated influences of her century upon the culture, wisdom and enlightened development of the State, we feel that this first of commonwealths must rank as one of the most important factors in the development of its greatness, Union College at Schenectady.

Some years ago I attended your annual commencement, with the understanding that I was to have no part in the literary exercises. I arrived just before the valedictory was delivered, was rushed upon the stage and warmly welcomed by the president. While I was gasping for breath on account of the speed with which two of the professors had hurled me through the crowd, the president said to me: 'The valedictory will take ten minutes, and at its close I will announce you to deliver the oration upon the bi-centennial of this church in which we are, and within whose walls Union College was organized, so that it will be virtually a double centennial oration.' Aghast and paralyzed, I humbly inquired how long it would take a graduate of Union College, who had never heard before of the history, or life or work of the object whose double centenary was to be celebrated, to prepare a polished and accurate oration which would satisfy a commencement audience. He replied that any one of them could do it in fifteen minutes. Since then I have never ceased to regret that I did not graduate at Union College after I left Yale.

Of all the devices which relieve the strain and hurry of our busy city life, none are so lasting in their benefits and inspiring in their results as these college dinners. They constantly draw nearer together the great community of the graduates of all our colleges into one great post-graduate American university, and give to each college, through these meetings of the alumni

additional strength, enthusiasm and power for good.

Individually and as a representative of Yale, I cordially and most heartily pledge "Old Union" full bumpers of whatever beverage its bibulous or prohibitory graduates prefer."

The president of the association, Judge Van-Vorst, was prevented from coming by a sudden illness, but wrote: "I am greatly disappointed in not being able to meet with you, but I am with you in feeling. The prospects of the college under President Webster are most cheering, and I hail every indication of renewed prosperity to Union College with joy and satisfaction. Her future I feel to be assured." By the unanimous action of the association, the large basket of flowers which graced the speaker's table was sent to Judge Van Vorst with their cordial greetings to the new president of the association.

Judge Robert Earl, of the Court of Appeals, wrote: "My judicial associate, Judge Danforth, is to attend the banquet, and hence I ought to remain here. My absence, however, must not be construed into indifference, for I feel the most lively interest in the welfare of alma mater. May she and her alumni live forever!"

St. Clair McKelway, of the Brooklyn *Eagle*, and one of the Regents of the University, wrote: "I am convinced that under President Webster the new days of Old Union will be the best the institution has ever experienced, for a leader of leaders is in charge of her interests."

Prof. Charles F. Chandler, for many years a professor at Union, was detained by a lecture engagement, but wrote: "I have lost none of my interest in Old Union, and should have been very glad to meet my old friends among the alumni." The Rev. Dr. Edwin W. Rice, of Philadelphia, wrote: "I regret that it will be impossible for me to attend. I am already an honorary member of the Association of Union Alumni for the Northwest. The interest taken in the renewed prosperity of the college by the alumni in New York and vicinity is very gratifying, and I trust it will lead to large results in building up the institution among the list of first-class educational colleges of our land."

The Rev. Dr. A. V. V. Raymond, of Albany, sent the following: "Let me say that I believe in the coming fortunes of Old Union for many reasons, but chiefly because I believe, heart and soul, in my old instructor who is now its official head. What Prof. Webster was to the boys of '75—an inspiration to all that was worthiest and best in them—that President Webster will be to the students of many years to come. In my creed the man makes the institution."

Melville D. Landon, of the class of '61, better known as "Eli Perkins," regretted that a lecture in Boston would keep him away. "I like to eat a good dinner at all times," he wrote, "but when invited to eat a dinner in honor of 'Old Union,'—oh, how I would like to make the sacrifice. I can see you all now, in my mind's eye, eating venison and canvas-back duck and sacrificing yourselves to revive the fortunes of alma mater. I sympathize with you. I would even suffer with you at Delmonico's, for the good of Old Union, as long as the woodcock and Mumm's extra dry holds out. I don't care much for education, but I do care for Old Union. Education has already almost destroyed the power of our lawyers to get acceptable jurymen."

