

## CHAPTER XIII.

### CONCLUSION.

The Graduating Exercises of the Institute in 1882. — Death of Mr. Rogers. — The Funeral Services in Huntington Hall. — Last Tributes.

THE graduating exercises of the Institute for the Class of 1882 were appointed for Tuesday, May 30, at eleven o'clock. The day dawned without a cloud, and when the hour arrived, the great hall — Huntington Hall — was filled with friends of the Institute and of the graduating class, and the platform with candidates for degrees, the Faculty and distinguished guests.

The exercises were to be, as usual, of the simplest character. President Walker was to make brief introductory remarks; abstracts of their investigations or theses were to be read by certain members of the graduating class; and, finally, Mr. Rogers was to make "a short address" and to present the diplomas to the candidates for graduation. He had come, on the previous evening, from Newport in order to be present, and seemed to those nearest to him to feel somewhat more than usual the burden of the task before him.

When the time came he drove to the Institute, ascended the long flight of steps to the Hall, and took his place beside the President upon the platform. The exercises began and proceeded without special incident until the time came for him to take part. The hour was exactly noon. President Walker, with words of eloquent and glowing tribute, by which Mr. Rogers

was visibly moved, invited him to speak. "His voice was at first weak and faltering, but, as was his wont, he gathered inspiration from his theme, and for the moment his voice rang out in its full volume and those well-remembered, most thrilling tones. Then, of a sudden, there was silence in the midst of speech; that stately figure suddenly drooped, the fire died out of that eye ever so quick to kindle at noble thoughts, and, before one of his attentive listeners had time to suspect the cause, he fell to the platform instantly dead. All his life he had borne himself most faithfully and heroically, and he died as so good a knight would surely have wished, in harness, at his post, and in the very part and act of public duty."<sup>1</sup>

He was tenderly lifted and borne to an adjoining lecture-room, but life was already extinct. A guard of honour was set and kept by the students he had loved so well until the body was carried from the building, — henceforward to be known as the Rogers Building, — and laid to rest in Mt. Auburn.

The graduating exercises occurred on Tuesday. On Friday, June 2, in the same hall, the funeral services were held. Again the exercises were of the simplest character. Laurel and smilax only, twined about the platform. The audience included representatives of the National Academy of Sciences, the University of Virginia, Harvard University, Yale University, the American Academy of Arts and Sciences, the Boston Society of Natural History, the American Association for the Advancement of Science, the Appalachian Mountain Club, and other scientific societies, besides a distinguished company of friends and citizens.

<sup>1</sup> *Memoir of William Barton Rogers*, by Francis A. Walker. Read before the National Academy, April, 1887.

The pall-bearers were Messrs. Henry B. Rogers, John M. Forbes, Dr. Robert Hooper, Professor Marsh Vice-president of the National Academy, Professor Pickering of Harvard University, Professor Bowne of Boston University, and ex-President Runkle and Professor Atkinson of the Institute of Technology.

An intimate friend, the Rev. Dr. George E. Ellis, conducted the simple service, and began by reading, amidst profound silence, a telegram from the Faculty of the University of Virginia:—

“We desire to unite with the Institute of Technology in sorrow over our common loss. . . . The two institutions owe an equal debt to the unrivalled teacher, the original investigator, the eloquent expositor, the generous and wise friend, who has been taken from us.”

Dr. Ellis then read from the liturgy of King's Chapel, and afterwards made a brief address, in the course of which he said:—

“What is left to us here is dust, to be peacefully and reverently committed to the kindly bosom of the earth. Of that rich and beautiful endowment of genius, talents, virtues and graces, the contribution from that upper sphere, only the deserted earthen vessel of the treasure lies before us. The mystery of that union between body and spirit is profound and sacred. It does not, it never will, disclose itself to the science or the philosophy of living men. The cunning devices and implements within this hall of science, and all their marvellous inquisitions and processes, are baffled when they touch that mystery. Reverently and devoutly did that gifted and beloved man, sage, scientist, teacher, friend, whom we are now mourning, bow before that mystery with a serene

and lofty spirit. It is solved to him. It still overshadows us.

