ADDRESS.

FELLOW CITIZENS:

Death has recently removed from the Free Academy one of its ablest teachers—EDWARD C. Ross, LL.D., Professor of Mathematics and Natural Philosophy. His voice will never again be heard within its walls, in the instruction of youth; his presence will never grace its public occasions; his counsels will be missed in all the deliberations of those with whom he was associated in his labors; but there remain behind him the work that he has accomplished, the impress he has left, I trust ineffaceably, upon the department of instruction of which he was the head, and the memory of all that he was and of all that he has done in his useful and honorable life. As a mark of respect for his virtues, talents and services, the Board of Education have invited me to sketch the portraiture of his life and character. It is in compliance with their invitation that I appear before you this evening. I am honored to greet this assemblage of the friends and admirers of the deceased, and of those interested in the cause of education; the teachers and
students of the Free Academy; and you, Mr. President and Gentlemen, the representatives of the public educational interests of this city.

To speak of the worth of the departed, is one of the few tributes of affection and respect that we can render to their memory. In the case of a distinguished teacher and ornament of science, like Professor Ross, a public commemoration of this kind is peculiarly appropriate. The record of those whose only eminence is that of usefulness and goodness, is soon blotted out on the blurred and stained scroll of human glory. History has preserved the names of but few of those, who, in ages past, have been the benefactors of mankind in their day and generation. Perhaps it will convey to succeeding times the memory of but few of the truly great of our age, the champions of truth and virtue, the heroes of benevolence, the men who lead the vanguard of civilization, and spread knowledge and the light of science over the earth. The present generation is therefore especially bound to do justice to such men. Let them live, at least, in the memory of those who have been the witnesses of their career, and in the hearts of those whom they have blest. Soon enough will their names be forgotten. The true river of Lethe rolls over the earth and not beneath it, and will soon overwhelm them and their good works, as it will overwhelm us and our works, in its silent depths.
It is for such a purpose, and, I would hope, with such sentiments, that we have assembled on this occasion; some to trace the course of him whose memory we wish to honor, from its rising to its bright meridian, when it suddenly became extinguished; some to awaken the recollections of friendship; some to gather lessons of instruction from his career and example; and all, to testify our respect for one, who has gained high honor in the service of education. And even as we follow the remains of our friends to the sepulchre, with serious thoughts and solemn step, and as we cast over the simple coffin no gorgeous trappings or glittering ornaments, so let us, as in the discharge of a pious duty, listen to a simple exhibition of his character, and an unadorned recital of the circumstances of his life.

Edward Coke Ross was born in Milford, Pike county, Pennsylvania, May 23d, 1800. In his boyhood he was remarkable for courage and energy of character. At the age of seventeen, he entered the Military Academy at West Point, where he distinguished himself by his assiduity and scholarship. He graduated in the year 1821, and was immediately appointed Assistant Professor of Mathematics in the institution. In the year 1823, he was transferred to Fort Monroe, to discharge the duties of instructor in the Artillery school for practice, but was re-called to West Point the succeed-
ing year, to the chair he had previously occupied. He remained in this position till 1833, when, at his own solicitation, he was allowed to join his regiment, 4th artillery. He served in the army for about six years, till July 1st, 1839, when he resigned his commission. During half of this period he was employed in Florida, where he was ordered on the breaking out of the Seminole war. While garrisoned at Fort Hamilton, in the year 1835, he was married to Catherine, daughter of Francis N. Berier. After leaving the army, he resided for about a year in this city or neighborhood, giving private instruction in mathematics. He accepted the Professorship of Mathematics and Natural Philosophy in Kenyon College, at Gambier, Ohio, in 1840, where he remained eight years, until, at the organization of the Free Academy, he was called to the position he has occupied here. He entered upon his duties in this institution, January 15th, 1849. He died of pleurisy, after a week’s illness, May 16th, 1851.