During the banquet the following dispatch was received from the students assembled at Schenectady: "The undergraduates join with the alumni of Old Union in extending heartiest congratulations to President Webster, and bid him God-speed in his administration." Prof. James R. Truax wrote: "If fidelity on the part of the instructors, and a cheerful response in good scholarship, and gentlemanly conduct on the part of the students be any cause for rejoicing, then the sons of Old Union never had greater cause for joyfulness than in this year of Websterian grace the first."

Other letters were read from the Rev. Dr. Henry Van Dyck, Col. D. C. Robinson, the Rev. Dr. John D. Wells, John A. De Remer, John T. Mygatt and S. P. Mc Clellan.

A RELIC OF THE OLDEN TIME.

One of the most entertaining speeches of the evening was by Prof. William Wells, on "Ye Olden Time." It was full of happy reminiscence and witty allusions. The professor has rounded out a full quarter-century at Union College and is loved and honored wherever any

of his pupils are to be found. He has brought along a few relics of the olden time with which to interest the "boys." One of them was the old "three-cocked" hat, worn by Dr. Nott on every commencement day, whose re-appearance in the hands of "Uncle Billy" was a signal for a hearty cheer from the older graduates. Another relic was the famous "Pipe of Peace," fashioned after the form of Memorial Hall on the campus, and whose coiling stem was solemnly passed round by each graduating class at their class-day exercises, and smoked, Mohawk fashion, in token of perpetual friendship and amity. Once more the professor bobbed his head under the table and this time drew up an enormous mallet or beetle, which he called a gavel, and which he said he would present to the association. It was saturated through every pore with memories of the olden time. The head was carved from a piece of the old elm in the college garden, under whose spreading branches Dr. Nott's favorite seat and the favorite walk of Taylor Lewis, as he walked with hands behind him, communing with the invisible. Under its boughs were held the funeral services of "Captain Jack," and at its foot was "the brook that bounds through old Union's grounds." The handle of the gavel was made from the whiffletree of that vehicle renowned in history as Dr. Nott's "three-wheeled chariot," in which the good old Doctor, as well as others of the faculty, were irreverently sent up to the "promised land," in the vernacular of college song, long before the time of their actual translation. "Moses," the colored coachman of Dr. Nott, is still alive, full of years and honors, and he had provided Prof. Wells with this venerable relic. The mention of the name of Prof. "Jack" Foster, who is still living in Schenectady in honored retirement, was greeted with prolonged cheering.

"What's the matter with Billy Wells?" was the irreverent inquiry as the Professor resumed his seat, and it was ascertained by a unanimous concensus of opinion that he, too, was "all right."

The Rev. Dr. George Alexander, on rising to respond for the Board of Trustees, expressed surprise at the enthusiastic reception the announcement of his name evoked, since only a few months since the students at the college, some of whom were undoubtedly present, had solemnly burned him in effigy, along with the other trustees, for not providing them more promptly with a president. [Laughter.] He was aware, however, that since that time the trustees had gone far toward reinstating themselves in the good graces of the students by giving them just the president they wanted. [Applause.] He denied the belief which some seemed to entertain that the sessions of the board were a kind of Donnybrook fair, and affirmed that they were bloodless and peaceful. There was entire harmony among them, and while they might occasionally differ in minor matters of college policy, they had always at heart the true interests of the college. In closing, Dr. Alexander paid a glowing tribute to the valuable services and the constant devotion to college interests of the senior member of the board, Silas B. Brownell, Esq., from whom, he admitted, he had often differed in matters of policy.

Speeches were also made by Judge Danforth, the Rev. Dr. Charles D. Nott, a grandson of President Nott; Chauncey B. Ripley, LL. D.; the Rev. Dr. S. M. Haskins, of Brooklyn; John L. Hill, Esq.; Dr. George T. Stevens, Charles E. Sprague. Esq.; Dr. D. M. Stimson, Philip H. Cole, '88, of Union Theological Seminary, and Samuel Marsh, Esq. The speaking was interspersed with the singing of college songs, and at the close the older graduates joined with the "boys" in the college cry, which was then a midnight cry, "Rah, Rah, Rah! U-n-i-o-n! Hikah! Hikah! Hikah!"