“The more gratefully, therefore, do we yield ourselves to the deep impression of the life and character, the loftiness and fulness of the service, the purity, the attractions, the charm and winning graces of the eminent man so honoured, so beloved. To many of us, in his quite different fields and reachings after truth in nature and life, he seems to be twin in spirit with that poet-philosopher<sup>1</sup> who has so recently vanished from us in the body. How like they were in serenity of spirit, in the restfulness, the winning loveliness, the simplicity, the guilelessness of their character, in the fineness of their organization, in bearing and feature, as if wrought of the choice Sévres clay rather than of the pottery mould of our varied humanity. With what an amplitude and compass of faculties and acquirements did our wise teacher preside over academies of philosophers, and initiate successive classes of loving young pupils of science, and interpret the last disclosures and processes of advancing art and knowledge to the social circle of a winter evening. He was the high priest of this temple, where truth is taught and learned, and the welfare of man is sought as a form of service to God. He ministered at its altar of nature, unrobed indeed, yet anointed with a full consecration. Here he served with love for all truth, with insight and skill in its marvellous secrets, engaging the deferential respect, the personal love, the devoted regard of its pupils. The unfinished sentence which was on his lips when the mortal arrow pierced his frame will hang around these walls while they stand. It is most fitting that we should here take our leave of his body in its repose.”

Rev. S. K. Lothrop, D. D., said:—

. . . “I may be permitted to say that as I go back to the first course of lectures I ever heard from Mr.

<sup>1</sup> Ralph Waldo Emerson, died April 27, 1882.

Rogers, many years ago, and on every occasion on which I have heard him speak, it seems to me that he had a fulness and accuracy of knowledge, a distinctness and apprehension of thought and ideas, and an eloquence and exactness of utterance that enabled him to make every scientific topic and every topic on which he spoke clearer and more intelligible than any other man I ever heard speak. But there was a higher glory for our departed friend; namely, the glory of his character. There was a large and beautiful humanity in him, refined, cultivated, developed, subdued, impregnated with all the holiest influences of religious faith and love. When I go back twenty-five or thirty years, to the early meetings of the Thursday Club, and recall some of the discussions that used to come up at that time, the image of Mr. Rogers rises before me as that of one who was sweet and gentle in temper and in manner, firm but kind, wonderfully free from every art, with no indication of envy or jealousy or rivalry; anxious only for the truth. He was always modest, unassuming and kind, full of love and tenderness, of consideration and respect for those who held other opinions. And it was these qualities which, in all the walks of life, won him the respect he deserved. In the lecture-room, in the class-room, on the platform, in the social gathering, anywhere and everywhere, it was these qualities that made our friend beloved and honoured, and gave him power in all that he attempted. Always and everywhere his presence and greeting were a benediction.

“These qualities gave such elevation to his character, such usefulness to his life, that they made his death as grand and sublime as his life and character had been beautiful, a fitting close to a career so noble, so pure and so blessed. The casket is broken, but its treasure is added to that store of wisdom, of goodness, of ability, of truth, which is ever being increased. It abides in all our memories; and it will abide through

coming generations, as an incentive to high endeavour.”