This is the outline of career of varied and responsible duties, of unremitting labor, of extraordinary usefulness and high distinction. Edward C. Ross discharged, with eminent ability and scrupulous fidelity, the duties of every station, public and private, in which he was placed. His fame is associated with his career as a teacher. As a soldier, he has entitled himself to an honorable name, among those distinguished men who have
maintained the honor of our country in the military service. In garrison, he was remarkable for the strictness of his discipline, and for his careful attention to the wants and comforts of those under his command. He was almost idolized by his company. Once, when upon the water in a barge, he accidently fell in, and instantly a number of men at the same moment plunged in after him, to swim to his rescue. When they were ordered to Florida, and Lieutenant Ross, then but a few months married, was obliged to leave his bride, several of them came to her, to promise most solemnly that they would themselves take the enemies' shot before it should enter his body. Many of them fell, poor fellows, in that land of graves! In Florida, Lieut. Ross had command, not only of his own company, but led occasionally one or two others. His high and steady courage were put to the proof here, and his vigilance had no respite. On one occasion, his strict notions of military duty proved the means, probably, of saving the lives of the chief part of his command. He had moored his boats, laden with supplies for the army, against the shore, and encamped for the night upon the bank of the St. John's river, according to his practice, because of the great risk of a night attack from the Indians, when an express arrived with word that the army had reached a certain point above, and were destitute of provisions. Ross ordered his men to embark immediately, and con-
continued his voyage all night, but without an attack. He afterwards learned that the Indians had watched his movements, and had arranged an ambuscade for the succeeding day, at a point on the river where few of the expedition, in all probability, would have escaped. Perhaps I cannot better describe this portion of Ross's career, than by reading a brief extract from a letter recently received by Dr. Webster from General Bankhead:

"I knew Mr. Ross but slightly, during his residence as a Professor at West Point; but during the war in Florida, and subsequently, I saw much of him. When in Florida, he was for a part of the time under my command and immediate observation, and I can with truth say, that a more faithful, fearless and indefatigable officer I have never seen. He was intrusted with the discharge of very arduous and hazardous duties, in the conveyance of supplies up the St. John's river to its source, at that time unexplored, to meet the army then moving over a most impracticable country; and without his activity and success in forwarding the supplies up the river, the army would have suffered much for the want of provisions, and might have been compelled to retire. In all and every situation in which he has been placed in the field, I have ever found him prompt and ready. He was extremely kind to, and careful of, the men under his command, and was much beloved by them. Indeed, he never had an enemy, in or out of the army."
infused into their minds, relieved their labor, and illuminated their difficulties. The study of mathematics in all its stages, requires such close thought, and taxes the best minds so completely, that it is perhaps more than any other branch of study distasteful to the great majority of learners. The exercises are learned and recited perfunctorily and without interest. But not so with Ross's scholars. From each Alp surmounted, he pointed out the beautiful vistas which stretched away in all directions, and at each step he showed them the sparkling gems that were embedded in the stony pathway. Knowledge is the food of the mind, and to the pure and earnest its acquisition is ever a source of delight. All truth is in its own nature beautiful, for God is its author. Eminently beautiful is that science of the intellect,—the pure mathematics—beautiful, because it is an emanation of the Divine intellect—of that Deity of whom Plato, in no irreverent spirit said—ὁ θεὸς γεωμετρεῖ.

The interest, which Ross kept up in the minds of his pupils, enabled him to secure the industrious preparation of his lessons. It was a common saying at West Point, that Ross could get more work out of his classes than any other professor. They loved to labor for him. And this was handed down traditionally as a trait in his character as a teacher. He had the same success in this respect everywhere—in the several institutions where he taught
whether he gave instruction to private classes, or had enlisted a group of grown up volunteers.

The portraiture of the teacher seems almost perfect. But there is a grace which I have not yet named, which irradiated and heightened all the rest. I allude to his kindness to his pupils. This was the spell which kept his classes in perfect order. It was a very rare occurrence for him to inflict a penalty or employ the severe tones of authority. A tyrannical disposition or a capricious temper were never manifested. His scholars felt that to commit disorder in his room was a disgrace to themselves, because it was an offence against a friend, an act of ingratitude towards one of whose warm, unselfish interest in them, they were every moment conscious.

His kindness was not a mere superficial emotion, transient as the silvery ripple which glitters upon the face of lake or river upon a summer's day, but it was the sincere expression of his love for the young. And every generous young heart throbbed with the electric impulse of his kindness. This was to him a source of the highest gratification. He has often said with respect to his pupils: The kind feelings of my scholars towards me, I have ever found to be the richest reward for my services to them.