The anniversary meeting will hereafter be held on the second Thursday of December, unless otherwise ordered by the Executive Committee, of which the other officers of the association are ex-officio members. Special meetings may be called by the president when thought necessary. There are about three hundred alumni in New York and Brooklyn who are eligible to membership, and it is believed that the thoroughness of the organization and the success of Friday's meeting will double the attendance at next year's banquet.

ALUMNI MEETINGS.

Other alumni meetings will be held during the winter in the principal cities throughout the country. The Albany graduates are arranging for a banquet to be given sometime in January. One of the objects of Prof. Wells' trip to the Pacific Coast is, we understand, to stir up the many sons of "Old Union" who are scattered along his route. The professor will endeavor especially to arrange for meetings in Chicago and Los Angelos, accounts of which, together with other matters of interest, will be published from time to time in THE CONCORDIENSIS.

Locals.

—'89. Boom-Ah!

—Eighteen days vacation!

—Wanted—A chapel choir.

—Condition examinations were held December 3.

—The Sophomores intend to give a *soiree* early in the coming term.

—Professor A. S. Wright will have the Juniors in German next term.

—Prof. Stoller will have the Seniors in Geology next term, instead of Prof. Perkins as formerly.

—The closing examinations of the term took place the last four days of the week ending December 21st.

—The recovery of the Registrar, Mrs. Peissner, to health again, will be a source of gratification to all the students.

—The appearance of the annual college catalogue at so early a date is gratifying. It is very complete and is being distributed far and wide.

—It is pleasing to note the number of improvements that have been made around the college buildings of late. Storm sash have been placed on the windows of the red buildings; the old chairs in the Physical Laboratory have been replaced by a new set, and the colleges are being reshingled.

—In addition to the five hours a week which are required in Ethics for next term, the seniors are obliged to chose ten more from the following list of electives.

History of Philosophy	3 hours.
Physical Laboratory	2 "
Chemical Laboratory	
Anglo Saxon	2 "
American Politics	3 "
Astronomy	4 "
Geology	5 "
Natural History Laboratory	2 "

—Professor Wells and family left for the Pacific slope December 20, where they will remain for the winter term. The Doctor intends traveling very extensively through upper and lower California and New Mexico, and it is sincerely hoped that he will not only greatly enjoy his trip but also that he will return heavily laden with his usual supply of interesting facts. All are looking forward with great pleasure to his senior lectures, which will be delivered in chapel during the summer term.

—The members of the U. Y. Beta chapter of the Phi Delta Theta Fraternity celebrated their fifth anniversary and banquet Dec. 3. The literary exercises, consisting of history, by A. R. Conover, '89; oration by F. F. Blessing, '89; prophecy by G. C. Stevenson, '90; poem by J. C. Knox, '90; and an address by the president. were held at their chapter hall. At 12 o'clock they adjourned to De Long's restaurant, where a tempting menu was served in the best style. After the banquet, toastmaster Clarence Hart, '92, announced the following toasts, which were well responded to: "The Fraternity," Prof. C. C. Brown; "The Alumni," E. D. Harris, '86; "U. Y. Beta" H. W. Briggs, '90; "The Fifth Anniversary," J. C. Knox, '90; "Our Fair Friends," John Smiley, jr., 91; "Our Brother President-elect," F. F. Blessing, '89; "The Scroll," J. M. De Long, '88; "The Undergraduates," N. W. Brown, '90; "Our Initiates," Arthur Dougall, '92. The committee in charge were: M. Nolan, jr., '89, E. T. Pickford, '90 and F. F. Blessing, '89.

—The following from the New York *Mail and Express* of December 5, will be of interest to many.

UNION COLLEGE.—The Thanksgiving recess at Union gave the boys a few free days before entering on preparations for the *examination* at the end of the term closing just before the

Christmas holidays. It is therefore quite natural at this time for the friends of the college to ask about the success of the new president, Harrison E. Webster, and the reply will be a gratifying one to all the loyal friends of the college. He has already made an excellent impression on the present body of students who took to him, as it were, on the record that he had made on the alumni of earlier years. They now, on their own experience, join in all the good opinions that were advanced at the time of his election and indorse him fully.