Colonel Theodore Lyman said : —

“The life we here contemplate embraced in its term almost the entire growth of all knowledge of the organic world. When that life began, the names of the great workmen who laid the enduring foundations of this knowledge might have been told on the fingers ; to-day they are a large army, organized and disciplined. Easy now is the path of the student, his early steps steadied by strong hands and cheered by encouraging tones. It was not so when our friend first opened his mind to the study of nature. A few men in his native Philadelphia were groping in the twilight of early discovery, or were striving to get in fit order ascertained facts : masters and laboratories and instructors, all were wanting. Plainly, then, the man who could take up such a pursuit must have been a man of originality and power. And such he was. He reached an eager hand to draw aside the curtain that hid from him the secrets of nature, not with the short-lived curiosity of the child, but with the temperate patience of the philosopher who asks and who will have an answer. The great world might seek its pleasures or its gains, but his heart was among the mountains, with their rocks, that would talk to him if silent to all beside. Lonely he was at first, a professor in a rural college ; and yet not lonely, for the very instruments in his little laboratory were his companions and friends. As time wore on, and he approached middle life, what joy to him to see an ever-increasing band of workers in his chosen path ! With what pride did he marshal and organize them, until the day came when they could be united in that great Association of which he was one of the chief founders. His was the reward of the faithful servant, for he put out his talent to the usurers, and his riches

increased a thousand-fold. But there was a cause for this ability and this power of labour, to account for this cheering success, and that was his enthusiasm, a real enthusiasm that glowed and sparkled and poured on every one its quiet but constant current. This it was that increased his power, while it lessened his toil; this it was that persuaded his hearers. His whole character grew from it like a tree from a goodly soil. His mind was a wondrous factory, constantly taking in crude observations and ever giving out the fine tissues of knowledge. Of this great learner and great teacher, enthusiastic in all things, honest and gentle in all things, we shall ever preserve a loving memory."

From among the many tributes afterwards paid to the memory of Mr. Rogers, those which follow have been selected as more especially descriptive of his personality.

In the course of an address entitled "William Barton Rogers, LL. D.," delivered before the Alumni of the University of Virginia, on Commencement Day, 1883, the orator, William Cabell Rives,<sup>1</sup> Esq., spoke as follows:—

. . . "Apart from my individual desire to hang a wreath—unworthy though it be—over the tomb of my early instructor, I feel that there is a peculiar appropriateness in the commemoration of William Barton Rogers by the Alumni of the University of Virginia. Here he passed eighteen years of busy and fruitful life,—from the full dawn of his young manhood to the rich maturity of his middle age,—enlightening the minds of the young men of Virginia and of the South by his knowledge, and directing their aims by the power of his unrivalled eloquence; and

<sup>1</sup> Son of Hon. William C. Rives, who was United States Minister to France 1829–32 and 1849–53.

hither he came, in the evening of life, to bear witness — by his presence and his words of remembrance and cheer, at your Centennial Celebration — to his unaltered and undying attachment to your Alma Mater.

“It is not merely in our relations to Professor Rogers as Alumni of this University that we owe him the tribute of our remembrance, and of our appreciation of his knowledge, his eloquence, his labours, his virtues. As Virginians we owe him tribute for his earlier services at William and Mary, — the venerable mother who long sent from her halls a line of illustrious men, whose names are written in imperishable letters on the roll of the country’s history. As Virginians we owe him tribute for his long-continued service, as Geologist of the State, — for his survey and reports, — work which is soon to meet with its appropriate reward, by the association of his name with the loftiest of our everlasting hills.

“In our wider relations as Americans, — as citizens of a Republic that now stretches from ocean to ocean, and from the thick-ribbed ice of Alaska to the orange-perfumed glades of Florida, — we are indebted to him for the lustre he has shed on American science, by original investigation, by written and oral exposition, by constructive energy and genius. We are indebted to him, as the President of the National Academy of Sciences, for the fulness and accuracy and variety of his knowledge, for the charm of his ever-ready eloquence, and for the grace of his ever-abounding courtesy and kindness; and we owe him tribute as — by a title ‘perpetual and indefeasible’ — the father of the Massachusetts Institute of Technology, — an institution which has taken her assured position as one of the foremost technological schools of our own country, and as the co-equal of the most famous polytechnic schools of the Old World. . . .