He was always ready, whether in season or out
of season, to smooth their difficulties. He would frequently remain here, beyond the hours of his regular service, for the purpose of helping those who needed assistance. During the period he taught at West Point, he seldom retired to his apartment without placing a small lamp on the window sill, as a signal to his pupils that they might wake him at any hour of the night, if they needed any explanation for the lessons of the following day. His interest in his scholars did not terminate with his instructions, but he watched their progress in the world, and triumphed in their success.

This charming trait is happily expressed by a friend, himself a distinguished mathematician, who labored with Ross many years, and who knew him intimately:

"Having passed most of his life in imparting instruction to the young, he had come to regard the pupils intrusted to his care with parental tenderness. He loved them as his own children. Their improvement, their growth in knowledge, their intellectual development, their success in life, were the objects for which he lived, for which he spent his strength and shortened his days.

"His sympathy with his pupils, his earnest and emphatic manner, the kind and encouraging look of his soft and mellow eye, have excited many
languid minds to effort, and implanted manly and generous sentiments in many a selfish heart. This happy social temperament, this deep and kind regard for the young, manifesting themselves in a simplicity of manner, as rare as it is winning, opened the door at once to the hearts of his pupils, while his lucid methods of teaching took possession of their minds."

Oh! may that God, who is the father of the fatherless, watch over the young children he has left behind him, supply their wants, instruct them by his spirit, and guide them during life! And may that generous charity which he in several cases showed to orphans, in providing for their necessities and furnishing them the means of education, may that disinterested love and care for the children of others, exhibited in a thousand instances through his whole life, be paid back to them by many hands, and descend in a thousand blessings upon their heads!

The imagination of poet was never more rapt in his bright visions, the fancy of painter was never more charmed with his enchanting scenes, than the mind of Ross was filled with the love of his favorite science. It was the burden of his working hours, and the solace of his leisure. Many anecdotes are related of his absence of mind, especially when a young man, arising from his
being buried in mathematical reflections. Among others, it is told of him that coming home one evening to tea, and sitting down to the table, on which, as it happened, lay pen, ink and paper, he took them up, and commencing, unconsciously, some calculation, labored on, forgetful of everything, until the morning light surprised him sitting at the table, with the untasted meal upon it. As he advanced in years, this passionate worship of the mistress of his intellect, lost none of its sincerity, though it did not betray itself into any similar excesses of fervor. There is a most touching incident connected with his last sickness, which I hope I am not wrong in communicating, illustrative of the strength of this ruling passion. It was observed that while fever was raging in his rapidly weakened system, his mind began to wander, and his hands were seen to be busy with the checkered counterpane, as though picturing diagrams upon it. Subsequently, when reason returned, on being asked of what he had been thinking, he replied with a gentle smile, that he had been intensely occupied with mathematical problems. With his permission, the covering was removed, lest its figures should again awaken the same trains of thought.

In his love of teaching, Ross exhibited something of the same eccentricity which he showed in his zeal for mathematical studies. It was so great and impulsive, that he seemed incapable of resisting its
promptings, however unpromising the subject who was to be benefitted or unpropitious the occasion of its exercise. He always taught in garrison, finding pupils among his brother officers, some of them his old scholars at West Point. He would make up a class at mathematics, pressing his friends to join, as one would make up a whist party or a quadrille set. Even in the everglades of Florida, amid scenes of savage warfare, surrounded by a lurking enemy, who made it extremely hazardous to venture singly beyond the stockade, he induced his commanding officer, Colonel Gardner, to form a class with Mrs. Ross, who, with the true devotion of a soldier's wife, had gone to Florida, as soon as it was in her power to do so, to share her husband's privations and dangers. This incident was communicated by Col. Gardner.