He has become personally acquainted with the most of them, and with all who needed to know him for their own personal benefit, and by thorough and conscientious labor has now the reins of discipline well in his hands. The result in the college is very marked. There is a perfect restoration of confidence in the future of the institution, and a valuable harmony among faculty and students to insure the great end of building up the college as a wisely managed enterprise in the *interest of learning and Christianity*, and of progressive and applied science. These will be pleasant assurances to the large body of alumni scattered all over the Union, and especially those in the great centres not far removed; the classic grounds of an institution that has been a leader in the educational enterprises of the State and the country.

President Webster, having made himself well acquainted with the present status and proposed aims of the college and its works, now proposes to devote some time to the pleasant task of looking up the alumni, making them acquainted with Union as he finds it, and hopes to shape and develop it in the future. In this work he is indorsed by a harmonious faculty, and a body of students willing and anxious to support him in all that he may think desirable for the welfare of the institution.

Personals.

Mr. Frank Bailey, of Brooklyn, a graduate of the class of '85, was married on December 5, to Miss Carrie E. Fingarr of New York city.

President Webster is the second speaker in a lecture course to be given by New York State college presidents and professors at Elmira, during the winter. The first lecture was given by Chancellor Lewis of Syracuse on December 14th. The subject chosen by Dr. Webster is, "The relation of scientific investigation to religious thought."

After the lecture, which will be delivered January 18, the alumni of Union, resident in Elmira, will tender the president a reception.

Necrology.

'32. Jesse C. Smith, a prominent carver, and, during the war, a state senator, died in Brooklyn, N. Y., July 11.

'34. Henry O. Cheseboro, who held the position of New York Harbor master under President Arthur, died in Canandaigua, N. Y., Nov. 26.

'36. Rev. Henry F. Wadsworth, at Springfield, N. J., Nov. 19.

'43. Rev. Hamilton W. Pierson, died Sept. 7, 1888.

'48. Samuel T. Ross, Secretary of the Maryland Coal Company, died in New York, Nov. 29.

Notes.

—A New York paper in classifying the college-bred clergymen of New York, says that the brightest lights of the Episcopal church were graduated from Union. Besides these, it gives a long list of metropolitan clergymen who are alumni of Union and other prominent institutions.

—The system of non-resident lecturers is opposed in an article in the October number of THE CONCORDIENSIS. The opposition voiced is mainly in the tone that it ought to be unnecessary for any good college to go outside its faculty for lectures in any department, which is included in the college curriculum.—*The Campus.*

—In a recent issue of the New York Mail and Express there was an article about famous college classes. In this it makes prominent mention of the Class of '20 at Union, of which nearly every one of the seventy-four men rose to a high

position in life. In this class were such men as Dr. Potter, Dr. Hickok, William H. Seward and the famous biblical scholar, Taylor Lewis.

Clippings.

—Lehigh has adopted cap and gown.

—There are 189 courses of study at Harvard.

—Yale did not lose a point during the past foot-ball season.

—Gen. Clinton B. Fisk has been offered the presidency of Dickinson College.

—Cumnock, '91, has been elected captain of the Harvard foot-ball team for next year.

—Samuel L. Clemens (Mark Twain) has received the degree of Master of Arts from Yale University.

—A University to cost two million dollars is to be established at Wichita, Kan., in honor of President Garfield.

—Oxford will soon follow the example of Cambridge, and admit women to the final classical examinations.

—The richest University in the world is said to be that of Leyden in Holland. It has real estate to the value of $6,000,000.

—Cornell has the largest Freshman class that ever entered an American University. It numbers 414. The whole number at present in the University is 1,164.

—Dr. B. P. Raymond has been elected president of Wesleyan. He is a man of forty years and has been president of Lawrence University, in Wisconsin, for six years.

—The government board of Harvard University regards the optional system of attendance at prayers and recitations as a failure and it recommends compulsory attendance.

—W. J. Barnwell, an English mathematician, claims to have squared the circle after fifteen years' work. His solution is eight figures which, in concrete shape, form a perfect cyclometer.—*Princtonian.*

—The following taken from the New York Mail and Express, gives the yearly expenses of a student in the different colleges. "The figures are on a basis of rigid economy and are supposed to cover the items of tuition, books, board, clothing and such other expenses as are absolutely necessary to maintain a student's respectability in class and college. We give the lowest extreme; the other is, of course, unlimited.