“There is no doubt that he was happily born, that he received various and kindly endowments from be-

nignant Nature. Like Horace, — though with a modesty which did not grace the Latin poet, he would never have said it of himself, — he was *non sine Diis, animosus infans*. He was endowed with a clear and penetrating intellect, with a ready and retentive memory, with a sound judgment, — that faculty of common sense which has been said to be one of the most uncommon of faculties, — with an acute ear, an observant eye, a rich and soaring imagination, a nature of poetic susceptibility, an unselfish, loving, teachable disposition. The only good gift which Nature seemed to have denied him was the gift of a robust physical constitution; but in his striving for the mastery, he was ‘temperate in all things,’ and by a wise, well-ordered life, by the strenuous use of all his faculties, with a vigilant care not to abuse them, he enabled his delicate frame — like the nicely adjusted instruments of weighing, measurement and observation which he learned to use with such consummate skill — to cooperate efficiently in doing much good work in the world. . . .

“There is no doubt that Professor Rogers inherited an aptitude for eloquence. He came of a race which, on many memorable occasions of the world’s history, if it has not controlled the action of men, has deeply impressed their minds and stirred their hearts. A blood kindred to the blood of Grattan and Curran and Emmet and Sheil flowed in his veins. His physical qualifications for effective speech were, like his intellectual and moral qualifications, noteworthy. He had a clear, musical, distinctly audible — though not powerful — voice. He had a slender, erect, lithe, active frame, and a natural sweep of easy and graceful gesture that propitiated the eye as much as his voice propitiated the ear. His eye beamed with quick intelligence and genial kindness. . . .

“Professor Rogers, in his style as a speaker, seemed ever to bear in mind and heart the sound architectural canon of the permissibility of ornamented construction,

but not of constructed ornamentation. I find the theory on which he based his method of speech excellently outlined by himself in a few passages in which he eloquently pleads in behalf of 'the ennobling influences which attend the contemplation of all great works of art.' 'Most of what is true and beautiful,' he affirms, 'in painting, sculpture or architecture, is but the material expression of truth previously latent in the soul, and must, therefore, awaken in the observer sentiments akin to those from which the artist drew his inspiration.' He contends that 'the cultivation of the fine arts must be regarded as a *necessary* supplement in every wise system of education to the teachings of practical science and the more purely logical exercises of thought;' and he proceeds to say, with his characteristic felicity of illustration, that, 'if they may be represented by the wreath of stone that crowns the Corinthian shaft with leafy beauty, while adding nothing to its supporting power, they are still more truly symbolized by the towering arches and swelling domes, whose very grace and grandeur are conditions inseparable from their strength.'

"Entertaining these views, it was impossible for Professor Rogers, with such powers of understanding and imagination as he possessed, not to adorn whatever he touched. It is not strange if, in speaking of the heavenly bodies, while abating nothing from the rigour of mathematical demonstration, that their splendour was sometimes reflected in his discourse, and if the mystic music of the spheres was sometimes made to echo in the ears of his hearers as it echoed in his own soul. It is no wonder if, in lecturing on the geography and geology of your western mountains, his language often unconsciously borrowed something from the scenes on which he had lately gazed with delight. It is no wonder if, in speaking of the natural features of Virginia, his enthusiasm and poetic rapture were enkindled by the remembered impression of the azure outline which bounds your lovely land-

scape. His style was vital with the breezes of the crest of the Blue Ridge and of the Alleghanies; it was clear with the purity and swift with the rush of the mountain stream; it was rich with the teeming fertility of the fruitful valley; and it sometimes blazed with the autumnal glories of the maple and the Virginia creeper. . . .