Mathematical science, with all its wondrous attributes, and throughout the whole extent of its vast dominion, was the goddess whom Ross chose as the object of his life-long devotion, whom he was wont to meet in her grottoes and solitudes, and who was by his side, whispering familiar in his ear, among the haunts of men. The choice is indicative of a noble understanding. This is the science which, in all ages, has employed the most profound minds of the race. It claims the highest place among all the departments of human knowledge—the Queen and the Mother of Sciences. Although she sits
enthroned in the heavens, her brow encircled with a crown of stars, and in her hand a measuring rod for a sceptre, she has ever loved to be the humble handmaid of man, and minister to his necessities. Astronomy and architecture are her eldest born. All the mechanic arts are equally her daughters, and are governed by her laws. The engines of war, the mightier enginery of peace, lie at her feet. Her wand is stretched over the trackless sea, and guides the navigator unerringly in his way. Chaldean Sages first received her lessons, and learned to map the sky, mark the stations of the zodiac, and paint on the cerulean dome that mythological imagery which has survived many a mythology of real worship. The learned caste of Egypt were her votaries. She meted out the boundaries of the husbandman, when overflowing Nilus had returned into his channels. She helped to shape and rear the majestic column, in all its varied forms and exquisite proportions, piled the masses of the pyramids, tuned the harp of Memnon, erected the vast structures of Carnac and Dendera, excavated the lake, and planned the labyrinth, of Mæris. In Greece, the access to all philosophy was through her temple. There they gave her the name she bears. They called her truths by way of eminence τὸ μάθημα—the science—the thing to be learned—the discipline. The problems and demonstrations, discovered by the great philosophers of Greece, remain, when almost all the teachings of
their so-called philosophy have perished or become worthless. The figures, which are the mere elementary characters she employs, seemed to the mind of Pythagoras to be fraught with mysterious virtues. If he had lived till the parabola and hyperbola and other higher curves, with their strange properties and relations of parts, had been described by Archimedes and Apollonius, or if he had known those processes perfected by Newton and his successors, that deal with infinite quantities as though they were grains of sand, he would have perceived symbols, and learned lessons, pointing him to to the great Infinite. Plato was her disciple and worshipper, and no pupil entered his academy till he had passed a good mathematical examination —ἀγωνίζοντος μηδεὶς ἐισίτω.

The ancient world learned from her the uses of the mechanic powers. The modern world has learned from her to bring all the powers of nature under man’s control. She puts in his hand instruments of superhuman power. She teaches him to explore the heavens as well as the earth; predicts eclipses and the return of comets; tracks the pathway of the heavenly bodies, measures them and their distances, and defines the laws that confine them to their orbits. She shows us other systems of worlds, which Indian astronomer never saw nor registered in his fabulous cycles.
Ross was a thorough scholar in almost all the various branches of mathematical science. Natural philosophy, in its mathematical relations, was comprised in his Professorship, and he was admirably qualified to teach it. The mathematics of astronomy was a favorite field of investigation with him. In military science he was, of course, a proficient. Mechanical philosophy was, however, the department of mixed mathematics, which of late years, more than any other subject, had employed his powers. Among his papers is a translation, almost completed, of La Grange’s Mecanique Analytique, a work sufficient of itself to place his name among the first mathematicians of this country. It is marked by that faultless accuracy which characterized all his productions and investigations.

Among his papers was found one, the existence of which, as of the translation of the Mecanique Analytique, was not known to half a dozen persons. The history of this paper deserves notice, as illustrating Ross’s singularly generous and enthusiastic kindness towards those engaged in the pursuit of knowledge. While residing at Gambier, he received a letter from a young man, at that time an entire stranger to him, a deaf-mute, who was engaged in the study of the higher mathematics, and wished an explanation of some of the difficulties he had met with. Ross prepared in reply a series
of condensed calculations and methods, that must have cost him months of labor. These are contained in the paper referred to. It consists in part of explanations of some of the more abstruse points in Conic sections. But it is principally a discussion of the principles of the differential and integral calculus, with special reference to Taylor's theorem. Indeed it may be called a complete commentary on the calculus, and would do honor to any mathematician. I am indebted for my information respecting this valuable paper, and the translation of La Grange's work, to Professor Ross's able colleague, Dr. Docharty, and to the learned Principal of the Free Academy, Dr. Webster.

Ross's devotion to mathematical studies was so exclusive, that he neither desired nor gained the reputation of being an elegant general scholar—although a man of extensive information. He had a very accurate knowledge of the French language, as his translations of mathematical works testify. His translation of Bourdon's Algebra is well known throughout the country, being that published in Professor Davies's Mathematical Series, or rather, as stated in the preface, the same somewhat abridged.