N. Y. University	$400	Columbia	$550-$600
Yale	650	Cornell	300- 350
Dartmouth	300	Harvard	700
Williams,	450-500	Union	300- 400
Bowdoin	350	Hamilton	350
Lehigh (tuition free)	250	Amherst	400
Vanderbilt	350	Brown	500
Colby	250-300	Madison	300
Boston University	375	Western Reserve	300
Dickinson	300	Rensselaer Polytechnic	650
Syracuse	350	Swarthmore	500
Univ. South Carolina	250	Vassar, $400, music extra.	
Univ. of California	450	Miami	400-450
Bates	300	Rutgers	450
Allegheny	300	Tufts	500
Princeton	450-500	Ohio University	200
University of Vermont	300	Lafayette	475
Roanoke	250	University of Tennessee	175
Wooster	200	Michigan University.	500
Wake Forest	225	University of Pa.	450
Pennsylvania College	275	College City of N. Y.	Tuition free.
Mount Union	225	Rochester	400
Backnell	250	Smith	350-400
Wellesley	350		
Hobart	400		

ENGINEERING DEPARTMENT.

Asphalt as a Material for Street Pavements.

Asphaltum, or solid bitumen, although not playing so active a part in the arts and sciences as mineral coal to which it is closely related, yet forms an important factor in our modern civilization. As to its origin and nature there seems to be some doubt; however, it is believed to be of an organic nature, being formed from the decomposed tissues of animals and plants. Like coal, asphaltum is a hydrocarbon but it differs in the respect that it contains very little or no oxygen and a much greater amount of hydrogen than coal, this composition renders it fluid naturally, or it becomes fluid when heated. It is found in the Dead Sea and in many other places in Asia and Europe and also in America; the most accessible and economical for our own use is that obtained from the Great Pitch Lake on the Island of Trinidad.

This curious and remarkable phenomenon is a mass of solid pitch about a mile and a half in circumference, its surface can be walked upon

with impunity in all parts scarcely giving way more than to receive the impression of a man's foot. The pitch is obtained by staking out areas thirty or forty feet square and two feet deep; when this is done the excavated space begins gradually to fill up, not by a closing in of the walls but by a rising of the bottom, so that in a few days no sign of the excavation is visible. As no soundings have ever been made and the depth of the pitch is unknown, it is a question whether we have here an inexhaustible supply.

It is a remarkable fact in the history of the useful arts that asphalt, which was so generally employed as a solid and durable cement in the earliest constructions upon record, as in the walls of Babylon, should for so many thousand years, have fallen well nigh into disuse among civilized nations. For there is certainly no class of mineral substances so well fitted as the bituminous by their plasticity, fusibility, tenacity, adhesiveness to surfaces, impenetrability by water, and unchangeableness in the atmosphere, to enter upon the composition of terraces, foot pavements, roofs and every kind of hydraulic work. The chief reason for the great durability of natural asphalt is the fact that its bituminous matter is not volatile under the fiercest rays of the sun, whereas in that made from coal tar the oils are volatile and are given off under a strong sun, thus destroying the very essence of the material. Porter found among the ruins of Babylon large cakes of asphalt, which had lain exposed to the elements for more than two thousand years in such a state of preservation that it could be definitely told the purpose for which they had been used.

The chief use of asphalt at the present day, and the head under which we will consider it is as a material for street pavements. When the pavement for a street is under discussion, several things should be taken into account before it can be fully decided upon which one would be the best, the traffic which will be upon it, the location, whether city or country, and the relative durability and serviceability of the different materials under consideration. If it be a country road where the traffic is usually light and not very great, it will be more economical and sufficiently useful for all required purposes, if the road bed be of gravel or macadam; in the vicinity of storehouses, wharves, factories, etc., where the traffic is both heavy and great, granite blocks set in concrete and their edges interlaid with asphalt are preferable, but in ordinary residence streets, which comprise about nineteen twentieths of the paved streets of the world, it is better from a sanitary and economical point of view, to use a sheet pavement.