“In the scope and plan of the Institute of Technology, we shall recognize the same master-hand which, in answer to a resolve of the Legislature of Virginia, of the twenty-second day of December, 1844, drew the Report—instinct with wisdom and with eloquence, and containing passages worthy of being emblazoned in letters of light on your walls—against the expediency of withdrawing the annuity from this University. We shall see the prevalence of the same method of influencing the conduct of the students which exists here,—a method reducing to a minimum the fetters of necessary restraint,—not based on the idea of original sin and inborn perverseness, but on the wisdom of encouraging to the utmost, wherever it exists, the desire to excel. We shall recognize the same great mind which eloquently pleads in the Report referred to for a liberal discretion in ‘the Election of Studies,’ and for ‘Instruction by Lectures,’ instead of by the exclusive use of text-books, as more vitalizing to the faculties of both teacher and student. Finally, we shall feel the beating of the same large heart, with its aspirations for giving the widest beneficence to the Institution, and making its influence and renown commensurate with the wants of the age and the greatness and resources of the country.” . . .

The following eloquent passages are taken from a “Biographical Memoir” of William Barton Rogers, prepared by his successor in the presidency of the Institute, General Francis A. Walker, and read

before the National Academy of Sciences in April, 1887.

. . . "The traditions concerning his lectures, which still linger around the halls of the University of Virginia, tell of a force of statement, a felicity of illustration, a power of eloquence, marvellous to hear. Says one of his former pupils, William Le Roy Brown, President of the Agricultural and Mechanical College of Alabama:—

"I remember well the very great interest in and enthusiasm for science he excited among the students by his brilliant lectures. Often, especially when it was announced that he would begin his lectures on astronomy, have I seen his lecture-hall crowded with students from other departments, including those of law and medicine; indeed, so crowded with young men, eager to hear the eloquent presentation of the subject by the Professor whom they so greatly admired, that not even standing-room could be found in the hall. All the aisles would be filled, and even the windows crowded from the outside with eager listeners. In one instance I remember the crowd had assembled long before the hour named for the lecture, and so filled the hall that the Professor could only gain admittance through a side entrance leading from the rear of the hall through the apparatus-room.

"His manner of presenting the commonest subject in science—clothing his thoughts, as he always did, with a marvellous fluency and clearness of expression and beauty of diction unsurpassed—caused the warmest admiration, and often aroused the excitable nature of Southern youth to the exhibition of enthusiastic demonstrations of approbation. Throughout Virginia—and, indeed, the entire South—his former students are scattered, who even now regard it as one of the highest privileges of their lives to have attended his lectures."

"Traditions of the power of the orator, the legal

advocate, the parliamentary leader, the philosophic reasoner, are rarely at fault; and were we to depend on the testimony of his former students at the University of Virginia alone, we need not entertain a doubt that Professor Rogers was gifted, almost beyond the privilege of man, in the exposition of scientific truth. But he was yet to have a far wider audience, and everywhere, whether before the British or the American Association, or in still another institution of his own founding, or in learned societies not a few, or in this Academy of Sciences, over which he presided, he was to win continually new and higher triumphs.

“To this contributed, not alone the *perfervidum ingenium* of his race, not alone an imagination which ever clothed truth with beauty, and made the dullest fact radiant with a significance illimitable and imperishable, but also every personal gift which can enhance the power of the orator. Tall in stature; with a figure of the type known to us through the pictures of Henry Clay; with a face that, destitute of all assumption or arrogance, was singularly commanding; with a voice whose compass and quality were capable of producing at once the largest and the finest effects of speech, William Barton Rogers was, in the height of his powers, without a peer among the scientific men of his age in addressing an intelligent and cultivated audience.

“But while Professor Rogers was thus delighting and entrancing the students of the University of Virginia with his lectures on astronomy and physics, he was, in those early days of science, carrying forward, in cooperation with his brother Henry, who simultaneously held the office of State Geologist of Pennsylvania, one of the most important enterprises in the history of geology. To these two brothers, knit closely by intellectual as well as by moral sympathies, the world owes the unfolding of the great Appalachian chain. Each labouring in his own field, yet prompt to com-

municate to the quickened apprehension of the other the ripe results of his investigations, the earliest suggestions of his daring mind, William and Henry Rogers did a work for American geology, between 1835 and 1842, the importance of which has not been obscured, the essential accuracy of which has not been impeached, by the labours of their professional brethren, in these days of the fruition of science.