It is scarcely necessary to say, that Dr. Ross was a most assiduous student, for that is implied in what I have said of his tastes and acquisitions.
The habit of study was first formed after he was admitted into the Military Academy. His education, previously to that period, had not been advanced rapidly; his father, who was a man of cultivation, deeming it unwise that his children should be confined at an early age to severe study. In this case, the delay does not seem to have interfered with the formation of scholar-like habits. During his cadetship, Ross would frequently encroach deeply upon the hours of the night. In order that his light might not be seen through the window, as after a certain hour it was a violation of the rules of the institution, he would cover his table with the bed-clothes, and sitting under it, pore over his books and calculations. During the whole period of his connection with the Military Academy, he so systematized his time as to secure several hours each day for study. He maintained the same habits through life, and in every situation. During his whole military career, whether in garrison or in war, he was a diligent student. His industry was extremely great. That method and precision which were so in keeping with his mathematical pursuits, and with his character as a soldier and disciplinarian, he carried into all the details of his life. As an evidence of his systematic carefulness and diligent employment of his time, it may be mentioned, that he came to the Free Academy every morning at seven o'clock, and was engaged until nine, the hour when the students
assemble, either in his own studies, or in preparing the black-boards for the recitations of the day.

The detailed view which I have presented of Ross's characteristics as a teacher, and of his abilities as a mathematician, will perhaps convey a more vivid impression of his mental lineaments than any systematic attempt to analyze the powers of his mind. It will be sufficient for me to say that his mind appeared to have been formed, in its organic constitution, for the study and development of abstract science. It was comprehensive, clear, exact, and original, embracing a wide and distant horizon, yet seeing everything distinctly, and giving to all the hues and coloring of genius. It was, to use the happy expression of another, the telescope for objects lying beyond the vision of other minds, and the microscope for those close and minute distinctions which mark all the nicer shades of thought. His sympathy with labor and study enabled him to pursue his investigations with great intensity and continuousness. In all his mental operations, there was a power which no ordinary difficulties could withstand, an ingenuity in the discovery and application of new methods, from which no intricacies or hidden principles could escape, combined with extraordinary accuracy and precision in his processes of investigation. Though his imagination was fired and glowed with the view of the science, regarded abstractly as a grand
system of intellectual truth, he was no mere theorist. His understanding was eminently practical. He had an intuitive perception of the active powers inherent in every process and principle, and delighted as much in the useful applications of mathematics, as he did in its laws and splendid generalizations. His genius was inventive in as high a degree as it was contemplative. An unrivalled simplicity, that characteristic of high science as it is of high art, spread its charm over all the operations of his mind, as it did over all the actions of his life.

There was a beautiful harmony of proportion in the whole nature of Edward Coke Ross, in his intellectual and moral qualities, in his simple demeanor, in all his outward relations, and in the very peculiarities of his physical organization. The dignity of his person represented becomingly the endowments and the character of the man. The precision of his utterance indicated that the sentiment he expressed was not an impulse, but a conclusion, and that, like a mathematical demonstration, it rested on sound principles. He was distinguished for the coolness of his judgment and for his good sense. He was singularly modest, rarely speaking of himself, and making no ostentatious display of his learning. A vein of quiet humor sometimes exhibited itself with winning amiability. His manners were gentle. He was
simple in all his tastes and habits. He was a firm man, always self-possessed, kind towards all, and remarkable for his placid temper and the evenness of his deportment. A high sense of honor marked his intercourse. Delicately sensitive himself, he never wounded the feelings of others. As a friend, he was unwavering; as a husband and father, most loving and devoted: **Faithful, firm, and holy**, are the words applied to him by one who knew him best in these relations. Besides the courage of a chivalrous spirit, he possessed that higher courage which we all need, to conquer evil habits and gain a perfect moral self-control. He was generous and disinterested, frank, and a lover of truth; a virtuous and strictly conscientious man, ordering his footsteps by the light revealed from heaven, as a lamp for man's path, and keeping his eye fixed steadily upon the world—of perfect knowledge, and infinite love, and eternal peace.

His character as a man of benevolence, and of moral and religious principle, is beautifully presented in the address, commemorative of his virtues, recently delivered by his spiritual counsellor and friend, **Rev. John M. Macaulay**.