Granite block has two advantages,—strength and durability; it is plainly evident, however, that in a granite pavement there can be but little support between the stones; if the blocks be laid on sand a heavy passing load will either drive them down in succession thus forming a rut, or if alternate blocks be displaced chuck holes will be formed; this may be remedied to a certain degree by laying the blocks on concrete and placing cement between the joints, but as the cement will wear away faster than the granite, depressions are caused in which the surface liquids can accumulate and from which noxious exhalations arising exert an injurious effect on the immediate neighborhood. Another objection is the never ceasing din and noise peculiar to this pavement, rendering life in its vicinity anything but a pleasure. M. Foussagrieves, professor of hygiene at Montpelier, France, says, in reference to this noise; "I can not consider such a perpetual vibration of the nerves as harmless even for those who have been born and bred in the midst of the noise, and to it must be ascribed the prevalence of nervous temperaments and diseases in large towns. These two objections constitute a very serious and just claim against the use of granite blocks in a populous city.

Wood as a material for pavement has been in use in America for a quarter of a century. Its chief point of merit is its smooth and noiseless surface, but this is more than offset by its slight resistance to wear and its early tendency to decay. For about three years it remains in good conditions, in the fourth holes begin to appear and in the sixth or seventh the whole pavement is one mass of decayed rubbish.

The points of merit which a good pavement should possess are smoothness, so as to promote an easy draft, strength, durability, noiselessness

and cleanliness. All these are found in a greater or less degree in asphalt. It has been endorsed by the leading engineers and authorities in our country as possessing pre-eminent fitness for all kinds of street pavements.

The first asphalt pavement laid in the United States on a large scale was that in Washington in 1876. Previous to this time there was about 50 miles of wooden pavement in the city costing four millions of dollars and although it had been laid but five years it was so badly worn that the streets were impassible. Congress appointed a commission, two from the engineering corps and the architect of the capital to procure the "best pavement." Forty-one proposals were received including every variety of stone, wood, macadam and asphalt. After some deliberation the commission decided upon asphalt as best fitted for all requisite purposes.

The pavement was completed in 1877 and now after 11 years of use it is in an excellent state of preservation. Asphalt is laid on a foundation of hydraulic concrete cement with a wearing surface of from 2 to 2½ inches. This surface is capable of wearing for many years and when necessary can be replaced at a small proportion of the original cost.

The objections against asphalt have been non-durability and slipperiness, but these objections, after many severe tests, can scarcely hold good. In St. Louis, a load of 90,000 pounds placed on rollers passed over asphalt without leaving a single mark whereas the stone paved streets were marked by deep impressions "resembling those seen in a faulty water main ditch after a heavy rain storm." Experiments made in other cities while not as severe as that in St. Louis only prove more fully the durability and strength of asphalt. As to slipperiness. The result of a long series of observations in different cities of the United States for about six months in which 800,000 horses were observed, showed that on the average a horse travelled 583 miles on asphalt before falling, and on a stone pavement 413, or there were 41 per cent more falls on the stone than on the asphalt. If this test is regarded as fair and honest, and we have no reason to believe otherwise, then the question of slipperiness or non-slipperiness of asphalt in comparison with other durable pavements is definitely settled.

The claim has also been urged against this pavement that in the event of the freezing of the water mains, the expense and trouble necessary to reach them through this pavement would be considerably heightened. But as asphalt is a non-conductor of heat, it acts as an insulator protecting the mains from all climatic influences.

The advantages which asphalt claims as peculiarly its own are as follows: Cleanliness, because no dust is generated by abrasion of its surface and because it can be washed and kept as clean as a floor at a very moderate expense.

Healthfulness, because it is inpervious to surface liquids, the main cause of all malarious diseases.

Quietness, because there is absolutely no noise.