“The main features of Professor William Rogers’s work as the State Geologist of Virginia, whether by himself alone or in conjunction with one or another of his gifted brothers, have been thus summarized by a competent authority.<sup>1</sup>

“In connection with his brother Robert, Professor William B. Rogers was the first to investigate the solvent action of water—especially when charged with carbonic acid—on various minerals and rocks; and by showing the extent of this action in nature and its influence in the formation of mineral deposits of various kinds, he was one of the first to observe and interpret the important class of facts which are the basis of chemical geology.

“Another important result of Professor Rogers’s geological work was to show that the condition of any coal-bed stands in a close genetic relation to the amount of disturbance to which the enclosing strata have been submitted, the coal becoming harder and containing less volatile matter as the evidence of disturbance increases. This generalization, which seems to us now almost self-evident—understanding, as we do, more of the history of the formation of coal—was with Professor Rogers an induction from a great mass of observed facts.

“By far, however, the most memorable contribution of Professor Rogers to geology was that made in

<sup>1</sup> The late Josiah P. Cooke, LL. D., Professor of Chemistry in Harvard University and President of the American Academy of Arts and Sciences. See his “Memoir of William Barton Rogers,” *Proceedings of the American Academy*, vol. xviii. pp. 428–438.

connection with Henry D. Rogers in a paper entitled *The Laws of Structure of the more Disturbed Zones of the Earth's Crust*, presented by the two brothers at the meeting of the Association of American Geologists and Naturalists, held at Boston in 1842. This paper was the first presentation of what may be called in brief the *Wave Theory of Mountain Chains*. This theory was deduced by the brothers Rogers from an extended study of the Appalachian chain in Pennsylvania and Virginia, and was supported by numerous geological sections and by a great mass of facts. The hypothesis which they offered as an explanation of the origin of the great mountain waves may not be generally received, but the general fact that the structure of mountain chains is alike in all the essential features which the brothers Rogers first pointed out has been confirmed by the observations of Murchison in the Ural, of Darwin in the Andes, and of the Swiss geologists in the Alps. The wave theory of mountain chains was the first important contribution to dynamical and structural geology which had been brought forward in this country. It excited at the time great interest, as well from the novelty of the views as from the eloquence with which they were set forth, and to-day it is still regarded as one of the most important advances in orographic geology.

“A marked feature of mountain regions is that rupturing of the strata called faults, and another of the striking geological generalizations of the brothers Rogers is what may be called the *Law of the Distribution of Faults*. They showed that faults do not occur on gentle waves, but in the most compressed flexures of the mountain chains, which in the act of moving have snapped or given way at the summit where the bend is sharpest, the less inclined side being shoved up on the plane of the fault, this plane being generally parallel to, if it does not coincide with, the axis plane; and, further, that “the direction of these faults generally follows the run of the line of eleva-

tion of the mountains, the length and vertical displacement depending on the strength of the disturbing force." . . .

"On the death of the illustrious Henry, he was elected in 1879 President of the National Academy of Sciences, of which he had been one of the charter members; and surely, brethren of the Academy, few have been the men who would take a keener delight in presiding over the discussions of a learned society, dealing with the whole range of exact knowledge, or who were more amply qualified and endowed for leading and inspiring the deliberations of such a body.

"The wide extent of his own studies and researches in mechanics, physics, chemistry and geology; his truly philosophical spirit, his unfailing courtesy and urbanity, his warm sympathies, his scientific enthusiasm, his commanding and stately presence, his rare gifts of expression, all combined to make him the ideal presiding officer. His introductions were most felicitous; his comments highly suggestive and inspiring; his summing-up was always a masterpiece of discriminating and judicious reasoning, while, over all, his rich tropical eloquence threw a spell as of poesy and romance, for to him the truth was always beautiful, and the most solid and substantial structure of scientific principle stood in his view against a sunset sky, radiant with a light which no painter's pencil ever had the art to fix on canvas."