In reviewing the life of this eminent man, I have dwelt at length upon his character, as a faithful and able instructor of youth. And it is because I have desired to magnify the office of the teacher. Next
to the commission of teaching heavenly truth, his office yields in dignity to none. The helplessness and ignorance of our infancy and childhood, denote the importance of the place which the teacher occupies. The faculty of receiving instruction is one of the highest attributes of our intelligent nature. Man is born beneath the animals that surround him in knowledge, that he may rise above the angels. The development of the understanding of the individual, the refinement of society, justice, government and good order, the multiplication of man’s comforts, the civilization of the world, are blessings, to the production of which the teacher’s daily labor is indispensable. If we honor the soldier who meets death upon the field of battle, fighting for the cause of his country, surely society is called to mourn the loss of one who, like Edward C. Ross, has filled with honor a still more noble and important sphere of duty to his country, and falls on the very field of his service, and in the midst of his years and his usefulness.

There sit near me those who, next to Professor Ross’s own family, most deeply feel his loss. They saw, day by day, the exhibition of his character, as manifested in his self-denying labors, and in their intercourse with him in the institution. It is their estimate of their associate that I have been most anxious to satisfy, in presenting this sketch of his life and character, which, I greatly fear, they will
consider imperfect and inadequate. They would be willing to give away, if necessary, of their own meed of praise, in order to increase the appreciation by others of the merits of their friend and fellow-laborer. They well knew that whoever may be elected hereafter to occupy professorships in this institution, however admirably qualified and adorned with all the virtues and graces that can be clustered around a human character, they can never regard another with precisely the same sentiments which they entertain towards him, as a member of the first faculty of the Free Academy. They can never have a more efficient coadjutor. They can never expect, nor can any one desire, that in any reorganization of the Faculty hereafter, there will reign a more unreserved mutual confidence, and a more perfect unity of sentiment, of zeal, and of effort.

If the endowments of men were transmissible, like the accumulations of their hands, and I were permitted to select from among all those which characterized him, some one quality that should remain with them, as a legacy from their deceased friend; I would neither choose any of his brilliant acquisitions, nor any one of those gifts which fitted him for the office of an instructor, but I would take that peculiarity of his physical, mental and moral temperament, which enabled him to endure life's fatigue without being weary, and to keep on to the
end in the path of duty, with all the ardor of the racer when he first bounds from the barrier. I would open in their bosoms such a perpetual fountain of enthusiasm as that which welled up in his heart, that should render attractive the most arid fields of labor, spreading over them vernal freshness and perennial flowers.

Beautiful it is to see a man of commanding intellect and great attainments come up to his daily task of imparting knowledge to the young, with undiminished zeal for science, and unabated interest in their progress; to be never wearied with the drudgery of such a life; never disgusted with its monotony; never dulled with its iterations, nor rendered impatient by its trying incidents and vexations! The horses that whirl behind them the chariot of the sun travel, day by day, and from year to year, over the same pathway in the sky, their proud hoofs stamping the aerial pavement with the same unexhausted vigor, and the same inextinguishable spirit breathing from their fiery nostrils. But to how few of the sons of genius is granted, with unrelaxing speed and unabated ardor, to pursue for years the same round of wearying toil!

There are many lessons to be gathered from such a life. The youth in this institution may
learn to appreciate, still more than before, the opportunities of education which are here afforded them, by knowing something of the labors and deep anxieties of their conscientious and able teachers. They have, too, set before them a high example, which, though they may not be called upon to follow in all its particulars, they are solemnly called upon, by the Providence that has visited the institution and deprived them of one of their instructors, to contemplate and to imitate, in so far as their course in life and their opportunities may allow. They have claimed the privilege of erecting the monument of their Professor, and have for that purpose contributed their voluntary gifts. Each one should rear for himself, in his own heart, a nobler monument to his memory, and upon it trace, with the trembling hand of affection, yet in indelible lines, all that he remembers of his beloved teacher, and all that he has gathered from others, and all that he has now heard, and should often come to read and ponder the lessons which that record will convey to him. Now that the lips of their teacher are silent, let his life be their teacher. Let them see what can be accomplished by persevering effort and devotion, aim at some nobler object in their industry than the mere selfish accumulation of wealth, seek their happiness in being useful, their honor in the straight-forward discharge of duty, rather than in the tortuous chase of ambition's baubles. Let each one of them strive to inweave into his
own character the many virtues that distinguished him, and be prepared for the advent of the resistless conqueror, whose march desolates the fairest scenes of earth, and every one of whose footprints is a grave.