Traction, because being one continuous, even pavement it is free from all ruts and holes thus increasing the tractive power of vehicles. "If one horse can just draw a load on a level on iron rails it will take 1⅔ horses to draw it on asphalt, 3½ on the best Belgian block pavement, 5 on the ordinary Belgian pavement, 7 on good cobble stones, 13 on bad cobble stones, 20 on ordinary earth and 40 on a sandy road. Therefore a city paved with sheet asphalt will save to itself and its citizens from 200 to 300 per cent of the cost to it and then of transporting passengers and goods as compared with a city paved with blocks. This saving will, in a large city, amount to thousands of dollars daily and the yearly aggregate will doubtlessly be large enough to pave the city. It is also plain that the value of real estate bordering on asphalt paved streets must be considerably increased by such a pavement.

Therefore, reviewing all the points pro and con it seems to me that asphalt, as a material for street pavements, has no equal.

Deep Foundations.

The cheapest and the most common foundation when the water is shallow, and where a hard material underlies a soft mud, is the pile foundation. It is easily and quickly constructed and is in many cases very strong and permanent.

When the foot of the piles rests on a solid foundation and when the lateral stability is assured by the nature of the material into which it is driven or by some artificial means, the support afforded by it is measured by its ability to resist crushing and is usually estimated at 1000 pounds per square inch, in which case the pile is supposed to be beyond the reach of an attack of sea worms.

In places where there is only a very soft mud

to a great depth, the pile foundation can only support a load equal to the friction between itself and the substance into which it is driven. To make the friction as great as possible the length of the pile is greatly increased. The safe load in this case can only be determined by experiment. Mr. Rankine states that 200 pounds per square inch is usually considered as a safe load; but Maj. E. T. A. Myers found that piles driven in almost liquid mud would take 13,000 pounds to start them, the pile being 30 or 35 feet in length.

Pile foundations situated in a swiftly flowing river, or where masonry on them is subject to a very great pressure from ice, are not to be recommended and if they are built they should be examined from year to year to see that the material is not scoured away from the piles by the current of the river.

Pile foundations are sometimes covered with layers of concrete to give them more stability. Each layer is about 1 foot in thickness.

Another method of laying foundations is by means of caissons which are a kind of flat-bottomed boat upon which the foundation courses of some structure, which is to stand in the water, are built and then it is towed to its intended site. They are used in a great many cases.

The largest ever constructed were those upon which the piers of the Brooklyn bridge rest. The dimensions of the New York caisson being 172 x 102 feet over all, and 14 feet 6 inches in height. When the caisson was launched it weighed 3,250 pounds. The mud and other material beneath it was removed by means of open water shafts and Cummings' dredges. The shafts were round, having a diameter of 7 9 as they would better resist a bursting pressure in case it became necessary to blow water out from them. Since these shafts have to be cut off when solid bottom is reached, they were provided with caps and air chambers of their own. Besides these main shafts were 58 iron pipes from 3½ to 4 inches in diameter to let out sand and other small material which might be encountered. These were brought into service at a depth of 60 feet; sand was discharged by means of air pressure from three of these at the rate of one yard in 2 minutes to each pipe and it took 14 men standing in a circle around the pipe to keep enough sand to supply each one. At a depth of 68 feet, boulders too large to be taken out were met with, and the water shafts had to be capped and the water blown out from them.

There were 4 supply shafts, two 21 feet in diameter, and the other two were only 2 feet in diameter and by means of these they supplied the men with concrete which was used in filling up the air chambers.

The caisson is sometimes held in position when it is sunk by means of strong supports but this is not necessary except when the water is of great depth and there is a strong current.

At the sinking of the caisson of the Havre de Grace bridge, suspension was not resorted to and the change of position was not over 18 inches, and this produced little or no effect.

Concrete is often used as a foundation below the surface of the water and it is just as durable and much cheaper than masonry. Broken stone is sometimes mixed with it as it makes it cheaper and some engineers claim that it gives the concrete more strength. Concrete, when once placed in position should not be disturbed, and it should be rammed as deposited.

Another kind of foundation is the Tubular foundation, which has been successfully used both in Europe and America; it consists of large cylinders made of cast iron which are filled with concrete and rubble masonry.

In the construction of the centre pier of the Albert bridge, at Saltash, on the Cornwall railway, a wrought iron cylinder, 37 feet in diameter and 90 feet long, was sunk through mud and sand to solid rock. The mud and shells which filled the compartments into which it was divided were removed by means of air and water pumps.